

Evaluating Optimism, Hope, Resilience, Coping Flexibility, Secure Attachment, and PERMA as
a Well-Being Model for College Life Adjustment of Student Veterans: A Hierarchical

Regression Analysis

By

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DEDICATION

I dedicate this dissertation to my parents,
Ahmet and Zübeyde Umucu, and
to my advisor and academic father, Dr. Fong Chan.

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ABSTRACT

Student veterans is one of the fastest growing student populations in post-secondary education. However, transitioning from the structured of military service to a less regimented college lifestyle can be very challenging for them. Factors contributing to college life adjustment of student veterans can be complex and cannot be reduced to a single factor, such as academic problems. There is a paucity of information regarding college life adjustment, health-related quality of life (HRQOL), and life satisfaction among student veterans. The lack of information on determinants of college life adjustment may limit the effectiveness of postsecondary education support services for student veterans. Recently, Seligman's positive emotion, engagement, relationships, meaning, and accomplishment (PERMA) has received considerable attention as a model of well-being in postsecondary education. Therefore, the purpose of this study is to examine (a) to what extent demographic covariates, foundational and emerging positive psychology traits (FEPPTs) and PERMA uniquely predict college life adjustment, HRQOL and life satisfaction of student veterans, (b) PERMA as a happiness and well-being model for college life adjustment, HRQOL, and life satisfaction among student veterans, (c) FEPPTs as predictors of PERMA. A total of 205 student veterans responded to an online-survey. Results revealed that demographic covariates (e.g., service-connected disability), FEPPTs (e.g., optimism), and PERMA (e.g., positive emotion) significantly accounted for college life adjustment, HRQOL, and life satisfaction of student veterans. In addition, a mediation analysis revealed that PERMA partially mediates the relationship between service-connected disability and college life adjustment of student veterans. The results of this study provide empirical supports for the use of PERMA as a comprehensive well-being model of college life adjustment for student veterans.

TABLE OF CONTENTS

	Page
Dedication.....	i
Acknowledgements.....	ii
Abstract.....	iv
List of Figures and Tables.....	vi
Chapter One: Introduction	
Statement of the Problem.....	2
Proposed Framework.....	5
Purpose.....	8
Research Questions.....	9
Chapter Two: Literature Review	
Overview of Positive Psychology Theory.....	11
Positive Psychology and Rehabilitation.....	11
Positive Psychology Background and Assumptions.....	12
Foundational and Emerging Positive Psychology Traits.....	15
Seligman’s PERMA.....	23
Student Veterans.....	29
Challenges Facing College Life Adjustment of Student Veterans.....	32
Chapter Three: Method	
Design.....	37
Procedures.....	37
Sample.....	39
Measures.....	43
Data Analysis.....	49
Chapter Five: Results	
Data Screening.....	56
Correlational Analyses.....	57
Simultaneous Regression Analyses.....	59
Hierarchical Regression Analyses.....	68
Mediation Analysis.....	80
Chapter Five: Summary, Discussion, Implications	
Summary of Findings.....	83
Discussion and Clinical Implications.....	88
Implications for Future Research.....	105
Limitations.....	106
Conclusion.....	107
References	109
Appendices	
Appendix A: Institutional Review Board Notice of Approval.....	141
Appendix B: Informed Consent.....	142
Appendix C: Study Questionnaire.....	144

LIST OF FIGURES AND TABLES

	Page
Figure 1.1 Proposed Well-Being Model.....	7
Table 3.1 Participant Demographic Characteristics.....	41
Table 3.2 Measurement Scale Summary	50
Table 4.1 Correlations, Means, and Standard Deviations for Variables Used in the Hierarchical Regression Analyses.....	58
Table 4.2 Summary of Simultaneous Regression Analyses for Demographic Covariates Predicting College Life Adjustment, Health-Related Quality of Life, and Life Satisfaction.....	61
Table 4.3 Summary of Simultaneous Regression Analyses for FEPPTs Predicting College Life Adjustment, Health-Related Quality of Life, and Life Satisfaction.....	64
Table 4.4 Summary of Simultaneous Regression Analyses for PERMA Variables Predicting College Life Adjustment, Health-Related Quality of Life, and Life Satisfaction.....	67
Table 4.5 Hierarchical Regression Analysis for Predictors of College Life Adjustment.	70
Table 4.6 Hierarchical Regression Analysis for Predictors of Physical Health QOL.....	73
Table 4.7 Hierarchical Regression Analysis for Predictors of Mental Health QOL.....	76
Table 4.8 Hierarchical Regression Analysis for Predictors of Life Satisfaction.....	79
Figure 4.1 Path Coefficients for Simple Medication Analysis on College Life Adjustment.....	82

CHAPTER ONE

Introduction

Post-secondary education is a key to achieving economic success and upward mobility in the United States (Engle, 2007; O'Neill et al., 2015). With passage of the Post-9/11 Veterans Educational Assistance Act of 2008 (commonly referred to as the Post-9/11 GI Bill), more than 500,000 veterans who return from post-9/11 service have used these educational benefits through the U. S. Department of Veterans Affairs (Blosnich, Kopacz, McCarten, & Bossarte, 2015). As a result, colleges and universities have been preparing a large number of student veterans for the civilian job market, and helping them build career pathways to the middle class (O'Herrin, 2011; Rudd, Goulding, & Bryan, 2011).

However, transitioning from the structured environment of military service to a less regimented college lifestyle can be very challenging for student veterans. Given that the majority are first-generation college students (i.e., student veterans whose parents did not complete a bachelor's degree) with less academic preparation, lower educational aspirations, and a lack of knowledge and skills in navigating the college environment compared to traditional students, there are additional challenges in coping with the demands of the college environment for student veterans (Wurster, Rinaldi, Woods, & Liu, 2013).

In addition to environmental changes, service-connected disability may further affect student veterans' college life adjustment (Elliott, Gonzalez, & Larsen, 2011). Particularly, they may experience psychological and/or physical post-war trauma (Barry, Whiteman, & MacDermid Wadsworth, 2014; DiRamio, Ackerman, & Garza Mitchell, 2008; Rudd et al., 2011), including traumatic brain injuries (TBI), post-traumatic stress disorder (PTSD), major depressive disorder (MDD), and related complications of substance use disorders (SUD),

academic problems, relationship problems, and financial difficulties. These issues often compromise student veterans' ability to successfully complete a college education, prevent them from flourishing in their college environments, and negatively affect their health-related quality of life (HRQOL) and life satisfaction. Therefore, it would be important to investigate and better understand factors influencing student veterans' health and well-being.

Statement of the Problem

Student veterans, one of the fastest growing student populations in post-secondary education, face unique challenges compared with typical college students (Cate, 2014; Kirchner, 2015; McCaslin, Leach, Herbst, & Armstrong, 2013; O'Herrin, 2011; Rudd et al., 2011). Factors contributing to college life adjustment of student veterans can be complex and cannot be reduced to a single factor, such as academic problems (Ackerman, DiRamio, & Garza Mitchell, 2009). For example, according to Baker and Sirky (1984), college life adjustment can be conceptualized in terms of four domains, including academic adjustment, social adjustment, personal-emotional adjustment, and attachment to the higher education institution. Similarly, Hoffman and Weiss (1986) conceptualized college life adjustment as an absence of the following conditions: depression, anxiety, physical health problems, substance use problems, relationship problems, and academic problems. Unfortunately, student veterans are likely to have a higher prevalence of these conditions that lead to college life adjustment problems (Cunningham, 2012; DiRamio & Spires, 2009; Elliott et al., 2011; Norman et al., 2015; Romero, Riggs, & Ruggero, 2015; Rudd et al., 2011; Ryan, Carlstrom, Hughey, & Harris, 2011; Whiteman & Barry, 2011; Whitley, Tshudi, & Gieber, 2013).

Institutions of post-secondary education are beginning to provide special assistance to student veterans in meeting the challenges of mental and physical health problems, social support

needs, and financial issues, and are providing student veterans with a sense of safety and belonging through on-campus, veteran-specific programming and services (Ackerman et al., 2009). As is true of mental health services in general (Seligman, 2002), university health services may follow the traditional focus on the treatment of psychopathology (e.g., identifying and treating symptoms of PTSD) and may overlook the value of strength-based counseling and assessment (e.g., identifying character strengths). However, more than 50 years of research on psychopathology has demonstrated that the disease model is not effective in preventing mental health problems, leading positive psychology researchers to explore the benefits of focusing on well-being and happiness rather than pathology (Seligman & Csikszentmihalyi, 2000). From their perspective, counseling and psychotherapy are not just about mental illness or health, but also about education, love, growth, and insight, and treatment should not focus only on repairing what is wrong, but also in building up what is right (Seligman, 2002; Seligman & Csikszentmihalyi, 2000; Sheldon & King, 2001).

Therefore, rehabilitation and mental health research on intervention with student veterans with disabilities should identify positive psychology predictors of health and well-being in student veterans and not just negative outcomes of psychopathology such as negative emotions. The focus on assets and strengths is consistent with rehabilitation counseling and the “positive psychology” movement in which positive aspects of individuals’ lives, such as their personal assets and strengths are emphasized, and negative characteristics, such as functional limitations or symptoms, are de-emphasized and/or accommodated (Dunn & Dougherty, 2005).

Foundational and emerging positive psychology traits (FEPPTs) including optimism, hope, resilience, coping flexibility, and secure attachment have attracted increasing attention in health and well-being research in recent decades (c.f., Bajaj & Pande, 2016; Cheng, 2001;

Cheng, Lau, & Chan, 2014; Connor & Davidson, 2003; Karreman & Vingerhoets, 2012; Park & Peterson, 2009; Park, Peterson & Seligman, 2004; Seligman, 2011a), and the interaction among these positive psychology constructs and their effects on health and well-being have been investigated by positive psychology researchers.

Active duty members of the U.S. military, where trauma is more common and severe than in any setting, are prone to develop MDD and PTSD; however, researchers have found that individuals have experienced post-traumatic growth that can be attributed to resilience, optimism, coping skills, and character strengths such as hope and love (Peterson & Seligman, 2004; Seligman, 2011a). These findings have led the U.S. Army to fund the Comprehensive Soldier Fitness (CFS) program to measure positive constructs and teach positive psychology in the hope of building an armed force that is fit psychologically and physically. After years of research and lessons learned from positive psychology intervention programs, such as the CFS and the Penn Resilience Program (PRP), Seligman (2011b) proposed the positive emotion, engagement, relationships, meaning, and accomplishment (PERMA) model of well-being. Therefore, the question of what leads human beings to live a pleasant, engaged, connected, meaningful, accomplished life must focus on a holistic and multidimensional perspective of well-being.

Positive psychology intervention programs (e.g., the CSF and the PRP) developed by Seligman and colleagues have been found to reduce challenges related to physical and mental health issues of active duty members of the military, as well as adolescence and young adults. They focused on FEPPTs in their research when they developed these intervention programs. Although Seligman (2011b) reported that components of these exemplary positive psychology programs are based on PERMA, no research has been conducted to explicitly evaluate the

PERMA model in samples of student veterans. Therefore, future research to validate PERMA as a college life adjustment model for student veterans would seem to be warranted.

Research to identify positive psychology predictors of positive outcomes in student veterans can help positive psychology researchers and service providers to design evidence-based interventions that can help student veterans make a successful transition to postsecondary education, graduate from college, find employment, and build a career pathway to the middle class, leading to higher levels of HRQOL, life satisfaction, and well-being. However, there is currently a paucity of research on the effect of PERMA on student veterans' college life adjustment, HRQOL, and life satisfaction.

A Proposed Framework for Well-Being Factors Contributing to College Life Adjustment of Student Veterans

Positive psychology has a long past but a short history (Peterson & Park, 2016). Evidence from positive psychology studies indicates that FEPPTs and PERMA are linked to several desirable outcomes, including better college life adjustment, physical and psychological health, greater educational and occupational success, positive relationships, and higher QOL (Butler & Kern, 2016; Seligman, 2011b). Positive psychology constructs may increase understanding of key factors influencing college life adjustment of student veterans. However, conceptualizing their college life adjustment from a positive psychology perspective has not been thoroughly investigated to date.

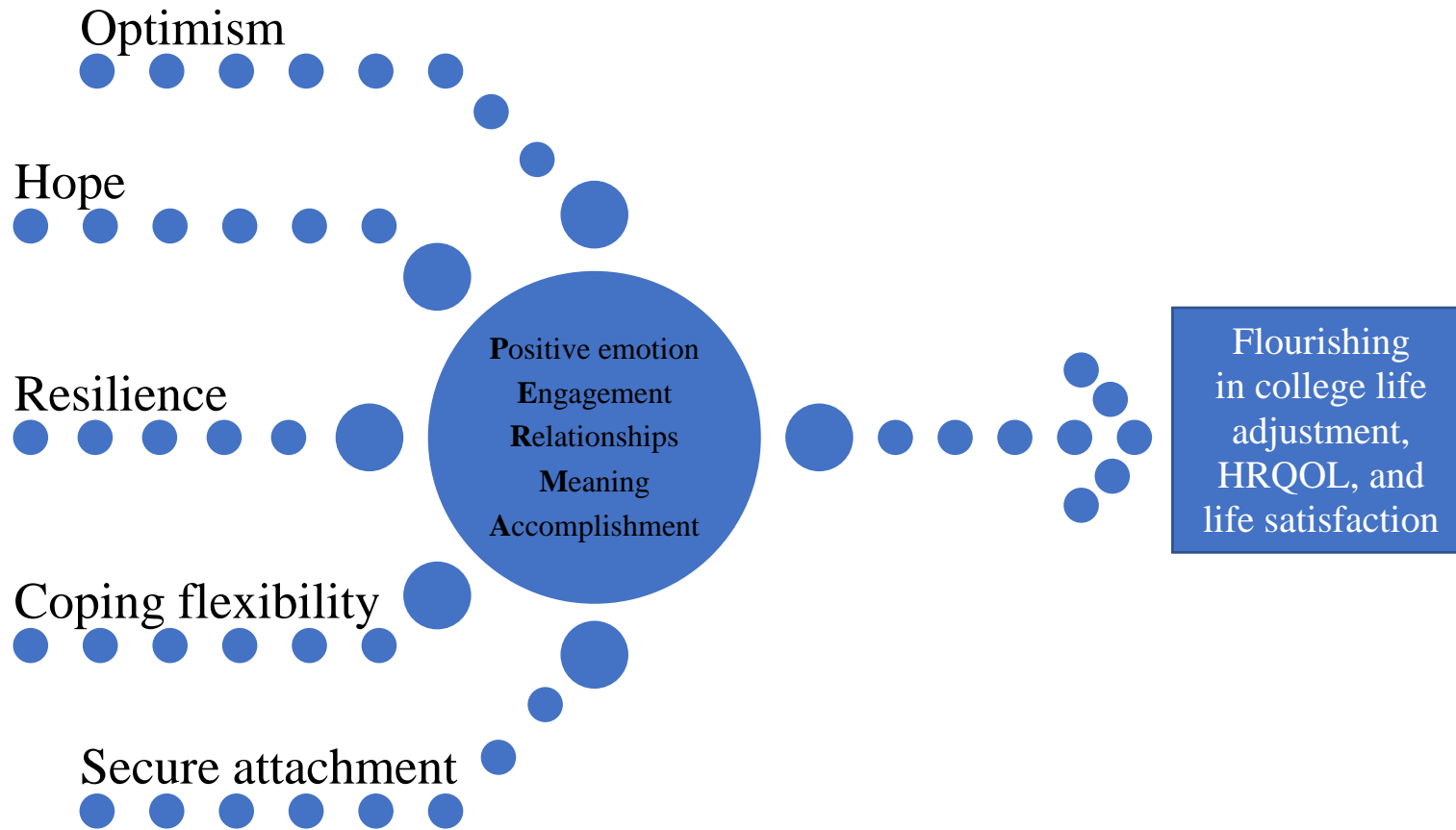
Drawing from student veteran studies that examine factors impacting college life adjustment, demographic characteristics such as age, gender, race/ethnicity, marital status, service-connected disability, class standing, and first-generation college student status have been found to affect student veterans' college life adjustment (Alschuler & Yarab, 2016; Cate, 2014;

Durdella & Kim, 2012; Elliot et al., 2011; Williams, 2015). In addition, FEPPTs, such as optimism, hope, resilience, coping flexibility, and secure attachment have been associated with positive college life adjustment (Feldman & Dreher, 2012; Hartley, 2011; Kato, 2015; Mattanah, Hancock, & Brand, 2004). Lastly, research on well-being of college students has indicated that positive emotion, engagement, relationships, meaning, and accomplishment may be positively linked to better college life adjustment (DeWitz, Woolsey, & Walsh, 2009; Diener & Seligman, 2002; Duckworth, Peterson, Matthews, & Kelly, 2007; Engeser, Rheinberg, Vollmeyer, & Bischoff, 2005).

Factors associated with flourishing in college can be organized by (a) demographic covariates, (b) FEPPTs, and (c) PERMA in order to explore the extent to which positive psychology factors contribute to promote flourishing in student veterans' college life. For this study, the proposed positive psychology model consists of FEPPTs and PERMA to test flourishing in the college life adjustment, HRQOL, and life satisfaction of student veterans. Figure 1.1 visualize the proposed well-being model for college life adjustment of student veterans.

Figure 1.1

Proposed Well-Being Model for College Life Adjustment of Student Veterans



Purpose of the Study

There is a paucity of information regarding college life adjustment, HRQOL, and life satisfaction of student veterans. An increased understanding of college life adjustment, HRQOL, and life satisfaction of student veterans could facilitate improvement in postsecondary education interventions that can help student veterans make a successful transition to college life.

