The Comprehensive Soldier Fitness Program Evaluation

Report #3: Longitudinal Analysis of the Impact of Master Resilience Training on Self-Reported Resilience and Psychological Health Data

December 2011

COMPREHENSIVE SOLDIER FITNESS

STRONG MINDS | STRONG BODIES

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DEPARTMENT OF THE ARMY
OFFICE OF THE VICE CHIEF OF STAFF
201 ARMY PENTAGON
WASHINGTON, DC 20310-0201

Leaders and Scholars,

The Comprehensive Soldier Fitness (CSF) program was established in 2009 to enhance the resilience, readiness and potential of Soldiers, Army Civilians and Family members. The goal of the CSF strategy is to help prevent potential problems due to stress by shifting the focus from intervention to prevention, from illness to wellness. The strategy is based on more than three decades of scientific study and results. Yet, I and other Army senior leaders are often asked if it really works – if it actually makes Soldiers more resilient and psychologically healthier. I believe the answer is yes.

This report addresses two distinct communities – scientists who inform the Army's policy makers and the Leaders who implement policy, programs and processes Army-wide. For Leaders, it provides further explanation of the program's components, while offering insight to how they might better employ the program in order to get the best possible results. For scientists, the report clearly describes how the Army applied the scientific process to reach the conclusions. I would highly encourage individuals from both communities to read the report in its entirety.

As this report re-affirms, the CSF program is not a single-source solution. To be effective, the program requires active and engaged leadership at all levels. Master Resilience Training has proven most effective in units where leaders endorsed CSF, ensured the training occurred, selected confident, qualified Noncommissioned Officers to serve as MRTs, and supported them in their work.

Leaders and Scholars, this report represents a significant milestone with respect to the Comprehensive Soldier Fitness program and the Army's broader efforts to develop a more resilient and capable force. It is my hope that this report will spark fruitful discussions; leading to new and improved ways, we may help our Soldiers, Army Civilians and Family members to improve their overall psychological health.

PETER W. CHIARELLI
General, U.S. Army
Vice Chief of Staff

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CPT Paul B. Lester, Ph.D.
Research Psychologist
Comprehensive Soldier Fitness

P.D. Harms, Ph.D.
Assistant Professor
University of Nebraska–Lincoln

Mitchel N. Herian, Ph.D.
Research Analyst
TKC Global

Dina V. Krasikova, Ph.D.
Post-Doctoral Research Associate
University of Nebraska–Lincoln

Sarah J. Beal, Ph.D.
Statistical Consultant
TKC Global

Corresponding Author: CPT Paul Lester, G-3/5/7, DAMO-CSF
paul.lester@us.army.mil
Desk: 703-545-4338
BB: 703-677-0561

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Comprehensive Soldier Fitness would like to thank the men and women of:

11th Armored Cavalry Regiment, Fort Irwin, California

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2nd Brigade, 4th Infantry Division, Fort Carson, Colorado

3rd Brigade, 4th Infantry Division, Fort Carson, Colorado

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Comprehensive Soldier Fitness:

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Colonel Thomas Vail – Deputy Director, Comprehensive Soldier Fitness

Mr. Michael Porcaro – Knowledge Manager

Ms. Katherine Nasser – Data Systems Manager

Mr. Samuel Goldgeier – Data Systems Manager

Mr. Aaron Mack – Research Analyst

Ms. Megan McGuffey – Administrative Assistant

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Executive Summary

Top Line Message:

There is now sound scientific evidence that Comprehensive Soldier Fitness improves the resilience and psychological health of Soldiers.

Background:

The purpose of this report is to present empirical evidence of the effectiveness of Comprehensive Soldier Fitness (CSF) at improving Soldier-reported resilience and psychological health (R/PH). More specifically, this report focuses on the effectiveness of the train-the-trainer component of CSF, known as Master Resilience Trainer (MRT). Though program evaluation of CSF will continue into the future, this report represents a significant milestone in a longitudinal analysis effort involving more than 22,000 Soldiers across eight Brigade Combat Teams (BCTs).

Methodology:

Eight BCTs were randomly selected for participation in this program evaluation (see Figure 1, p. 12). A total of 96 Master Resilience Trainers completed the 10-day MRT course at the University of Pennsylvania, Philadelphia, and each returned to one of four BCTs; these four BCTs comprised the Treatment condition. Due to training throughput constraints at the MRT course, four additional BCTs did not receive MRTs over the life of this program evaluation initiative; these four BCTs comprised the Control condition. Measures of R/PH—using the Global Assessment Tool (GAT)—were taken three times over approximately 15 months. A baseline measure was taken in early 2010. Another measure of R/PH was taken again in the latter part of 2010 (Time 1), and this measure coincided with CSF publishing its training guidance to be implemented by all MRTs across the Army. A final measure of R/PH was taken again approximately six months later in 2011 (Time 2). Demographics (i.e., age, gender) and organizational factors (i.e., quality of unit leadership, unit cohesion) were also assessed in our analyses given that these two variables could moderate the relationship between MRT training and R/PH.

Key Findings:

- The Treatment condition (units with MRTs) exhibited significantly higher R/PH scores at Time 2 than did the Control condition (units without MRTs) (see Table 4, p. 15). Quality of unit leadership and unit cohesion did not significantly impact the effect of MRT training on R/PH at Time 2.
- In some areas of R/PH, the Treatment condition had a higher rate of growth than the Control condition (see Figure 2, p. 16).
- MRT training appears to be significantly more effective for 18-24 year olds than for older Soldiers (see Figure 4, p. 19).
- Training provided by MRTs is most effective when the training is conducted in formal settings (e.g., scheduled classes), when Commands select confident leaders to serve as MRTs, and when Commands properly support their MRTs.
- There is no evidence that Soldier R/PH scores decrease or that Soldiers "get worse" due to training provided by MRTs.
- The effect sizes reported here are consistent with or better than many other population-wide developmental interventions and public health initiatives.

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Introduction

In the midst of prolonged military engagements around the globe, U.S. Army's senior leadership has programmatically sought to assist Soldiers in handling exposure to traumatic events on the battlefield, assist them in coping with stressful events and circumstances in their daily lives, and provide them with training that may help them thrive in the face of a variety of adversities. The purpose of this report is to present the results of an evaluation of the effectiveness of one such effort—the Comprehensive Soldier Fitness (CSF) program. The CSF program involves a range of training interventions designed to increase Soldier resilience and psychological health (R/PH) across four broad areas of fitness. Drawing on recent scholarly research, CSF teaches Soldiers various ways to improve their ability to respond to stressful events.

This is the third in a series of reports examining the implications and effectiveness of enhancing Soldier R/PH under the auspices of the CSF program. The first two reports established the nature of the relationship between Soldier resilience and both positive and negative behavioral outcomes. The first report (Lester, Harms, Bulling, Herian, & Spain, 2011a) provided evidence that Soldiers who used illicit drugs, committed violent crimes, or committed suicide reported having lower levels of R/PH before the event occurred than did Soldiers who did not engage in such behaviors. The second report (Lester et al., 2011b) showed that Officers promoted early and selected for command had significantly higher levels of R/PH than Officers not promoted early or selected for command. Though the results from these studies were not surprising, together they serve to underscore the relationship between Soldier resilience and behavioral outcomes that have critical implications for the readiness of the Army.

The current report differs from the first two in that it focuses specifically on the effectiveness of the resilience and psychological health enhancement training program developed by CSF. In particular, this report examines the effectiveness of the Master Resilience Training (MRT) program at improving Soldier-reported R/PH scores over time. MRT is a train-the-trainer program based in part upon a long-standing research initiative conducted at the University of Pennsylvania. Soldiers selected for MRT are trained at a variety of locations and return to their units to then teach MRT skills to other members of their unit via a prescribed curriculum. The expectation of this program is that Soldiers who were trained by MRTs will report higher levels of R/PH than Soldiers who received no training. Accordingly, this report addresses four broad evaluation questions:

1) Do Soldiers in units that received training from MRTs report higher R/PH scores than Soldiers who were not trained by MRTs?

2) Over time, do the R/PH scores of Soldiers exposed to MRT training improve at a greater rate than Soldiers not exposed to the training?

3) Which demographic or contextual variables, if any, enhance the effectiveness of MRT training?

4) Does the effectiveness of the training depend on whether MRTs formally train their units? Is the training more effective when MRTs feel better prepared to train and when they feel they have the support of their Command?

In order to address these questions, a group of Soldiers who were exposed to training provided by MRTs were compared to a group of Soldiers who were not exposed to the training over a 15-month period of time. More specifically, four Brigade Combat Teams (BCTs) received one MRT per roughly 100 Soldiers assigned to the unit (these four BCTs will be referred to as the Treatment condition in this report), while four other BCTs did not receive an MRT due to throughput constraints inherent with a new training course (these four BCTs will be referred to as the Control condition in this report). Data were captured when MRTs were first introduced to the Treatment condition (this wave of data will be referred to as Baseline), then again eight months later when CSF published detailed training guidance to be implemented locally by the MRTs (this wave of data will be referred to as Time 1), and finally six months later (this wave of data will be referred to as Time 2). Demographic and contextual data were also captured across each time point. To assess the potential

impact of formal MRT training within units, MRTs were surveyed about whether they actually formally trained MRT skills to Soldiers, about whether they felt they were adequately trained in the MRT course, and whether the Command supported them in delivering MRT training to Soldiers.

The results of the program evaluation showed that Soldiers in units with MRT trainers exhibited higher levels of R/PH. In particular, at Time 2, the Treatment condition's R/PH scores were significantly better than the Control condition on various aspects of Emotional and Social Fitness. When measuring the impact of MRT training over time (change in R/PH from Time 1 to Time 2), the results showed that the Treatment condition improved significantly more than the Control condition on a number of aspects of R/PH.

As noted, additional analyses were conducted in order to determine whether demographic variables (age and gender) and contextual variables (quality of leadership and unit cohesion), might impact the effectiveness of the training. Results showed that the effects of having MRT trainers in their units produced more pronounced effects for younger Soldiers (18-24 year olds). In comparison to older Soldiers (over 24 years old), younger Soldiers demonstrated changes on more aspects of R/PH and also showed larger effects on dimensions where training enhanced R/PH across both age groups. That said, it should be noted that older Soldiers typically reported higher R/PH overall, irrespective of training condition. Gender did not moderate the effectiveness of MRT training. Examining organizational factors that might influence R/PH scores, we found no evidence that the quality of unit leadership or unit cohesion moderated the effects of MRT training. Finally, we found that the effects of having MRT trainers embedded in units were greater in those units in which MRTs formally trained Soldiers, felt more efficacious regarding their ability to train others, and felt that they had the support of their Command.

In light of these findings, it is noteworthy that the CSF program has only been in the field for short period of time. Though the program evaluation assessment period ran for 15 months, this evaluation focused on assessing the effects of MRT training during a condensed period of time—the six-month period from October 2010 to April 2011—because prior to that no detailed training guidance existed for MRTs to implement within their units. Consequently, though the current report suggests that MRT training is effective, it remains to be seen what the long-term effects of the program will be, especially on important objective health outcomes. It is possible that the effects of the program may be enhanced as further training is conducted and MRTs become more proficient in their mission. Furthermore, as analyses of similar programs have suggested (e.g., Gillham, Reivich, Jaycox, & Seligman, 1995), the effects of resilience training may actually increase over time as Soldiers encounter more stressful life events. Alternatively, it is also possible that the effects may diminish as the novelty of the program wears off. For these reasons, further monitoring and assessment of the program's effectiveness is both warranted and advisable, and CSF plans to do so in the future.

Beyond this introduction, this report has four distinct sections. In Section 2, further details are provided about CSF and its relationship to recent research regarding psychological resilience. In Section 3, the data, research design, and analytic strategy that drive this evaluation effort are described. This section includes a description of the Global Assessment Tool (GAT)—the online survey instrument used to measure R/PH. In Section 4, the results of the evaluation are reported in greater detail. Finally, Section 5 provides a discussion of the results and the implications of the findings of the present program evaluation for future efforts to enhance Soldier R/PH. References and appendices are also provided. Appendix A includes a review of additional research related to interventions designed to enhance resilience. Appendix B includes detailed tables that present the results of all statistical tests included in this evaluation.

Resilience entails the maintenance of normal functioning despite negative events or circumstances, disruptions, or changes in demands (Bonanno, 2004; Luthar, Cicchetti, & Becker, 2000; Masten, 2001). In the context of CSF, resilience refers to overall physical and psychological health, and has been described as the ability to "bounce back from adversity" (Reivich, Seligman, & McBride, 2011). Recent emphasis on resilience in the face of traumatic events (e.g., Bonanno, 2004, 2005), as opposed to emphasis on adverse reactions to trauma (e.g., Breslau, 2001), has begun to shift researchers' focus toward seeking a broader understanding of adaptive responses to trauma exposure (see Wald, Taylor, Asmundson, Jang, & Stapleton, 2006). This general shift is represented by literature that examines the characteristics of resilient people (e.g., Connor & Davidson, 2003; Kobasa, 1979; Lyons, 1991; Rutter, 1985), explores the intersection of concepts and measures related to psychological resilience (Connor & Davidson, 2003), and analyzes the relationships between resilience training and various outcomes of interest (Cornum, Matthews, & Seligman, 2011).

For the purpose of this report, there are two points related to resilience that deserve emphasis. First, research has provided evidence that resilience is potentially a state-like product of a number of developmental, cognitive, and affective psychological processes (e.g., Bonanno, 2004; Connor & Davidson, 2003; Luthans, Vogelgesang, & Lester, 2006; Masten, 2001; Wald et al., 2006; Werner, 1990). Second, and following from the first point, evidence suggests people can learn to be resilient (Connor & Davidson, 2003; Luthans, 2002; Luthans, Norman, & Hughes, 2006; Luthar & Cicchetti, 2000). Each of these points will be considered.

Until recently, resilience was considered to be rare (Luthans et al., 2006; Masten, 2001). More recently, researchers have found that resilience is much more common than was once thought (Bonanno, 2004; Masten, 2001). Thus, researchers have sought to discover what characteristics, if any, grant some individuals a strong capacity to handle adverse experiences. Progress has been made in highlighting a number of internal (e.g., coping strategies) and external (e.g., socio-demographic) factors related to resilience among individuals. These include, but are not limited to, internal factors such as hardiness (Maddi, 2005), optimism (Carver & Scheier, 2002), self-efficacy (Rutter, 1985), coping strategies (Mikulincer & Solomon, 1989), hope (Snyder et al., 1991), the tendency to search for benefits through adversity (Affleck & Tennen, 1996), and positive emotionality (Fredrickson, 2001). External factors include such constructs as community support, friendships, parental influence, opportunity, and education (Masten, 2001; Masten & Coatsworth, 1998; Werner, 1995).

Relationships between these psychological constructs and stress resistance have been found within a variety of applied settings. To briefly name a few examples: In a medical setting, Rose, Fliege, Hildebrandt, Schirop, and Klapp (2002) found that active coping behavior and self-efficacy significantly predicted health-related quality of life and improved glycemic control levels among Type 2 diabetes patients. Taylor et al. (1992) found that optimism was associated with a higher degree of perceived symptom control, as well as decreased psychological distress, among AIDS patients. In an organizational context, Bartone (1999) demonstrated that hardiness predicted fewer symptoms of combat stress among Army Reserve personnel deployed to the Persian Gulf War. Sharkansky et al. (2000) found active coping strategies to be related to fewer posttraumatic stress disorder (PTSD) symptoms among combat personnel. Avey, Luthans, and Jensen (2009) found that a combination of the traits hope, optimism, resilience, and self-efficacy (labeled positive psychological capital) were related to reduced work stress. Finally, Fredrickson, Tugade, Waugh, and Larkin (2003) found that positive emotions experienced in the wake of the September 11th terrorist attacks buffered against symptoms of depression and aided posttraumatic growth.

As previously mentioned, evidence suggests that resilience is a characteristic that can be learned. The association between positive psychological constructs and increased stress resistance implies that increasing such factors could potentially lead to an increase in resilience. Indeed, the results of numerous empirical evaluations of programs designed to increase resilience provide evidence for the efficacy of psycho-educational programs to increase resilience—evidenced by their

attenuating effect on stress-related outcomes (e.g., depressive symptoms and PTSD). For example, the Penn Resiliency Program (PRP) (Gillham, Jaycox, Reivich, Seligman, & Silver, 1990) utilized methods for increasing resilience-related constructs in an intervention designed to reduce depressive symptoms among children and adolescents. Recently, interventions designed to increase resilience to deployment- and return-related stress and attrition have shown positive results among military populations. Williams et al. (2004, 2007), for example, found that the BOOT STRAP intervention, designed to increase problem-solving coping strategies, perceived social support, and unit cohesion, led to reduced separation for psychiatric reasons and improved performance among Navy recruits in training. Similarly, Adler, Bliese, McGurk, Hoge, and Castro (2009) found that BATTLEMIND debriefing and training, designed to increase resilience through education and cognitive-behavioral based training, led to fewer PTSD and depressive symptoms among Soldiers returning from combat deployment (for a more extensive review and detailed results of the preceding programs, see Appendix A). Taken together, this body of literature provides evidence of the potential for increasing the resilience of individuals through education and/or training.

To reiterate, resilience, viewed through the lens of psychological health, refers to both the ability to effectively deal with stressful events and to better cope in the time following a stressful event. Evidence suggests that resilience is related to a number of the psychological and interpersonal constructs measured by the Global Assessment Tool (GAT), many of which are related to effective coping in a number of different contexts. As research has shown, resilience, while exhibited at varying levels across individuals, is something that can be taught and learned.

Comprehensive Soldier Fitness (CSF) and Resilience

CSF measures Soldier resilience on five dimensions of human health—emotional, family, physical, social, and spiritual—based on the primary dimensions of health as identified by the World Health Organization (1948). While physical fitness is certainly an important component to overall Soldier R/PH, CSF provides training opportunities for Soldiers that go beyond traditional interventions designed to increase physical health. Specifically, the Army's CSF program employs interventions that are "designed to increase psychological strength and positive performance and to reduce the incidence of maladaptive responses" (Cornum et al., 2011, p. 4). As Cornum and colleagues note, CSF proactively promotes R/PH by emphasizing human potential through a focus on positive emotions, traits, institutions, and social relationships. The emphasis of these concepts is based on the recognition that Soldiers with these characteristics are more resilient and have the cognitive resources to deal with challenges; control over emotional fluctuations that are the result of stress; social and familial resources at their disposal; and the ability to find meaning and purpose in their life and work.

The primary way in which CSF promotes these characteristics is by helping Soldiers develop meta-cognitive skills that can enhance resilience. In other words, the program is designed to help Soldiers understand how and why they think a particular way and how certain beliefs might influence their reactions to events. As noted above, a critical assumption of the CSF program is that becoming resilient is a process. While some Soldiers undoubtedly possess more "resilient" traits than others, the development of R/PH involves a process in which anyone who is willing to work toward improvement can participate. In fact, one of the first lessons given to Master Resilience Trainers (MRTs) is that the development of resilience is a learning process that can be undertaken by anyone.

It is also important to clearly state what CSF is not. First, CSF is not simply a program designed to treat certain illnesses or pathologies; that particular mission is the responsibility of the Army Medical Department. In fact, to guard against potential stigma related to behavioral healthcare among Soldiers, CSF purposely distances itself from the Army medical community. Consequently, CSF training is managed and led by unit leadership in order to underscore the importance of R/PH in Army life. Additionally, CSF is not simply a training program that is employed after a negative event. The Army Medical Command's Combat Stress Control teams are responsible for providing behavioral healthcare during and after crises. CSF, on the other hand, provides the psychological tools prior to potential crises so that

Soldiers might be better able to cope with the effects of such crises.

To execute the program, the Army utilizes four components of resilience training (see Casey, 2011). The first component of the program consists of the GAT—the online survey instrument that provides feedback about Soldiers' R/PH levels upon completion. For analytic purposes, the GAT also serves as an indicator of overall psychological health and well-being, which can be used to assess Soldier fitness in relation to a number of outcomes (see Lester et al., 2011a, 2011b for examples). Second, Soldiers are able to take online self-help Comprehensive Resilience Modules (CRM), which are computer-based distance-learning modules that take approximately 20 minutes to complete; as of this writing, there are 27 CRMs available to Soldiers. Third, MRTs are trained in a number of strategies that Soldiers can use to practice and promote resilience. The Army's goal is to embed MRTs within every battalion and brigade in the Army so they can pass along their training to peers and subordinates. Fourth, resilience training has been made mandatory at every Army leader development school. As noted, this evaluation will focus solely on the effects of having MRTs present in individual units. Specifically, the R/PH levels of the Treatment condition were compared with the Control condition to assess mean differences and to compare rates of change in R/PH over time.

CSF and Population-Based Interventions

Before discussing the analytic strategies and the results of the evaluation of the CSF program, it is important to consider the literature regarding community- and population-based interventions in order to more fully understand the methodological issues associated with interventions like CSF and the implementation of the MRT training program. Such an understanding can enhance the interpretation of the results of this evaluation and can provide the necessary background for placing the results one might expect from a broad-scale, population-wide intervention like CSF in the proper context.

In general, community-based interventions are implemented on specific populations. As the name implies, the populations involved in the interventions are typically drawn from a specific geographic area (Atienza & King, 2002). While the Army is certainly not bound by geography, the Army should be viewed as a community that spans both domestic and international boundaries. Additionally, within the Army, smaller communities exist in the form of facilities (e.g., Forts), large units (e.g., Divisions), smaller units (e.g., Brigade Combat Teams), and other organizational structures. Implementing interventions across these "sub-communities," then, is very much like implementing interventions across communities or populations as done by public health organizations.

While many of the methodological issues encountered by developers of community-based interventions (see Atienza & King, 2002) are the same as those faced in the implementation of the MRT program, there is one distinction that deserves note. That is, in community- and population-based studies, the community or population serves as the unit of analysis. In these situations, statistical power sometimes becomes an issue since it is usually not feasible to implement a program on a statistically sufficient number of communities or populations (Atienza & King, 2002). The CSF program, in contrast, utilizes the individual Soldier as the unit of analysis, thus providing adequate statistical power for the analysis of results. While initially this distinction might seem to preclude comparison of CSF to other community-based studies, it is important to note that individual R/PH scores are averaged across individuals in the two study conditions. Consequently, the mean R/PH scores that are compared across the two conditions come to more closely resemble outcomes that are measured at the community or population levels in community-based interventions.

Another critical point to consider is the fact that community-based trials measure the effectiveness of the intervention on *all* eligible participants in the study. For example, when assessing the impact of smoking cessation programs implemented at the community level (e.g., COMMIT Research Group, 1991), it is necessary to measure smoking cessation rates across the entire community, not just among those who are likely to smoke. Thus, the measurement of the criterion variable captures the effects of the intervention for those individuals that are actually motivated or predisposed to be impacted by the intervention, as well as for individuals that were

not predisposed to be impacted and who felt no impact whatsoever from the intervention. A similar situation exists within CSF, where the propensity to be impacted by the intervention undoubtedly varies from Soldier to Soldier. According to Sorensen, Emmons, Hunt, and Johnston (1998), this is one of the primary reasons the observed effect sizes tend to be relatively small in community- and population-based studies. This is not a point of concern, however, as the authors note that, "small changes in behavior observed across an entire population are likely to yield greater improvements in the population-attributable risk than larger changes among a small number of high-risk individuals" (p. 380). This relationship has been labeled the *prevention paradox* in the preventive health literature, since a population-based intervention may yield only small benefits for individuals, but bring much benefit to the population at large (Rose, 1981, 1985). Indeed, a review of effect sizes in the health field and in other domains suggests that small effect sizes are typically found in many lines of research (see Meyer et al., 2001), but that the practical implications of various statistical relationships are sometimes understated by the presentation of small effect sizes.

Key Takeaways

- Resilience is the maintenance of normal functioning in the face of adversity.
- Resilience can be taught and learned.
- Comprehensive Soldier Fitness measures resilience and psychological health (R/PH) along four dimensions: Emotional, Family, Social, and Spiritual Fitness.
- Comprehensive Soldier Fitness is designed to increase Solider R/PH by enhancing cognitive skills.
- Even small increases in Soldier R/PH can lead to tremendous benefits for the entire Army.

Measuring R/PH: The Global Assessment Tool (GAT)

The GAT is administered annually to all Soldiers. The survey is a *self-awareness tool* that provides a snapshot of R/PH along four dimensions of health—Emotional, Family, Social, and Spiritual Fitness. To measure the four dimensions, the GAT contains 16 subscales, the majority of which were adapted from validated measures of psychological constructs previously published in peer-reviewed journals; a small number of scales were authored by the GAT's developers (see Peterson, Park, & Castro, 2011). In addition to the 16 R/PH subscales measured by the GAT, two additional scales were included to assess perceptions of leadership and unit cohesion. These scales were used for follow-up analyses in this report. The measurement approach and a description of the scales used to develop each dimension of fitness are provided below in Table 1. From left to right, the table presents the name of the R/PH dimension/subscale, the number of items used to measure the construct, the scale range, an example question, the source of the scale, and the scale reliability estimates (indicated by coefficient "α"; note that scores of approximately .70 or higher indicate acceptable scale reliability, see Cohen [1988]).

The Intervention: Master Resilience Training

The MRT component of CSF is a cornerstone of the Army's resilience and psychological health development initiative. The MRT course is structured as a train-the-trainer course. Here, mid-career Noncommissioned Officers (NCOs), typically holding the rank of Staff Sergeant or Sergeant First Class, are selected by their senior leaders to attend the MRT training course held at the University of Pennsylvania in Philadelphia; at Victory University at Fort Jackson, South Carolina; or at any number of remote locations where training is offered via a Mobile Training Team coordinated by the Comprehensive Soldier Fitness Directorate. The course was modeled, in part, after the Penn Resiliency Program (PRP) (e.g., Gillham et al., 1990), described in Appendix A. The course consists of approximately 80 hours of classroom time, much of which is devoted to teaching trainers how to teach the skills to Soldiers. After MRTs are trained, they return to their units so that they can train others in their units to utilize the same skills learned during the MRT course via a prescribed curriculum, described below. [1]

Within MRT training, Soldiers learn six core competencies: self-awareness, self-regulation, optimism, mental agility, strengths of character, and connection. Together the lessons are designed to develop Soldiers' ability to understand the thoughts, emotions, and behaviors of themselves and others; help Soldiers identify their top strengths and the strengths of others in order to overcome both individual and team challenges; and strengthen Soldiers' relationships with others by responding constructively to positive experiences, praising others, and by discussing problems effectively. These competencies are taught via four modules; the detailed descriptions of each module below are drawn from the Master Resilience Trainer Manual (Reivich, 2010). Reivich et al. (2011) provide an additional description of the program.

Module One

Module One consists of two units. Unit One lays the foundation for the rest of the course by introducing Soldiers to the concept of resilience and to the six MRT competencies described in the preceding paragraph. Specifically, Soldiers are taught that resilience is the ability to grow and thrive in the face of challenges and to bounce back from adversity. Fostering mental toughness, optimal performance, strong leadership and goal achievement does this. One important message contained within Unit One is that resilience is something that can be obtained by all.

Unit Two teaches Soldiers to counter the bias toward negativity, to create positive emotions, and to focus on what is good—rather than bad—in one's life. This is done through activities that focus Soldiers' attention on positive events in their lives. Rather than focusing on what goes wrong, Soldiers are taught to search for positive experiences by thinking about why things go well, what positive events mean, and how to create

[1]Note that one of the components of CSF—Comprehensive Resilience Modules—is not considered in this report. Previous analyses (not included in the current report) show that the CRMs have had no impact on R/PH scores across the period of time covered in the current report. This component of CSF is undergoing a significant revision at the time of this writing. Therefore, this report focuses solely on the impact of MRT training on R/PH scores across time.

Table 1. GAT Scales and Constructs Used to Measure Soldier R/PH

Dimension/ Subscale	# of Items	Scale Range	Example Question	Author(s)	Reliability Estimates
Emotional Fitness	**77**				αT_1=.97 αT_2=.97
Adaptability	3	1 = Not like me at all 5 = Very much like me	I can usually fit myself into any situation.	Developed by Professors C. Peterson and N. Park.	αT_1=.68 αT_2=.69
Bad Coping	4	1 = Not like me at all 5 = Very much like me	I usually keep my emotions to myself.	Adapted by Professors C. Peterson and N. Park from previous research, e.g., Carver, Scheier, and Weintraub (1989).	αT_1=.70 αT_2=.71
Good Coping	4	1 = Not like me at all 5 = Very much like me	When something stresses me out, I try to solve the problem.	Adapted by Professors C. Peterson and N. Park from previous research, e.g., Carver, Scheier, and Weintraub (1989).	αT_1=.85 αT_2=.88
Catastrophizing	7	1 = Not like me at all 5 = Very much like me	When bad things happen to me, I expect more bad things to happen.	Adapted by Professors C. Peterson and N. Park from previous research, e.g., Peterson et al. (2001).	αT_1=.78 αT_2=.81
Character	24	0 = Never 5 = Always	Bravery or courage	Peterson (2007); Peterson and Seligman (2004)	αT_1=.98 αT_2=.98
Depression	10	1 = Not at all 5 = Every day	Feeling down, depressed, or hopeless.	Kroenke, Spitzer, and Williams (2001); Spitzer, Kroenke, and Williams (1999)	αT_1=.91 αT_2=.92
Negative Affect	11	1 = Never 5 = Most of the time	Anxious/Nervous	Watson, Clark, and Tellegen (1988)	αT_1=.79 αT_2=.81
Positive Affect	10	1 = Never 5 = Most of the time	Joyful	Watson, Clark, and Tellegen (1988)	αT_1=.89 αT_2=.91
Optimism	4	1 = Strongly disagree 5 = Strongly agree	Overall, I expect more good things to happen to me than bad.	Scheier, Carver, and Bridges (1994)	αT_1=.74 αT_2=.74
Family Fitness	**5**				αT_1=.76 αT_2=.78
Family Satisfaction	2	1 = Not at all satisfied 5 = Extremely satisfied	How satisfied are you with your marriage/relationship?	Developed by the Directorate of Basic Combat Training's Experimentation and Analysis Element, Fort Jackson.	αT_1=.79 αT_2=.81
Family Support	3	1 = Strongly disagree 5 = Strongly agree	My family supports my decision to serve in the Army.	Developed by the Directorate of Basic Combat Training's Experimentation and Analysis Element, Fort Jackson.	αT_1=.81 αT_2=.83
Social Fitness	**18**				αT_1=.88 αT_2=.89
Engagement	4	1 = Not like me at all 5 = Very much like me	I would choose my current work again if I had the chance.	Peterson, Park, and Seligman (2005); Wrzesniewski, McCauley, Rozin, and Schwartz (1997)	αT_1=.84 αT_2=.84
Friendship	6	0 = No 1 = Yes	I have someone to talk to when I feel down.	Developed by Professors C. Peterson and N. Park.	αT_1=.66 αT_2=.69
Loneliness	3	1 = Never 5 = Most of the time	How often do you feel close to people?	Russell (1996); Russell, Peplau, and Ferguson (1978)	αT_1=.76 αT_2=.78
Organizational Trust	5	1 = Strongly disagree 5 = Strongly agree	Overall, I trust my immediate supervisor.	Mayer, Davis, and Schoorman (1995); Sweeney, Thompson, and Blanton (2009)	αT_1=.88 αT_2=.89
Spiritual Fitness	**5**	1 = Not like me at all 5 = Very much like me	My life has lasting meaning.	Fetzer Institute/National Institute on Aging Working Group (1999)	αT_1=.81 αT_2=.83
Organizational Context	**35**				
Transformational Leadership	14	1 = Not at all 5 = Frequently, if not always	Spends time teaching and coaching.	Avolio, Bass, and Jung (1995); Bass and Avolio (2000)	αT_1=.97 αT_2=.98
Unit Cohesion	21	1 = Strongly disagree 5 = Strongly agree	Soldiers in this unit have enough skills that I would trust them with my life in combat.	Adapted by Professors C. Peterson and N. Park from previous research, e.g., Griffith (2002)	αT_1=.97 αT_2=.98

circumstances that enable good things to occur.

Module Two

Module Two consists of seven units. Together, the seven units help Soldiers learn skills that make them stronger Soldiers and better leaders by increasing mental toughness. Unit One focuses on an Activating Event, Thought, Consequence (ATC) model of dealing with challenges in one's life. This approach is based on the ABC (adversity-belief-consequence) model of cognitive therapy developed by Ellis (1962). Similar to the training offered in the PRP, the skills fostered by ATC help Soldiers identify the links between events, thoughts, and emotions/reactions, so that individuals can identify how their cognitive reactions to events might be at least as consequential as the event itself in driving thoughts and behaviors. Focus is placed on emotions and how to understand emotional reactions to events. Unit Two teaches Soldiers to avoid *thinking traps*, which are common patterns of thinking that occur under stress and, if uncontrolled, can lead to a downward spiral into depression. Through various exercises, Soldiers are taught to identify and correct counterproductive patterns in thinking, such as pessimistic explanatory styles. Unit Three teaches Soldiers to *detect icebergs*—deep-seated personal beliefs and values—in order to determine whether the icebergs drive an interpretation of, or reaction to, an event that might be out of proportion or inaccurate. The purpose of the lesson is to allow Soldiers to understand how an initial reaction to an event might be rooted in more deeply held beliefs about the world, and to help Soldiers determine whether the deeply held belief is getting in the way of responding to a problem in an appropriate way.

Unit Four moves beyond self-awareness to focus on stress and energy management. Activities include controlled breathing, progressive muscle relaxation, meditation, and distraction techniques. These strategies are designed to foster self-regulation through the management of emotion and energy levels. The ultimate goal is to allow for critical thinking and optimal performance. Unit Five focuses on problem-solving. The objective of the unit is for Soldiers to accurately recognize the factors that caused a particular problem and to identify solutions to the problem. Soldiers are taught about confirmation biases and how they might interfere with problem-solving in group settings. Unit Six is designed to reduce catastrophic thinking and reduce anxiety, and to improve problem-solving skills. Soldiers are taught about the inefficiencies associated with rumination and the focus on worst-case scenarios in response to an event. This is done by having Soldiers think about worst- and best-case scenarios, in relation to the most likely outcome of an event. Finally, Unit Seven focuses on *real time resilience*, which trains Soldiers to pull their skills together and use them in the various contexts that Soldiers typically face.

Table 2. MRT Training Skills and Theoretical Bases

MRT Skill	Theoretical Basis in Psychology
Activating Event →Thoughts →Consequences	Activating Event →Beliefs →Consequences (Ellis, 1962)
Thinking Traps	Errors in Logic (Beck, 1976; Burns, 1999; Ellis, 1962); Explanatory Style (Peterson & Seligman, 1984)
Icebergs	Underlying Assumptions and Core Beliefs (Beck, 1976; Young, 1994)
Problem Solving	Challenging Beliefs (Beck, 1976; D'Zurilla & Goldfried, 1971); Explanatory Style (Peterson & Seligman, 1984)
Put It In Perspective	Decatastrophizing (Beck & Emery, 1985)
Mental Games	Distraction Techniques (Wolpe, 1973)
Real Time Resilience	Externalization of Voices (Burns, 1999; Freeman, Pretzer, Fleming, & Simon, 2004)
Character Strengths	Character Strengths (Peterson & Seligman, 2004)
Active Constructive Responding and Praise	Active Constructive Responding (Gable, Reis, Impett, & Asher, 2004; Kamins & Dweck, 1999)
Hunt the Good Stuff	Gratitude (Emmons & McCullough, 2003)
Assertive Communication	Assertive Communication (Wolpe & Lazurus, 1966)
Imagery; Goal Setting	Behavioral element of CBT (Beck, 1976); Goal Setting Theory (Latham & Locke, 1991; Locke & Latham, 1990)
Energy Management	Sports Psychology and Stress Management (Benson, Greenwood, & Klemchuk,1975; Borkovec et al., 1987)

Module Three

Module Three is designed to build Soldiers' character strengths. In this module, participants are taught to identify their top strengths and the top strengths of others, as well as how to use those strengths to overcome challenges and build teams. This is done through two units. Unit One focuses specifically on identifying character strengths that Peterson and Seligman (2004) have found to be valued across cultures and geography. Knowing and understanding such strengths in one's self and in others facilitates optimal performance and builds engagement. Unit Two helps Soldiers understand how personal strengths and the individual strengths of others can be used to overcome challenges. This is done through a series of activities that allow participants to identify and describe the talents of themselves and others.

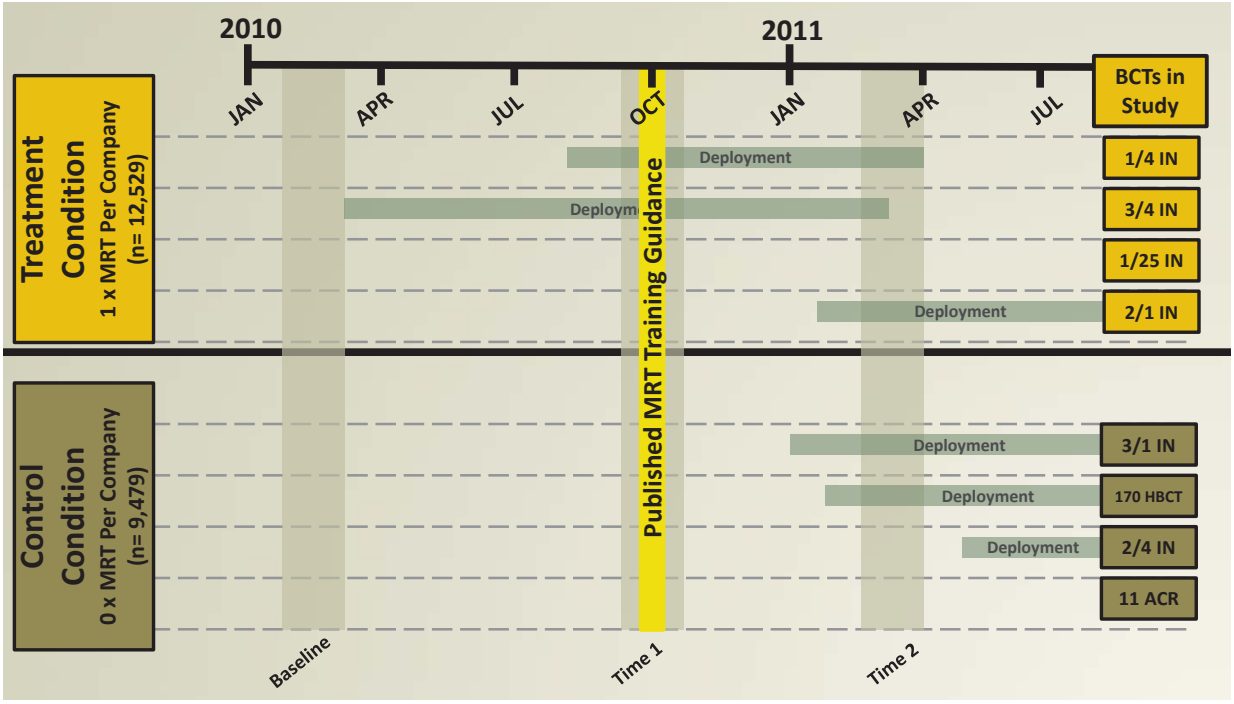
Module Four

Module Four consists of two units and teaches Soldiers to build stronger relationships through communication strategies. Unit One teaches participants that different communication strategies can help or hinder group problem-solving. For example, Soldiers are taught that aggressive, passive, and assertive communication styles should be developed and are appropriate for use at different times. Soldiers are taught strategies that emphasize confident, clear, and controlled communication. Unit Two focuses on sharing positive experiences with others, which is based on communication research that showed how positive events experienced by one person can be used to strengthen relationships with others (e.g., Gable, Reis, Impett, & Asher, 2004). Finally, Soldiers are taught how to properly give and receive praise. Table 2 on the preceding page provides a crosswalk that lists MRT skills and the theory behind each skill.