Recently positive psychology researchers have begun to focus on the effect of FEPPTs and PERMA on psychosocial outcomes, and have begun to validate PERMA as a happiness and well-being model for college students. As mentioned, student veterans may face greater challenges in making a transition from military life to civilian life. However, the relationships among FEPPTs, PERMA and flourishing in student veterans have not been examined. Therefore, it is important to test whether there is any redundancy between FEPPTs and PERMA when predicting college life adjustment, HRQOL, and life satisfaction among student veterans. Overall, PERMA may have promise as a multidimensional well-being theory to predict college life adjustment of student veterans and to serve as a foundation on which to design strength-based interventions to help these students achieve positive college life and psychosocial outcomes; thus, research to validate PERMA as a college life adjustment model for student veterans seems warranted.

The purpose of this study is to examine (a) demographic covariates, FEPPTs, and PERMA as predictors of college life adjustment, HRQOL and life satisfaction of student veterans; (b) PERMA as a happiness and well-being model for college life adjustment, HRQOL, and life satisfaction among student veterans; and (c) FEPPTs as predictors of PERMA.

Research Questions

1. What is the relationship between student veterans' *demographic covariates* (i.e., age, race/ethnicity, gender, marital status, service-connected disability, class standing, and first-generation college student status) and *college life adjustment, health-related quality of life, and life satisfaction*? For this research question, it is hypothesized that various demographic covariates will influence the likelihood that student veterans will have higher college life adjustment, health-related quality of life, and life satisfaction.
2. What is the relationship between student veterans' *FEPPTs* (i.e., optimism, hope, resilience, coping flexibility, and secure attachment) and *college life adjustment, health-related quality of life, and life satisfaction*? For this research question, it is hypothesized that FEPPTs will be positively related to college life adjustment, health-related quality of life, and life satisfaction of student veterans.
3. What is the relationship between student veterans' *PERMA* (i.e., positive emotion, engagement, relationships, meaning, and accomplishment) and *college life adjustment, health-related quality of life, and life satisfaction*? For this research question, it is hypothesized that PERMA will be positively associated with college life adjustment, health-related quality of life, and life satisfaction of student veterans.
4. What amount of variance would *PERMA* (i.e., positive emotion, engagement, relationships, meaning, and accomplishment) explain, above and beyond *demographic covariates* and *FEPPTs*, in the prediction of *college life adjustment, health-related quality of life, and life satisfaction* of student veterans? For this research question, it is hypothesized that PERMA adds, above and beyond demographic covariates and FEPPTs scores, to the prediction of college life adjustment, health-related quality of life, and life satisfaction of student veterans.

5. Does *PERMA* mediate the relationship between *service-connected disability* and *college life adjustment*? For this research question, it is hypothesized that PERMA partially mediates the relationship between service-connected disability scores and college life adjustment of student veterans.

CHAPTER TWO

Literature Review

The purpose of this chapter is three-fold: (a) to provide an overview of positive psychology theory, including empirical support, challenges, and predictors; (b) to discuss foundational and emerging positive psychology traits (FEPPTs), and PERMA as positive psychology constructs; and (c) to summarize the current understanding of student veterans and related outcomes.

Overview of Positive Psychology Theory

In his 1998 Presidential Address to the American Psychological Association, Martin Seligman presented his vision of a positive psychology (Fowler, Seligman, & Koocher, 1999; Linley, Joseph, Harrington, & Wood, 2006). Seligman and his colleagues defined positive psychology as “an umbrella term for the study of positive emotion, positive character traits, and enabling institutions” (Seligman, Steen, Park, & Peterson, 2005, p.410). Up to the point of Seligman’s presidential address, psychology was dominated by an exclusive focus on psychopathology and the impact of negative emotions on individuals’ overall health and well-being (Chou, Lee, Catalano, Ditchman, & Wilson, 2009; Seligman & Csikszentmihalyi, 2000); therefore, little was known about the ways in which positive psychology constructs may affect individuals’ health and well-being. For a long time, psychology has focused on what is wrong in life (e.g., depression, anxiety), which is different from building skills to enhance positive emotion, engagement, relationships, meaning, and accomplishment (Seligman, 2011a).

Positive Psychology and Rehabilitation

Constructs of positive psychology and its positive message is not new in rehabilitation field, as rehabilitation scholars (e.g., Kurt Lewin, Roger Barker, Lee Meyerson, Beatrice Wright,

Tamara Dembo, and Harold Yuker) have long advocated for the importance of the positive person-environment relation, consistent with perspectives and implications offered by positive psychology (Dunn & Brody, 2008; Dunn & Dougherty, 2005; Wright, 1983). There is a sense among rehabilitation researchers that positive psychology has been a big step forward for both rehabilitation professionals and people with chronic illness and disability (Chou et al., 2009; Dunn & Dougherty, 2005; Elliott, 2002; Elliott, Kurylo, & Rivera, 2002).

Rehabilitation psychology emphasizes the assets and strengths of individuals with chronic illness and disability to promote well-being and psychosocial adjustment to disability (Chou, Chan, Phillips, et al., 2013), which is consistent with Seligman and colleagues' positive psychology perspective and Beatrice Wright's "value-laden" beliefs and constructive view (Chou, Chan, Phillips, et al., 2013; Peterson, 2006; Seligman & Csikszentmihalyi, 2000; Seligman et al., 2005; Wright, 1960, 1972, 1983). Therefore, incorporating the positive psychology theoretical framework into rehabilitation has the potential of increasing our understanding of the impact of disability on well-being.

Positive Psychology Background and Assumptions

Seligman and Csikszentmihalyi (2000) stated that the main task of positive psychology is to understand what makes life worth living and how we build it, to learn how to buffer against and better prevent symptoms of mental illness, and to discover how to build the qualities that help individuals and communities to flourish. Overall, positive psychology focuses on three related topics, positive subjective experiences, positive individual traits, and institutions that enable positive experiences and positive traits.

Level of analysis in positive psychology. Positive psychology operates on three different levels of analysis called the subjective level, individual level, and group level (Chou et al., 2009;

Dunn & Dougherty, 2005; Seligman, 2002; Seligman & Csikszentmihalyi, 2000). Within these three levels of analysis, psychologists and researchers attempt to understand prevention and treatment issues, as well as enhancing individuals' daily lives (Dunn & Dougherty, 2005). Researchers and practitioners can use these three levels of analysis as a conceptualization tool to help their clients develop or maintain strengths and manage weaknesses (Dunn & Dougherty, 2005). The *subjective level* includes positive subjective experiences, such as well-being, life satisfaction, happiness, flow, optimal experience, optimism, and hope (Csikszentmihalyi, 1990; Diener & Suh, 2000; Dunn & Dougherty, 2005; Fredrickson, 1998; Ryff & Keyes, 1995; Scheier & Carver, 1992; Snyder, 1994; Tugade & Fredrickson, 2004). The *individual level* includes positive individual traits, including wisdom, resilience, courage, interpersonal skills, tenacity, talent, perseverance, forgiveness, creativity, and the capacity of love (Dunn & Dougherty, 2005; Peterson & Seligman, 2004; Seligman & Csikszentmihalyi, 2000). Lastly, the *group level* includes responsibility, nurturance, altruism, civility, moderation, tolerance, and work ethic (Chou, Chan, Chan et al., 2013; Seligman & Csikszentmihalyi, 2000).

Character strengths. Individuals have positive personal characters defining the best about people and providing the paths to happiness and well-being (Park et al., 2004). Character strengths and virtues are universal predispositions of human beings with a biological basis (Peterson & Seligman, 2004). Peterson and Seligman first attempted to systematically identify and classify the positive psychological traits of individuals. The authors identified 24 character strengths, classified within six broad virtues (i.e., wisdom and knowledge, courage, humanity, justice, temperance, transcendence). Each virtue consists of several characters, impacting individuals' abilities to adapt positively and constructively to their environments (Chou, Chan, Chan, et al., 2013).

Subjective well-being and happiness. Subjective well-being is defined as a person's "cognitive and affective evaluations of his or her life as a whole" (Diener, Oishi, & Lucas, 2009, p. 187). Although subjective well-being, happiness, flourishing, and thriving have often been used interchangeably (Butler & Kern, 2016), Diener (1984) emphasized that subjective well-being is not only related to short term pleasures but takes into consideration a broader picture of happiness. According to the positive psychology perspective, well-being is not simply the absence of negative affect, loneliness, depression, insecurity, and illness, but rather is the presence of positive affect, happiness, trust, and wellness (Butler & Kern, 2016).

Theories of Well-Being

Positive psychology researchers have developed various theories to explain constructs of well-being (Butler & Kern, 2016; Diener, 1984; Huppert & So, 2013; Keyes, 2002; Ryan & Deci, 2001; Rusk & Waters, 2015; Ryff & Keyes, 1995; Seligman, 2011b). Ryff and Keyes indicated that psychological well-being consists of six domains, including self-acceptance, autonomy, positive relationships with others, environmental mastery, personal growth, and purpose in life. In their research, Huppert and So indicated competence, engagement, optimism, meaning, positive emotion, resilience, positive relationships, self-esteem, emotional stability, and vitality as 10 components of flourishing. Rusk and Waters described their model of positive functioning as having goal and habits, attention and awareness, emotions, comprehension and coping, and virtues and relationship. Recently, Seligman (2011b) has defined his concept of well-being with its five pillars called positive emotion, engagement, relationships, meaning, and accomplishment as PERMA.

Foundational and Emerging Positive Psychology Traits (FEPPTs)

For the purpose of this study, optimism, hope, resilience, coping flexibility, and secure attachment are categorized and named as FEPPTs. Optimism, hope, resilience, coping flexibility, and secure attachment as FEPPTs have been found to be positively correlated with the good life, happiness, well-being and flourishing among adults and college students (Bajaj & Pande, 2016; Butler & Kern, 2016; Cheng et al., 2014; Cole et al., 2015; Feldman & Dreher, 2011; Kato, 2015; Karreman & Vingerhoets, 2012; Mattanah, Hancock, & Brand, 2004; Peterson, 2000; Yarcheski & Mahon³, 2016). Chan, Young, and Sharif (2016) investigated well-being after trauma among refugees. They reported that optimism, hope, resilience, coping styles, and secure attachment were some of the positively associated predictors for post-traumatic growth. Riggs and Riggs (2011) examined the role of family attachment in risk and resilience in military families with deployment. They reported that optimism, hope, resilience, coping efforts, and secure attachment are contributors to psychological, spiritual, and social growth, and overall well-being of military families experiencing deployment. Griffith and West (2013) tested whether the Master Resilience Training has an impact on well-being and stress among National Guard soldiers. They found that resilience training improved resilience competencies that promoted coping with stressful circumstances and optimism.

Optimism

Carver and Scheier (2014) defined *dispositional optimism* as the global expectation that good things will be plentiful in the future and bad things will be scarce. Optimism is one of the key constructs of positive psychology, which is featured as an antidote to psychology's focus on what goes wrong with people (Peterson & Chang, 2003). Seligman (2002) considered optimism to be a positive attitude toward life. Optimism can be a highly beneficial psychological

characteristic associated with positive mood and good morale, achievement, physical health, perseverance, effective problem solving, good health, and even to long life and freedom from trauma; on the other hand, pessimism is linked to depression, failure, passivity, social estrangement, mortality, and morbidity (Peterson, 2000).

Empirical support for optimism and well-being. The effect of dispositional optimism on subjective well-being, physical well-being, meaning in life, engagement in treatment, and goal attainment has been established over decades (Chiesi et al., 2013; Geers, Wellman, & Lassiter, 2009; Geers, Wellman, Seligman, Wuyek, & Neff, 2010; Scheier & Carver, 1985, 1987, 1992; Seligman, 2011a). In their research on flourishing across Europe, Huppert and So (2013) found optimism to be one of ten features of positive well-being. They reported that optimism was positively correlated with positive emotion, engagement, relationship, meaning, and competence, with moderate effect sizes (Huppert & So, 2013). Scheier, Matthews, Owens, Magovern, and Carver (1990) reported that optimistic post-surgery patients had greater quality of life and satisfaction from their jobs and relationships with their friends. In a study by Warner and Vroman's (2011), optimism was reported to be one of 14 happiness-inducing behaviors, showing that it is a strong predictor of happiness and well-being.

Empirical support for optimism and college life adjustment. Optimistic college students have been found to have less depression, less stress, more social support, and more meaning in life than pessimists (Şahin-Baltacı & Tagay, 2015; Scheier & Carver, 1991). According to Geers et al. (2009), optimism is positively associated with goal engagement and attainment among college students. Khallad (2013) reported that dispositional optimism was negatively correlated with physical symptoms among college students.

Hope

Hope is defined as “a positive motivational state that is based on an interactively derived sense of successful agency (goal-directed energy) and pathways (planning to meet goals)” (Snyder, Irving, & Anderson, 1991, p. 287). Snyder (1994; 1995) has operationalized hope as a process through which individuals (a) set goals, (b) develop specific strategies to achieve those goals (pathways thinking), and (c) build and sustain the motivation to execute those strategies (agency thinking). Goals, pathways thinking, and agency thinking reciprocally influence one another, suggesting that setting important or particularly meaningful goals may lead to increased motivation, which in turn may inspire the plotting of new pathways.

In Snyder’s hope theory, goals are conceptualized as the major source of emotion and are defined as the endpoints associated with planful behavior (Snyder, 1994). Positive emotion results from perceived achievement or movement toward one’s goals, whereas negative emotions result from perceived goal failure, or movement away from one’s goals (Snyder, 2002).

Pathways thoughts reflect a person’s perceived ability to identify and develop routes to goals (Snyder, 1994). Agency thoughts motivate individuals to initiate and sustain movement along pathways toward their goals.

Empirical support for hope and well-being. Research studies over the years have shown that hope is one of the strongest predictors of health and well-being. In their research on development of PERMA-Profilier, Butler and Kern (2016) found hope as a significant predictor for pillars of well-being, reporting that hope was positively correlated with positive emotion, engagement, relationship, meaning, and accomplishment. Martz and Livneh (2016) investigated six positive psychology-associated constructs (i.e., hope, optimism, resilience, benefit-finding, meaning-making, and post-traumatic growth) in the context of adaptation to chronic illness and

disability. They reported that all six constructs were associated with more positive adaptive outcomes (e.g., well-being, acceptance of disability, quality of life, and psychosocial adaptation) and lower negatively-valenced outcomes (e.g., depression, anxiety, and distress).

Empirical support for hope and college life adjustment. Feldman and Dreher (2011) tested whether hope is malleable for college students. They developed a single-session, 90-minute intervention to increase college students' hopeful goal-directed thinking. They reported that college students who received the hope intervention displayed greater increases from pre- to post-test in hope regarding a self-nominated goal, as well as in sense of life purpose and vocational calling. In Chang's (1998a) study, it was reported that students with higher levels of hope showed greater problem-solving abilities and fewer disengagement strategies than students with lower levels of hope. Berg, Ritschel, Swan, An, and Ahluwalia (2011) investigated the role of hope in engaging in healthy behaviors among college students. They reported that lower hope scores were associated with higher rates of binge drinking and smoking; and higher hope scores were associated with greater likelihood of and more frequent exercising and fat limitation in diets.

Resilience

Resilience is defined as a dynamic process, encompassing both a psychological and behavioral manifestation of positive adaptation in the context of significant adversity (Todd & Worrell, 2000). Resilience is one of the positive individual traits, with a growing body of research supporting its association with better physical health, mental health, and overall well-being (Catalano, Chan, Wilson, Chiu, & Muller, 2011; Chou, Chan, Phillips, & Chan, 2013; Dunn & Dougherty, 2005; Fujikawa et al., 2013; Peterson & Seligman, 2004; Seligman, 2011a; Seligman & Csikszentmihalyi, 2000).

Empirical support for resilience and well-being. Resilience has been found to be a strong predictor and source of well-being and life satisfaction (Bajaj & Pande, 2016; Connor & Davidson, 2003; Karreman & Vingerhoets, 2012; Liu, Wang, & Li, 2012; Mak, Ng, & Wong, 2011; Ryff & Keyes, 1995). Karreman and Vingerhoets (2012) explored the mediating role of resilience and emotion regulation for the relationship between attachment styles and psychological well-being. They found that resilience was positively correlated with secure attachment, reappraisal, and well-being. Huppert and So (2013) reported that resilience was positively correlated with positive emotion, engagement, relationship, meaning, and competence, with small to moderate effect sizes. Mak et al. (2011) reported that resilience was positively correlated with self-esteem, view of the world, hope, life satisfaction, and was negatively correlated with depression. According to Burns et al. (2011), resilience is positively associated with positive affect and locus of control, and negatively correlated with anxiety, depression, and negative affect. Alfred, Hammer, and Good (2014) explored hardiness (resilience), psychological well-being, and masculine norms of male student veterans and found that male student veterans' resilience was positively correlated with psychological well-being.

Empirical support for resilience and college life adjustment. The effects of resilience on college students' transition to college, academic stress, college life adjustment, and ultimately on their well-being have been extensively studied to identify protective factors that buffer college students from challenging academic environment (Cole et al., 2015; Galatzer-Levy, Burton, & Bonanno, 2012; Hartley, 2011, 2013; Johnson, Dinsmore, & Hof, 2011; Klibert et al., 2014; Li & Yang, 2016; Morgan Consoli & Llamas, 2013). In their cross-cultural study, Li and Yang (2016) recruited three different samples of college students from the United States, China, and Taiwan and reported that trait resilience positively correlated with active coping, secure

attachment, self-efficacy, and negatively correlated with stress among the US and China college students. For Taiwanese college students, they reported that the trait resilience positively correlated with active coping, self-efficacy, and negatively correlated with stress.