Assignment of MRTs

Once trained, MRTs return to their units and pass along the skills they learned to peers and subordinates. To test program effectiveness, CSF selected eight BCTs to receive different components of the CSF program (see Figure 1). Four BCTs received MRT trainers, while the other four did not. Note that the GAT was administered three times during the time period under evaluation. Soldiers took the GAT in early 2010, late 2010, and early 2011—a time frame spanning about 15 months. Note also that MRT training implementation guidance was published in October 2010. This guidance manual included lesson plans, more clearly explained

Figure 1. Treatment Conditions and Assignment of MRTs



the techniques to be used by MRTs, and outlined the frequency of training. It is likely that program fidelity increased as a result of the guidelines being published. Therefore, this report is focused on the effects of the training as measured by the GAT in early 2011 and on changes in GAT scores from late 2010 to early 2011. Throughout the rest of this report, the October 2010 data collection phase will be referred to as Time 1, while the April 2011 data collection phase will be referred to as Time 2.

Figure 1 illustrates the number of Soldiers that received MRT trainers within their units, and the number of Soldiers that did not receive MRT trainers. As Figure 1 shows, at baseline there were 9,479 Soldiers in units that did not receive an MRT trainer (Control condition), while 12,529 Soldiers were in units with an MRT (Treatment condition). While these numbers remained consistent through Time 1, there was considerable attrition from Time 1 to Time 2 in the number of Soldiers in the study. Specifically, 6,739 Soldiers remained in the Treatment condition at Time 2, and 3,218 remained in the Control condition. There are a wide range of reasons for the relatively high attrition rates; these include normal assignment rotations that moved individuals in and out of the target BCTs, individuals who may have exited out of the Army, Soldiers who were wounded or killed in combat, etc.

To assess whether attrition rates might have impacted the results of the evaluation, a number of steps were taken. First, after applying the screening approach described in the next section, attrition rates between the Treatment and Control conditions were statistically compared from Time 1 to Time 2. The analysis showed that Soldiers in the Control condition (64.7%) were more likely to attrit from Time 1 to Time 2 than Soldiers in the Treatment condition (44.5%), $x^2(1; n = 21,261) = 854.36$, $p < .001$. Next, attrition rates were compared based on age. The results showed that within the Treatment condition, the mean age of Soldiers who dropped out of the study was statistically significantly lower ($M = 27.06$, $SD = 6.25$) than the mean age of Soldiers who did not ($M = 27.50$, $SD = 6.29$), $t(9,117) = 3.209$, $p<.001$. Likewise, within the Control condition, Soldiers who dropped out of the study were statistically significantly younger, on average ($M = 26.88$, $SD = 6.27$), than Soldiers who did not drop out of the study ($M = 27.11$, $SD = 6.17$), $t(12140) = 1.997$, $p<.05$. In short, the analyses showed that younger Soldiers were more likely to drop out of the study. Finally, attrition rates were examined based on gender. The results showed that there were no gender differences between those who left the study and those who stayed at Time 2, $x^2(1; n = 11,303) = .03$, $p>.05$.

Because differential rates of attrition between the Treatment and Control conditions may have impacted GAT scores, this possibility was assessed. In particular, mean scores on GAT subscales were first compared in a factorial multivariate analysis of variance (MANOVA) with the MRT condition (Treatment vs. Control) crossed with the attrition status at Time 2 (attrited vs. not attrited). The analysis yielded a non-significant result (Wilks' Lambda = .999, F [15; 19,652] = 1.481, $p>.05$), suggesting that there were no mean differences on GAT subscales among the four groups: (1) Soldiers in the Treatment condition who attrited, (2) Soldiers in the Treatment condition who did not attrit, (3) Soldiers in the Control condition who attrited, and (4) Soldiers in the Control condition who did not attrit. Second, the same procedure was used to compare means on the four GAT fitness dimensions. Again, there were no significant differences in this analysis (Wilks' Lambda = 1.000, F [4; 20,811] = .918, $p>.05$).

Analytic Strategy for Evaluation of MRT Training

Evaluation of MRT training effectiveness was conducted as follows. First, mean scores on the GAT at Time 2 were compared between the Treatment and Control conditions to evaluate whether MRT training impacted GAT scores after Soldiers had been exposed to it for an extended period of time. Second, changes in mean GAT scores from Time 1 to Time 2 were compared across Treatment and Control conditions; this analysis allowed for an examination of growth in Soldier R/PH as a result of MRT training. Next, two demographic factors (age and gender) and two contextual factors (quality of leadership and unit cohesion) were examined as potential moderators of the effect of MRT training on GAT scores at Time 2. Finally, three factors specific to the MRT trainers themselves were assessed: the impact of formal training conducted by MRTs, whether MRTs felt they had the necessary preparation, and whether MRTs

felt they had support of the Command to successfully implement the training in their units. However, before this major set of analyses was conducted, the following preliminary analytic procedures were performed.

Data Cleaning

The data were cleaned and screened for invariant responses on the GAT (responses in which the participant entered a constant value across different questions on the GAT, e.g., 1,1,1,1,1,1,1). To do this, questions from the positive affect/negative affect schedule (PANAS) were used. Individuals were screened from an analysis if they used an invariant response pattern at both Time 1 and Time 2. This approach indicated that 744 Soldiers (3.4% of the total sample) used an invariant response pattern throughout the data collection period. A slightly greater proportion of Soldiers in the Control condition (3.8% [357/9,476]) used an invariant response pattern than Soldiers in the Treatment condition (3.1% [387/12,529]), $x^2(1; n = 22{,}749) = 6.90$, $p < .01$.

Percentage of Maximum Possible Scores

Percentage of Maximum Possible (POMP) scores were used to represent R/PH. POMP scores transform raw mean scores on items and scales into scores that represent the percentage of the overall total possible on a particular item or scale. For example, if an individual had a mean score of 3.5 on Emotional Fitness, which ranges from 1-5, the individual received a POMP score of 62.5 ((observed [3.5]-minimum possible [1])/(maximum possible [5]-minimum possible [1])*100). This strategy has been advocated for use in evaluation studies such as the present one (Cohen, Cohen, Aiken, & West, 1999), and is appropriate for use in this study for two primary reasons. First, POMP scores standardize the metrics so that all variables range from 0-100, thus making it possible to make meaningful comparisons across scales that might have different response options. Second, POMP scores allow differences in fitness scores to be described in terms of percentage differences. For example, if the Control condition had an Emotional Fitness score of 62.5, and the Treatment condition had an Emotional Fitness score of 65, POMP scores allow one to say that there was a 2.50% difference between the two conditions. For the purposes of the evaluation, this approach made the interpretation of mean differences more intuitive and meaningful.

Reverse Scoring Items and Scales

Five scales in the GAT measure "negative" constructs: catastrophizing, bad coping, depression, negative affect, loneliness. For the purposes of computing the four broad fitness dimensions (Emotional, Family, Social, and Spiritual Fitness) these scales were scored so that higher scores represented higher levels of fitness. When these scales are presented as singular constructs within this report, however, they are scored so that they are more intuitive for the reader. Specifically, lower scores on each of the aforementioned variables represent higher levels of fitness. The table below delineates the expectations regarding MRT training and scores on each of the scales included in the analysis. Note that for all scales in the blue section of the table (left hand side of Table 3), the Treatment condition is expected to have significantly higher scores and amounts of growth than the Control condition. For all scales in the red section (right hand section of Table 3), the Treatment condition is expected to have significantly lower scores than the Control condition, as well as greater decreases over time than the Control condition.

Table 3. R/PH Scales and Expectations Regarding MRT Training

Positively Scored Scales (Expect Higher Scores in the Treatment Condition)		Negatively Scored Scales (Expect Lower Scores in the Treatment Condition)	
Emotional Fitness	Family Satisfaction	Catastrophizing	Negative Affect
Adaptability	Family Support	Bad Coping	Loneliness
Character	Social Fitness	Depression	
Good Coping	Engagement		
Positive Affect	Friendship		
Optimism	Organizational Trust		
Family Fitness	Spiritual Fitness		

Effects of MRT Training at Time 2

This analysis sought to answer the question, "Do Soldiers who received training from MRTs report higher R/PH scores than Soldiers who were not trained by MRTs?" To make this determination, fitness scores of the Treatment and Control conditions at Time 2 were compared to determine whether significant differences existed. First, however, it was necessary to determine whether significant differences at Time 1 existed; if so, then it would be appropriate to control for Time 1 R/PH scores in the analysis. The Time 1 analysis did indeed show significant differences between the two conditions. Therefore, it was appropriate to control for Time 1 scores in the analysis of mean differences at Time 2. More detail about the Time 1 analysis and results is presented in Table B1, Appendix B.

To compare R/PH scores at Time 2, analysis of variance (ANOVA) with blocking (recommended by Tabachnick and Fidell [2007, p. 222]) was used as an alternative to analysis of covariance (ANCOVA). Table 4 below presents the mean scores for both the Treatment and Control conditions on each of the R/PH dimensions and subscales. As Table 4 shows, the Treatment condition was significantly higher on two of the four broad R/PH fitness dimensions: Emotional Fitness (1.31% higher) and Social Fitness (.66% higher). At the subscale level the Treatment condition was also significantly higher on adaptability (1.08% difference), character (1.63% difference), good coping (1.30% difference), optimism (1.02% difference), and friendship (2.04% difference). As expected, the Treatment condition was significantly lower on catastrophizing, where there was a 1.61% difference between the two conditions.

Effect sizes (partial η^2) were computed in order to evaluate whether there were meaningful differences between the conditions. The results of that analysis showed that the effects of the MRT training, while statistically significant, were somewhat small practically speaking as the maximum partial η^2 was .002. Again, it is important to keep in mind that small effect sizes do not necessarily mean that the treatment had a small impact. A 1.31% increase on Emotional Fitness, for example, can have implications for behavioral outcomes among Soldiers, as evidenced by previous work regarding the GAT and behavioral measures (Lester et al., 2011a, 2011b).

Table 4. Differences between Treatment and Control Conditions at Time 2

		Control†		Treatment‡					
	Dimension/Subscale	Mean	SD	Mean	SD	Mean Diff.	F	Sig.	Partial η^2
Positive	Emotional Fitness	66.74	0.23	68.04	0.16	1.31	21.19	.000	.002
	Adaptability	68.15	0.32	69.23	0.22	1.08	7.62	.006	.001
	Character	70.58	0.32	72.21	0.22	1.63	18.13	.000	.002
	Good Coping	62.71	0.34	64.01	0.23	1.30	10.27	.001	.001
	Positive Affect	60.74	0.37	61.22	0.25	0.47	1.11	.293	.000
	Optimism	57.06	0.32	58.09	0.22	1.02	6.92	.009	.001
	Family Fitness	71.27	0.35	71.65	0.24	0.38	0.80	.372	.000
	Family Satisfaction	76.90	0.44	76.57	0.31	-0.32	0.36	.551	.000
	Family Support	68.47	0.40	68.80	0.27	0.32	0.45	.504	.000
	Social Fitness	65.08	0.28	65.74	0.19	0.66	3.83	.050	.000
	Engagement	57.46	0.39	58.09	0.27	0.63	1.77	.183	.000
	Friendship	77.70	0.40	79.74	0.28	2.04	17.28	.000	.002
	Org. Trust	59.15	0.39	59.69	0.28	0.54	1.26	.263	.000
	Spiritual Fitness	56.99	0.38	57.07	0.26	0.09	0.04	.852	.000
Negative	Catastrophizing	31.90	0.39	30.29	0.27	-1.61	11.58	.001	.001
	Bad Coping	55.02	0.39	55.02	0.27	0.00	0.00	.997	.000
	Depression	21.40	0.40	20.60	0.28	-0.80	2.69	.101	.000
	Negative Affect	36.17	0.29	35.91	0.20	-0.27	0.58	.445	.000
	Loneliness	35.15	0.35	34.96	0.24	-0.19	0.19	.666	.000

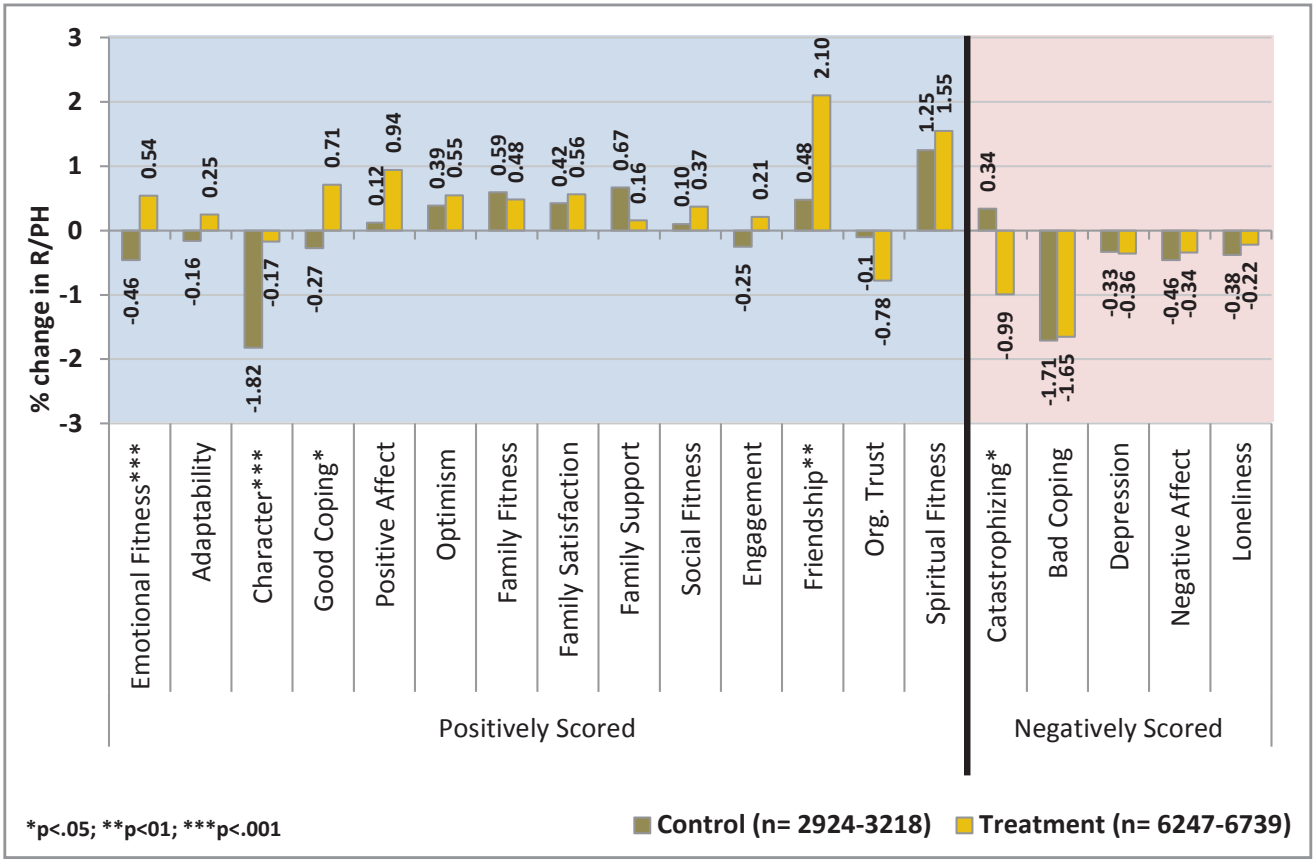
†n=3215-3218; ‡n=6739

Fitness Change between Times 1 and 2

Next, MANOVAs with time as a within-subjects factor and condition as a between-subjects factor followed by simple effects analyses were employed to answer the question, "Over time, do the R/PH scores of Soldiers exposed to MRT training improve at a greater rate than Soldiers not exposed to the training?" To address this question, changes in fitness scores from Time 1 to Time 2 were examined across the conditions (i.e., the Treatment and the Control conditions). Again, it was expected that the Treatment condition would experience greater rates of improvement than the Control condition on each of the facets of R/PH measured by the GAT.

Figure 2 depicts the percentage change from Time 1 to Time 2 for both the Treatment and Control conditions. The full results of this analysis are presented in Table B2 in Appendix B. The results showed that there were significant differences between the Treatment and Control conditions in rates of change from Time 1 to Time 2 on five dimensions/subscales of R/PH: Emotional Fitness, catastrophizing, character, good coping, and friendship. Simple effects analysis conducted on these dimensions/subscales showed that the Treatment condition demonstrated a significant increase on Emotional Fitness (0.54%), good coping (0.71%), and friendship (2.10%) from Time 1 to Time 2, whereas the Control condition experienced no significant change on these dimensions/subscales. Further, the Treatment condition demonstrated a significant decrease on catastrophizing (0.99%) from Time 1 to Time 2, indicating improvement in R/PH, whereas the Control condition showed no significant change on catastrophizing across the two time points. Finally, the Control condition demonstrated a significant decrease on character (1.82%), while the Treatment condition showed no change on character across the two time points. This last finding provides some evidence that MRT training may be guarding against natural rates of decline in character fitness that may be experienced by Soldiers not exposed to MRT training.

Figure 2. Change in Fitness from Time 1 to Time 2: Comparing the Treatment and Control Conditions



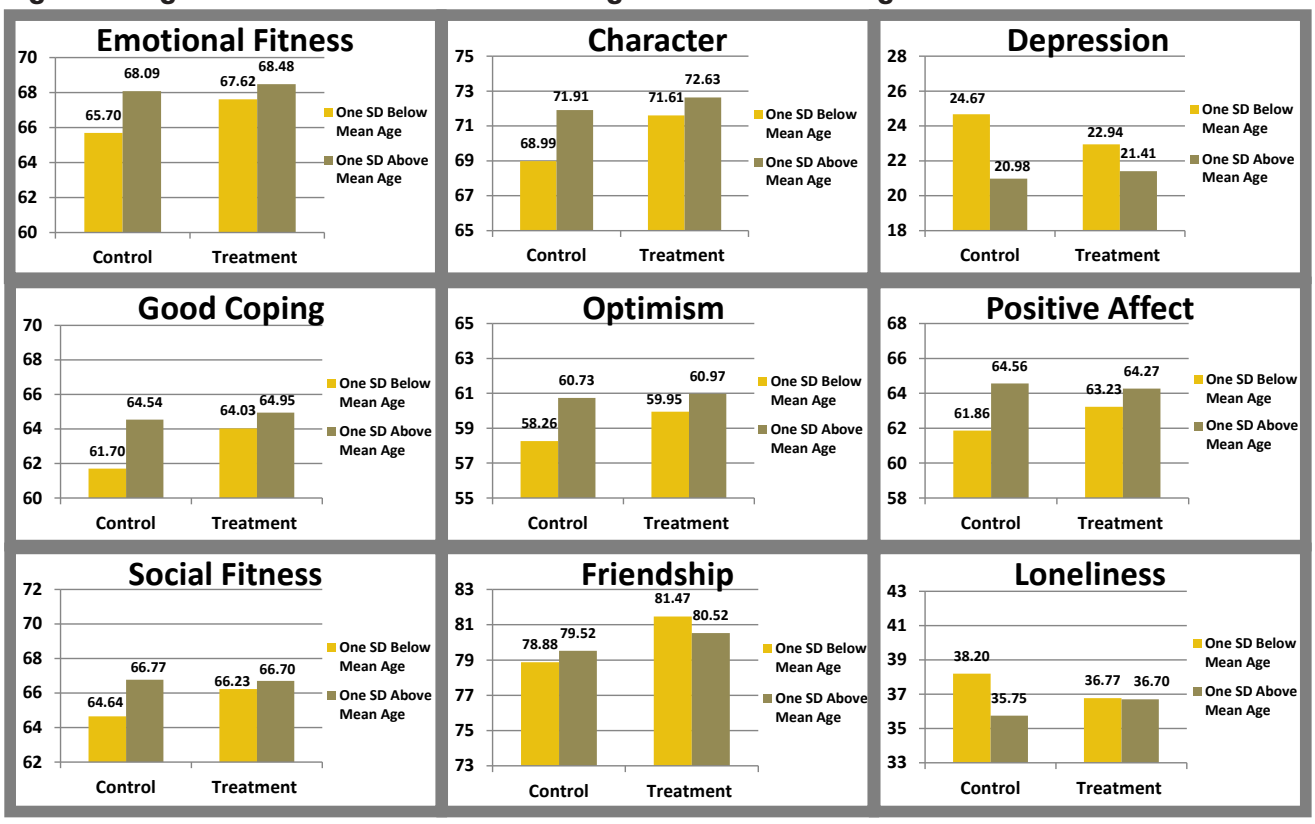
Demographic Factors

The potential moderating effects of age, gender, leadership, and unit cohesion also were assessed to seek an answer to the question, "Which demographic or contextual variables, if any, impact the effect of MRT training?" Moderated regressions and mean comparisons were used to determine the moderating effects of each of the aforementioned variables.

Age. In examining the effects of age, this evaluation drew on research such as Steinberg (2005), which focuses on developmental processes related to age. To examine the moderating effects of age, regression techniques were first used. Specifically, a number of linear regression models were developed that included MRT training, age, and an interaction term between MRT training and age. Corresponding Time 1 GAT scores were used in each of the models as a control variable. Nineteen separate regression analyses (one for each R/PH dimension and subscale) were conducted. The analyses showed that there were significant interactions between being exposed to MRT training (i.e., being included in the Treatment condition vs. being included in the Control condition) and age on nine fitness dimensions/subscales. These significant interactions are presented as bar graphs in Figure 3. In order to produce interaction plots, R/PH scores for Soldiers one standard deviation below the mean age and one standard deviation above the mean age were used (Aiken & West, 1991). The full results of the analysis are presented in Table B3 in Appendix B.

When looking at the graphed interactions, two noticeable patterns emerge. First, within the Control condition, there are substantial differences between the two age groups. For example, on Emotional Fitness the older group (one standard deviation above the mean age) has a mean score of 68.09, while the younger group (one standard deviation below the mean age) has a mean score of 65.70. This constitutes a 2.39% difference on Emotional Fitness among the Control condition, where older Soldiers are more emotionally fit than their younger peers. Likewise, focusing on depression, younger Soldiers in the Control condition are nearly 4% more depressed than their older peers in the Control condition. With the exception of friendship, where younger Soldiers in the Treatment

Figure 3. Significant Interactions between Age and MRT Training at Time 2



condition scored higher than older Soldiers, this pattern holds across each of the scales presented in Figure 3.

Second, Figure 3 provides evidence that MRT training is more effective for younger Soldiers. This is illustrated by the larger gaps between the Treatment and Control conditions for younger Soldiers than for older Soldiers. Again, using Emotional Fitness as an example, among younger Soldiers there is a 1.92% difference between the Treatment and Control conditions. In contrast, there is only a .39% difference between the Treatment and Control conditions among older Soldiers. A similar pattern emerges across each of the nine R/PH dimensions and subscales presented in Figure 3.

Because significant interactions between age and MRT training were found, ANCOVAs with Time 1 R/PH scores as covariates were performed to compare mean Time 2 R/PH scores between the Treatment and Control conditions in each of the age categories separately (see Table 5). For the purposes of this analysis, Soldiers were classified into two age categories: those 18-24 years old and those over 24 years old. The results showed that within the younger age category (18-24

Table 5. Comparison of Treatment and Control Conditions by Age

	Dimension/ Subscale		Control		Treatment		Mean Diff.	F	Sig.	Cohen's d
			Mean	SE	Mean	SE				
Positive	Emotional Fitness	18-24†	64.90	0.37	66.64	0.25	1.74	15.03	.000	.13
		Over 24‡	67.99	0.27	68.65	0.19	0.66	3.86	.050	.05
	Adaptability	18-24	67.47	0.51	68.87	0.34	1.40	5.27	.022	.08
		Over 24	70.38	0.39	71.23	0.28	0.85	3.08	.079	.05
	Character	18-24	68.58	0.51	70.91	0.34	2.33	14.15	.000	.13
		Over 24	71.58	0.38	72.67	0.27	1.09	5.52	.020	.07
	Good Coping	18-24	61.59	0.53	63.91	0.36	2.32	13.06	.000	.12
		Over 24	64.03	0.41	64.61	0.29	0.58	1.39	.240	.03
	Positive Affect	18-24	61.81	0.57	62.43	0.38	0.62	0.83	.363	.03
		Over 24	63.67	0.42	64.09	0.30	0.42	0.67	.415	.02
	Optimism	18-24	57.56	0.46	59.04	0.31	1.48	7.25	.007	.09
		Over 24	60.68	0.36	61.22	0.25	0.54	1.50	.221	.03
	Family Fitness	18-24	69.24	0.55	71.17	0.37	1.93	8.45	.004	.10
		Over 24	73.15	0.38	73.92	0.27	0.77	2.72	.099	.05
	Family Sat.	18-24	77.81	0.70	79.22	0.46	1.41	2.86	.091	.06
		Over 24	82.33	0.48	83.14	0.34	0.81	1.90	.169	.04
	Family Support	18-24	60.70	0.68	63.54	0.46	2.84	11.99	.001	.12
		Over 24	64.49	0.49	65.04	0.35	0.55	0.83	.362	.03
	Social Fitness	18-24	64.68	0.43	66.10	0.29	1.42	7.34	.007	.09
		Over 24	66.12	0.33	66.34	0.23	0.22	0.29	.590	.01
	Engagement	18-24	56.14	0.61	57.16	0.41	1.02	1.92	.166	.05
		Over 24	60.41	0.46	60.61	0.32	0.20	0.14	.712	.01
	Friendship	18-24	79.92	0.62	82.34	0.41	2.42	10.65	.001	.11
		Over 24	78.03	0.50	79.56	0.35	1.53	6.31	.012	.07
	Org. Trust	18-24	60.70	0.60	62.18	0.40	1.48	4.16	.041	.07
		Over 24	62.58	0.45	62.53	0.32	-0.05	0.01	.933	.00
	Spiritual Fitness	18-24	56.84	0.59	57.09	0.40	0.25	0.12	.734	.01
		Over 24	59.37	0.45	59.57	0.32	0.20	0.12	.725	.01
Negative	Catastrophizing	18-24	34.00	0.64	31.69	0.43	-2.31	9.08	.003	-.10
		Over 24	28.79	0.48	27.52	0.34	-1.27	4.76	.029	-.06
	Bad Coping	18-24	56.84	0.60	57.15	0.40	0.32	0.19	.662	.01
		Over 24	54.24	0.49	54.14	0.34	-0.10	0.03	.870	.00
	Depression	18-24	25.07	0.64	24.01	0.43	-1.07	1.90	.168	-.05
		Over 24	21.33	0.47	21.08	0.33	-0.25	0.19	.661	-.01
	Neg. Affect	18-24	36.91	0.45	36.02	0.30	-0.89	2.72	.099	-.06
		Over 24	33.84	0.34	34.23	0.24	0.39	0.86	.353	.03
	Loneliness	18-24	38.05	0.54	36.90	0.36	-1.15	3.07	.080	-.06
		Over 24	36.61	0.42	37.11	0.29	0.50	0.94	.333	.03

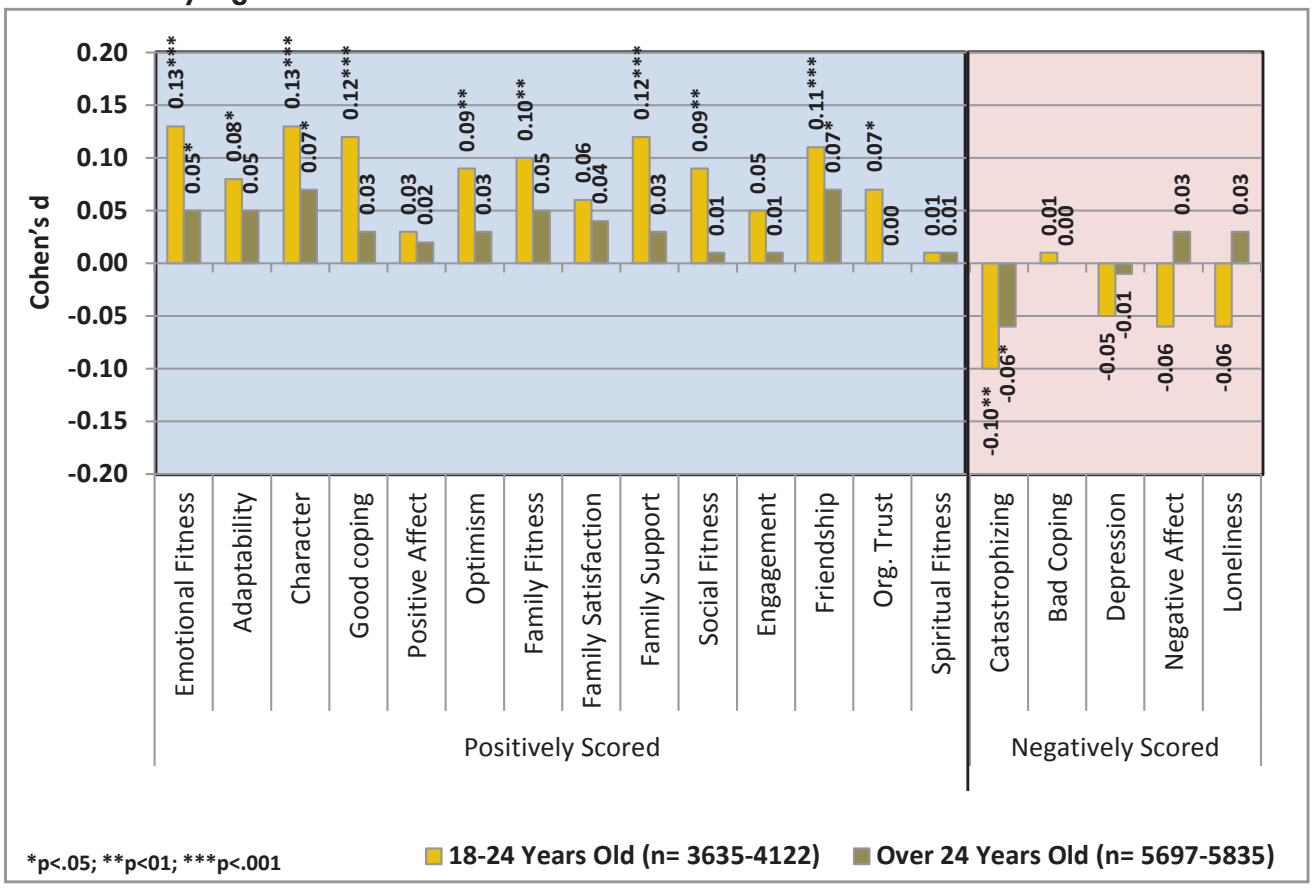
†n=4122; ‡n=5835

years old) there were significant differences between the Treatment and Control conditions on 11 of the 19 fitness dimensions/subscales. In each case, the Treatment condition exhibited more desirable levels of fitness than the Control condition.

Taking a closer look at the results in Table 5, it appears that MRT training had the greatest impact upon the Emotional and Social aspects of R/PH. For example, six of the 11 significant differences were observed on Emotional Fitness and its subscales (adaptability, catastrophizing, character, good coping, and optimism). Additionally, the Treatment condition scored significantly higher on Social Fitness, friendship, and organizational trust. The Treatment condition was significantly higher than the Control condition on Family Fitness and family support. The greatest mean differences were observed on family support (2.84% difference), friendship (2.42% difference), character (2.33% difference), good coping (2.32% difference), and catastrophizing (2.31% difference). Together, these results provide evidence that the presence of MRT trainers increases the Emotional and Social Fitness of younger Soldiers. Analyses of the effects of MRT training on older Soldiers (over 24 years old) showed that significant differences were present for only four of the 19 fitness R/PH dimensions/subscales: Emotional Fitness, catastrophizing, character, and friendship. The greatest mean difference between the two conditions among older Soldiers was on friendship, where there was a 1.53% difference between the MRT and Non-MRT conditions.

Finally, to more clearly illustrate the magnitude of differences between those exposed to MRT training and those not exposed to MRT training across the age groups, the effect sizes (Cohen's d) of the significant mean differences within each group are presented in Figure 4. As the effect sizes indicate, the magnitudes of differences between the Treatment and Control conditions were greater among younger Soldiers than older Soldiers. Specifically, the absolute values of the

Figure 4. Effect Sizes for Differences in Time 2 Fitness Scores between Treatment and Control Conditions by Age



effect sizes for the younger cohort ranged from .01 to .13, while the absolute value of effect sizes for the older group ranged from .01 to .07.

In sum, the results of this analysis provide evidence that younger Soldiers who were exposed to MRT training had higher scores on Emotional and Social Fitness than their peers who have not been exposed to MRT training. As the graphs in Figure 3 indicate, and as the comparisons of mean scores in Table 5 suggest, the training may allow younger Soldiers to "catch up" to older Soldiers in terms of resilience as measured by the GAT. Perhaps this is because training is occurring at a time when younger Soldiers are still maturing cognitively, when there might be a good fit between training and developmental processes.

Gender. Prior evaluations of PRP have suggested that there may be gender effects associated with resilience training (Gillham, Hamilton, Freres, Patton, & Gallop, 2006), and other work also has shown there to be gender effects within the context of teaching and mentoring programs (e.g. Young, Cady, & Foxon, 2006). The analysis related to gender in this evaluation showed no evidence that there was a relationship between gender and MRT training. To examine the potential moderating effect of gender, 19 regression models (one for each R/PH subscale/dimension) were tested that included MRT training, gender, an interaction between MRT training and gender, and corresponding Time 1 GAT scores. Again, the results showed no significant interaction effects (see Table B4 in Appendix B).

Contextual Factors

Leadership. Because research suggests that leaders may have an impact on the resilience of their subordinates (Barsade, 2002; Harland, Harrison, Jones, & Reiter-Palmon, 2005; Luthans et al., 2006), analyses next examined the moderating effects of leadership on the link between MRT training and GAT scores at Time 2. To do this, 19 predictive models again were developed that used each of the fitness dimensions/subscales as dependent variables and MRT training, unit leadership, and interaction between training and leadership as predictors. Time 1 GAT scores were used as a control variable. The results of the analysis (see Table B5 in Appendix B) showed that leadership only moderated the effects of MRT training when it came to catastrophizing.

Unit Cohesion. Next, the moderating effects of unit cohesion on the link between MRT training and GAT scores at Time 2 were assessed. Cohesion was hypothesized as a moderator since it has been frequently associated with positive outcomes among military personnel, such as improved performance, well-being, and satisfaction (Manning & Fullerton, 1988; Oliver, Harman, Hoover, Hayes, & Pandhi, 1999) and stress resistance (Siebold & Kelly, 1987). Nineteen predictive models were developed (one for each GAT subscale/dimension) that included MRT training, unit cohesion, and an interaction between MRT training and leadership as predictors. Corresponding Time 1 GAT scores were once again used as a control variable in each of the models. The analysis showed that unit cohesion did not moderate the effects of MRT training. The results of this analysis are presented in Table B6 in Appendix B.

Frequency and Scope of Training

In addition to demographic and contextual factors that impact the effectiveness of MRT training, the actual application of MRT training might also have affected the results of the training. That is, as with many training interventions of this sort, it was recognized that some MRTs might not have done any training of their peers and subordinates upon return to their units due to a variety of reasons, including lack of ability or confidence, lack of Command support, or combat deployments. While the MRT program was designed with the hope that all MRTs would deploy the skills learned in MRT training, it is realistic to acknowledge that not all MRTs actually transmit the lessons they learned. Therefore, this analysis first examined the impact of MRT training based on whether MRTs reported having formally delivered training to their peers. In addition to examining whether formal implementation of training affected the results of MRT training upon R/PH, analyses were conducted to understand how MRT trainers' perceived preparedness to train and support of Command might be related to the program's effectiveness. It was expected that MRTs would be more effective trainers of the program if they had formally trained Soldiers in their units (i.e., actually led training rather than a mere contagion effect from the MRT using the skills during interactions with Soldiers),

felt more prepared to train, and had the support of Command.

Sixty-six MRT trainers involved in the study were surveyed. MRTs were invited to respond to a series of questions about their behaviors as trainers and their thoughts regarding their MRT training experiences. Specifically, MRTs were asked three questions of interest to this study. First, they were asked, "Did you ever actually train MRT skills between February 2010 and April 2011 to a group of soldiers in your unit?" Second, they were asked to agree or disagree with the statement, "I feel prepared to train." Third, they were asked the question, "How supportive is your Command with regard to delivering Unit MRT training?"

Of the 66 trainers who responded to the survey, 18 reported not serving as a company MRT at any time between February 2010 and April 2011 and thus were excluded from the analysis. Also, one MRT could not be matched to his/her unit based on the available Unit Identification Code (UIC). This reduced the final sample size for the MRT survey analysis from 66 to 47 MRTs matched to their units based on the UIC codes assigned to their units at the Baseline time point (see Figure 1 above for illustration). Further, to ensure that MRTs had adequate time to train Soldiers in their units, only survey responses from MRTs who completed their training prior to Time 1 (October, 2010) were used. This further reduced the number of MRTs to 44 in the final analysis sample. The number of Soldiers in these MRTs' units ranged from 20 to 205 (overall n = 4,348). Further, because previous analyses in this report indicated that Soldiers 18-24 years of age benefitted from MRT training more than older Soldiers, the current analysis also was conducted separately for each age group.

Given that multiple Soldiers were matched with each MRT, a nested data structure was encountered with multiple trainees (i.e., level-1 units) nested within each trainer (i.e., level-2 units). To examine the degree of non-independence in data obtained from trainees nested within the same trainer, the estimates of between-group (i.e., between-trainer) variance in Time 2 GAT scores and corresponding intraclass correlation coefficients, ICC(1)'s, were obtained (Bliese, 2000). Variance decomposition on each of the outcome variables (GAT scores at Time 2) was performed using HLM 7 (Raudenbush, Bryk, & Congdon, 2011). As shown in Table B7 in Appendix B, the estimates of between-group variance were small and frequently non-significant, and the corresponding ICC(1)'s ranged from trivial (.001) to very small (.036), with ICC(1)'s of .05 being considered small (Julian, 2001; Preacher, Zhang, & Zyphur, 2011) and suggestive of a present group effect (LeBreton & Senter, 2008). Thus, the analysis was performed using single level regressions with Time 2 GAT scores as dependent variables, MRT survey variables as predictors, and Time 1 GAT scores as control variables. This procedure was repeated for each of the 19 R/PH dimensions/subscales across each of the three MRT survey questions described above.