Coping flexibility

Coping flexibility refers to “not only to the way individuals vary their coping strategies across situations but to whether such flexible strategy deployment is situation appropriate” (Cheng, 2001, p.815). In other words, it refers to the ability to produce and implement an alternative coping strategy, or to modify an ineffective coping strategy, based on the nature of different stressful situations (Kato, 2012). It enhances individual’s psychological adjustment to stressful and traumatic life changes (Bonanno, Pat-Horenczyk, & Noll, 2011; Cheng et al., 2014). Individuals with higher levels of coping flexibility can better distinguish among stressful situations in terms of their controllability and use different coping strategies when compared with those with lower levels of coping flexibility who use the same strategy in most situations (Cheng, 2001; Cheng et al., 2014). In addition, positive mental and physical health outcomes were linked to individual differences in coping flexibility (Cheng, 2009).

Empirical support for coping flexibility and well-being. In their meta-analytic review, Cheng et al (2014) found that coping flexibility was linked to higher levels of psychological adjustment, while the magnitude of this relationship was small to moderate. In addition, they found a stronger positive relationship between coping flexibility and psychological adjustment in samples from countries that were lower in individualism and in samples with higher average ages. Some studies have reported that coping flexibility was positively associated with positive emotion, engagement, relationship, meaning, and accomplishment, and was negatively associated with negative emotion (Folkman & Moskowitz, 2000; Fresco, Williams, & Nugent,

2006; Lester, Smart, & Baum, 1994; Ojala, 2012; Ptacek & Dodge, 1995; Rozanski & Kubzansky, 2005).

Empirical support for coping flexibility and college life adjustment. According to Kato (2012), coping flexibility was found to be positively associated with assimilative and accommodative coping, social problem solving, cognitive flexibility, and constraint relaxation among college students and employees. Kato also reported that coping flexibility was associated with psychological health, including lower depression, distress, and anxiety among college students. In another study, Kato (2015) reported that, after controlling for the effects of coping strategies with chronic headaches, coping flexibility was linked to reduced depressive symptoms over a period of approximately three months among college students.

Secure Attachment

Adult attachment can be defined as “the stable tendency of an individual to make substantial efforts to seek and maintain proximity to and contact with one or a few specific individuals who provide subjective potential for physical and/or psychological safety and security” (Berman & Sperling, 1994, p. 8). According to Bartholomew and Horowitz (1991), “children classified as securely attached welcome their caretaker’s return after a separation and, if distressed, seek proximity and are readily comforted” (p. 226). Recent studies have adopted a positive psychological perspective, exploring the contributions of secure adult relationships to the promotion and maintenance of healthy and adaptive behavior within and across multiple life domains (Lopez, 2011). Securely attached individuals have been found to have better life strategies and higher levels of happiness, improving psychological adjustment and health (Peterson & Park, 2007). Lopez (2009) highlights positive psychology roots of adult attachment security as a protective factor, and its relationship with positive constructs such as hope,

optimism, positive affect, well-being, academic achievement and motivation, and career development. Overall, Lopez (2009) reported that secure attachment can be a major organizational construct in the development of positive psychology.

Empirical support for secure attachment and well-being. Karreman and Vingerhoets (2012) investigated the relationship between attachment and well-being. They reported that secure attachment was associated with greater well-being and resilience. In a study by Hwang, Johnston, and Smith's (2008), secure attachment was found to be positively associated with self-esteem and life satisfaction among individuals with physical disabilities. Pietrzak and Cook (2013) investigated psychological resilience in older U.S. veterans and reported that the resilient veterans scored higher in secure attachment. Studies have reported that secure attachment is positively associated with positive emotion (Shiota, Keltner, & John, 2006), engagement (Andrews, Meredith, Strong, & Donohue, 2014), relationship (Shiota et al., 2006), meaning (Diaz, Horton, & Malloy, 2014; Kelley & Chan, 2012), and accomplishment (Larose, Bernier, & Tarabulsky, 2005; Moss & St-Laurent, 2001).

Empirical support for secure attachment and college life adjustment. Secure attachment is linked to more positive college student adjustment, academic adjustment, and emotional adjustment (Mattanah, et al., 2004; Rice, FitzGerald, Whaley, & Gibbs, 1995). Terzi (2013) investigated secure attachment style, coping with stress, and resilience among college students and reported that secure attachment was positively associated with resilience, seeking external help, and better coping strategies. In their study, Mattahan et al. (2004) reported that secure attachment was predictive of positive academic, social, and personal-emotional adjustment to college.

New Conceptualization of Happiness and Well-Being: Seligman's PERMA

With his 1998 Presidential Address to APA, Seligman presented positive psychology to the association (Fowler et al., 1999; Linley et al., 2006; Peterson, 2006). Starting with positive psychology, interest in promoting human potential, goodness, and excellence has steadily increased among psychologists and researchers (Peterson, 2006). With its long past but only a very short history, Seligman and colleagues have explored FEPPTs to understand what leads human beings to the “good life.” Seligman (2002) reported individuals often choose what makes them feel good in their lives. One might seek a positive relationship, purpose of life, and positive emotion; another might seek achievement and engagement in activities to find the “good life” which can be represented by high levels of well-being or flourishing (Coffey, Wray-Lake, Mashek, & Branand, 2016; Seligman, 2011a).

What makes human beings happier (Authentic Happiness Theory [AHT]; Seligman, 2002) was the previous question of positive psychology research, but currently it focuses on what promotes well-being and flourishing (Well-being Theory; Seligman, 2011b). From their 20 years of positive psychology research, Seligman has recently developed PERMA as a comprehensive model of happiness and well-being. Given that individuals' lives are strongly influenced by internal and external factors (Diener, 2009) and that well-being is a multidimensional concept instead of a unidimensional concept (Seligman, 2011b), PERMA was built upon AHT to recognize the multidimensionality of well-being. Seligman stated that the purpose of well-being theory is to increase flourishing by increasing positive emotion, engagement, relationships, meaning, and accomplishment. Programs developed by Seligman and colleagues to explore and improve FEPPTs (i.e., optimism, hope, resilience, coping flexibility, and secure attachment) reduce the problems related to physical and mental health issues.

Although Seligman reported that components of those programs are based on PERMA, they were specifically developed to increase positive psychology constructs (e.g., character strengths, positive emotion, resilience), which none of those specifically tested PERMA.

Seligman's Model of Happiness and Well-Being Based on PERMA

In his AHT, Seligman (2002) posited that well-being can be defined in terms of three domains: positive emotion, engagement, and meaning. This theory posited that: (a) the topic of positive psychology is happiness, (b) the gold standard for measuring happiness is life satisfaction, and (c) the goal of positive psychology is to increase life satisfaction. Although AHT has received considerable empirical support (e.g., Headey, Schupp, Tucci, & Wagner, 2010; Park, Peterson, & Ruch, 2009; Vella-Brodrick, Park, & Peterson, 2009), three inadequacies were reported in AHT by Seligman (2011b). First, happiness is inextricably bound up with a cheerful mood in popular culture. He reported that positive emotion is the fundamental meaning of happiness; however, "critics contend that authentic happiness theory arbitrarily and preemptively redefines happiness by dragging in the desiderata of engagement and meaning to supplement positive emotion" (p. 13). Second, "life satisfaction holds too privileged a place in the measurement of happiness," as life satisfaction that individuals report is itself determined by how good they feel at the very moment they are asked the question (p. 13). Thus, the gold standard of positive psychology would appear to be disproportionately tied to mood. Third, constructs of AHT (i.e., positive emotion, engagement, and meaning) do not exhaust the elements that individuals choose for their own sake, meaning that what individuals choose must serve no other master.

In addition, AHT would appear to be too close to Aristotle's monism (i.e., all human action is intended to achieve happiness), with well-being considered to be a unidimensional

concept. However, Seligman (2011b) recently revised his AHT by including two additional factors: relationships and accomplishment, and he renamed it as the well-being theory, aiming to change the paradigm of well-being from a unidimensional to a multidimensional concept with five core elements of well-being: **P**ositive emotion, **E**ngagement, **R**elationships, **M**eaning, and **A**ccomplishment, which together comprise the PERMA model of well-being, taking positive psychology safely away from monism.

With his new expanded theoretical concept, Seligman (2011b) identified: (a) well-being as the topic of psychology; (b) flourishing as the gold standard for measuring well-being; and (c) increasing flourishing as the goal of positive psychology. Huppert and So (2013) reported that flourishing in life is to feel good and function effectively, resulting in high levels of well-being. To flourish is more than an absence of problems; flourishing is the opposite of mental disorder rather than merely its absence.

Positive emotion. The first element in well-being theory is positive emotion (Butler & Kern, 2016). Positive emotion refers to good feelings, such as joy, hope, pleasure, rapture, happiness, and contentment (Butler & Kern, 2016; Cohn & Fredrickson, 2009; Seligman, 2011b). Experiencing positive emotion is one of the primary goals of individuals all over the world (Diener, 2000). Positive emotion has been considered as a key indicator of well-being (Coffey, Warren, & Gottfried, 2015; Coffey et al., 2016) and is positively associated with higher life satisfaction, better physical health, higher resilience, higher mindfulness, higher social rewards, and better work outcomes (Cohn & Fredrickson, 2009). Positive affect early in life was also found to be associated to greater adult life satisfaction, workplace hope, and workplace optimism (Coffey et al., 2015). According to a study conducted by Smedema and colleagues (2015) with college students with disabilities, feelings of positive affect were significantly

associated with overall life satisfaction. In addition, Trigwell, Ellis, and Han (2012) found that college students who experience strong positive emotion are more likely to adopt a deeper approach to learning. Further, both the experience of positive emotion and the adoption of a deeper learning approach were associated with better academic outcomes (Trigwell et al., 2012).

Engagement. The second element in well-being theory is engagement which refers to the act of becoming highly interested, absorbed, or focused in daily life activities (Butler & Kern, 2016; Csikszentmihalyi, 1990; Seligman, 2011b). A high level of engagement in an activity is also referred to as “flow” (Csikszentmihalyi, 1990), or the overall feeling of being “in the zone.” Engagement can be psychological (e.g., concentrating activity), cognitive (e.g., goal setting and self-regulation), and behavioral (e.g., social involvement; Lambert D’raven & Pasha-Zaidi, 2016). Across several studies, engagement has been found to be positively associated with other indicators of well-being, including life satisfaction and positive emotion (Gabriele, 2008; Ruch, Harzer, Proyer, Park, & Peterson, 2010; Vella-Brodrick et al., 2009). Engagement has been found to increase academic commitment and achievement in high school students (Carli, Fave, & Massimini, 1988) and academic performance in college students (Engeser, Rheinberg, Vollmeyer, & Bischoff, 2005). Kuh, Cruce, Shoup, Kinzie, and Gonyea (2008) found that first-year college students who engaged in educationally purposeful activities and studied more hours per week earned higher GPAs and were more likely to persist in college.

Relationships. The third element in well-being theory is positive relationships which was not an element of AHT (Butler & Kern, 2016; Seligman, 2002; Seligman 2011b). It refers to feelings of being cared about by others, authentically connected to others, and secure in those connections (Seligman, 2011b). It involves a sense of connectedness, loving, and sharing emotions with others. Positive relationships are considered to represent a fundamental human

need and are strongly linked to happiness (e.g., Peterson, 2006). An international study across 55 countries found that a good relationship with another person was the only common predictor of happiness (Diener, et al., 2009). Allen (1992) reported that positive relationship with faculty is one of the predictors of academic achievement among black college students. Furthermore, Diener and Seligman (2002) reported that college students who have stronger romantic and social relationships and who socialize more frequently tend to be happier than students who do not.

Meaning. The fourth element in well-being theory is meaning which refers to a sense of purpose in life derived from something greater than the self (Butler & Kern, 2016; Seligman, 2011b; Steger, Kashdan, & Oishi, 2008). Human beings pursue meaning in life as it provides them a sense of fulfillment and gives them a life worth living (Seligman, 2011). A higher sense of meaning has been found to be positively associated with higher life satisfaction, positive affect, and positive mental health outcomes (e.g., Brassai, Piko, & Steger, 2011; King, Hicks, Krull, & Del Gaiso, 2006; Steger & Frazier, 2005; Steger & Shin, 2010), along with better academic achievement in college students (DeWitz, Woolsey, & Walsh, 2009). Vela, Castro, Cavazos, Cavazos, and Gonzalez (2014) found that presence of meaning in life was correlated with subjective happiness among Latina college students.

Accomplishment. The fifth and last element in well-being theory is accomplishment which refers to persistent drive to make progress toward personal goals and having a sense of achievement in one's life (Butler & Kern, 2016; Seligman, 2011b). Accomplishment was described by Seligman as the desire to achieve something (e.g., having a persevering attitude) rather than one's actual accomplishments. Perseverance was found to predict educational outcomes, such as GPA in undergraduates, while controlling for both IQ and conscientiousness

(Duckworth et al., 2007). A study by Levasseur, Desrosiers, and Whiteneck (2010) found that a having sense of accomplishment in participation in social roles was associated with a number of positive outcomes, including better health, higher well-being, and greater quality of life, in adults with various impairment levels.

Empirical Support for PERMA

Each element of well-being theory has been extensively studied independently. However, as a model, empirical support for PERMA is in the very early stages, with varying results to date.

In their effort to develop *PERMA-Profiler* as a brief measure of PERMA, Butler and Kern (2016) compiled hundreds of theoretically relevant items. With a large sample in three studies, they reduced, tested, and refined items that resulted on a final set of 15. Eight additional filler items were added, assessing overall well-being, negative emotion, loneliness, and physical health. As a second part, they conducted a series of eight additional studies to evaluate the psychometric properties of the PERMA Profiler. They reported that the measurement structure using confirmatory factor analysis demonstrated acceptable model fit, internal and cross-time consistency, and evidence of convergent, content, and divergent validity. All subscales (i.e., positive emotion, engagement, relationships, meaning, and accomplishment) were positively linked to physical health, flourishing, life satisfaction, self-efficacy, gratitude, hope, social capital, and mental well-being; and negatively linked to depression, fatigue, anxiety, perceived stress, loneliness, and negative emotion, with moderate to large effect sizes.

Tansey et al. (2017) explored the factorial structure of the PERMA model in a sample of college students with disabilities and then examined the model's relationship with outcomes important to college adjustment, including academic achievement, stress, life satisfaction, core self-evaluation, and relationship problems. They reported that PERMA was negatively associated

with perceived stress, academic problems, and relationship problems and was positively correlated with life satisfaction, self-esteem, self-efficacy and locus of control (Tansey et al., 2017). They also stated that well-being mediates the relationship between functional disability and life satisfaction (Tansey et al., 2017).

In their multi-study examination of Seligman's well-being theory, Coffey et al. (2016) attempted to test and validate the higher-order factor structure of the PERMA model, as well as its concurrent and predictive validity with respect to flourishing outcomes (e.g., college success). Two studies were conducted, one using a sample of college students and one using a community-based sample. In the first study, four of the five PERMA indicators (meaning was not studied) stably predicted flourishing in college students over time. In the second study, a larger cross-sectional online study was conducted that also found similar associations between PERMA and flourishing. In both studies, the higher-order factor structure of the model (both with and without meaning) was supported. These results collectively contribute to the theoretical and practical understanding of the PERMA model in both a college setting and with a more diverse community-based sample.

Student Veterans

For purposes of this study, the definition of student veterans included college students who retired from active duty, Reservists, and members of the National Guard.

Characteristics of Student Veterans

Characteristics of student veterans are different from non-veteran college students. Student veterans are more likely to be transfer students, part-time, and first-generation college students as compared to their civilian peers (Cunningham, 2012; O'Herrin, 2011). According to Cunningham, a majority of student veterans (60%) attend school part-time, which possibly

increases their GI Bill benefits costs without resulting in a degree from a four-year university. In addition, most student veterans work at least part-time while they attend college (Alschuler & Yarab, 2016).

The Million Records Project (Cate, 2014) reported that the average time for student veterans to complete an associate degree was 5.1 years, with 6.3 years for a baccalaureate degree level. As compared to other students, student veterans may more likely have multiple roles, external stressors from college, family, job, and environment, and internal stressors such as psychological and physical health issues, and these factors may have detrimental effects on student veterans' college life adjustment (Alschuler & Yarab, 2016; Cunningham, 2012).

Age. Student veterans usually are older than the 18-22 years of traditional-age college students, because many enroll in post-secondary education after leaving the armed services (Alschuler & Yarab, 2016; Cate, 2014; Cunningham, 2012; Falk & Blaylock, 2010; O'Herrin, 2011; Radford, 2009). Cunningham reported that the majority of student veterans (84%) are above 23 years of age when they return to a four-year university. However, attending college after military service may be a very difficult leap for a veteran due to the unstructured college environment when compared to more highly structured military life (Vacchi, 2012). According to Barbour (2014), age, maturity level, and life experiences of student veterans are more than just a barrier to making new friends, because these factors can be a source of irritation and vexation for student veterans.

Race/ethnicity. There is a dearth of research examining the relationship between the role of race/ethnicity and college life adjustment of student veterans. Williams (2015) reported that race and ethnicity significantly predicted cumulative GPA among student veterans at community colleges.

Gender. There is a dearth of research examining the relationship between gender and college life adjustment of student veterans. However, according to Cate (2014), males have lower post-secondary education completion rates than females.