Table 6 below summarizes the results of those analyses conducted on the group of younger (i.e., 18-24 year old) Soldiers. Within the table, plus signs ("+") indicate that the variable had a positive relationship with the R/PH dimension/subscale; minus signs ("-") indicate that the variable had a negative relationship with the R/PH dimension/subscale. The results indicate that younger Soldiers' R/PH scores on good coping, friendship, depression, and negative affect were significantly impacted by whether their MRT trainers actually formally provided training. Likewise, when MRTs felt prepared to train, there was a significant impact upon Emotional Fitness, character, Social Fitness, friendship, organizational trust, and loneliness. There was a significant impact upon Emotional Fitness and good

Table 6. Significant Relationships between MRT Survey Data and Soldier R/PH: 18-24 Year Old Soldiers

		Actually Trained MRT	Felt Prepared to Train	Has Support of Command
Positive	Emotional Fitness		+	+
	Adaptability			
	Character		+	
	Good Coping	+		+
	Positive Affect			
	Optimism			
	Family Fitness			
	Family Sat.			
	Family Support			
	Social Fitness		+	
	Engagement			
	Friendship	+	+	
	Org. Trust		+	
	Spiritual Fitness			
Negative	Catastrophizing			
	Bad Coping			
	Depression	-		
	Negative Affect	-		
	Loneliness		-	

"+" = construct had a positive effect on R/PH dimension/subscale
"-" = construct had a negative effect on R/PH dimension/subscale

coping when MRTs felt that they had the support of their Command. The results of this analysis are presented in Tables B8-B10 in Appendix B.

Further, as shown in Tables B11-B13 in Appendix B, older Soldiers (i.e., Soldiers over 24 years of age) were affected by MRT trainers' engagement in formal training, preparedness to train, and perceived support of Command to a lesser extent than younger Soldiers. These results provide additional support to the earlier finding that MRT training is more effective for younger Soldiers than for older Soldiers.

Key Takeaways

- Soldiers in the Treatment condition exhibited better scores on eight of the dimensions/subscales used by the GAT to measure resilience and psychological health (R/PH) at Time 2.
- The Treatment condition experienced significantly higher rates of growth in R/PH than the Control condition on four of the dimensions/subscales used to measure R/PH.
- The treatment had a stronger effect on R/PH for Soldiers 18-24 years old in comparison to Soldiers over 24 years of age.
- Evidence indicates that the presence of MRT trainers enhances the resilience levels of younger Soldiers so that they come to more closely resemble older Soldiers.
- There were no moderating effects of gender, leadership, or unit cohesion on the link between MRT training and R/PH.
- MRT training appeared to be more effective when MRTs had formally implemented training, when they felt prepared to train, and when they felt they had the support of their Command.
- Together the results suggest MRT training and the presence of MRTs within units can enhance the R/PH of Soldiers.

Discussion

This evaluation has examined whether Master Resilience Training (MRT), the centerpiece of the Comprehensive Soldier Fitness (CSF) program, has had the intended effect of strengthening resilience and psychological health (R/PH) among Soldiers who have been exposed to the program. In particular, the evaluation focused on whether Soldiers exposed to MRT trainers demonstrated higher levels of R/PH than Soldiers not exposed to training, and whether exposure to MRT training increased R/PH over time. To make this determination, the analysis was framed by four broad questions related to the program's effectiveness.

First, "Do Soldiers in units that received training from MRTs report higher R/PH scores than Soldiers who were not trained by MRTs?" To find out, R/PH scores were assessed to test whether Soldiers exposed to MRT training at Time 2 had significantly higher scores on the GAT than Soldiers not exposed to the training. After R/PH scores at Time 1 were controlled for, the Treatment condition did, in fact, score significantly better on Emotional Fitness and five of the nine scales that are used to measure Emotional Fitness. In addition, the Treatment condition scored significantly higher on the Social Fitness dimension and the subscale measuring friendship. There were no significant differences between the two conditions on any of the scales related to Family or Spiritual Fitness. As such, the results of the analysis provide evidence that MRT training has a positive impact upon Emotional and Social Fitness. This is particularly true for friendship and character, where there were mean differences of 2.04% and 1.63%, respectively. Again, because these constructs have been found to be strongly correlated with behavioral outcomes (Lester et al. 2011a, 2011b), such large magnitudes in difference between the Treatment and Control conditions have potentially important implications for the relationship between MRT training and behaviors of interest.

The second evaluation question was, "Over time, do the R/PH scores of Soldiers exposed to MRT training improve at a greater rate than Soldiers not exposed to the training?" To answer this question, changes in R/PH scores from Time 1 to Time 2 were compared between the Treatment and Control conditions. The results showed that among the R/PH constructs that are positively scored, the Treatment condition improved on Emotional Fitness, good coping, and friendship while the Control condition did not experience significant change. Similarly, the Treatment condition appeared to use less catastrophic thinking over time, while the use of catastrophic thinking did not significantly change in the Control condition from Time 1 to Time 2. Finally, the Treatment condition experienced no significant change on their character scores, whereas there was a decline on character in the Control condition. Without over-speculating as to why this relationship was observed, this finding suggests that there may be some natural decay on character scores, but that MRT training may help to guard against such decay.

On balance, the examination of R/PH scores over time again suggests that MRT training has a significant impact upon Emotional and Social aspects of Soldier R/PH as the Treatment condition experienced relatively greater growth in those areas compared to the Family and Spiritual dimensions of R/PH. Furthermore, the findings offer an interesting insight into the potential effects of MRT training over time by providing evidence that MRT training not only fosters growth on various aspects of Soldier fitness, but also can serve as a buffer against undesirable decreases in R/PH.

Third, this evaluation sought an answer to the question, "Which demographic or contextual variables, if any, impact the effect of MRT training?" Potential moderating effects of two demographic variables—age and gender—and two contextual variables—leadership and unit cohesion—were assessed to determine whether the effects of MRT training were affected by these variables. The results of regression analyses showed that age was a moderator of MRT training in a number of different aspects of Soldier fitness, but that the other variables did not moderate the relationship between MRT training and Soldier fitness. In particular, MRT training was more effective for Soldiers between the ages of 18-24 than it was for Soldiers above the age of 24. It is possible that MRT training simply teaches younger Soldiers some of the coping strategies that are obtained as one matures and gains experience in the Army. Indeed, the graphs presented in Figure 3 above strongly suggest that this may be the case. Those

graphs show that within the Control condition, younger Soldiers were substantially lower than older Soldiers on nine facets of R/PH. In contrast, within the Treatment condition the R/PH differences between older and younger Soldiers appear to be much smaller. In the case of friendship, younger Soldiers actually surpassed older Soldiers once they had been exposed to MRTs within their units. While there were theoretical and empirical justifications for expecting gender differences in the effectiveness of MRT training, no meaningful gender effects were detected. Similarly, there was no evidence that leadership or unit cohesion impacted the effectiveness of the training.

The final evaluation question addressed by this report was, "Is the effectiveness of the training dependent on whether MRTs formally train their units, and is the training more effective when MRTs feel better prepared to train and when they feel they have the support of their Command?" The results of these analyses show that MRTs' use of formal training, self-confidence in their skills, and the support that they receive from their chain of command influence the R/PH scores of younger Soldiers they teach. The effect of MRTs' use of formal training, preparedness to train, and perceived support of Command on R/PH of older Soldiers appears less pronounced. Taken together, this set of results provides evidence that the effectiveness of MRT training may be enhanced when MRT trainers actually implement formal training, feel efficacious regarding what they must teach, and feel that they have the support of their unit's leadership.

Implications and Recommendations

There are five primary lessons for CSF that can be taken from the results of this evaluation. First, it is important to recognize that the MRT program did not affect each of the four dimensions of R/PH equally. Second, this analysis suggests that the MRT program did not affect all populations in the same way. Third, the within-group analysis showed that the program might be more effective when MRT trainers formally implement the training in their units, feel confident in their ability to train, and feel that they have the necessary support from leadership. Fourth, CSF has only been in the field for 15 months; analyses of other programs suggest that the effects of interventions may often be realized long after the training ends (e.g., Gillham et al., 1995). Finally, while this evaluation showed evidence of the benefits of having MRT trainers present, we know little about the features of the MRT program that may be most responsible for impacting the R/PH of Soldiers. Each of these five points is discussed below.

Differential Impacts on R/PH. This evaluation has shown that the Master Resilience Training component of CSF has had the intended effect of improving the R/PH of Soldiers exposed to MRT trainers. As the above synopsis of results suggests, however, the results are not necessarily consistent across the four broad fitness dimensions targeted by CSF. Instead, the effects of the MRT intervention appear to be manifested in the Emotional and Social aspects of R/PH. That is, the results showed that Soldiers in the Treatment condition had higher scores than the Control condition on various facets of Emotional and Social Fitness when the analysis focused on Time 2 scores and when changes in R/PH were assessed over time. As a result, this evaluation provides evidence that MRT training, as currently devised, may be more effective at impacting scores along these two dimensions rather than the Family and Spiritual dimensions.

From a programmatic perspective these results provide potential directions for CSF or for future incarnations of the program. Specifically, Army leadership may want to capitalize on the findings that Emotional and Social dimensions of R/PH improve as a result of the presence of MRTs by bolstering training in these two areas, thus, hopefully providing further improvement in these areas. Alternatively, leadership may want to instead strengthen the Family and Spiritual Fitness components of the program in order to ensure that CSF does, indeed, address each of the four areas of R/PH that are the focus of the program. While there are certainly normative considerations that can drive the decision of which components of Master Resilience Training need to be enhanced, it would be worthwhile for designers of the program to consider which aspects of Soldier R/PH are most closely related to various behavioral outcomes. For example, if various aspects of Emotional Fitness are positively correlated with desirable behavioral outcomes such as below zone promotions and receipts of awards, and negatively correlated with undesirable behaviors such as drug

use and violent crimes, then program developers might want to consider such statistical relationships when developing and updating CSF and the MRT program in particular. Indeed, prior work by Lester and colleagues (Lester et al., 2011a, 2011b) has shown such links between R/PH and specific behaviors to exist, thus it is possible to use such markers as guidance. If the Army does choose to make modifications to CSF in order to enhance specific aspects of the program, it would be prudent to use empirical results for guidance in the determination of which aspects of MRT training might need to be reassessed and updated.

Risk-Related Moderation. The results of this evaluation may also provide guidance for CSF leadership by showing which populations might be more likely to benefit from the presence of MRTs within their units. From the results of this analysis, it appears that younger Soldiers benefit more fully from the presence of MRTs. Therefore, while CSF is designed to be a universal intervention intended to benefit all Soldiers, the findings presented here provide evidence that the program may be more effective for certain populations of Soldiers. Another way to think about the findings may be to consider which populations are most "at risk" for having low levels of R/PH, as measured by the GAT, in the face of stressful events. Here, it is reasonable to expect younger Soldiers to exhibit lower levels of R/PH simply because they have fewer opportunities, unlike older Soldiers, to derive the benefits that come from facing and overcoming stressful events. As a result, it may be useful for CSF leadership to conceptualize age as a risk-related moderator that impacts the effectiveness of the training (see Spoth, Shin, Guyll, Redmond, & Azevedo, 2006, p. 210 for a discussion of risk-related moderation). This is not to say that CSF, and MRT training in particular, should only be implemented within certain Army populations. Rather, it is to say that a greater understanding of the program may be ascertained by identifying which demographic variables tend to moderate (either upward or downward) the program's effectiveness. This understanding may, in turn, provide for a more targeted implementation of the program into the future.

Trainer Efficacy and Trainer Support. The results of the evaluation provided evidence that the MRT program is more effective when MRT trainers formally implement the program within their units. Though a seemingly logical finding, it is an important one in that it suggests that MRT trainers should be encouraged to conduct formal training sessions within their units so that the benefits of the MRT training are fully realized. The evaluation showed that R/PH is enhanced among Soldiers in units where MRT trainers feel prepared to train subordinates. Again, while seemingly a straightforward finding, it emphasizes the importance of having trainers that feel prepared to lead training sessions in their units, and who feel confident in their ability to do so. From a program perspective, this suggests the need to ensure that all MRTs feel confident with their training before they are sent back to their units to pass along the lessons learned. Finally, the evaluation showed that the MRT program was more effective when MRTs felt they had the support of their command. This result holds potentially critical lessons about the importance of "buy-in" by all parties involved in the training, and may suggest the need to develop a support program for MRTs in the field.

CSF and Interventions over Time. It is important to recognize that the MRT program has only been in the field for a relatively short period of time. While this evaluation has found evidence of a number of relationships between exposure to MRT training and Soldier R/PH, it is likely that the short time frame under consideration is actually underestimating the effects of the program. This is particularly true considering that the skills assumed to be garnered as a result of exposure to MRT training are likely to increase over time as Soldiers are able to practice their skills. Furthermore, it is possible to expect the deployment of such skills to be further enhanced as Soldiers have the opportunity to employ them in the face of stressful events. Again, these possibilities call for the need for future evaluation of the program and its effects on Soldier R/PH.

MRT Training Mechanisms. Of course, even with knowledge of the statistical relationships between MRT training, Soldier R/PH, behavioral outcomes of interest, and knowledge of the populations that might be most likely to benefit from the MRT program, a central limitation to the program and this evaluation must be acknowledged. That is, it is impossible to determine the mechanisms through which the presence of MRT training impacts the self-reported R/PH of Soldiers. While there is some evidence that the implementation

of formal training and perceived self-efficacy of MRTs does increase the effects of the MRT program, this study does not provide an explanation of which facets of MRT training are responsible for impacting the R/PH scores of Soldiers with MRTs embedded in their units. Specifically, we do not know which of the 12 MRT skills influenced R/PH scores the most or least. Rather, we simply know from a broad programmatic standpoint that MRT skills effectively improve R/PH scores even after we accounted for a variety of factors that could equally influence the scores.

In addition to the five points outlined above, it is important to revisit the concept of the prevention paradox. Again, this concept exists in relation to the notion that broad-based interventions such as CSF are likely to only produce small effects when judged by typical standards such as effect sizes (*r*, Cohen's d, partial η^2, etc.) due to the nature of the intervention. As noted above, however, this does not necessarily mean that the intervention did not have a sufficient impact to be considered effective. Again, a small change across an entire population can have enormous impacts for that population. Meyer and colleagues (2001) explored this issue in depth to show that there are a number of relatively small, observed effects of interventions that, when extrapolated across an entire population, can hold great benefits. These examples include the ingestion of aspirin to reduce the chance of death by heart attack ($r = .02$), where the ingestion of aspirin was predicted to reduce the incidence of myocardial infarction from 439.7/100,000 people to 254.8/100,000 (Steering Committee of the Physicians' Health Study Research Group, 1989). Additionally, the ingestion of anti-hypersensitive medication had a slight correlation with reduced risk of stroke ($r = .03$), but was associated with a .49 risk reduction of stroke (Psaty et al., 1997). Across an entire population, these effects can yield tremendous benefits for the population. Outside the medical context, there are similar lessons that can be applied here. For example, a recent intervention reduced courts' failure to appear rates by 3% by simply reminding defendants to appear for their court date (partial $\eta^2 = .002$) (Bornstein, Tomkins, Neeley, Herian, & Hamm, in press). While at face value this effect seems quite small, a 3% reduction in failure to appear in court spread across thousands of defendants and spread across a number of years can have considerable impacts on resources spent and collected by criminal justice systems. In sum, small changes and small statistical effects can lead to quite large and important improvements in a system, population, or society.

It is easy to take this lesson and apply it to CSF to understand the potential benefits across the entire Army if levels of R/PH are enhanced. To use Emotional Fitness as an example, this evaluation showed that there was a 1.31% difference between the Treatment and Control conditions at Time 2, a 1.00% difference in growth in Emotional Fitness from Time 1 to Time 2, and a 1.74% difference between the two conditions among 18-24 year olds. From previous work, we know that there is a strong positive link between Emotional Fitness and desirable behaviors of Soldiers, as well as a strong negative relationship with undesirable behaviors among Soldiers. Therefore, it is reasonable to expect that the implementation of MRT training across the entire Army would impact the prevalence of both desirable and undesirable objective behavioral outcomes in Soldiers. Furthermore, though outside the scope of the current report, it is likely that enhanced Emotional Fitness among Soldiers can positively impact their ability to cope with the stressful events that they are likely to confront in their professional and personal lives. Again, because this possibility has implications for prevalence rates of post-traumatic stress disorder (PTSD) and perhaps the ability to better address challenges associated with traumatic brain injury (TBI), it is recommended that a longitudinal effort be undertaken to determine whether such relationships exist.

Conclusion

Most importantly, this evaluation provides solid evidence showing that the MRT skills are having a positive effect on Soldier-reported resilience and psychological health (R/PH). The evaluation shows that MRT training, or more specifically the presence of MRT trainers embedded within select units, positively impacts the R/PH of Soldiers within those units. The findings held when measured in both a cross-sectional and longitudinal fashion. Further analyses indicated that the presence of MRTs might be more effective for younger Soldiers, and may be more effective when MRT trainers are confident and feel as though they have the support of their units' command team.

Together, the results suggest that R/PH levels of Soldiers can be enhanced through intervention techniques that rely upon a train-the-trainer approach. There are, of course, aspects of the program that have not yet been assessed. For example, it is not entirely clear which specific skill or sets of skills within MRT are driving the increase in Soldier-reported R/PH. Here, the focus was on assessing the impact of the entire MRT training approach, though future program evaluation initiatives shall provide such granularity. Furthermore, continued assessment to determine which potential risk-related variables enhance the effectiveness of the training should be undertaken. In doing so, CSF can continue to refine and adjust the training programs to maximize their impact on the psychological health and resilience of Soldiers and, by extension, the overall health of the Army.

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Master Resilience Training and the Global Assessment Tool; Description of the Penn Resiliency Program; Description of Previous Military Stress Interventions

MRT Training and Global Assessment Tool Crosswalk

The table below presents the names of MRT modules and a description of the expected direction of each with various R/PH constructs. Specifically, the left-hand column presents the module numbers and units contained within the MRT training. The right-hand column presents the GAT constructs that are likely to be impacted by each module.

Table A1. MRT Training and Global Assessment Tool Crosswalk

Module/Unit	Impacted Constructs and Expected Direction of Relationship
Module 1: Resilience	
Unit 1: Resilience and MRT Competencies	
Unit 2: Hunt the Good Stuff	Optimism (+); Negative Affect (-); Positive Affect (+); Family Satisfaction (+);
Module 2: Building Mental Toughness	
Unit 1: ATC	Adaptability (+); Bad Coping (-) Good Coping (+), and Catastrophizing (-)
Unit 2: Avoiding Thinking Traps	Adaptability (+); Bad Coping (-) Good Coping (+), and Catastrophizing (-)
Unit 3: Detect Icebergs	Adaptability (+); Bad Coping (-) Good Coping (+)
Unit 4: Energy Management	
Unit 5: Problem Solving	Adaptability (+); Bad Coping (-) Good Coping (+), and Catastrophizing (-)
Unit 6: Put it in Perspective	Adaptability (+); Bad Coping (-) Good Coping (+), and Catastrophizing (-); Optimism (+);Negative Affect (-); Positive Affect (+)
Unit 7: Real Time Resilience	Optimism (+)
Module 3: Building Character Strengths	
Unit 1: Identify Strengths in Self and Others	Character (+)
Unit 2: Use Strengths in Challenges	Character (+)
Module 4: Building Strong Relationships	
Unit 1: Assertive Communication	Family Fitness (+); Social Fitness (+)
Unit 2: Active Constructive Responding and Praise	Friendship (+); Loneliness (-); Family Satisfaction (+); Family Support (+)

Resilience and Interventions: The Penn Resiliency Program

To date, relatively few studies have empirically explored ways to increase resilience in adults. Davidson et al. (2005) examined the role of pharmacological interventions to increase resilience (see also Davidson, 2006). Connor and Davidson (2003), while focusing more heavily on measurement issues and offering little detail about the characteristics of the intervention, found evidence of improved resilience among individuals involved in a general population study, including psychiatric patients and patients with posttraumatic stress disorder and generalized anxiety disorder.

Among adults, research on interventions has instead focused more squarely on ways to offset depressive symptoms. Using cognitive behavioral therapy (CBT), these interventions teach individuals that depression and related symptoms are not direct results of experiences, but instead are consequences of dysfunctional ways in which they perceive and interpret events. In other words, CBT teaches individuals to reframe their thinking about events and evaluate them in more realistic ways (Beck, 1976). In general, research has shown such approaches to be effective among adults with depression (Cuijpers, van Straten, Smit, Mihalopoulos, & Beekman, 2008; Strunk and DeRubeis, 2001). Depressed patients treated with a combination of cognitive therapy and medication, or with cognitive therapy alone, have been shown to be half as likely as patients treated solely with medication to experience a relapse of depressive symptoms during the first two years following treatment (Evans et al., 1992). Recovered depressed patients withdrawn from medication have been found to be significantly less likely to experience a recurrence of symptoms during a follow-up period if they were exposed to cognitive therapy during treatment (Hollon et al., 2005). Notably, researchers have demonstrated that cognitive-behavioral therapy is often associated with sudden and dramatic improvements in depressive symptoms after only a short period of treatment (Hollon, Stewart, & Strunk, 2006). For example, Tang and DeRubeis (1999) found that 50% of the observed improvement in patients receiving cognitive-behavioral therapy occurred within a single between-session time period, and accounted for an improvement of 11 points on the Beck Depression Inventory. Such rapid improvement, note Hollon et al. (2006), may be the result of patients' sudden realization of self-defeating thinking patterns.

Penn Resiliency Program (PRP). The PRP consists of a series of 12 lessons that are intended to train recipients in the use of cognitive skills to cope with anxiety and depressive symptoms. The following section describes the program in more detail, and discusses the findings of evaluations of the program. (For a more detailed description of the program, see Gillham, Brunwasser, and Freres [2008] and www.ppc.sas.upenn.edu).

Drawing on Ellis (1962), Lesson 1 introduces students to the ABC model (A: Activating Events; B: Belief Systems; and C: Consequences). The model teaches students to recognize that their mental interpretations of events are perhaps as important as the events themselves in influencing their thoughts, feelings, and behaviors. In Lesson 2, students are introduced to the notion of explanatory styles, the purpose being to encourage students to develop self-awareness with regard to the ways in which they explain events in their lives (i.e., optimistically or pessimistically). Together, these first two lessons provide students with the knowledge to understand that their initial interpretation of events might be unrealistic and/or negatively biased, and why such interpretations of events may be self-detrimental. The program instructs students in how to develop realistic alternative appraisals of events in place of their initial negatively biased interpretations.

Lesson 3 aims to consolidate these lessons through activities designed to bolster students' awareness of the value of generating alternative explanations for events. In Lesson 4, students begin to apply the lessons learned in the first three lessons by thinking about the future in relation to a past negative activating event. The goal is to assist students in changing their catastrophic thought patterns. Students are presented with a negative event and are asked to evaluate their initial reactions to the event, to generate alternative explanations for the event, and to think about worst-case, best-case, and most likely scenarios that may occur in the wake of that event. Lesson 5 summarizes the first four lessons.

In Lesson 6 a social component to the lessons is introduced, where students are asked to apply lessons learned in the first half of the program to interaction

styles, social skills, and social problem-solving. Students are introduced to three styles of interaction: aggression, assertiveness, and passivity. Activities help to illustrate each of the three styles and the way each can result from mental interpretations. Lesson 7 continues to focus on the social aspects of resilience by teaching students various coping strategies they might use when faced with a difficult social situation. Lesson 8 is designed to apply the skills learned in the first four lessons of the program to thoughts about obligations and chores; specifically, students are taught to think about the ways in which their thought patterns affect their approach to particular tasks. Lesson 9 serves as a summary of lessons 6-8 and introduces students to activities designed to consolidate those lessons.

Lesson 10 is designed to teach students a five-step approach to social problem-solving. The goal of the lesson is to raise students' awareness of the ways in which they interpret and react to the actions of others. In particular, the five-step approach teaches students to apply some of the lessons such as gathering evidence and generating alternatives that were learned in earlier lessons. Lesson 11 provides a number of activities that in which students apply the lessons learned in Lesson 10. Lesson 12 serves as a recap of the entire program.

Evaluations of PRP. A substantial body of literature has examined the efficacy of the PRP in reducing and preventing depressive symptoms and disorders among children and adolescents. To date, the program has been one of the most frequently evaluated depression interventions (Brunwasser, Gillham, & Kim, 2009). An initial program evaluation (Gillham et al., 1995) found that participating in the program improved explanatory style and reduced participants' depressive symptoms by half over two years. Since then, results of controlled trials have been somewhat inconsistent, with some studies revealing no statistically significant evidence of program effectiveness (Cardemil, Reivich, & Seligman, 2002, study 2; Pattison & Lynd-Stevenson, 2001), and others revealing between-group differences in program effectiveness. For example, Gillham, Reivich, et al. (2006) found that the effects of PRP were significant for children in two schools, but not in the third. Cutuli, Chaplin, Gillham, Reivich, and Seligman (2006) found that the program reduced depressive symptoms among children with externalizing behavior problems, but not among other symptom groups. And Gillham, Hamilton, et al., (2006) found that the program improved explanatory style for positive events, but not negative events, and that it reduced depressive disorders for girls, but not for the total sample.

A recent meta-analysis of 17 empirical evaluations of the PRP (Brunwasser et al., 2009) found that the program effectively reduced depressive symptoms among program recipients, resulting in total effect sizes ranging from 0.11 to 0.21 which, though modest, are comparable to effect sizes produced by other depression interventions (Brunwasser et al., 2009). The meta-analysis also identified a number of factors that should be taken into consideration when evaluating program effects. In particular, the authors noted that effect sizes tended to be smaller when PRP training was administered by community providers rather than program researchers, and was more effective when administered to populations targeted as high-risk for depression, as opposed to universal populations. Evidence from previous empirical evaluations of the program also suggested factors that should be considered as potential moderators of program effectiveness, including race or gender (Cardemil et al., 2002; Gillham, Hamilton, et al., 2006); symptom level (Cardemil et al., 2002; Cutuli et al., 2006); intervention provider (i.e., program developer vs. community provider) (Brunwasser et al., 2009) and program attendance and fidelity (Chaplin et al., 2006; Gillham, Hamilton, et al., 2006).

Research has shown that time is also an important consideration when evaluating the effectiveness of PRP training. For instance, evidence from a few studies (Gillham et al., 1995; Gillham, Reivich, et al. , 2006; Quayle, Dziuraweic, Roberts, Kane, & Ebsworthy, 2001) suggests that effects may develop gradually over months or years, while other studies have found effects occurring immediately at post-intervention assessment (Chaplin et al., 2006; Roberts, Kane, Thomson, Bishop, & Hart, 2003). Although longitudinal data has found lasting program effects spanning three years (Gillham & Reivich,1999), a lack of research extending beyond early adolescence precludes researchers from making inferences regarding the persistence of PRP's effects over time (Brunwasser et al., 2009).

Table A2. Summary of Penn Resiliency Program (PRP) Evaluations

Article	Summary	Results
Brunwasser, Gillham, and Kim (2009)	• Meta-analysis; 17 controlled evaluations of PRP (n = 2,498)	• Effect sizes (ES) of PRP in reducing depressive symptoms are modest though similar to ESs reported in larger meta-analyses of depression prevention programs. • In preliminary analysis, PRP reduced depressive symptoms compared to controls at post-intervention, six-month and 12-month follow-up, total ESs ranging from 0.11 to 0.21. • PRP did not significantly improve depressive symptoms above active controls (other programs) at any assessment point. • In secondary analyses, PRP was more effective among at-risk (target) populations at post-intervention (PI), six-month and 12-month follow-ups; among not-at-risk (universal) studies, PRP was effective only at 12-month follow-up. • PRP did not significantly reduce the risk for depressive disorders among any sub-groups examined. • Mean effects for studies conducted by PRP researchers tended to be smaller (though not significantly) than studies conducted by community providers.
Cardemil, Reivich, and Seligman (2002); Study 1	• Universal • Low-income Latino students (n = 85) • PRP vs. control • Randomized Controlled Trial (RCT)	• Significant reduction of depressive symptoms across time points. • Evidence of greater effect for moderate to severe symptom participants. • Reduced hopelessness across time points. • Improved automatic thoughts across time points. • Improved self-esteem at six months. • Improvement in automatic thoughts scores mediated change in depressive symptoms.
Cardemil, Reivich, and Seligman (2002); Study 2	• Universal • Low-income African American students (n = 103) • PRP vs. control. • RCT	• No significant effects.
Chaplin et al. (2006)	• Universal • Sixth to eighth graders (n = 208) • All girls PRP vs. co-ed PRP vs. control • RCT	• PRP improved depressive symptoms for boys and girls at PI. • All-girl PRP increased program attendance. • Higher attendance was related to decreases in hopelessness beyond co-ed and control groups for girls at PI.
Cutuli, Chaplin, Gillham, Reivich, and Seligman (2006)	• Targeted • Sixth to eighth grade students (n = 265) • PRP vs. active control vs. control • RCT	• PRP reduced depressive symptoms among pure externalizers (low depression, high externalizing) group; no intervention effects were found in other symptom groups.
Gillham, Hamilton, Freres, Patton, and Gallop (2006)	• Targeted • 11 and 12 year olds in a primary care setting (n = 271) • PRP vs. usual care control • RCT	• PRP improved explanatory style for positive events. • PRP improved explanatory style for negative events among girls, but not boys. • PRP did not improve depressive symptoms among the combined sample. • PRP reduced depressive symptoms among girls, but not boys. • PRP did not prevent depressive disorders. • PRP prevented combined depressive, anxiety, and adjustment disorders among high, but not low-symptom participants. • Higher attendance and intervention fidelity were associated with greater reductions in depressive symptoms.

Table A2. Summary of Penn Resiliency Program (PRP) Evaluations cont.

Article	Summary	Results
Gillham and Reivich (1999)	• Targeted • Fifth and sixth grade students (n = 136) • PRP vs. control • Matched control design	• Effect on depressive symptoms no longer significant at 30 and 36 months • Effect on explanatory style remained significant at 30 and 36 months
Gillham et al. (2006)	• Targeted • Evaluation of PRP parent component • Sixth and seventh grade students (n = 44) • PRP + parent component vs. control • RCT	• No significant effect on depressive symptoms in full sample. • Effect on depressive symptoms differed by school. • PRP reduced depressive symptoms in schools A and B relative to control, but not relative to active control. • PRP prevented elevated depressive symptoms in schools A and B relative to control, but not relative to active control. • PRP had no effect on high depressive symptoms. • PRP had no effect on depressive symptoms in school C.
Gillham et al. (2007)	• Universal • Comparison of PRP in three schools • Sixth to eighth grade students (n = 697) • PRP vs. active control vs. control • RCT	• PRP + parent intervention improved depressive symptoms at six and 12 months • PRP + parent intervention lowered anxiety at six and 12 months
Gillham, Reivich, Jaycox, and Seligman (1995)	• Targeted • Fifth and sixth grade students (n = 118) • PRP vs. control • Matched control design	• Significant reduction of depressive symptoms beginning at 18-months and sustained through 24-month assessment. • Improved explanatory style beginning at 12 months and sustained through 24-month assessment. • Improved explanatory style mediated change in depressive symptoms.
Pattison and Lynd-Stevenson (2001)	• Universal • Fifth and sixth grade Australian students (n = 63) • Penn Prevention Program cognitive restructuring component vs. social skills component vs. “attention control” (based on group membership and atmosphere but no explicit training) • RCT	• No significant effects.
Quayle, Dziurawiec, Roberts, Kane, and Ebsworthy (2001)	• Universal • Seventh grade Australian students (n = 47 girls) • PRP vs. control • RCT	• Intervention group reported fewer depressive symptoms beginning at 6 months • Intervention group reported higher self-worth beginning at 6 months

Table A2. Summary of Penn Resiliency Program (PRP) Evaluations cont.

Article	Summary	Results
Roberts, Kane, Thomson, Bishop, and Hart (2003)	• Targeted • Seventh grade students, 18 schools (n = 99) • PRP vs. control • RCT	• No overall group differences in depressive symptoms. • Significant improvement in anxiety symptoms at PI and six months • Low-depression group improved in depressive and anxiety symptoms at PI, but not follow-up. • High anxiety group improved significantly at PI, but not follow-up. • Parent-reported internalizing and externalizing problems improved at PI, but not at follow-up. • Low-depression group externalizing problems improved at PI, but not at follow-up. • Low- and high-anxiety groups internalizing and externalizing improved at PI, but not at follow-up. • Intervention group reported more optimistic explanations for positive events at PI, but not at follow-up.
Yu and Seligman (2002)	• Targeted • 8-15 year old Chinese students, two schools • PRP vs. control • RCT	• PRP group reported greater reduction in depressive symptoms at all three assessment points. • PRP reported greater improvement in explanatory style at all three assessment points. • Explanatory style mediated the change in depressive symptoms.

Summary of Military Stress Interventions

The following literature review was conducted to assess the empirical evidence examining the effectiveness of cognitive-behavioral stress interventions among adult military populations. As a recent RAND review noted, there is currently a dearth of empirical studies assessing the effectiveness of military-based resilience interventions, despite over 20 known programs having been tentatively developed among national and international military populations over the past three decades (Meredith et al., 2011). In this particular review, two recent U.S. programs, Army BATTLEMIND debriefing/training and the Navy BOOT STRAP stress intervention, are highlighted due to their applicability to the CSF program, and because these two programs represent some of the more prominent efforts of the U.S. Military to implement interventions on a broad scale.

Army BATTLEMIND debriefing and training (see Adler et al., 2009) was designed to ease the transition from deployment to home. The program, geared toward normalizing stress reactions, enhancing peer support, and modifying cognitive schemas and coping strategies, contained a post-deployment stress debriefing component and a transition training component. An initial evaluation (Castro, et al., 2006) found that the program led to improvement in PTSD and depressive symptoms and decreased stigma toward treatment-seeking among Soldiers returning from combat duty in Iraq. Program effectiveness was moderated by combat experience, being more effective for individuals with high levels of combat exposure. A more recent program evaluation revealed similar results: the intervention led to fewer PTSD and depressive symptoms, reduced stigma, and improved sleep quality among Soldiers returning from Iraq, while results were moderated by combat exposure. Notably, results were also moderated by the size of the treatment group, such that larger training groups benefitted most from the intervention (Adler et al., 2009).

Another U.S. program, the BOOT STRAP stress intervention, was conducted among Navy recruits in basic training. The program was designed to reduce attrition and enhance performance through training in cognitive-behavioral skills, such as adaptive coping. The initial program evaluation, targeted toward recruits at-risk for depression, led to significant increases in problem-solving coping, with lower levels of self-reported stress, insecure attachment, and loneliness (Williams et al., 2004). A later study found that BOOT STRAP participants were four times less likely than a control group to separate from the Navy for psychiatric reasons; the treatment group also reported significantly higher levels of unit cohesion and social support, as well as decreased conflict, anger, and stress reactance (Williams et al., 2007).

Similar interventions designed to increase resilience have yielded positive results among international and U.S. military populations. For example, Greenberg, Langston, Fear, Jones, and Wessely (2009) found that a psychoeducational program designed to increase resilience led to improved mental health among British Royal Navy personnel. Cohn and Pakenham (2008) examined the efficacy of a cognitive-behavioral program administered to Australian Army recruits in basic training, finding that the intervention improved explanatory style, reduced self-blame coping, increased positive states of mind, and lowered psychological distress relative to a control group. Van Voorhees and Sweis (2010) found that a brief Internet-based intervention was effective at reducing depressed mood and PTSD symptomatology, while increasing willingness to seek treatment for symptoms related to posttraumatic stress disorder and depression over the course of 12 weeks. Finally, Gould, Greenberg, and Hetherton (2007) found that a psychoeducational program geared toward understanding symptoms of stress reactions and modifying attitudes toward mental help-seeking reduced mental health-related stigma among active service members of the UK armed forces.

A few studies, however, have reported no significant effects of resilience training. For example, Githens and Zalinski (1983) found no benefits of realistic job preview and stress-coping educational films among 6,658 Marine recruits in training. Sharpley, Fear, Greenberg, Jones, and Wessely (2008) found no significant results of pre-operational stress debriefing on stress, PTSD, alcohol consumption, general health, or morale/cohesion among 735 Royal Navy and Royal Marine Personnel. Cigrang, Todd, and Carbone (2000) found that stress inoculation did not reduce attrition among 178 U.S. Air Force basic trainees at risk for discharge. Finally,

Adler et al. (2008) found that critical incident stress debriefing did not reduce PTSD symptoms among 952 U.S. soldiers during the final months of a peacekeeping mission in Kosovo.

In sum, the positive results of randomized controlled studies of the BATTLEMIND and BOOT STRAP interventions lend support to the efficacy of cognitive-behavioral interventions in improving a number of stress-related variables and reducing treatment-seeking stigma among adult military populations. Further, a number of smaller-scale program evaluations conducted among national and international military populations have also demonstrated positive results, though many such programs remain unimplemented, perhaps due to a lack of organizational support and/or funding (Meredith et al., 2011). These findings suggest the need for continued study of resilience interventions among military personnel.

Table A3. Summary of Military Stress Interventions

Article	Description	Results
Adler, Bliese, McGurk, Hoge, and Castro (2009)	• Soldiers post-deployment (n = 1,060) • BATTLEMIND vs. active control • Randomized Controlled Trial (RCT)	• Among individuals with high combat exposure, BATTLEMIND debriefing and small and large BATTLEMIND training led to fewer PTSD symptoms than the stress education condition. • BATTLEMIND debriefing led to fewer depressive symptoms than the stress education conditions for individuals with high levels of combat exposure. • Large group BATTLEMIND training led to fewer depressive symptoms than the stress education control regardless of level of combat exposure. • BATTLEMIND debriefing and small group BATTLEMIND training led to fewer sleep problems than the stress education condition for individuals with high combat exposure. • Large group BATTLEMIND training led to lower levels of perceived mental health stigma for individuals with high combat exposure.
Adler et al. (2008)	• Soldiers in final phase of deployment (n = 952) • Critical Incident Stress Debriefing (CISD) vs. stress management vs. control • RCT	• Soldiers assigned to the CISD condition rated it more positively than soldiers assigned to the stress management condition. • CISD failed to reduce PTSD symptoms relative to no intervention.
Castro et al. (2006)	• Soldiers post-deployment (n = 860) • BATTLEMIND vs. stress education • RCT	• Compared to soldiers who had > 20 combat experiences and received standard stress education training, soldiers who received BATTLEMIND training reported: • fewer PTSD symptoms • fewer depressive symptoms • lower psychological stigma scores
Cigrang, Todd, and Carbone (2000)	• Air force trainees at risk for discharge (n = 178) • Stress inoculation vs. control • RCT	• No significant differences found for attrition rates between groups.
Cohn and Pakenham (2008)	• Australian Army trainees (n = 174) • Cognitive-behavioral program vs. control • RCT	• In comparison to controls, a significantly greater portion of the intervention group showed significantly decreased stable and global attributions from T1 to T3. • A significantly greater portion of the intervention group decreased in the use of self-blame coping from T1 to T3. • A significantly greater portion of the intervention group showed reliable increases in positive states of mind from T1 to T3.
Deahl et al. (2000)	• British soldiers following peacekeeping duties (n = 106) • Psychological debriefing vs. control • RCT	• Alcohol misuse significantly lower among intervention group at one-year follow-up, but not at three or six months.
Githens and Zalinski (1983)	• Marine Corps. Recruits (n = 6,658) • Stress-coping educational film vs. control	• No significant differences in attrition rates were found between groups.