Marital Status. Alschuler and Yarab, (2016) and Steele, Salcedo, and Coley (2010) reported that most student veterans are either married and/or have children, and 33% of all student veterans are married parents. Being married or cohabitating is a proxy for social support that is associated with well-being and better college life adjustment among college students, including student veterans (Ingala, Softas-Nall, & Peters, 2013; Umberson et al., 1996). Student veterans who reported higher levels of social support had higher levels of college life adjustment (Umberson et al., 1996).

Service-connected disability. Visible and invisible service-connected disability is common among student veterans, which will likely affect all facets of a veteran's post-service life, including college life (Cate, 2014; Elliot et al., 2011). Cate (2014) reported that there is a high probability that veterans from the recent military operations enrolling in post-secondary education will have service-connected disability, including physical and psychiatric disabilities. For example, Rudd et al. (2011) reported that 35% of student veterans experienced severe anxiety, 24% experienced severe depression, and 46% of them experienced significant symptoms of PTSD. According to Tanielian, Jaycox, and Schell (2008), roughly 20% of returning service members report experiencing a traumatic brain injury during deployment. In addition, NSSE (2010) reported that approximately one in five student combat veterans indicated at least one disability as compared to about one in 10 non-veteran students. Student veterans with service-connected disability may experience unpredictable attendance in class due to disability related

complications, as well as the side effects of medications used to treat physical and mental health issues (Ackerman et al., 2009; Church, 2009; DiRamio, Ackerman, & Garza Mitchell, 2008).

Class standing. According to the National Survey of Student Engagement (NSSE, 2010), senior student veterans were generally less engaged and perceived lower levels of support from their campuses. NSSE reported that first-year student veterans spent as much time studying as their non-veteran peers, but first-year noncombat veteran students were less engaged with faculty.

First-generation college student status. The majority of student veterans are first-generation college students who have low-income backgrounds (NSSE, 2010; Wurster et al., 2013). According to Durdella and Kim (2012; as cited in Tinoco, 2014), student veterans are more likely to have weaker academic preparation, lower educational aspirations, and less knowledge about navigating the college environment.

Challenges Facing College Life Adjustment of Student Veterans

Student veterans face unique challenges when transitioning from military services to post-secondary education. According to Cunningham (2012), student veterans in recent years have experienced more complex problems than their predecessors, although current student veterans receive more support monetarily for their education. The balance between academic and other life responsibilities, differences between military and civilian culture, and psychological consequences are some of the factors that affect transition to college (McCaslin et al., 2013).

Academic problems. To effectively help student veterans transition to colleges and universities, a comprehensive understanding must be developed regarding facilitators and barriers to the academic success of student veterans (Norman et al., 2015). Norman et al. reported that student veterans face extensive challenges in working towards their academic goals.

Lack of academic life adjustment was positively linked to PTSD symptoms and anxiety/depression and was negatively linked to quality of life. Age differences from peers, mental health issues, physical health issues, and perceived GI Bill implementation inefficiencies are some of the reasons that may lead student veterans to have academic problems (Barry et al., 2014; DiRamio & Spires, 2009; Elliot et al., 2011; Norman et al., 2015; Rudd et al., 2011). In addition to the effects of physical and psychological health problems on academic functioning and performance, the college environment is essentially the opposite of the military service environment, which may be difficult to manage for student veterans (Barry et al., 2014). Durdella and Kim (2012) found that student veterans have lower college GPAs and less of a sense of belonging on campus than non-veteran students. Durdella and Kim also reported that, even after controlling for the effect of collaborative work, extracurricular engagement, academic time, academic interaction and participation, and time employed, along with a set of precollege characteristics and other college experiences, student veteran status was negatively linked to college GPA.

Physical health problems. Student veterans may have physical injuries from the field that negatively influence college life adjustment (Alschuler & Yarab, 2016; Cunningham, 2012; Elliott et al., 2011; Norman et al., 2015; Ryan et al., 2011). These physical injuries and disabilities easily impose more challenges for student veterans, although the degree of severity of the physical injury influences the long-term or short-term negative effects and other potential symptoms (DiRamio & Jarvis, 2011; Whitley et al., 2013). Since some disabilities are invisible, such as TBI, student veterans sometimes may not be aware of their own disabilities. However, more than a quarter of combat troops were estimated to have sustained a TBI, causing problems with memory, organization of thoughts, concentration, problem solving, decision making, and

reading comprehension (DiRamio & Spires, 2009; Whitley et al., 2013). These cognitive skills and abilities are important to academic success in post-secondary education. Taken together, physical health issues may interfere with student veterans' success during college education.

Psychological health problems. Student veterans may also experience emotional injuries as much as physical injuries (Alschuler & Yarab, 2016; Cate, 2014; Cunningham, 2012; Elliott et al., 2011; Norman et al., 2015; Romero et al., 2015; Rudd et al., 2011; Ryan et al., 2011; Whitley et al., 2013). When considering the nature of mental illness, symptoms (e.g., hyperarousal, depression, self-blame, interpersonal problems) can be very disruptive for student veterans during post-secondary education (Whitley et al., 2013). Experiencing one of those symptoms may lead a student veteran to leave a lecture during a class, which can be damaging both academically and socially, as unusual behaviors can be isolating (Ackerman et al., 2009; Alschuler & Yarab, 2016; Whitley et al., 2013). Student veterans with PTSD may also experience poor physical health, alcohol abuse, difficulties with intimacy, and troubled family relationships (Elliot et al., 2011). They may also experience perceived weakness, shame, and moral turmoil that may potentially lead them to develop help-seeking stigma (Alschuler & Yarab, 2016; Ryan et al., 2011; Sherman, 2010), which may lead them to not pursue counseling and other support services (Ryan et al., 2011).

Interpersonal problems. Social support is one of the very important protective factors for student veterans through college life adjustment. However, student veterans may experience interpersonal problems due to their age and status (Barry et al., 2014). Student veterans consider post-secondary education as a mission to be completed (Ely, 2008). According to Basham (2008) and Milliken, Auchterlonie, and Hoge (2007), overseas deployment, particularly with combat exposure, may increase interpersonal relationship issues with friends, family, and co-workers

when veterans return home. Student veterans may think that there is no one who can understand the experiences of veterans on campus (Whitley et al., 2013). Due to fewer common interests between student veterans and traditional students, student veterans may feel a sense of isolation (Alschuler & Yarab, 2016; Whitley et al., 2013). Interpersonal problems have been found to be linked to emotional problems such as PTSD (Elliot et al., 2011).

Substance-use problems. There is a dearth of research on the effects of alcohol abuse on student veterans' college life adjustment. However, potential negative consequences of college student drinking have been extensively studied (Carson, Barling, & Turner, 2007; Perkins, 2002). Barry, Whiteman, MacDermid Wadsworth, and Hitt (2012) reported that alcohol consumption was a salient concern among student service members and student veterans in post-secondary education. According to Barry et al. (2012), binge drinking among student service members/veterans was linked to greater problems, highlighting potential adjustment difficulties/risks. Whiteman and Barry (2011) explored the nature and correlates of drinking on the part of student service members/military veterans and civilian college students and reported that social motivations were associated with binge and problem drinking for both student service members/military veterans and civilian college students. In addition, the authors reported that coping motivations were an important risk factor to predict problem drinking among student service members and military veterans as compared to civilian students.

Health-Related Quality of Life of Student Veterans

College students' HRQOL has been extensively explored (e.g., Arslan, Ayranci, Unsal, & Arslantas, 2009; Li, Kay, & Nokkaew, 2009; Okoro et al., 2004; Vaez, Kristenson, & Laflamme, 2004; Vaez & Laflamme, 2003). However, there is a dearth of research on student veterans' quality of life. In one study, Norman et al. (2015) explored student veteran perceptions of

facilitators and barriers to achieving academic goals. Student veterans' quality of life was negatively correlated with low post-deployment community reintegration, high posttraumatic stress disorder, high alcohol consumption, and high depression and anxiety. According to Layne (2016), post-secondary education can improve student veterans' quality of life. It is known that student veterans are more likely to experience psychological health problems, physical health problems, interpersonal relationship problems, academic problems, alcohol abuse problems, and system related problems, which may potentially reduce their HRQOL (Alschuler & Yarab, 2016; Barry et al., 2014; DiRamio & Spires, 2009; Elliott et al., 2011; Norman et al., 2015; Whiteman & Barry, 2011).

Life Satisfaction of Student Veterans

College students' well-being (Diener, Diener, & Diener, 1995; Harrington & Loffredo, 2010), life satisfaction (Duffy & Sedlacek, 2010; Misra & McKean, 2000; Renshaw & Cohen, 2013), and happiness (Chung, 2012; Xiao, Tang, & Shim, 2009) have been extensively studied. McCaslin et al. (2013) reported that student veteran well-being increases if they seek services when there is health and academic related help needed. They also reported that providing psychological and social work services to student veterans improve health outcomes, promote academic success and well-being, and increase overall functioning. However, there is a dearth of research on life satisfaction of student veterans.

CHAPTER THREE

Methodology

This chapter provides the details of the research design, study procedures, sampling plan, participant characteristics, information about and psychometric properties of selected instruments, and statistical techniques.

Design

A quantitative descriptive design, utilizing simultaneous and hierarchical regression analysis (Heppner, Wampold, & Kivlighan, 2008), was used for the present study to determine the extent to which the variables in the proposed well-being model predict college life adjustment, HRQOL, and life satisfaction of student veterans. Specifically, hierarchical regression analysis was used to determine the unique contributions of each element of PERMA (i.e., positive emotion, engagement, relationships, meaning, accomplishment) on college life adjustment, HRQOL, and life satisfaction of student veterans.

Procedures

The investigator completed the required Human Subjects Protection Training from the University of Wisconsin–Madison (UW–Madison) Institutional Review Board (IRB) and obtained study approval from the IRB (see Appendix A). Following IRB approval, directors of student veteran programs at colleges and universities were identified and contacted to seek their assistance to recruit student veterans to participate in the study. Student veterans were recruited from several universities across the country. To be eligible for inclusion in the study, participants had to meet the following criteria: (a) at least 18 years or older; (b) retired from active duty service or a National Guard or Reserve member of the United States Armed Services with active duty service, and (c) currently enrolled in a college or university.

Upon achieving an agreement, written permission (letter of support via email) was obtained from affiliates to advertise the research to the participants in their programs. After getting their permission, information about the research project was disseminated electronically to student veterans on each affiliate's mailing list by directors of student veteran programs to recruit research participants. Data were collected via an online survey platform (<https://uwmadison.co1.qualtrics.com/>). All materials, instruments, and procedures were pilot tested with five volunteers who are in graduate school to determine instrument error or procedural difficulties. The average completion time was approximately 25-35 minutes.

All participants were informed of the voluntary nature of the research, their rights as a research participant, and the potential effects and benefits from participating in the study. The email address of the investigator was given to participants for questions/assistance. In addition, participants were given the email address and phone numbers of the investigator's research advisor and the UW–Madison Social and Behavioral Science IRB. Participants were asked to read and endorse the informed consent form (see Appendix B) before they proceeded to complete the subsequent demographic questionnaire and set of measures.

All responses were kept confidential. Participants were informed of the opportunity to obtain a \$15 gift card via U.S. mail or email by signing up and providing contact information upon completing and returning the survey (see Appendix C). To protect confidentiality, the personal information of those participants was separated from their responses to the questionnaire. After completing the survey, participants were directed to a link to provide contact information to obtain their \$15 Target gift card. A two-step procedure was used to insure that all personal information for receiving the gift card was not linked to survey responses.

Sample

Participants

A total of 245 student veterans attempted the online survey. Of those surveys, 40 (16.32%) provided incomplete data, so the final study sample included 205 (83.68%) participants. Sixty-eight (33.2%) of the participants were from the Ohio State University, followed by 43 (21%) from the University of Wisconsin, 42 (20.5%) from the University of Arizona, 30 (14.6) from the Southern Illinois University, 6 (2.9%) from the Pennsylvania State University, and seven (2.5%) from other colleges. Nine (4.4%) participants did not identify their university/college.

Sample Characteristics

Descriptive statistics for the sample are presented in Table 3.1. The sample was comprised of 147 (71.7%) males and 57 (27.8%) females and was mostly white (80.5%), followed by Hispanic/Latino (10.2%), African-American (2.9%), bi-racial (2.4%), Asian (1.5%), and others (2.5%). Participants ranged in age from 18 to 64 ($M = 29.3$, $SD = 8.0$). Ninety-three participants were single (45.4%), followed by married or cohabitating (43.4%), divorced (8.3%), and separated (2.0%). The majority of participants were full-time students (86.3%) and were currently employed (59%). About 49% of the participants were first-generation college student. Twenty-four of participants were freshman (11.7%), followed by sophomore (18.0%), junior (24.4%), senior (24.4%), and graduate student (21.5%).

Military Characteristics

Most participants served in Operating Enduring Freedom (36.6%) and/or Operation Iraqi Freedom (16.6%). Forty percent served in the Army, followed by the Air Force (22.4%), Marine Corps (20.5%), Navy (16.6%), and Coast Guard (0.5%). Thirty-nine percent of participants had

service-connected disabilities, with 73 (35.6%) participants reporting a physical disability, 42 (20.5%) reporting a mental/psychiatric disability, and 9 (4.4%) of them reporting a cognitive disability. Fifty-eight reported having other types of disabilities (e.g., back injury, scars). Finally, a total of 53 (30.7%) had received at least one resilience training (e.g., Comprehensive Soldier Fitness, BattleMind, and other). One-hundred and fifty students use their GI Bill benefits currently.

Table 3.1

Participant Demographic Characteristics

Variable	<i>n</i> (%)	<i>Mean (SD)</i>
Age		29.3 (8.0)
Gender		
Male	147 (71.7%)	
Female	57 (27.9%)	
Missing	1 (0.5%)	
Race/ethnicity		
African American	6 (2.9%)	
Asian American/Pacific Islander	3 (1.5%)	
Caucasian	165 (80.5%)	
Latino	21 (10.2%)	
Native American	1 (0.5%)	
Bi-racial	5 (2.4%)	
Multi-racial	2 (1.0%)	
Other	1 (0.5%)	
Missing	1 (0.5%)	
Marital status		
Single	93 (45.4%)	
Married	72 (35.1%)	
Separated	4 (2.0%)	
Divorced	17 (8.3%)	
Cohabiting	17 (8.3%)	
Missing	2 (1.0%)	
Class standing		
Freshman	24 (11.7%)	
Sophomore	37 (18.0%)	
Junior	50 (24.4%)	
Senior	50 (24.7%)	
Master's degree	34 (16.6%)	
Doctoral degree	10 (4.9%)	
First-generation college student status		
Yes	100 (48.8%)	
No	105 (51.2%)	
Employment status		
Employed	121 (59%)	
Unemployed	84 (41%)	
Operations served		
Operation Enduring Freedom	75 (36.6%)	
Operation Iraqi Freedom	34 (16.6%)	
Operation New Dawn	3 (1.5%)	
Operation Desert Storm	5 (2.4%)	
Other	69 (33.7%)	

Missing	19 (9.3%)
Branch served	
Army	82 (40.0%)
Navy	34 (16.6%)
Air Force	46 (22.4%)
Marine Corps	42 (20.5%)
Coast Guard	1 (0.5%)
GI Bill	
Yes	150 (73.2%)
No	54 (26.3%)
Missing	1 (0.5%)
Service-connected disability	
Yes	80 (39.0%)
No	123 (60.0%)
Missing	2 (1.0%)
Disability type	
Physical disability	73 (35.6%)
Cognitive disability	9 (4.4%)
Psychiatric disability	42 (20.5%)
Resilience training	
BATTLEMIND	14 (6.8%)
Comprehensive Soldier Fitness	28 (13.7%)
Other	21 (10.2%)

Measures

The survey questionnaire for the present study was comprised of instruments and measures developed by other researchers and by the present investigator specifically for this study. The entire survey questionnaire may be found in Appendix C, and the components are described in this section.

Demographic Characteristics

A demographic questionnaire was developed specifically to identify personal, school, employment, and previous military service characteristics of the participants.

Instrumentation for Predictor Variable

Along with personal, school, employment, and military service items, psychological instruments with well-documented validity and reliability were selected to measure the FEPPTs and PERMA. Descriptive statistics and psychometric properties are summarized in Table 3.2.

PERMA. PERMA, the five pillars of well-being, was measured by the *PERMA-Profiler* (Butler & Kern, 2016). The PERMA-Profiler is a general measure, developed for adults, which measures well-being across five domains: positive emotion, engagement, relationships, meaning, and accomplishment, along with negative emotion and health. The PERMA Profiler consists of 23 items, including three items for each domain of positive emotion (e.g., “In general, how often do you feel joyful?”); engagement (e.g., “How often do you become absorbed in what you are doing?”); relationships (e.g., “To what extent do you receive help and support from others when you need it?”); meaning (e.g., “In general, to what extent do you lead a purposeful and meaningful life?”); accomplishment (e.g., “How much of the time do you feel you are making progress towards accomplishing your goals?”); negative emotion (e.g., “In general, how often do you feel anxious?”); and physical health (e.g., “In general, how would you say your health is?”);

and single items for loneliness (i.e., “How lonely do you feel in your daily life?”) and happiness (i.e., “Taking all things together, how happy would you say you are?”).

In the current study, 15 items were used to measure the five pillars of well-being (i.e., positive emotion, engagement, relationships, meaning, and accomplishment). Each item is rated on an 11-point scale ranging from 0 (never) to 10 (always), or 0 (not at all) to 10 (completely). An overall well-being score is computed as the average of the main 15 PERMA items, ranging from 0 to 50, with higher scores indicating greater well-being. Butler and Kern (2016) suggested that the multidimensional structure of the PERMA-Profilier should be retained, rather than condensing responses to a single well-being score, although a single well-being score might provide a global indication of well-being. Therefore, for this study, total scores for each subscale were calculated, ranging from 0 to 10, and total scores were also used.

According to Butler and Kern (2016), the reported internal consistency reliability coefficients (Cronbach’s alpha) for the total scale and subscale scores ranged from .92 to .95 for the total score, and .71 to .89 for positive emotion, .60 to .81 for engagement, .75 to .85 for relationships, .85 to .92 for meaning, and .70 to .86 for accomplishment subscale scores. In a combined sample, the internal consistency reliability has been found to be .94 for total scale, and .88 for positive emotion, .72 for engagement, .82 for relationships, .90 for meaning, and .79 for accomplishment subscale scores. Butler and Kern (2016) also indicated PERMA-Profilier has acceptable content, convergent, and divergent validity.

Optimism. Optimism was measured by the *Life Orientation Task-Revised* (LOT-R; Scheier, Carver, & Bridges, 1995). LOT-R is a revised version of the original *Life Orientation Test* (LOT; Scheier & Carver, 1992). The LOT-R consists of 10 items, with three measuring optimism (e.g., “In uncertain times, I usually expect the best.”), three measuring pessimism (e.g.,

“If something can go wrong for me, it will.”), and four serving as filler items (e.g., “It is easy for me to relax.”). Items are scored on a 5-point Likert type scale that ranges from 0 (Strongly disagree) to 4 (Strongly agree). Negatively worded items (i.e., Items 3,7, and 9) are reverse coded before scoring. Filler items are not used in scoring. The total score ranges from 0 to 24, with a higher score indicating higher optimism. For this study, the total score was used to identify each participant’s optimism score. Internal consistency reliability coefficients (Cronbach’s alpha) of the LOT-R have been reported to range from .67 to .78 in different studies (Scheier et al., 1994; Smith, Ebert, Broman-Fulks, 2016).

Hope. Hope was measured by the *Trait Hope Scale* (THS; Snyder et al., 1991). The THS consists of 12 items, with four measuring pathways thoughts (e.g., “I can think of many ways to get out of a jam.”), four measuring agency thoughts (e.g., “I energetically pursue my goals.”), and four serving as filler items (e.g., “I feel tired most of the time.”). Items are scored on a 4-point Likert-type scale that ranges from 1 (definitely false) to 4 (definitely true). Filler items are not used in scoring. The total score ranges from 8 to 32, with a higher score indicating higher hope and, for this study, total score was used. Internal consistency reliability coefficients (Cronbach’s alpha) have been found to range from .74 to .84 for total hope scores, .71 to .76 for the agency scores, and .63 to .80 for the pathways score (Snyder et al., 1991). Construct validity is supported by predictable relationships with other instruments derived from a “shared nomological network” including Scheier & Carver’s Life Orientation Test and Rosenberg’s Self-Esteem Scale (Snyder et al., 1991, p. 575).

Resilience. Resilience was measured by the *Brief Resilience Scale* (BRS; Smith et al., 2008). It consists of three positive valence items (e.g., “I tend to bounce back quickly after hard times.”) and three negative valence items (e.g., “I have a hard time making it through stressful

events.”), each rated on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). Negatively worded items (i.e., Items 2,4, and 6) are reverse coded before scoring. The total score ranges from 6 to 30, with a higher score indicating higher resilience and, for this study, total score was used. Internal consistency reliability coefficients (Cronbach’s alpha) for the BRS were reported to range from .79 to .91 in different studies (Sanchez, Rosenthal, Chan, Brooks, & Bezyak, 2016; Smith et al., 2008; Tansey et al., 2015).

Coping flexibility. Coping flexibility was measured by the *Coping Flexibility Scale* (CFS; Kato, 2012). The scale consists of 10-item (e.g., “I am aware of how successful or unsuccessful my attempts to cope with stress have been”; “When a stressful situation has not improved, I try to think of other ways to cope with it.”), each rated on a 4-point Likert-type scale ranging from 0 (not applicable) to 3 (very applicable). Negatively worded items (i.e., Items 2 and 6) are reverse coded before scoring. The total score ranges from 0 to 30, with a higher score indicating a higher coping flexibility and, for this study, the total score was used. Internal consistency reliability coefficients (Cronbach’s alpha) have been reported to range from .81 to .82 for the coping flexibility scale (Ng, Cheung, & Tam, 2014; Reed, 2016).

Secure attachment. Secure attachment was measured by secure attachment subscale of the *Short-Form Version of the Attachment Style Questionnaire* (Iwanaga et al., 2017). The *Short-Form Version of the Attachment Style Questionnaire* is a revised version of the original *Attachment Style Questionnaire* (ASQ; Feeney, Noller, & Hanrahan, 1994). The secure attachment subscale consists of four items (e.g., “I feel confident about relating to others.”) rated on a 7-point Likert-type scale ranging from 1 (totally disagree) to 6 (totally agree). The total score ranges from 6 to 24, with a higher score indicating a higher secure attachment. Iwanaga et al. (2017) reported that secure attachment subscale has acceptable psychometric properties, and

the internal consistency reliability coefficient for the secure attachment subscale was reported to be .74; in addition, the secure attachment subscale of short-form version of ASQ was found to be highly correlated with the secure attachment subscale of long-form ASQ ($r = .93$).

Instrumentation for Outcome Measures

College life adjustment. College life adjustment was measured by a score based on the four subscales of the *Inventory of Common Problems* (ICP; Hoffman & Weiss, 1986) and the *Patient Health Questionnaire for Depression and Anxiety* (PHQ-4; Kroenke, Spitzer, Williams, & Löwe, 2009). The four subscales of the ICP are composed of 16 items: academic problems (e.g., “Academic problems?”), interpersonal problems (e.g., “Difficulty getting along with others?”), substance use problems (e.g., “My use of alcohol?”), and physical health problems (e.g., “physical health problems?”). Each item is rated on a 5-point Likert-type scale ranging from 1 (not at all) to 5 (very much). Possible total scores range from 4 to 20 for each subscale, with higher scores indicating greater problems in each area. The internal consistency reliability coefficients were found to be .71 for academic problems subscale, .67 for interpersonal problems subscale, .53 for physical health problems subscale, and .45 for substance-use subscale (Hoffman & Weiss, 1986).

The PHQ-4 consists of four items rated on 4-point Likert-type scale ranging from 0 (not at all) to 3 (nearly every day). The PHQ-4 measures depression (e.g., “Feeling down, depressed, or hopeless.”) and anxiety (e.g., “Feeling nervous, anxious, or on edge.”). Possible total scores range from 0 to 12 for each subscale, higher scores indicating greater depression and anxiety. The internal consistency reliability coefficients were found to be .78 for depression subscale, .75 for anxiety subscale, and .82 for total score (Löwe et al., 2010).

Items of both the PHQ-4 and the subscales of the ICP (i.e., academic problems, interpersonal problems, physical health problems, and substance-use problems) are negatively worded, so negatively worded items are reverse coded. The second step was to sum up the standardized values of the PHQ-4 and the four subscales of the ICP to generate a global college life adjustment score, with higher scores indicating a greater college life adjustment.

Health-related quality of life. HRQOL was measured with PROMIS global mental and physical health items, which were categorized by Hays, Bjorner, Revicki, Spritzer, and Cella (2009). The PROMIS global mental health scale consists of four items (e.g., “In general, how would you rate your mental health, including your mood and your ability to think?”) measuring quality of life, mental health, satisfaction with social roles and activities, and emotional distress. Items are rated on a 5-point Likert-type scale ranging from 1 to 5. The total score ranges from 4 to 20, with a higher score indicating more positive mental health. The PROMIS global physical health scale consists of four items measuring fatigue, pain, general physical health, and physical functioning. Items are also rated on the same 5-point Likert scale ranging from 1 to 5. The total score ranges from 4 to 20, with a higher score indicating a greater physical health. PROMIS provides a conversion table on assessmentcenter.net, where raw scores can be converted to a *T* score metric with a $M = 50$ and $SD = 10$. Cronbach’s alpha was found to be .78 (Alschuler, Kratz, & Ehde, 2016). These scores can be converted into a *T* score metric with a $M = 50$ and $SD = 10$ (assessmentcenter.net). For this study, the subscale scores were used to identify each participant’s physical and mental health QOL scores. Both subscale scores were converted to *T* score. Internal consistency reliability coefficients were found to be .78 for mental health and .84 for physical health (Alschuler et al., 2016).

Life satisfaction. Life satisfaction was measured by the *Satisfaction with Life Scale* (SWLS; Diener et al., 1995). The scale consists of five items rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The total score ranges from 5 to 35, with a higher score indicating a greater life satisfaction. For this study, the total score was used to identify each participant's life satisfaction score. Internal consistency reliability coefficients ranged from .87 to .89 (Smedema, Catalano, & Ebener, 2010).

Data Analysis

Data Summarization Procedures

The Statistical Package for Social Sciences (SPSS) 23.0 and R software for Windows were used to manage raw data and perform all analyses. Data were analyzed using descriptive statistics, preliminary screening procedures, and simultaneous and hierarchical regression analyses to test the research hypotheses. Descriptive statistics were computed for all independent variables (IVs) and dependent variables (DVs) to examine the shape of the distribution (normal, skewness, kurtosis), central tendency (mean, median, mode), and dispersion (range, variance, standard deviation). Frequencies, percentages, means, and standard deviations were used to summarize demographic characteristics and measured variables of participants. All assumptions were tested for analyses used in this study. Coefficient alphas were used to estimate internal consistency reliability of scores on each measure. Descriptive statistics were also computed for all measures and presented in Table 3.2 including normality, central tendency, and dispersion.

Table 3.2

Measurement Scale Summary

Independent variables	Number of items	Ratings scale	Mean (SD)	Cronbach's alpha
The Life Orientation Task-Revised	10	0 – 4	2.40 (.84)	.86
The Trait Hope Scale	12	1 – 4	3.27 (.48)	.85
The Brief Resilience Scale	6	1 – 5	3.70 (.78)	.85
The Coping Flexibility Scale	10	0 – 3	1.77 (.49)	.79
The Secure Attachment Subscale of The Short-Form Version of the Attachment Style Questionnaire	4	1 – 6	4.10 (1.16)	.87
The PERMA Profiler	15	0 – 10	7.08 (1.78)	.94
- Positive Emotion			6.50 (2.20)	.86
- Engagement			6.94 (2.31)	.57
- Relationships			6.97 (2.31)	.85
- Meaning			7.25 (2.26)	.92
- Accomplishment			7.73 (1.62)	.81
Outcome variables	Number of items	Ratings scale	Mean (SD)	Cronbach's alpha
Generated College Life Adjustment	20	N/A		N/A
- Academic problems		1 – 5		.78
- Relationship problems		1 – 5		.79
- Physical health problems		1 – 5		.82
- Substance use problems		1 – 5		.57
- Psychological health problems		0 – 3		.90
The PROMIS Global Mental Health Scale	4	1 – 5		.83
The PROMIS Physical Health Scale	4	1 – 5		.74
The Satisfaction with Life Scale	5	1 – 7	4.62 (1.42)	.90

Sample Size

A priori power analysis was conducted using the G*Power software (Faul, Erdfelder, Buchner, & Lang, 2009). Power was set at .80, with an alpha level of .05 for 17 predictors including demographic variables, FEPPTs variables, and PERMA variables. One-hundred and forty-six participants were found to be required for a medium effect size ($f^2 = .15$; Cohen, 1988).

For this study, sample size was also calculated using Maxwell's (2000) suggestion for computing the power to detect the unique effects of PERMA. R statistics software with "MBESS" package was used to calculate effect size. First, correlations among variables were found from the literature. In this study, MBESS package was used with following code:

```
Rho.yx <- Cor.Mat[1,2:18]
```

```
Rho.xx <- Cor.Mat[2:18,2:18]
```

```
R2.from.cormat(Rho.YX = Cor.Mat[1,2:13], RHO.XX = Cor.Mat[2:13,2:13])
```

```
R2.from.cormat(Rho.YX = Cor.Mat[1,2:18], RHO.XX = Cor.Mat[2:18,2:18])
```

```
f^2 = (R^2_Y.ABC-r^2_Y.AB)/(1-R^2_Y.ABC)
```

```
power.max1(Rho.yx, Rho.xx, which.x = 14, lambda = 12.83)
```

Based on correlation matrices, sample size ranged from 164 to more than 500 for the current study.

Data Visualization, Exploration, and Assumptions

Major assumptions for multiple regression analysis include: (a) linearity in the variables; (b) correct specification of the independent variables; (c) measurement error; (d) independence of errors; (e) homoscedasticity; and (f) normality of residuals (Cohen, Cohen, West, & Aiken, 2003). Violation of these assumptions may potentially lead to one of two problems (Cohen et al., 2003). First, the estimate of the regression coefficients may be biased due to violation of an

assumption (Cohen et al., 2003). In this case, the estimates the regression coefficients, R^2 , significance tests, and confidence intervals may all be affected (Cohen et al., 2003). Second, only the estimate of the standard error of the regression coefficients may be biased, in which case the estimated value of the regression coefficients would be correct, but hypothesis tests and confidence intervals may be incorrect (Cohen et al., 2003). Therefore, multiple regression analysis assumptions for this study were carefully tested and evaluated.

The scatterplots of the independent variables and the dependent variables indicated that the assumptions of linearity and homoscedasticity are reasonable. Coefficient alphas were used to estimate internal consistency of scores on each measure in order to check for measurement error. Durbin-Watson statistics were computed to test nonindependence of residuals, as multiple regression assumes that the residuals are independent (Cohen et al., 2003). The Durbin-Watson value is reported to be between 1.5 and 2.5 (Garson, 2012). In addition, multicollinearity assumes that no strong correlation exists between variables within the predictor sets. Violations of multicollinearity lead to difficulty in determining the unique statistical contribution of each variable to the criterion variable. The presence of multicollinearity was evaluated by examining the variance inflation factors (VIF) and tolerance. None of the values exceeded 10 for any variables in the analyses, and none of the tolerance values was less than .10.

Missing data. Missing data is one of the most pervasive problems in data analysis (Cohen, et al., 2003; Tabachnick & Fidell, 2007). Presence of missing data may lead to misleading results. Cohen et al. (2003) reported that researchers should consider several factors when they select a method of dealing with missing data: (a) the amount of missing data; (b) sample size; (c) reasons of missing data; and (d) number of researchers who will use the dataset. According to Cohen et al., there is no such rule of thumb that provides the best answer as to a

missing data approach (e.g., dropping variables, dropping subjects, multiple imputation) that a researcher should use when analyzing data. According to Fox-Wasylyshyn and El-Masri (2005), simple imputation and multiple imputation methods would yield similar results when the missing data are less than 5%. In this study, the percent of missing values for independent and dependent variables was calculated. None of the scales were missing more than 2% of the values. So, simple imputation in the SPSS software was used to deal with missing data as the missing data was less than 5%. Each missing value was replaced with a value imputed by linear regression.

Outliers. An outlier is a case with such an extreme value that does not fit with the rest of the data (Cohen et al., 2003; Tabachnick & Fidell, 2007). Scatterplot matrices can be used to identify outliers when there is more than one independent variable (Cohen et al., 2003). Cohen et al. (2003) reported that measures of *influence* combine information from measures of *discrepancy* and *leverage* to provide information about how the regression equation would change if case *i* was removed from the data set. In this study, Cook's distance (*Cook's D*) was used to identify outliers in the data set. Cook's distance greater than the cut-off value ($4/(n-k-1) = 0.021$; Chatterjee & Hadi, 1986) was used for outcome variables (i.e., college life adjustment, HRQOL, and life satisfaction). The number of cases eliminated vary from each research question and will be reported in the results chapter.

Categorical Variables

Hardy (1993; as cited in Cohen et al., 2003) reported that researchers should decide which group is the reference group based on some criteria: (a) the reference group should serve as a useful comparison; (b) the reference group should be well-defined and not "waste basket" category; and (c) the reference group should not have very small sample size relative to the other groups. In this study, categorical variables (i.e., gender [male = 1], race/ethnicity [white = 1],

marital status [married or cohabitating = 1], service-connected disabilities [service-connected disability = 1], and first-generation college student status [first-generation college student = 1] were dummy coded.

Simultaneous Regression

A series of simultaneous regression analyses was used to examine the variance in the criterion variable (i.e., college life adjustment, physical and mental health QOL, and life satisfaction) that may be accounted for by the predictors as a set, and the unique association of each of the predictors with the criterion variable when all the other predictors in the regression analysis are statistically controlled (Hoyt, Imel, & Chan, 2008; Hoyt, Leierer, & Millington, 2006). In this study, three sets of predictors (i.e., demographic characteristics, FEPPTs, and PERMA) were utilized to predict the criterion variables.

Hierarchical Regression

A series of hierarchical regression analyses was used to identify the correlation of each predictor set and to identify the unique contribution and predictive ability of each predictor variable to the variance of the criterion variable (Cohen, et al., 2003). Hierarchical regression analysis is particularly useful when there are multiple independent variables used to predict a dependent variable (Hoyt et al., 2008). The change in R^2 (ΔR^2) represents the variance accounted for by a predictor set, while the sr^2 represents the shared variance of each individual predictor within a set. ΔR^2 will be examined as a measure of each predictor set contribution. HRA requires predictor sets to be entered into the equation based on prior theoretical knowledge.