Table A3. Summary of Military Stress Interventions cont.

Article	Description	Results
Gould, Greenberg, and Hetherton (2007)	• UK active service members (n = 87) • Trauma Risk Management (TRiM) vs. control	• TRiM significantly improved attitudes to stress, PTSD, and help-seeking from TRiM practitioners. • After adjusting for baseline differences, the TRiM group, compared to controls, demonstrated improved attitudes to stress and PTSD, and seeking help from TRiM practitioners. • The effect of TRiM on help-seeking from non-military support networks was not significant.
Greenberg, Langston, Fear, Jones, and Wessely (2009)	• British Royal Navy personnel (n = 1,559) • History of stress education vs. no history of stress education	• Individuals who had received stress education were significantly less likely to score above "stress case" threshold in comparison to those who did not receive stress education. • Stress education effectiveness moderated by perceived usefulness.
Hammermeister, Pickering, and Ohlson (2009)	• Army personnel (n = 27) • Mental Skills Training (MST) • No control group	• Self-esteem significantly increased. • A three-variable solution consisting of self-confidence, imagery, and mental practice accounted for 55% of variance in self-esteem scores.
Jha, Stanley, Kiyonaga, Wong, and Gelfand (2010)	• Marine Corps. Reservists (n = 17) • Mindfulness Training (MT) vs. civilian control	• When coded as a continuous variable, MT practice time was significantly associated with increased working memory capacity and positive affect. • When coded as a continuous variable, MT practice time was significantly negatively correlated with negative affect.
Sharpley, Fear, Greenberg, Jones, and Wessely (2008)	• British Royal Navy and Royal Marine personnel (n = 735) • Pre-operational stress debriefing vs. control (n = 735)	• No evidence supporting the efficacy of pre-operational stress debriefing. • No evidence of harmful effects.
Van Voorhees and Sweis (2010)	• U.S. recent veterans (n = 50) • VETS PREVAIL internet treatment • No control	• Depressed mood declined significantly from baseline to four weeks, and at borderline significance at 12 weeks. • The percentage of participants with depression scores > nine declined from 74% to 20%. • PTSD scores declined significantly from baseline to week four, and at borderline significance at week 12. • Willingness to seek treatment for psychiatric illness significantly increased. • Mental health self-efficacy significantly increased. • Stigma increased.

Table A3. Summary of Military Stress Interventions cont.

Article	Description	Results
Williams et al. (2007)	• U.S. Navy recruits in training (n = 1,199) • BOOT STRAP intervention vs. control • RCT	• A significantly greater number of intervention recruits completed basic training than the control group. • No significant two-year attrition differences were observed. • In the intervention group, the percentage of recruits separated from the Navy for psychiatric reasons was more than four times lower than in the control group. • The increase in perceived cohesion was significantly higher among the intervention group. • Intervention recruits perceived significantly more social support than control recruits. • Intervention group reported significantly lower self-reported stress levels than control group. • Intervention group reported significantly lower reaction to stress than control group. • Intervention group reported significantly less conflict in relationships than control group. • Intervention group reported significantly less anger expression coping strategies than control group.
Williams et al. (2004)	• U.S. Navy recruits in training (n = 801) designated at-risk for depression • BOOT STRAP intervention vs. control • Targeted study	• All recruits decreased in depression over time, with no significant difference in the amount of decrease between groups. • Compared to the other groups, the intervention group at T2 had significantly increased their problem-solving coping. • Compared to the other groups, the intervention group at T2 had significantly decreased in loneliness. • Compared to the other groups, the intervention group at T2 had significantly decreased in insecure attachment style. • Compared to the other groups, the intervention group at T2 had significantly increased their sense of belongingness. • Recruits in the intervention group did significantly better than the nonintervention group on written tests, were more likely to complete recruit training in their original division, were transferred less often to other divisions, and were held back less often. The intervention group performed similarly to the comparison group.

Statistical Tables

Time 1 Analysis

Time 1 R/PH scores were compared using multivariate analysis of variance (MANOVA) with the GAT subscale as a within-subjects factor. MANOVA was preferable to univariate analysis of variance (ANOVA) in this instance because of the intercorrelations among GAT subscales and dimensions. First, the MANOVA was conducted on the GAT subscales. The analysis revealed that profiles of mean subscale scores were different (i.e., non-parallel) across the two conditions ($F [15; 21,240] = 12.488$, $p<.001$, with the use of Wilks' lambda). Then, a follow-up simple effects analysis was conducted in order to determine which of the subscales had significantly different means across the two conditions. The simple-effects analysis showed that the two conditions were significantly different on eight of the subscales used to measure Soldier R/PH. Next, the MANOVA was conducted on the four R/PH dimensions of Emotional, Family, Social, and Spiritual Fitness. The analysis showed that the two conditions had different (i.e., non-parallel) profiles of means on the four dimensions ($F [3; 9,952] = 3.162$, $p<.05$, with the use of Wilks' lambda). Further, a simple effects analysis was conducted to determine which dimensions had significantly different means across the two conditions. The analysis demonstrated that the Treatment condition was significantly higher on three of the four broad dimensions of Soldier Fitness: Emotional, Family, and Social Fitness.

B1. MANOVA: Comparison of Means at Time 1

		Control†		Treatment‡					
	Dimension/Subscale	Mean	SE	Mean	SE	Mean Diff.	F	Sig.	Partial η^2
Positive	Emotional Fitness	67.39	0.17	67.83	0.14	0.44	4.03	.045	.000
	Adaptability	69.87	0.22	70.66	0.19	0.79	7.32	.007	.000
	Character	72.39	0.21	72.71	0.18	0.32	1.29	.257	.000
	Good Coping	63.30	0.23	64.18	0.20	0.89	8.74	.003	.000
	Positive Affect	63.75	0.24	63.42	0.21	-0.33	1.04	.308	.000
	Optimism	59.14	0.21	60.65	0.19	1.51	28.52	.000	.001
	Family Fitness	70.92	0.22	73.19	0.19	2.27	60.48	.000	.003
	Family Satisfaction	80.22	0.27	81.65	0.24	1.43	15.66	.000	.001
	Family Support	62.30	0.27	65.61	0.24	3.31	84.47	.000	.004
	Social Fitness	65.45	0.20	66.63	0.17	1.18	21.03	.000	.001
	Engagement	58.68	0.27	59.36	0.24	0.68	3.55	.060	.000
	Friendship	79.24	0.28	79.94	0.24	0.70	3.71	.054	.000
	Org. Trust	61.37	0.26	63.87	0.22	2.50	54.75	.000	.003
	Spiritual Fitness	58.39	0.27	58.37	0.23	-0.02	0.00	.948	.000
Negative	Catastrophizing	30.00	0.26	29.37	0.22	-0.63	3.55	.060	.000
	Bad Coping	56.32	0.26	56.32	0.22	0.00	0.00	.996	.000
	Depression	22.78	0.26	22.05	0.22	-0.74	4.59	.032	.000
	Negative Affect	35.44	0.19	34.89	0.16	-0.54	4.92	.027	.000
	Loneliness	37.01	0.24	36.44	0.21	-0.58	3.28	.070	.000

†n=3215-3218; ‡n=6739

B2. MANOVA: Change from Time 1 to Time 2

			Mean T1	SE	Mean T2	SE	Mean Diff.	F	Sig.	Partial Eta^2	F†	Sig.
Positive	Emotional Fitness	Control	67.10	0.27	66.64	0.29	-0.46	3.70	.055	.000	11.70	.001
		Treatment	67.33	0.19	67.87	0.20	0.54	10.47	.001	.001		
	Adaptability	Control	68.97	0.36	68.81	0.36	-0.16	0.19	.662	.000	0.87	.351
		Treatment	70.18	0.25	70.43	0.25	0.25	1.02	.313	.000		
	Character	Control	72.23	0.34	70.41	0.36	-1.82	28.02	.000	.003	15.50	.000
		Treatment	72.09	0.24	71.92	0.25	-0.17	0.54	.463	.000		
	Good Coping	Control	63.11	0.37	62.84	0.37	-0.27	0.53	.467	.000	4.71	.030
		Treatment	63.71	0.25	64.42	0.26	0.71	7.64	.006	.001		
	Positive Affect	Control	63.09	0.39	63.21	0.40	0.12	0.11	.741	.000	3.00	.083
		Treatment	62.31	0.27	63.25	0.28	0.94	12.43	.000	.001		
	Optimism	Control	58.45	0.35	58.84	0.34	0.39	1.39	.238	.000	0.19	.661
		Treatment	60.04	0.24	60.59	0.24	0.55	6.16	.013	.001		
	Family Fitness	Control	70.12	0.37	70.71	0.37	0.59	2.60	.107	.000	0.06	.806
		Treatment	72.73	0.26	73.22	0.26	0.48	3.64	.056	.000		
	Family Sat.	Control	79.66	0.47	80.09	0.46	0.42	0.81	.367	.000	0.06	.804
		Treatment	81.24	0.32	81.81	0.31	0.56	3.09	.079	.000		
	Family Support	Control	61.24	0.45	61.91	0.45	0.67	2.05	.153	.000	0.81	.369
		Treatment	64.82	0.31	64.98	0.31	0.16	0.24	.627	.000		
	Social Fitness	Control	65.01	0.32	65.11	0.33	0.10	0.12	.734	.000	0.60	.438
		Treatment	66.08	0.22	66.45	0.23	0.37	3.44	.064	.000		
	Engagement	Control	58.87	0.44	58.62	0.44	-0.25	0.34	.558	.000	0.79	.373
		Treatment	58.99	0.31	59.20	0.30	0.21	0.52	.473	.000		
	Friendship	Control	78.12	0.46	78.60	0.45	0.48	1.17	.280	.000	8.95	.003
		Treatment	78.72	0.32	80.82	0.31	2.10	46.62	.000	.005		
	Org. Trust	Control	61.14	0.41	61.04	0.42	-0.10	0.05	.824	.000	1.83	.176
		Treatment	63.54	0.28	62.76	0.29	-0.78	7.29	.007	.001		
	Spiritual Fitness	Control	57.16	0.44	58.41	0.44	1.25	9.76	.002	.001	0.37	.542
		Treatment	56.95	0.31	58.50	0.31	1.55	31.30	.000	.003		
Negative	Catastrophizing	Control	30.67	0.42	31.01	0.42	0.34	0.56	.455	.000	5.72	.017
		Treatment	30.19	0.29	29.20	0.29	-0.99	9.76	.002	.001		
	Bad Coping	Control	57.03	0.41	55.32	0.41	-1.71	13.81	.000	.001	0.02	.901
		Treatment	57.04	0.29	55.39	0.28	-1.65	26.64	.000	.003		
	Depression	Control	23.48	0.42	23.15	0.43	-0.33	0.58	.447	.000	0.00	.972
		Treatment	22.52	0.29	22.16	0.30	-0.36	1.35	.245	.000		
	Neg. Affect†	Control	35.70	0.30	35.24	0.31	-0.46	2.22	.137	.000	0.11	.743
		Treatment	35.24	0.21	34.90	0.22	-0.34	2.49	.115	.000		
	Loneliness	Control	37.81	0.39	37.43	0.40	-0.38	0.97	.324	.000	0.11	.737
		Treatment	37.12	0.27	36.90	0.27	-0.22	0.70	.402	.000		

Control (n= 2924-3218); Treatment (n= 6247-6739); † Wilks' Lambda criterion

B3. Regression: Interactions between Age and MRT Training

		Variables					Model Stats		
		Constant	Time 1 Score	Treatment	Age	Age * Treatment	R^2	F	Sig.
Positive	Emotional Fitness	-- (.471)	.621*** (.008)	.033*** (.270)	.121*** (.075)	-.082** (.043)	.40	1623.18	.000
	Adaptability	-- (.660)	.486*** (.009)	.026** (.379)	.075* (.105)	-.021 (.061)	.24	799.73	.000
	Character	-- (.651)	.524*** (.009)	.038*** (.374)	.117*** (.104)	-.080** (.060)	.28	973.64	.000
	Good Coping	-- (.686)	.494*** (.009)	.030*** (.394)	.112*** (.109)	-.078* (.063)	.25	821.03	.000
	Positive Affect	-- (.721)	.524*** (.009)	.011 (.414)	.096** (.115)	-.063* (.066)	.28	958.18	.000
	Optimism	-- (.596)	.559*** (.008)	.023** (.342)	.101*** (.095)	-.065* (.055)	.32	1169.81	.000
	Family Fitness	-- (.675)	.503*** (.009)	.030*** (.387)	.114*** (.107)	-.056 (.061)	.27	869.83	.000
	Family Satisfaction	-- (.850)	.482*** (.009)	.021* (.487)	.084* (.134)	-.039 (.077)	.24	718.55	.000
	Family Support	-- (.855)	.456*** (.009)	.030*** (.491)	.125*** (.135)	-.065 (.078)	.22	656.76	.000
	Social Fitness	-- (.557)	.594*** (.008)	.019* (.320)	.102*** (.089)	-.077** (.051)	.36	1379.27	.000
	Engagement	-- (.780)	.524*** (.008)	.012 (.448)	.096** (.124)	-.047 (.072)	.28	986.78	.000
	Friendship	-- (.821)	.520*** (.009)	.035*** (.471)	.048 (.131)	-.062* (.075)	.27	934.49	.000
	Org. Trust	-- (.774)	.477*** (.009)	.012 (.444)	.089** (.123)	-.057 (.071)	.23	748.42	.000
	Spiritual Fitness	-- (.758)	.588*** (.008)	.005 (.435)	.067* (.121)	-.030 (.070)	.35	1344.07	.000
Negative	Catastrophizing	-- (.813)	.404*** (.009)	-.033*** (.467)	-.075* (.129)	.008 (.075)	.18	531.66	.000
	Bad Coping	-- (.802)	.367*** (.009)	.000 (.460)	-.044 (.128)	.003 (.074)	.14	399.63	.000
	Depression	-- (.813)	.457*** (.009)	-.012 (.467)	-.119*** (.129)	.076* (.075)	.22	679.80	.000
	Negative Affect	-- (.577)	.480*** (.009)	-.005 (.331)	-.111*** (.092)	.061 (.053)	.24	776.89	.000
	Loneliness	-- (.705)	.541*** (.008)	-.005 (.405)	-.107*** (.112)	.091** (.065)	.29	1037.53	.000

*p<.05; **p<.01; ***p<.001

B4. Regression: Interactions between Gender and MRT Training

		Variables					Model Stats		
		Constant	Time 1 Score	Treatment	Gender	Gender * Treatment	R^2	F	Sig.
Positive	Emotional Fitness	-- (.734)	.626*** (.008)	.032*** (.282)	.020 (1.707)	-.012 (.997)	.39	1608.51	.000
	Adaptability	-- (.909)	.489*** (.009)	.026** (.395)	.033 (2.393)	-.031 (1.398)	.24	787.08	.000
	Character	-- (.940)	.527*** (.009)	.038*** (.390)	.026 (2.360)	-.016 (1.379)	.28	964.43	.000
	Good Coping	-- (.908)	.495*** (.009)	.030*** (.411)	.018 (2.487)	-.028 (1.453)	.25	813.75	.000
	Positive Affect	-- (.932)	.525*** (.009)	.008 (.431)	-.010 (2.611)	.026 (1.526)	.28	952.33	.000
	Optimism	-- (.771)	.563*** (.008)	.021* (.357)	-.001 (2.160)	.008 (1.262)	.32	1160.48	.000
	Family Fitness	-- (.917)	.510*** (.009)	.028** (.404)	.011 (2.433)	-.009 (1.423)	.26	852.95	.000
	Family Satisfaction	-- (1.126)	.485*** (.009)	.021* (.507)	.028 (3.025)	-.030 (1.764)	.24	709.82	.000
	Family Support	-- (1.037)	.462*** (.009)	.025** (.511)	-.013 (3.086	.013 (1.805)	.22	641.20	.000
	Social Fitness	-- (.783)	.595*** (.008)	.017* (.333)	-.011 (2.017)	.004 (1.178)	.36	1372.45	.000
	Engagement	-- (.951)	.530*** (.008)	.011 (.467)	.021 (2.829)	-.016 (1.653)	.28	973.77	.000
	Friendship	-- (1.080)	.521*** (.009)	.034*** (.491)	-.004 (2.973)	.002 (1.737)	.27	932.55	.000
	Org. Trust	-- (.967)	.477*** (.009)	.009 (.463)	-.039 (2.799)	.012 (1.635)	.23	745.69	.000
	Spiritual Fitness	-- (.915)	.590*** (.008)	.007 (.454)	.049 (2.745)	-.030 (1.604)	.35	1337.73	.000
Negative	Catastrophizing	-- (.899)	.413*** (.009)	-.034*** (.487)	-.034 (2.951)	.026 (1.724)	.17	516.22	.000
	Bad Coping	-- (.988)	.369*** (.009)	.003 (.480)	.009 (2.903)	-.027 (1.696)	.14	395.16	.000
	Depression	-- (.877)	.460*** (.009)	-.013 (.487)	-.039 (2.945)	.038 (1.721)	.21	670.21	.000
	Negative Affect	-- (.688)	.484*** (.009)	-.003 (.345)	.006 (2.091)	.013 (1.222)	.24	765.60	.000
	Loneliness	-- (.805)	.542*** (.008)	-.002 (.422)	.015 (2.554)	-.016 (1.493)	.29	1032.76	.000

*p<.05; **p<.01; ***p<.001

B5. Regression: Interactions between Leadership and MRT Training

		Variables					Model Stats		
		Constant	Time 1 Score	Treatment	Leadership	Leadership * Treatment	R^2	F	Sig.
Positive	Emotional Fitness	-- (.751)	.604*** (.009)	.032*** (.271)	.055 (.018)	.000 (.010)	.40	1625.33	.000
	Adaptability	-- (.891)	.467*** (.009)	.027** (.379)	.124*** (.026)	-.037 (.015)	.25	819.07	.000
	Character	-- (.943)	.494*** (.010)	.038*** (.373)	.095* (.025)	-.003 (.014)	.29	1000.16	.000
	Good Coping	-- (.895)	.465*** (.009)	.030*** (.394)	.080** (.027)	.011 (.015)	.25	845.25	.000
	Positive Affect	-- (.930)	.501*** (.009)	.011 (.414)	.080* (.028)	-.015 (.016)	.28	968.65	.000
	Optimism	-- (.759)	.544*** (.008)	.023** (.342)	.048 (.023)	.024 (.013)	.32	1185.68	.000
	Family Fitness	-- (.905)	.487*** (.009)	.030*** (.387)	.099** (.026)	-.022 (.015)	.27	877.52	.000
	Family Satisfaction	-- (1.099)	.474*** (.009)	.020* (.486)	.081* (.033)	-.019 (.019)	.24	724.40	.000
	Family Support	-- (1.011)	.437*** (.010)	.030*** (.490)	.101** (.033)	-.018 (.019)	.22	665.72	.000
	Social Fitness	-- (.828)	.570*** (.010)	.019* (.321)	.028 (.022)	.018 (.012)	.36	1381.09	.000
	Engagement	-- (.935)	.506*** (.009)	.011 (.448)	.069* (.031)	-.001 (.017)	.29	993.09	.000
	Friendship	-- (1.065)	.502*** (.009)	.036*** (.471)	.059 (.032)	.005 (.018)	.28	950.30	.000
	Org. Trust	-- (1.008)	.404*** (.011)	.016 (.444)	.078* (.031)	.042 (.017)	.24	779.49	.000
	Spiritual Fitness	-- (.899)	.572*** (.009)	.005 (.436)	.060 (.030)	-.001 (.017)	.35	1353.26	.000
Negative	Catastrophizing	-- (1.035)	.403*** (.009)	.034*** (.468)	.131*** (.032)	-.070* (.018)	.18	531.34	.000
	Bad Coping	-- (.897)	.369*** (.009)	-.002 (.461)	-.024 (.031)	.005 (.018)	.14	395.32	.000
	Depression	-- (1.072)	.445*** (.009)	.012 (.467)	.082* (.032)	-.016 (.018)	.22	686.72	.000
	Negative Affect	-- (.826)	.467*** (.009)	.004 (.331)	.060 (.022)	.022 (.013)	.24	791.62	.000
	Loneliness	-- (.889)	.517*** (.009)	.005 (.405)	.091** (.027)	-.016 (.016)	.30	1058.04	.000