A priori specifications are used to identify the order in which predictor sets must be entered into the regression equation based on theoretical guidance and the hypothesized relationships (Hoyt et al., 2008). Independent variables were grouped under the categories of

demographic covariates, FEPPTs, and PERMA. The significance was set at $\alpha = .05$. A priori specifications for hierarchical regression analysis included the following:

In *step 1*, a set of demographic covariates was entered, including age, gender, race/ethnicity, marital status, service-connected disability, class standing, and first-generation college student status.

In *step 2*, five FEPPTs variables were entered, including optimism, hope, resilience, coping flexibility, and secure attachment.

In *step 3*, five pillars of PERMA were entered, including positive emotion, engagement, relationships, meaning, and accomplishment.

Mediation Analysis

Multiple regression analysis was utilized to test a mediator hypothesis examining the effect of PERMA total scores on the relationship between service-connected disability and college life adjustment. Baron and Kenny's (1986) procedure for mediation analysis was used to explore whether PERMA (total score) mediates the relationship between service-connected disability (the independent variable; IV) and college life adjustment (the dependent variable; DV). The three steps involved in this procedure are: (1) regress the IV onto the DV to show that it is possible that the two variables can be causally linked; (2) regress the mediator onto the IV to show they can also be linked; and (3) regress the IV and the mediators simultaneously onto the DV to determine if the IV is significantly associated with the DV when the mediators are statistically controlled. In addition, to formally test the significance of the indirect effect, this a bootstrap procedure was used, provided by Preacher and Hayes (2004), to estimate the size of the indirect effects. Using bootstrapping procedures to test indirect effect was recommended for small sample sizes (Shrout & Bolger, 2002).

CHAPTER FOUR

Results

The purpose of this study is to examine (a) demographic covariates, FEPPTs and PERMA as predictors of college life adjustment, HRQOL and life satisfaction of student veterans; (b) PERMA as a happiness and well-being model for college life adjustment, HRQOL, and life satisfaction among student veterans, and (c) FEPPTs as predictors of PERMA. Simultaneous and hierarchical regression analyses were used to determine the amount of variance explained in college life adjustment, HRQOL, and life satisfaction by the predictors and predictor sets representing demographic covariates, FEPPTs, and PERMA. Additionally, mediation analysis was used to test whether PERMA mediates the relationship between service-connected disability and college life adjustment.

Data Screening

Data for all predictor and criterion variables were screened for accuracy, data entry, multivariate outliers, and normality using SPSS 23.0. Frequency tables were used to identify data entry errors. Multicollinearity was assessed using the variance inflation factors (VIFs) and tolerance. No VIF values exceeded 10, with values ranging from 1.04 to 7.34. None of the tolerance values was less than .10, ranging from .16 to .95. These findings indicate no evidence for multicollinearity within the dataset and that deleting or adding variables would not result in a large change in the coefficients. Outliers for the 4 outcome variables were assessed with Cook's distance cut-off. A total of 14, 14, 13, and 19 outliers were found and were deleted from the dataset for college life adjustment, physical health QOL, mental health QOL, and life satisfaction, respectively. Histograms, scatter plots of residuals, skewness, and kurtosis statistics

were examined to test assumptions of normality and linearity. The results indicated that the assumptions for multiple regression analysis were met.

Descriptive Data

Correlational analyses. PERMA total score was positively associated with college life adjustment ($r = .70, p < .001$), physical health QOL ($r = .54, p < .001$), mental health QOL ($r = .77, p < .001$), life satisfaction ($r = .65, p < .05$), optimism ($r = .65, p < .001$), hope ($r = .64, p < .001$), resilience ($r = .48, p < .001$), coping flexibility ($r = .34, p < .001$), and secure attachment ($r = .68, p < .01$). Correlations and descriptive statistics for the criterion and predictor variables are presented in Table 4.1, and all significant correlations were found between all predictors and each of the dependent variables of college life adjustment, physical and mental HRQOL, and life satisfaction.

Table 4.1

Correlations, Means, and Standard Deviations for Variables Used in the Hierarchical Regression Analyses

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. College life adjustment	1													
2. Life satisfaction	.60***	1												
3. Physical HROQL	.69***	.56***	1											
4. Mental HRQOL	.75***	.75***	.62***	1										
5. Optimism	.58***	.61***	.44***	.63***	1									
6. Hope	.48***	.53***	.43***	.59***	.56***	1								
7. Resilience	.55***	.45***	.42***	.55***	.49***	.56***	1							
8. Coping flexibility	.17*	.33***	.16*	.31***	.27***	.43***	.27***	1						
9. Secure attachment	.52***	.54***	.46***	.61***	.52***	.42***	.40***	.33***	1					
10. Positive emotion	.68***	.64***	.50***	.77***	.66***	.51***	.45***	.29***	.67***	1				
11. Engagement	.53***	.45***	.42***	.61***	.44***	.55***	.36***	.28***	.50***	.72***	1			
12. Relationships	.62***	.64***	.48***	.72***	.58***	.50***	.43***	.30***	.67***	.83***	.64***	1		
13. Meaning	.62***	.57***	.46***	.66***	.58***	.60***	.42***	.35***	.61***	.82***	.72***	.74***	1	
14. Accomplishment	.63***	.53***	.49***	.58***	.56***	.69***	.47***	.31***	.47***	.66***	.63***	.58***	.75***	1
Mean	.07	4.62	49.78	47.37	2.40	3.27	3.70	1.77	4.10	6.50	6.94	6.97	7.25	7.73
Standard Deviation	.79	1.42	9.22	9.44	.84	.48	.78	.48	1.16	2.20	1.71	2.31	2.26	1.62

Note. Physical and mental HRQOL scales are converted to T score.

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

Simultaneous Regression Analysis

With college life adjustment, HRQOL (i.e., physical and mental health QOL), and life satisfaction as the criterion variables, 12 simultaneous regression analyses examined the effects of the following sets of predictor variables: (a) demographic covariates (i.e., age, gender, race/ethnicity, marital status, service-connected disability, class standing, and first-generation college student status); (b) FEPPTs (i.e., optimism, hope, resilience, coping flexibility, and secure attachment); and (c) PERMA (i.e., positive emotion, engagement, relationships, meaning, accomplishment). The results of the analyses, including standardized coefficients (β) for the predictor variables and the R^2 in each analysis, are presented in the tables provided in each of the following sections.

Demographic covariates. Results are presented in Table 4.2. When using college life adjustment as the outcome variable, this set of demographic covariates accounted for 19% of the variance in college life adjustment, $R = .44$, $R^2 = .19$, $F(7, 183) = 6.21$, $p < .001$. Examining the standardized partial regression coefficients, marital status was found to significantly contribute to variance in college life adjustment, with $B = .38$, $t(183) = 3.49$, $p < .01$. Service-connected disability was also found to significantly contribute to variance in college life adjustment, with $B = -.49$, $t(183) = -4.62$, $p < .001$. Thus, being married or co-habiting and the absence of a service-connected disability were found to have a positive association with college life adjustment scores.

When using physical health QOL as the outcome variable, this set of demographic covariates accounted for 27% of the variance in physical health QOL, $R = .52$, $R^2 = .27$, $F(7, 183) = 9.50$, $p < .001$. Examination of the standardized partial regression coefficients indicated that age, $\beta = -.17$, $t(183) = -2.23$, $p < .05$; service-connected disability, $B = -7.90$, $t(183) = -6.69$,

$p < .001$; and class standing, $\beta = .15$, $t(183) = 2.07$, $p < .05$, contributed significantly to explaining variance in physical health QOL. Thus, younger age, absence of a service-connected disability, and higher class standing were found to be associated with more positive physical health QOL.

When using mental health QOL as the outcome variable, this set of demographic covariates accounted for 17% of the variance in mental health QOL, $R = .41$, $R^2 = .17$, $F(7, 184) = 5.28$, $p < .001$. Examination of the standardized partial regression coefficients indicated that age, $\beta = -.23$, $t(184) = -3.06$, $p < .01$; marital status, $B = 3.37$, $t(184) = 2.49$, $p < .01$; and service-connected disability, $B = -4.64$, $t(184) = -3.46$, $p < .001$, significantly contributed to variance in mental health QOL. Thus, younger age, being married or co-habiting, and absence of a service-connected disability were found to be associated with more positive mental health QOL.

When using life satisfaction as the outcome variable, this set of demographic covariates accounted for 16% of the variance in life satisfaction, $R = .40$, $R^2 = .16$, $F(7, 178) = 4.73$, $p < .001$. Examination of the standardized partial regression coefficients indicated that age, $\beta = -.31$, $t(178) = -3.95$, $p < .001$; marital status, $B = .64$, $t(178) = 3.15$, $p < .01$, and class standing, $\beta = .16$, $t(178) = 2.10$, $p < .05$ significantly contributed to variance in life satisfaction. Thus, younger age, being married or co-habiting, and higher class standing were found to be associated with greater life satisfaction.

Table 4.2

Summary of Simultaneous Regression Analyses for Demographic Covariates Predicting College Life Adjustment, Health-Related Quality of Life, and Life Satisfaction

Variables	College Life Adjustment (<i>N</i> = 191)				Physical Health QOL (<i>N</i> = 191)				Mental Health QOL (<i>N</i> = 192)				Life Satisfaction (<i>N</i> = 186)			
	<i>R</i> ²	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	<i>B</i>	<i>SE B</i>	β
Demographic covariates	.19***				.27***				.17***				.16***			
Age		-.01	.01	-.12		-.20	.01	-.17*		-.28	.10	-.23**		-.05	.01	-.31***
Gender ^a		.12	.11	.07		2.42	1.25	.13		2.72	1.40	.13		.18	.21	.06
Race ^a		-.09	.13	-.05		1.91	1.46	.08		-.41	1.65	-.01		.19	.24	.06
Marital status ^a		.38	.11	.25**		1.43	1.21	.08		3.37	1.35	.18*		.64	.20	.24**
SCD ^a		-.49	.11	-.32***		-7.90	1.18	-.44***		-4.64	1.34	-.24**		-.29	.20	-.11
Class standing		.06	.04	.11		.97	.47	.15*		.83	.52	.12		.16	.08	.16*
FGCS ^a		-.11	.10	-.08		.21	1.17	.01		-.78	1.31	-.04		-.12	.19	-.05

Note. SCD = service-connected disability, FGCS = first-generation college student.

^aGender (male = 1), race (white = 1), marital status (married or cohabitating = 1), service-connected disability (yes = 1), first-generation college student status (yes = 1)

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

FEPPTs. Results are presented in Table 4.3 regarding FEPPTs as predictors of each of the four dependent variables. When using college life adjustment as the outcome variable, the set of FEPPTs accounted for 59% of the variance in college life adjustment, $R = .77$, $R^2 = .59$, $F(5, 185) = 53.159$, $p < .001$. Examination of the standardized partial regression coefficients indicated that optimism, $\beta = .35$, $t(185) = 5.54$, $p < .001$; hope, $\beta = .20$, $t(185) = 3.02$, $p < .01$; resilience, $\beta = .19$, $t(185) = 3.21$, $p < .01$; and secure attachment, $\beta = .25$, $t(185) = 4.25$, $p < .001$, significantly contributed to variance in college life adjustment. Thus, greater optimism, hope, resilience and secure attachment were found to be associated with more positive college life adjustment.

When using physical health QOL as the outcome variable, this set of FEPPTs accounted for 40% of the variance in physical health QOL, $R = .63$, $R^2 = .40$, $F(5, 185) = 24.56$, $p < .001$. Examination of the standardized partial regression coefficients found that hope, $\beta = .19$, $t(185) = 2.38$, $p < .01$; resilience, $\beta = .24$, $t(185) = 3.35$, $p < .01$; and secure attachment, $\beta = .28$, $t(185) = 3.99$, $p < .001$, significantly contributed to variance in physical health QOL. Thus, greater hope, resilience, and secure attachment were found to be associated with more positive physical health QOL.

When using mental health QOL as the outcome variable, this set of FEPPTs accounted for 64% of the variance in mental health QOL, $R = .80$, $R^2 = .64$, $F(5, 186) = 67.29$, $p < .001$. Examination of the standardized partial regression coefficients indicated that optimism, $\beta = .23$, $t(186) = 3.83$, $p < .001$; hope, $\beta = .26$, $t(186) = 4.02$, $p < .001$; resilience, $\beta = .16$, $t(186) = 2.81$, $p < .01$; and secure attachment, $\beta = .39$, $t(186) = 7.17$, $p < .001$, significantly contributed to variance in mental health QOL. Thus, greater optimism, hope, resilience, and secure attachment were found to be associated with more positive mental health QOL.

When using life satisfaction as the outcome variable, this set of FEPPTs accounted for 49% of the variance in life satisfaction, $R = .78$, $R^2 = .60$, $F(5, 180) = 54.51$, $p < .001$.

Examination of the standardized partial regression coefficients indicated that optimism, $\beta = .43$, $t(180) = 6.46$, $p < .001$; hope, $\beta = .19$, $t(180) = 2.85$, $p < .01$; and secure attachment, $\beta = .24$, $t(180) = 4.03$, $p < .001$, significantly contributed to variance in life satisfaction. Thus, greater optimism, hope, and secure attachment were found to be associated with more positive life satisfaction,

Table 4.3

Summary of Simultaneous Regression Analyses for FEPPTs Variables Predicting College Life Adjustment, Health-Related Quality of Life, and Life Satisfaction

Variables	College Life Adjustment (<i>N</i> = 191)				Physical Health QOL (<i>N</i> = 191)				Mental Health QOL (<i>N</i> = 192)				Life Satisfaction (<i>N</i> = 186)			
	<i>R</i> ²	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	<i>B</i>	<i>SE B</i>	β
FEPPTs	.59***				.40***				.64***				.60***			
Optimism		.31	.01	.35***		1.41	.78	.14		2.62	.68	.23***		.69	.11	.43***
Hope		.31	.10	.20**		3.42	1.43	.19**		4.94	1.22	.26***		.53	.19	.19**
Resilience		.18	.06	.19**		2.79	.83	.24**		1.90	.67	.16**		.03	.11	.01
Coping flexibility		-.01	.08	-.06		-1.36	1.15	-.07		-1.19	.94	-.06		.22	.15	.08
Secure attachment		.16	.04	.25***		2.12	.53	.28***		3.17	.45	.37***		.28	.07	.24***

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

PERMA. Results are presented in Table 4.4 regarding the five components of PERMA as predictors of the four dependent variables. When using college life adjustment as the outcome variable, this set of PERMA predictors accounted for 67% of the variance in college life adjustment, $R = .82$, $R^2 = .67$, $F(5, 185) = 76.51$, $p < .001$. Examination of the standardized partial regression coefficients indicated that positive emotion, $\beta = .52$, $t(185) = 5.68$, $p < .001$ and accomplishment, $\beta = .38$, $t(185) = 5.37$, $p < .001$, significantly contributed to variance in college life adjustment. Thus, greater positive emotion and sense of accomplishment were found to be associated with more positive college life adjustment.

When using physical health QOL as the outcome variable, this set of PERMA predictors accounted for 40% of the variance in physical health QOL, $R = .63$, $R^2 = .40$, $F(5, 185) = 24.42$, $p < .001$. Examination of the standardized partial regression coefficients indicated that positive emotion, $\beta = .31$, $t(185) = 2.26$, $p < .05$, and accomplishment, $\beta = .43$, $t(185) = 4.77$, $p < .001$, significantly contributed to variance in physical health QOL. Thus, greater positive emotion and sense of accomplishment were found to be associated with more positive physical health QOL.

When using mental health QOL as the outcome variable, this set of PERMA predictors accounted for 68% of the variance in mental health QOL, $R = .83$, $R^2 = .68$, $F(5, 186) = 79.19$, $p < .001$. Examination of the standardized partial regression coefficients indicated that positive emotion, $\beta = .45$, $t(186) = 4.96$, $p < .001$; relationships, $\beta = .25$, $t(186) = 3.23$, $p < .01$; and accomplishment, $\beta = .14$, $t(186) = 2.05$, $p < .05$, significantly contributed to variance in mental health QOL. Thus, more positive emotion, more positive relationships, and greater sense of accomplishment were found to be associated with more positive mental health QOL.

When using life satisfaction as the outcome variable, this set of PERMA predictors accounted for 59% of the variance in life satisfaction, $R = .77$, $R^2 = .59$, $F(5, 180) = 54.78$, $p <$

.001. Examination of the standardized partial regression coefficients indicated that positive emotion, $\beta = .35$, $t(180) = 3.27$, $p < .01$; relationships, $\beta = .36$, $t(180) = 3.60$, $p < .001$; and accomplishment, $\beta = .21$, $t(180) = 2.96$, $p < .01$, significantly contributed to variance in life satisfaction. Thus, more positive emotion, more positive relationships, and a greater sense of accomplishment were found to be associated with more positive life satisfaction.

Table 4.4

Summary of Simultaneous Regression Analyses for PERMA Variables Predicting College Life Adjustment, Health-Related Quality of Life, and Life Satisfaction

Variables	College Life Adjustment (<i>N</i> = 191)				Physical Health QOL (<i>N</i> = 191)				Mental Health QOL (<i>N</i> = 192)				Life Satisfaction (<i>N</i> = 186)			
	<i>R</i> ²	<i>B</i>	<i>SEB</i>	β	<i>R</i> ²	<i>B</i>	<i>SEB</i>	β	<i>R</i> ²	<i>B</i>	<i>SEB</i>	β	<i>R</i> ²	<i>B</i>	<i>SE</i>	β
PERMA	.67***				.40***				.68***				.59***			
Positive emotion		.18	.03	.52***		1.23	.54	.31***		1.95	.39	.45***		.22	.12	.35**
Engagement		-.02	.03	-.05		.15	.46	.03		.69	.35	.13		-.04	.21	-.05
Relationships		.04	.02	.13		.32	.43	.08		1.03	.32	.25**		.21	.12	.36***
Meaning		-.03	.03	-.08		-.61	.46	-.16		-.24	.40	-.05		-.02	.17	-.03
Accomplishment		.17	.03	.38***		2.32	.49	.43***		.82	.40	.14*		.19	.08	.21**

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

Hierarchical Regression Analysis

A series of hierarchical regression analyses was used to examine the research hypotheses, in which college life adjustment, HRQOL, and life satisfaction served as the criterion variables, and three sets of predictor variables were entered into the equation sequentially. *A priori* specifications for the order of entry for the sets in the hierarchical regression analyses were: (a) demographic covariates (i.e., age, gender, race/ethnicity, marital status, service-connected disability, class standing, and first-generation college student status); (b) FEPPTs (i.e., optimism, hope, resilience, coping flexibility, and secure attachment); and (c) PERMA (i.e., positive emotion, engagement, relationships, meaning, accomplishment). Hierarchical regression analyses were used to quantify the variance accounted for by each of the sets of the predictor variables entered sequentially for the sample of student veterans. The results including R^2 , ΔR^2 , the unstandardized regression coefficients (B), and standardized coefficients (β) for all predictor variables at each step and within the final model are presented in Table 4.5, Table 4.6, Table 4.7, and Table 4.8.

College life adjustment. As the first step of the hierarchical regression analysis in predicting college life adjustment, the set of demographic covariates was entered. This set of predictors accounted for a significant amount of the variance in college life adjustment, $R = .44$, $R^2 = .19$, $F(7, 183) = 6.21$, $p < .001$. Examination of the standardized partial regression coefficients indicated that marital status, $B = .38$, $t(183) = 3.49$, $p < .01$, and service-connected disability, $B = -.48$, $t(183) = -4.62$, $p < .001$, significantly contributed to explaining the variance in college life adjustment.

FEPPTs were entered in the second step of the regression analysis, including optimism, hope, resilience, coping flexibility, and secure attachment. The addition of these variables

accounted for a significant amount of the variance in college life adjustment that was not explained by demographic covariates, $R = .80$, $R^2 = .63$, $\Delta R^2 = .44$, $F(12, 178) = 25.85$, $p < .001$. The large ΔR^2 indicated that FEPPTs accounted for a significant amount of the variance above and beyond that explained by demographic covariates. Examination of the standardized partial regression coefficients indicated that optimism, $\beta = .36$, $t(178) = 5.79$, $p < .001$; hope, $\beta = .20$, $t(178) = 3.08$, $p < .01$; resilience, $\beta = .20$, $t(178) = 3.08$, $p < .01$; and secure attachment, $\beta = .17$, $t(178) = 2.83$, $p < .01$, significantly contributed to explaining the additional variance in college life adjustment.

PERMA was entered in the final step of the regression analysis. The addition of PERMA accounted for a significant amount of additional variance in college life adjustment, $R = .86$, $R^2 = .74$, $\Delta R^2 = .11$, $F(17, 173) = 29.01$, $p < .001$. The ΔR^2 indicate that PERMA accounted for a significant amount of the variance above and beyond demographic covariates and FEPPTs. Examination of the standardized partial regression coefficients found that positive emotion, $\beta = .37$, $t(173) = 3.89$, $p < .001$ and accomplishment, $\beta = .28$, $t(173) = 3.65$, $p < .001$, significantly contributed to explaining the additional variance in college life adjustment.

The final regression model accounted for 74% of the variance in college life adjustment. This is considered a large effect size based on the conventions established by Cohen (1988). Optimism, resilience, positive emotion, and accomplishment were significantly and positively related to college life adjustment of student veterans, while service-connected disability was negatively related. Thus, the absence of a service connected disability, greater optimism, greater resilience, and greater sense of accomplishment were all found to make unique contributions to the prediction of college life adjustment.

Table 4.5.

Hierarchical Regression Analysis for Predictors of College Life Adjustment (N = 191)

Variable	R^2	ΔR^2	At Entry Into Model			Final Model		
			B	$SE B$	β	B	$SE B$	β
Step 1		.19***						
Age			-.01	.01	-.12	-.003	.01	-.03
Gender ^a			.12	.11	.07	-.05	.07	-.03
Race ^a			-.09	.13	-.05	.09	.08	.04
Marital status ^a			.38	.11	.25**	.09	.07	.06
SCD ^a			-.48	.11	-.32***	-.20	.07	-.13**
College level			.06	.04	.11	.005	.03	.01
FGCS ^a			.11	.10	-.08	-.03	.06	-.02
Step 2	.63***	.44***						
Optimism			.32	.06	.36***	.15	.05	.17**
Hope			.31	.09	.20**	.03	.10	.02
Resilience			.18	.06	.20**	.16	.05	.17**
Coping flexibility			-.10	.08	-.07	-.08	.07	-.05
Secure attachment			.11	.04	.17**	-.001	.04	-.002
Step 3	.74***	.11***						
Positive emotion			.13	.03	.37***	.13	.03	.37**
Engagement			-.01	.03	-.02	-.01	.03	-.02
Relationships			.02	.02	.06	.02	.02	.06
Meaning			-.02	.03	-.06	-.02	.03	-.06
Accomplishment			.13	.04	.28***	.13	.04	.28**

Note. SCD = service-connected disability, FGCS = first-generation college student.

^aGender (male = 1), race (white = 1), marital status (married or cohabitating = 1), service-connected disability (yes = 1), first-generation college student status (yes = 1)

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

Physical health QOL. As the first step in the hierarchical regression analysis in predicting physical health QOL, the set of demographic covariates was entered. This set of predictors accounted for a significant amount of the variance in physical health QOL, $R = .52$, $R^2 = .27$, $F(7, 183) = 9.50$, $p < .001$. Examination of the standardized partial regression coefficients indicated that age, $\beta = -.17$, $t(183) = -2.25$, $p < .05$; service-connected disability, $B = -7.91$, $t(183) = -6.69$, $p < .001$; and class standing, $\beta = .15$, $t(183) = 2.07$, $p < .05$, significantly contributed to variance in physical health QOL.

FEPPTs were entered in the second step of the regression analysis including optimism, hope, resilience, coping flexibility, and secure attachment. The addition of these variables accounted for a significant amount of additional variance in physical health QOL, $R = .74$, $R^2 = .55$, $\Delta R^2 = .28$, $F(12, 178) = 17.84$, $p < .001$. The large ΔR^2 indicate that FEPPTs accounted for a significant amount of the variance above and beyond demographic covariates. Examination of the standardized partial regression coefficients indicated that optimism, $\beta = .19$, $t(178) = 2.82$, $p < .01$; hope, $\beta = .19$, $t(178) = 2.70$, $p < .01$; resilience, $\beta = .23$, $t(178) = 3.43$, $p < .01$; and secure attachment, $\beta = .15$, $t(178) = 2.29$, $p < .05$, significantly contributed to explaining the additional variance in physical health QOL.

PERMA was entered in the final step of the regression analysis. The addition of PERMA accounted for a significant amount of additional variance in physical health QOL, $R = .77$, $R^2 = .60$, $\Delta R^2 = .05$, $F(17, 173) = 15.06$, $p < .01$. The ΔR^2 indicate that PERMA accounted for a significant amount of variance in physical health QOL above and beyond demographic covariates and FEPPTs. Examination of the standardized partial regression coefficients indicated that accomplishment, $\beta = .33$, $t(173) = 3.65$, $p < .001$, significantly contributed to explaining the additional variance in physical health QOL.

The final regression model accounted for 60% of the variance in physical health QOL. This is considered a large effect size based on the conventions established by Cohen (1988). Resilience and accomplishment were positively related to physical health QOL of the sample of student veterans, while service-connected disability was negatively related. Thus, it appeared that absence of a service-connected disability, greater resilience, and a greater sense of accomplishment were all associated with physical health QOL.

Table 4.6.

Hierarchical Regression Analysis for Predictors of Physical Health QOL (N = 191)

Variable	R^2	ΔR^2	At Entry Into Model			Final Model		
			B	$SE B$	β	B	$SE B$	β
Step 1		.27***						
Age			-.19	.09	-.17*	-.08	.07	-.07
Gender ^a			2.43	1.25	.12	-.15	1.05	-.01
Race ^a			1.91	1.46	.08	2.99	1.16	.14
Marital status ^a			1.44	1.21	.08	-1.83	.99	-.10
SCD ^a			-7.91	1.18	-.44***	-5.71	.97	-.32***
College level			.96	.46	.15*	.62	.37	.09
FGCS ^a			.20	1.17	.01	.21	.92	.01
Step 2	.55***	.28***						
Optimism			1.99	.70	.19**	1.43	.75	.13
Hope			3.48	1.29	.19**	.10	1.49	.01
Resilience			2.73	.79	.23**	2.56	.77	.22**
Coping flexibility			-1.31	1.03	-.07	-1.23	.99	-.07
Secure attachment			1.15	.50	.15*	.56	.54	.07
Step 3	.60***	.05**						
Positive emotion			.18	.52	.05	.18	.52	.04
Engagement			.50	.41	.09	.50	.41	.09
Relationships			.26	.39	.06	.25	.39	.06
Meaning			-.55	.39	-.14	-.54	.39	-.14
Accomplishment			1.76	.48	.33***	1.76	.48	.32***

Note. SCD = service-connected disability, FGCS = first-generation college student.

^aGender (male = 1), race (white = 1), marital status (married or cohabitating = 1), service-connected disability (yes = 1), first-generation college student status (yes = 1)

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

Mental health QOL. In the first step of the hierarchical regression analysis predicting mental health QOL, the demographic covariates were entered as the first set of predictors. This set accounted for a significant amount of the variance in mental health QOL, $R = .41$, $R^2 = .17$, $F(7, 184) = 5.28$, $p < .001$. Examination of the standardized partial regression coefficients indicated that age, $\beta = -.23$, $t(184) = -3.01$, $p < .01$; marital status, $B = 3.37$, $t(184) = 2.49$, $p < .05$; and service-connected disability, $B = -4.64$, $t(184) = -3.46$, $p < .001$, significantly contributed to explaining variance in mental health QOL.

FEPPTs were entered in the second step of the regression analysis, including optimism, hope, resilience, coping flexibility, and secure attachment. The addition of these variables accounted for a significant amount of the variance in mental health QOL, $R = .83$, $R^2 = .69$, $\Delta R^2 = .52$, $F(12, 179) = 32.89$, $p < .001$. The large ΔR^2 indicated that FEPPTs accounted for a significant amount of the variance above and beyond the demographic covariates. Examination of the standardized partial regression coefficients indicated that optimism, $\beta = .28$, $t(179) = 4.72$, $p < .001$; hope, $\beta = .24$, $t(179) = 3.89$, $p < .001$; and secure attachment, $\beta = .34$, $t(179) = 6.31$, $p < .001$, significantly contributed to explaining the additional variance in mental health QOL.

PERMA was entered in the final step of the regression analysis. The addition of PERMA accounted for a significant amount of additional variance in mental health QOL, $R = .88$, $R^2 = .78$, $\Delta R^2 = .09$, $F(17, 174) = 35.83$, $p < .01$. The ΔR^2 indicated that PERMA accounted for a significant amount of the variance above and beyond the sets of demographic covariates and FEPPTs. Examination of the standardized partial regression coefficients indicated that positive emotion, $\beta = .35$, $t(174) = 4.15$, $p < .001$, and relationships, $\beta = .17$, $t(174) = 2.44$, $p < .05$, significantly contributed to explaining the additional variance in mental health QOL.

The final regression model accounted for 78% of the variance in mental health QOL. This is considered a large effect size based on the conventions established by Cohen (1988). Age, optimism, hope, secure attachment, positive emotion, and relationships made significant contributions to prediction of mental health QOL. Thus, younger age and greater optimism, hope, secure attachment, positive emotion, and relationships were associated with more positive mental health QOL.

Table 4.7.

Hierarchical Regression Analysis for Predictors of Mental Health QOL (N = 192)

Variable	R^2	ΔR^2	At Entry Into Model			Final Model		
			B	$SE B$	β	B	$SE B$	β
Step 1		.17***						
Age			-.28	.09	-.23**	-.12	.05	-.10*
Gender ^a			2.72	1.41	.13	.96	.84	.05
Race ^a			-.41	1.66	-.01	.16	.89	.01
Marital status ^a			3.37	1.35	.18*	-.33	.76	.02
SCD ^a			-4.64	1.34	-.24**	-1.80	.76	-.09
College level			.83	.52	.12	-.07	.28	-.01
FGCS ^a			-.78	1.31	-.04	.06	.72	.01
Step 2	.69***	.52***						
Optimism			3.25	.69	.28***	1.32	.65	.12*
Hope			4.61	1.19	.24***	3.50	1.22	.18**
Resilience			1.24	.71	.10	1.27	.61	.10
Coping flexibility			-1.07	.90	-.05	-.90	.77	-.05
Secure attachment			2.81	.45	.34***	1.12	.44	.14*
Step 3	.78***	.09**						
Positive emotion			1.52	.37	.35***	1.52	.37	.35***
Engagement			.47	.32	.08	.47	.32	.08
Relationships			.71	.29	.17*	.71	.29	.17*
Meaning			-.38	.36	-.08	-.38	.36	-.08
Accomplishment			-.04	.40	.01	-.04	.40	.01

Note. SCD = service-connected disability, FGCS = first-generation college student.

^aGender (male = 1), race (white = 1), marital status (married or cohabitating = 1), service-connected disability (yes = 1), first-generation college student status (yes = 1)

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

Life satisfaction. As the first step in the hierarchical regression analysis predicting life satisfaction, the set of demographic covariates was entered. This set of predictors accounted for a significant amount of the variance in life satisfaction, $R = .40$, $R^2 = .16$, $F(7, 178) = 4.74$, $p < .001$. Examination of the standardized partial regression coefficients indicated that age, $\beta = -.31$, $t(178) = -3.96$, $p < .001$; marital status, $B = .64$, $t(178) = 3.16$, $p < .001$; and class standing, $\beta = .16$, $t(178) = 2.09$, $p < .05$, significantly contributed to explaining variance in life satisfaction.

The set of FEPPTs was entered in the second step of the regression analysis, including optimism, hope, resilience, coping flexibility, and secure attachment. The addition of these variables accounted for a significant amount of additional variance in life satisfaction, $R = .81$, $R^2 = .66$, $\Delta R^2 = .50$, $F(12, 173) = 27.45$, $p < .001$. The large ΔR^2 indicated that FEPPTs accounted for a significant amount of additional variance above and beyond the set of demographic covariates. Examination of the standardized partial regression coefficients indicated that optimism, $\beta = .43$, $t(173) = 6.63$, $p < .001$; hope, $\beta = .19$, $t(173) = 2.88$, $p < .01$; and secure attachment, $\beta = .20$, $t(173) = 3.34$, $p < .01$, significantly contributed to explaining the additional variance in life satisfaction.

PERMA was entered in the final step of the regression analysis. The addition of PERMA accounted for a significant amount of additional variance in life satisfaction, $R = .84$, $R^2 = .71$, $\Delta R^2 = .05$, $F(17, 168) = 24.31$, $p < .001$. The ΔR^2 indicated that PERMA accounted for a significant amount of variance above and beyond the demographic covariates and FEPPTs. Examination of the standardized partial regression coefficients indicated that positive emotion, $\beta = .23$, $t(168) = 2.26$, $p < .05$, and relationships, $\beta = .20$, $t(168) = 2.12$, $p < .05$, significantly contributed to explaining the additional variance in life satisfaction.

The final regression model accounted for 71% of the variance in life satisfaction. This is considered a large effect size based on the conventions established by Cohen (1988). Age, optimism, positive emotion, and relationships contributed significantly to life satisfaction of the sample of student veterans. Thus, younger age and greater optimism, positive emotion, and relationships were found to contribute to prediction of life satisfaction.

Table 4.8.

Hierarchical Regression Analysis for Predictors of Life Satisfaction (N = 186)

Variable	R^2	ΔR^2	At Entry Into Model			Final Model		
			B	$SE B$	β	B	$SE B$	β
Step 1		.16***						
Age			-.05	.01	-.31***	-.04	.01	-.21***
Gender ^a			.18	.21	.06	-.14	.14	-.05
Race ^a			.19	.24	.06	.35	.15	.10
Marital status ^a			.64	.20	.24**	.09	.13	.03
SCD ^a			-.30	.20	-.11	.08	.13	.03
College level			.16	.08	.16*	.06	.05	.06
FGCS ^a			-.12	.19	-.05	.07	.12	.03
Step 2	.66***	.50***						
Optimism			.69	.10	.43***	.52	.11	.32***
Hope			.51	.18	.19**	.32	.19	.12
Resilience			.04	.11	.02	-.03	.10	-.02
Coping flexibility			.28	.14	.10	.23	.13	.08
Secure attachment			.24	.07	.20**	.001	.08	.001
Step 3	.71***	.05**						
Positive emotion			.15	.07	.23*	.15	.07	.23*
Engagement			-.03	.05	-.03	-.03	.05	-.03
Relationships			.12	.06	.20*	.12	.06	.20*
Meaning			-.03	.06	-.05	-.03	.06	-.05
Accomplishment			.09	.06	.11	.09	.06	.11

Note. SCD = service-connected disability, FGCS = first-generation college student.