*p<.05; **p<.01; ***p<.001

B6. Regression: Interactions between Unit Cohesion and MRT Training

		Variables					Model Stats		
		Constant	Time 1 Score	Treatment	Unit Cohesion	Cohesion * Treatment	R^2	F	Sig.
Positive	Emotional Fitness	-- (.793)	.584*** (.009)	.029*** (.272)	.094*** (.022)	-.008 (.012)	.40	1646.50	.000
	Adaptability	-- (.912)	.453*** (.009)	.021* (.380)	.139*** (.030)	-.022 (.017)	.25	842.20	.000
	Character	-- (.978)	.475*** (.010)	.032*** (.375)	.141*** (.030)	-.016 (.017)	.29	1027.61	.000
	Good Coping	-- (.925)	.443*** (.010)	.025** (.395)	.142*** (.031)	-.014 (.018)	.26	874.87	.000
	Positive Affect	-- (.973)	.480*** (.010)	.006 (.416)	.088** (.033)	.009 (.019)	.28	986.27	.000
	Optimism	-- (.782)	.523*** (.009)	.021* (.343)	.089** (.027)	.020 (.016)	.33	1215.48	.000
	Family Fitness	-- (.939)	.459*** (.009)	.025** (.388)	.154*** (.031)	-.026 (.018)	.28	915.43	.000
	Family Satisfaction	-- (1.118)	.468*** (.009)	.015 (.488)	.118*** (.039)	-.039 (.022)	.24	734.48	.000
	Family Support	-- (1.046)	.394*** (.010)	.027** (.489)	.161*** (.039)	-.001 (.022)	.24	722.68	.000
	Social Fitness	-- (.900)	.521*** (.011)	.017* (.321)	.093** (.026)	.025 (.015)	.36	1420.87	.000
	Engagement	-- (.970)	.480*** (.009)	.006 (.450)	.141*** (.036)	-.030 (.020)	.29	1022.03	.000
	Friendship	-- (1.096)	.489*** (.009)	.034*** (.474)	.044 (.038)	.044 (.021)	.28	964.73	.000
	Org. Trust	-- (1.065)	.320*** (.012)	.014 (.440)	.185*** (.036)	.053 (.020)	.26	875.71	.000
	Spiritual Fitness	-- (.925)	.556*** (.009)	.000 (.438)	.115*** (.035)	-.029 (.020)	.36	1373.38	.000
Negative	Catastrophizing	-- (1.05)	.392*** (.009)	.026** (.469)	.162*** (.037)	-.060 (.021)	.18	555.43	.000
	Bad Coping	-- (.900)	.369*** (.009)	.001 (.465)	-.068* (.037)	.064 (.021)	.14	395.20	.000
	Depression	-- (1.104)	.431*** (.010)	.008 (.469)	.107*** (.037)	-.016 (.021)	.22	700.81	.000
	Negative Affect	-- (.847)	.452*** (.010)	.001 (.332)	.085** (.026)	.029 (.015)	.25	815.13	.000
	Loneliness	-- (.918)	.495*** (.009)	.001 (.406)	.112*** (.032)	.002 (.018)	.30	1087.72	.000

*p<.05; **p<.01; ***p<.001

B7. Intraclass Correlation Coefficients for MRT Training Survey Data

		18-24 year olds†		Over 24 Years Old‡	
	Outcome	**Between-group variance**	**ICC(1)**	**Between-group variance**	**ICC(1)**
Positive	Emotional Fitness	60.37**	.024	2.27*	.009
	Adaptability	30.02	.007	1.23	.003
	Character	10.50**	.024	3.11	.008
	Good Coping	13.24**	.029	0.44	.001
	Positive Affect	13.56**	.024	1.73	.004
	Optimism	10.68	.004	1.33	.003
	Family Fitness	20.27	.005	1.65	.004
	Family Satisfaction	0.71	.001	3.51*	.007
	Family Support	50.14	.008	2.92	.005
	Social Fitness	90.40**	.027	5.54**	.016
	Engagement	90.64**	.016	15.97**	.026
	Friendship	90.99	.017	2.07	.003
	Organizational Trust	12.56**	.022	10.40**	.019
	Spiritual Fitness	17.36**	.027	0.79	.001
Negative	Catastrophizing	0.68	.001	20.88**	.036
	Bad Coping	90.06*	.017	5.71	.010
	Depression	11.34*	.018	14.59**	.027
	Negative Affect	70.03**	.022	7.25**	.023
	Loneliness	40.00	.008	2.05	.004

†n= 2046; ‡n= 2302
*p<.05; **p<.01

B8. Regression: Effect of Formal Training on R/PH for Soldiers 18-24 Years Old

		Variables			Model Stats		
		Constant	Time 1 Score	Actually Trained	R^2	F	Sig.
Positive	Emotional Fitness	-- (4.908)	.596*** (.025)	.047 (2.379)	0.36	310.75	.000
	Adaptability	-- (6.657)	.478*** (.027)	.019 (3.241)	0.23	163.22	.000
	Character	-- (6.663)	.526*** (.027)	.037 (3.255)	0.28	213.47	.000
	Good Coping	-- (7.038)	.454*** (.027)	.056* (3.461)	0.21	146.09	.000
	Positive Affect	-- (7.528)	.483*** (.027)	.040 (3.772)	0.24	171.16	.000
	Optimism	-- (5.991)	.534*** (.025)	.026 (2.997)	0.29	222.64	.000
	Family Fitness	-- (7.250)	.478*** (.027)	.030 (3.537)	0.23	155.75	.000
	Family Satisfaction	-- (8.820)	.458*** (.028)	.038 (4.288)	0.21	131.71	.000
	Family Support	-- (8.621)	.441*** (.027)	.011 (4.296)	0.20	120.59	.000
	Social Fitness	-- (5.792)	.535*** (.026)	.041 (2.841)	0.29	224.36	.000
	Engagement	-- (7.855)	.484*** (.026)	.040 (3.961)	0.24	172.82	.000
	Friendship	-- (8.150)	.441*** (.027)	.058* (4.008)	0.20	137.43	.000
	Org. Trust	-- (7.994)	.433*** (.028)	.011 (3.942)	0.19	126.86	.000
	Spiritual Fitness	-- (7.741)	.542*** (.025)	.032 (3.869)	0.30	231.01	.000
Negative	Catastrophizing	-- (8.126)	.368*** (.029)	-.044 (4.059)	0.14	88.94	.000
	Bad Coping	-- (7.963)	.356*** (.027)	.011 (3.923)	0.13	79.60	.000
	Depression	-- (8.165)	.460*** (.029)	-.058* (4.094)	0.22	153.56	.000
	Negative Affect	-- (5.984)	.420*** (.029)	-.073** (2.942)	0.19	126.08	.000
	Loneliness	-- (7.120)	.489*** (.026)	-.030 (3.553)	0.24	174.20	.000

*p<.05; **p<.01; ***p<.001

B9. Regression: Effect of Perceived Preparedness to Train on R/PH for Soldiers 18-24 Years Old

		Variables			Model Stats		
		Constant	Time 1 Score	Prepared to Train	R^2	F	Sig.
Positive	Emotional Fitness	-- (3.159)	.593*** (.027)	.054* (.621)	0.36	269.16	.000
	Adaptability	-- (4.137)	.475*** (.028)	.031 (.842)	0.23	141.91	.000
	Character	-- (4.168)	.520*** (.029)	.065* (.857)	0.28	186.52	.000
	Good Coping	-- (4.214)	.447*** (.029)	.048 (.907)	0.21	125.20	.000
	Positive Affect	-- (4.465)	.489*** (.029)	.021 (.988)	0.24	154.87	.000
	Optimism	-- (3.644)	.536*** (.026)	.013 (.764)	0.29	195.46	.000
	Family Fitness	-- (4.411)	.471*** (.029)	.056 (.903)	0.23	134.00	.000
	Family Satisfaction	-- (5.596)	.461*** (.031)	.052 (1.136)	0.21	117.10	.000
	Family Support	-- (5.100)	.424*** (.029)	.035 (1.108)	0.18	96.99	.000
	Social Fitness	-- (3.617)	.518*** (.027)	.056* (.747)	0.28	183.75	.000
	Engagement	-- (4.701)	.460*** (.028)	-.002 (1.046)	0.21	130.48	.000
	Friendship	-- (5.114)	.436*** (.029)	.060* (1.058)	0.19	116.51	.000
	Org. Trust	-- (4.718)	.423*** (.029)	.062* (1.026)	0.19	110.76	.000
	Spiritual Fitness	-- (4.594)	.537*** (.027)	.034 (1.015)	0.29	199.12	.000
Negative	Catastrophizing	-- (4.666)	.352*** (.031)	-.042 (1.056)	0.13	69.43	.000
	Bad Coping	-- (4.600)	.350*** (.028)	.047 (1.008)	0.13	69.95	.000
	Depression	-- (4.696)	.461*** (.030)	-.024 (1.070)	0.21	131.61	.000
	Negative Affect	-- (3.465)	.436*** (.030)	-.030 (.760)	0.19	114.33	.000
	Loneliness	-- (4.130)	.484*** (.027)	-.065* (.918)	0.24	153.44	.000

*p<.05; **p<.01; ***p<.001

B10. Regression: Effect of Perceived Command Support on R/PH for Soldiers 18-24 Years Old

		Variables			Model Stats		
		Constant	Time 1 Score	Command Support	R^2	F	Sig.
Positive	Emotional Fitness	-- (2.548)	.597*** (.026)	.052* (.441)	0.36	303.86	.000
	Adaptability	-- (3.162)	.475*** (.027)	-.015 (.600)	0.23	158.65	.000
	Character	-- (3.263)	.524*** (.028)	.050 (.603)	0.28	207.68	.000
	Good Coping	-- (3.302)	.453*** (.028)	.058* (.643)	0.21	142.20	.000
	Positive Affect	-- (3.402)	.486*** (.027)	.012 (.696)	0.24	168.94	.000
	Optimism	-- (2.779)	.536*** (.025)	.014 (.554)	0.29	219.94	.000
	Family Fitness	-- (3.409)	.478*** (.028)	.030 (.645)	0.23	153.37	.000
	Family Satisfaction	-- (4.141)	.456*** (.028)	.043 (.808)	0.21	129.34	.000
	Family Support	-- (3.824)	.442*** (.028)	-.004 (.781)	0.20	120.22	.000
	Social Fitness	-- (2.765)	.536*** (.026)	.013 (.526)	0.29	220.00	.000
	Engagement	-- (3.381)	.488*** (.026)	.014 (.731)	0.24	170.64	.000
	Friendship	-- (3.805)	.443*** (.027)	-.015 (.745)	0.20	132.98	.000
	Org. Trust	-- (3.545)	.432*** (.028)	.020 (.730)	0.19	125.52	.000
	Spiritual Fitness	-- (3.365)	.543*** (.025)	.035 (.716)	0.30	228.28	.000
Negative	Catastrophizing	-- (3.349)	.364*** (.029)	-.041 (.751)	0.14	84.99	.000
	Bad Coping	-- (3.401)	.353*** (.027)	.043 (.728)	0.13	80.44	.000
	Depression	-- (3.322)	.465*** (.029)	-.049 (.758)	0.22	153.17	.000
	Negative Affect	-- (2.538)	.426*** (.029)	-.046 (.544)	0.18	122.51	.000
	Loneliness	-- (2.968)	.489*** (.026)	-.031 (.658)	0.24	171.73	.000

*p<.05; **p<.01; ***p<.001

B11. Regression: Effect of Formal Training on R/PH for Soldiers Over 24 Years Old

		Variables			Model Stats		
		Constant	Time 1 Score	Actually Trained	R^2	F	Sig.
Positive	Emotional Fitness	-- (3.923)	.691*** (.021)	.010 (1.866)	0.48	598.83	.000
	Adaptability	-- (5.737)	.530*** (.024)	.019 (2.790)	0.28	256.38	.000
	Character	-- (5.315)	.607*** (.023)	.011 (2.539)	0.37	382.14	.000
	Good Coping	-- (5.787)	.550*** (.023)	.009 (2.852)	0.30	284.69	.000
	Positive Affect	-- (6.018)	.562*** (.023)	-.004 (2.987)	0.32	301.03	.000
	Optimism	-- (5.050)	.621*** (.021)	.014 (2.508)	0.39	411.45	.000
	Family Fitness	-- (5.387)	.585*** (.022)	-.023 (2.563)	0.34	332.82	.000
	Family Satisfaction	-- (6.665)	.524*** (.023)	-.015 (3.216)	0.28	235.26	.000
	Family Support	-- (6.915)	.528*** (.024)	-.022 (3.379)	0.28	243.31	.000
	Social Fitness	-- (4.564)	.676*** (.021)	.000 (2.201)	0.46	550.75	.000
	Engagement	-- (6.580)	.586*** (.022)	-.005 (3.241)	0.34	342.84	.000
	Friendship	-- (6.734)	.583*** (.021)	.021 (3.323)	0.34	337.19	.000
	Org. Trust	-- (6.405)	.563*** (.024)	-.001 (3.116)	0.32	303.35	.000
	Spiritual Fitness	-- (6.152)	.653*** (.021)	-.007 (3.074)	0.43	486.00	.000
Negative	Catastrophizing	-- (6.916)	.463*** (.025)	-.041 (3.460)	0.22	182.03	.000
	Bad Coping	-- (7.152)	.420*** (.025)	.008 (3.523)	0.18	139.77	.000
	Depression	-- (6.516)	.502*** (.024)	-.028 (3.272)	0.25	223.03	.000
	Negative Affect	-- (4.995)	.521*** (.026)	-.006 (2.471)	0.27	243.86	.000
	Loneliness	-- (5.760)	.617*** (.022)	.023 (2.866)	0.38	401.51	.000

*p<.05; **p<.01; ***p<.001

B12. Regression: Effect of Perceived Preparedness to Train on R/PH for Soldiers Over 24 Years Old

		Variables			Model Stats		
		Constant	Time 1 Score	Prepared to Train	R^2	F	Sig.
Positive	Emotional Fitness	-- (2.544)	.697*** (.023)	.019 (.474)	0.49	531.75	.000
	Adaptability	-- (3.542)	.526*** (.026)	.026 (.720)	0.28	215.63	.000
	Character	-- (3.345)	.612*** (.025)	.028 (.649)	0.38	336.35	.000
	Good Coping	-- (3.511)	.551*** (.025)	.004 (.731)	0.30	244.80	.000
	Positive Affect	-- (3.577)	.567*** (.025)	-.005 (.759)	0.32	265.56	.000
	Optimism	-- (2.969)	.629*** (.023)	-.020 (.631)	0.40	366.77	.000
	Family Fitness	-- (3.334)	.589*** (.024)	.030 (.650)	0.35	289.24	.000
	Family Satisfaction	-- (4.125)	.521*** (.024)	.020 (.821)	0.27	197.61	.000
	Family Support	-- (4.054)	.517*** (.026)	.018 (.863)	0.27	196.10	.000
	Social Fitness	-- (2.749)	.685*** (.022)	-.008 (.555)	0.47	496.61	.000
	Engagement	-- (3.786)	.593*** (.024)	-.029 (.818)	0.35	304.78	.000
	Friendship	-- (4.007)	.581*** (.023)	.024 (.842)	0.34	286.71	.000
	Org. Trust	-- (3.646)	.580*** (.025)	-.015 (.785)	0.34	282.97	.000
	Spiritual Fitness	-- (3.640)	.654*** (.023)	.012 (.789)	0.43	418.65	.000
Negative	Catastrophizing	-- (3.840)	.468*** (.027)	.011 (.876)	0.22	157.69	.000
	Bad Coping	-- (4.053)	.417*** (.027)	.052 (.891)	0.18	121.33	.000
	Depression	-- (3.610)	.498*** (.026)	-.026 (.833)	0.25	185.89	.000
	Negative Affect	-- (2.864)	.522*** (.028)	-.044 (.627)	0.27	212.07	.000
	Loneliness	-- (3.237)	.620*** (.023)	-.007 (.725)	0.38	350.25	.000

*p<.05; **p<.01; ***p<.001

B13. Regression: Effect of Perceived Command Support on R/PH for Soldiers Over 24 Years Old

		Variables			Model Stats		
		Constant	Time 1 Score	Command Support	R^2	F	Sig.
Positive	Emotional Fitness	-- (1.960)	.688*** (.021)	.013 (.335)	0.48	586.56	.000
	Adaptability	-- (2.638)	.527*** (.024)	.014 (.500)	0.28	250.12	.000
	Character	-- (2.525)	.604*** (.023)	.015 (.456)	0.37	373.24	.000
	Good Coping	-- (2.575)	.547*** (.024)	.016 (.511)	0.30	277.70	.000
	Positive Affect	-- (2.647)	.559*** (.023)	.026 (.534)	0.32	297.15	.000
	Optimism	-- (2.201)	.624*** (.021)	.001 (.448)	0.39	413.40	.000
	Family Fitness	-- (2.548)	.584*** (.022)	.014 (.461)	0.34	325.71	.000
	Family Satisfaction	-- (3.143)	.524*** (.023)	.011 (.587)	0.27	232.41	.000
	Family Support	-- (2.962)	.525*** (.024)	.012 (.603)	0.28	236.49	.000
	Social Fitness	-- (2.098)	.673*** (.021)	.006 (.394)	0.45	537.21	.000
	Engagement	-- (2.758)	.585*** (.023)	-.013 (.579)	0.34	335.65	.000
	Friendship	-- (2.960)	.581*** (.021)	.040 (.595)	0.34	333.95	.000
	Org. Trust	-- (2.746)	.563*** (.024)	-.006 (.557)	0.32	299.51	.000
	Spiritual Fitness	-- (2.567)	.651*** (.021)	.027 (.549)	0.43	482.59	.000
Negative	Catastrophizing	-- (2.757)	.460*** (.025)	-.048 (.618)	0.22	178.92	.000
	Bad Coping	-- (2.986)	.419*** (.025)	.002 (.630)	0.18	137.66	.000
	Depression	-- (2.582)	.505*** (.024)	-.007 (.586)	0.26	221.92	.000
	Negative Affect	-- (2.112)	.517*** (.026)	-.033 (.442)	0.27	238.43	.000
	Loneliness	-- (2.362)	.612*** (.022)	-.020 (.513)	0.38	389.51	.000

*p<.05; **p<.01; ***p<.001

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