^aGender (male = 1), race (white = 1), marital status (married or cohabitating = 1), service-connected disability (yes = 1), first-generation college student status (yes = 1)

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

Mediation Analysis

PERMA (total score) was hypothesized to mediate the relationship between service-connected disability and college life adjustment. Mediation analysis followed the guidelines established by Baron and Kenny (1986) and Frazier, Tix, and Baron (2004). These steps include:

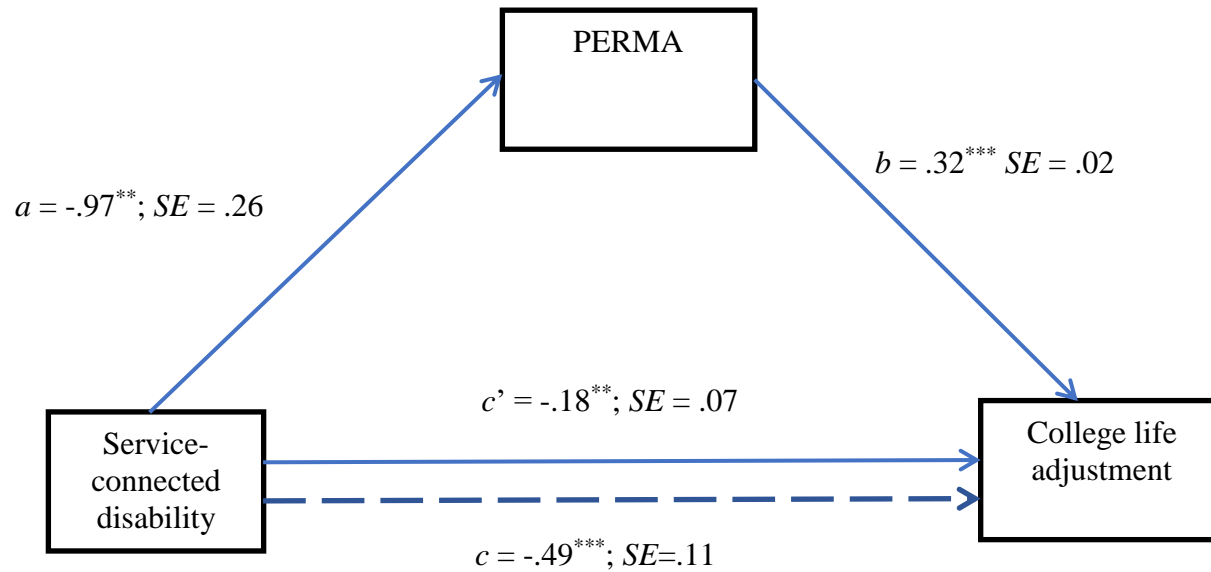
- 1 Regress the criterion variable onto the predictor variable to establish that a causal relationship is possible.
- 2 Regress the mediator variable onto the predictor variable to establish the possibility of a causal relationship.
- 3 Simultaneously regress the criterion variable onto the predictor variable and the mediator variable to show that the mediator is related to the outcome when the predictor is statistically controlled.

A mediator hypothesis is supported when the regression coefficients in the first two steps are significant, as well as the partial regression coefficient of the mediator variable in the final step (Baron & Kenny, 1986). Additionally, the test of indirect effect represents the product of the path coefficients from the predictor and criterion variables, which was conducted following guidelines proposed by Baron and Kenny (1986). The Sobel (1982) test is used to test whether the indirect effect is significantly different from zero. The Sobel test requires a normal sampling distribution for the product; however, the sampling distribution of the product is rarely normally distributed. As a result, Sobel's test of indirect effect is biased (Hoyt et al., 2008). A bootstrap test of indirect effect has been found to be a better method of testing indirect effect, with better statistical properties (Hoyt et al., 2008; Mackinnon et al., 2002). The indirect effect for the mediation model was tested using an SPSS macro for conducting bootstrap tests of mediator models by Kristopher Preacher (www.people.ku.edu/preacher/).

As figure 4.1 illustrates, the standardized regression coefficient for the *a* path between service-connected disability and PERMA was statistically significant. Moreover, the standardized regression coefficient for the *b* path between PERMA and college life adjustment was also statistically significant. The standardized indirect effect (*ab* path) was $(-.97)(.32) = -.31$. Bootstrapping procedures were used to test the significance of the indirect effect. The bootstrapped standardized indirect effect was $-.31$, and the 95% confidence interval ranged from $-.49$ to $-.15$. Therefore, the indirect effect was statistically significant, supporting PERMA as a partial mediator for the relationship between service-connected disability and college life adjustment.

Figure 4.1.

Path Coefficients for Simple Mediation Analysis on College Life Adjustment ($N = 191$)



Note. Dotted line denotes the effect of service-connected disability on college life adjustment when PERMA is not included as a mediator. a , b , c and c' are unstandardized ordinary least squares (OLS) regression coefficient.

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

CHAPTER FIVE

Summary, Discussion, Implications

In this chapter, a summary of findings, followed by a discussion and possible clinical implications for the major findings, is provided. Limitations of this study that might impact the interpretation and generalizability of research results are then considered. Finally, implications and suggestions for future research are discussed.

Summary of Findings

Data screening procedures were used to confirm that the statistical assumptions for multiple regression analyses were met. All instruments used to measure the dependent and independent variables were selected based on sound psychometric properties, and internal consistency reliability estimates were generally positive for all measures based on data from the sample in the present study.

Correlational analysis was used to examine the relationships between outcomes variables (i.e., college life adjustment, HRQOL, and life satisfaction) and predictor variables representing FEPPTs (i.e., optimism, hope, resilience, coping flexibility, and secure attachment) and PERMA (i.e., positive emotion, engagement, relationships, meaning, and accomplishment). Positive effect sizes ranging from small to large were found between the predictor variables and college life adjustment and physical health QOL. Positive effect sizes ranging from medium to large were found between life satisfaction and mental health QOL and predictor variables. The strength of these effect sizes indicates that there is some overlap in measured constructs. However, these relationships were not large enough to suggest that the measures of the constructs were the identical.

Factors Contributing to College Life Adjustment

A series of simultaneous regression analyses was used to investigate how demographic covariates, FEPPTs, and PERMA contribute to college life adjustment of student veterans. It was hypothesized that various demographic covariates, FEPPTs, and PERMA would uniquely predict college life adjustment of student veterans. Results revealed that demographic covariates (marital status and service-connected disability), FEPPTs (optimism, hope, resilience, and secure attachment), and PERMA (positive emotion and accomplishment) accounted for 19%, 59%, and 67% of the variance in college life adjustment of student veterans, respectively.

In addition, hierarchical regression analysis was used to investigate whether PERMA adds to explaining variance in college life adjustment above and beyond demographic covariates and FEPPTs. The predictor variables were divided into three major categories, and hierarchical regression analysis was used to assess the contribution of each set of predictors in explaining the variance in college life adjustment. Specifically, it was hypothesized that PERMA would account for a significant amount of the variance above and beyond demographic covariates and FEPPTs to a prediction of college life adjustment of student veterans. The ΔR^2 indicated that PERMA accounted for a significant amount of 11% of the variance above and beyond demographic covariates and FEPPTs. Overall, the final regression model accounted for 74% of the variance in college life adjustment scores, which is considered a large effect size according to Cohen's (1988) standards and provides good support for the use of demographic covariates, FEPPTs, and PERMA in predicting college life adjustment of student veterans. The results suggested that demographic covariates (service-connected disability), FEPPTs (optimism and resilience), and PERMA (positive emotion and accomplishment) accounted for the variance in college life adjustment of student veterans. Importantly, findings of this study revealed that PERMA

accounted for additional variance in college life adjustment after controlling for the effect of demographic covariates and FEPPTs. The fact that FEPPTs cannot completely explain PERMA, especially positive emotion and accomplishment, suggesting that PERMA is assessing additional positive psychology constructs above and beyond FEPPTs.

Factors Contributing to Physical Health Quality of Life

A series of simultaneous regression analysis was used to test hypotheses that various demographic covariates, FEPPTs, and PERMA would significantly predict physical health QOL of the sample of student veterans. Results showed that demographic covariates (age, service-connected disability, and class standing), FEPPTs (hope, resilience, and secure attachment), and PERMA (positive emotion and accomplishment) accounted for 27%, 40%, and 40% of the variance in physical health QOL of student veterans, respectively.

Hierarchical regression analysis was used to investigate whether PERMA adds above and beyond demographic covariates and FEPPTs in explaining variance in physical health QOL. The predictor variables were divided into the same three major categories, and hierarchical regression analysis was used to assess the contribution of each set of predictors. Specifically, it was hypothesized that PERMA would account for a significant amount of the variance above and beyond demographic covariates and FEPPTs to a prediction of physical health QOL of the sample of student veterans. The ΔR^2 indicated that PERMA accounted for a significant amount of 5% of the variance in physical health QOL above and beyond demographic covariates and FEPPTs. Overall, the final regression model accounted for 60% of the variance in physical health QOL scores, which is considered a large effect size according to Cohen's (1988) standards and provides good support for the use of demographic covariates, FEPPTs, and PERMA in predicting physical health QOL of student veterans. The results suggested that demographic

covariates (service-connected disability), FEPPTs (resilience), and PERMA (accomplishment) accounted for the variance in physical health QOL of student veterans. Importantly, findings of this study revealed that PERMA accounted for additional variance in physical health QOL after controlling for the effect of demographic covariates and FEPPTs, suggesting that PERMA is assessing additional positive psychology constructs that have predictive values above and beyond FEPPTs.

Factors Contributing to Mental Health Quality of Life

A series of simultaneous regression analyses was used to investigate how demographic covariates, FEPPTs, and PERMA may contribute to mental health QOL of student veterans. It was hypothesized that various demographic covariates, FEPPTs, and PERMA would significantly predict mental health QOL of the sample of student veterans. Results demonstrated that demographic covariates (age, marital status, and service-connected disability), FEPPTs (optimism, hope, resilience, and secure attachment), and PERMA (positive emotion, relationships, and accomplishment) accounted for 17%, 64%, and 68% of the variance in mental health QOL of student veterans, respectively.

In the primary analyses, hierarchical regression analysis was used to investigate whether PERMA adds to the prediction of mental health QOL above and beyond demographic covariates and FEPPTs. The predictor variables were divided into the same three major categories, and hierarchical regression analysis was used to assess the sequential contributions of each set. Specifically, it was hypothesized that PERMA would account for a significant amount of the variance above and beyond demographic covariates and FEPPTs to the prediction of mental health QOL of the student veterans. The ΔR^2 indicated that PERMA account for a significant amount of 9% of the variance in mental health QOL above and beyond demographic covariates

and FEPPTs. Overall, the final regression model accounted for 78% of the variance in mental health QOL scores, which is considered a large effect size according to Cohen's (1988) standards and provides good support for the use of demographic covariates, FEPPTs, and PERMA in predicting mental health QOL of student veterans. The results suggested that demographic covariates (age), FEPPTs (optimism, hope, and secure attachment), and PERMA (positive emotion and relationships) accounted for the variance in mental health QOL of student veterans. Importantly, findings of this study revealed that PERMA accounted for additional variance in mental health QOL after controlling for the effects of demographic covariates and FEPPTs, suggesting that PERMA is assessing additional positive psychology constructs with predictive value above and beyond those measured by the FEPPTs.

Factors Contributing to Life Satisfaction

A series of simultaneous regression analysis was used to investigate how demographic covariates, FEPPTs, and PERMA may contribute to the prediction of life satisfaction of the sample of student veterans. More specifically, it was hypothesized that the sets of demographic covariates, FEPPTs, and PERMA would significantly predict life satisfaction. Results revealed that demographic covariates (age, marital status, and class standing), FEPPTs (optimism, hope, and secure attachment), and PERMA (positive emotion, relationship, and accomplishment) accounted for 16%, 60%, and 59% of the variance in life satisfaction of student veterans, respectively.

In the primary analyses, hierarchical regression analysis was used to investigate whether PERMA adds above and beyond demographic covariates and FEPPTs to the prediction of life satisfaction. The predictor variables were divided into three major sets, and hierarchical regression analysis was used to assess the contribution of each of the sets. Specifically, it was

hypothesized that PERMA would account for a significant amount of the variance above and beyond demographic covariates and FEPPTs ability to predict life satisfaction of the student veterans. The ΔR^2 indicated that PERMA accounted for a significant amount of 5% of the variance above and beyond that accounted for by demographic covariates and FEPPTs. Overall, the final regression model accounted for 71% of the variance in life satisfaction scores, which is considered a large effect size according to Cohen's (1988) standards and provides good support for the use of demographic covariates, FEPPTs, and PERMA in predicting life satisfaction of student veterans. The results suggested that demographic covariates (age), FEPPTs (optimism), and PERMA (positive emotion and relationships) accounted for the variance in life satisfaction of student veterans. Importantly, findings of this study revealed that PERMA accounted for additional variance in life satisfaction after controlling for the effect of demographic covariates and FEPPTs, suggesting that PERMA is assessing additional positive psychology constructs with predictive value above and beyond FEPPTs.

Mediating Factor Between Service-Connected Disability and College Life Adjustment

Mediation analysis was used to examine the hypothesis that PERMA (total score) mediates the relationship between service-connected disability and college life adjustment. PERMA (total score) was found to partially mediate the relationship between service-connected disability and college life adjustment, indicating that not having service-connected disability played a role in increasing PERMA, which in turn improved college life adjustment of the student veterans.

Discussion and Clinical Implications

This study is the first comprehensive well-being study utilizing positive psychology theory for student veterans and findings from this study would appear to have a number of

clinical implications for rehabilitation and mental health and for student veterans in post-secondary education.

Demographics

In this study various demographic covariates account for a significant amount of the variance in college life adjustment, physical health QOL, mental health QOL, and life satisfaction of student veterans.

Age. Older age was found to be negatively correlated with physical health QOL, mental health QOL, and life satisfaction of student veterans, meaning that older student veterans had lower ratings of physical health QOL, mental health QOL, and life satisfaction compared to those who returned to college at a younger age. Studies have documented a negative relationship between age and quality of life and life satisfaction among college students, including college students with disabilities (Eddington, Mullins, Fedele, Ryan, & Junghans, 2010; Giaquinto, 2014). For example, age was also linked to higher levels of anxiety among college students (Mahmoud, State, Lennie, & Hall, 2015). However, there is a dearth of research investigating the relationship between age and college life adjustment, HRQOL, and life satisfaction of student veterans. Age, maturity level, and life experiences of student veterans are more than just a barrier to making new friends, because these factors can be a source of irritation and vexation for student veterans (Barbour, 2014). These findings suggest that older age might be a risk factor for lower physical health QOL, mental health QOL, and life satisfaction of student veterans in college. In addition, there is a need for further examination of the relationship between older age and experience in military combat tours. Older student veterans may have multiple combat tours that may result in greater risk of service-connected disability. This may also decrease student veterans' college life adjustment, HRQOL, and life satisfaction.

Marital status. Student veterans who are married or co-habiting were found to have better college life adjustment, mental health QOL, and life satisfaction compared to student veterans who were single, widowed, separated, or divorced. Being married or co-habiting may be considered a proxy for social support, which is strongly linked to well-being and better college life adjustment among college students, including student veterans (Ingala et al., 2013; Umberson et al., 1996). Studies have documented that student veterans who reported higher levels of social support had higher levels of college life adjustment (Umberson et al., 1996). In addition, social support has been found to be negatively linked to alienation on campus, intimate relationship strain, functional limits, depression, psychological distress, anxiety, and PTSD and positively linked to life satisfaction and trust of others among student veterans (Boul, 2015; Campbell, 2013; Chiu, 2013; Elliott et al., 2011; Ingala, 2011; 2013; Mahmoud et al., 2015). Findings from this study build on literature that supports the use of social support (e.g., social connections, emotional support, and advice and information) as a protective factor for student veterans during their post-secondary education. Stakeholders and policymakers, such as university administrators or veteran-specific programs and services should create a campus climate helping student veterans in finding greater social support by, for example, establishing student veteran organizations, which may increase social support and may reduce a sense of isolation.

Service-connected disability. Findings revealed that student veterans with service-connected disability had lower ratings of college life adjustment, physical health QOL, and mental health QOL compared to student veterans without service-connected disability. This finding is plausible, given that literature has suggested that service-connected disability interferes with student veterans' college life adjustment, well-being, and quality of life (DiRamio & Spires,

2009; Elliot et al., 2011). Depression, anxiety, PTSD, and TBI have been found to be negatively correlated with college life adjustment of student veterans (Campbell, 2013; Ingala, 2013).

Elliott et al. (2011) found that alienation on campus was positively correlated with functional limits, combat exposure, PTSD, and intimate relationship strain among student veterans.

Consistent with previous findings, service-connected disability is a significant risk factor for student veterans, affecting college life adjustment, physical health QOL, mental health QOL, and life satisfaction.

The challenge for any student veteran with a disability in post-secondary education is significant; therefore, individual, institutional, and policy level interventions should be implemented. For individual level intervention, student veterans should be informed about available campus support services, including university counseling centers and student disabilities centers, and should be encouraged to seek help from these resources. University disability resource centers should help student veterans with academic accommodations to reduce stress in living with a service-connected disability. In addition, university counselors and faculty members can be informed on military culture, terms, and benefits, which may potentially facilitate student veterans' participation in counseling services and classroom activities. At the policy level, the U.S. Department of Veterans Affairs should implement strategies to develop evidence-based mental health and rehabilitation counseling interventions.

Class standing. Student veterans who are in upper level academic classes had higher ratings of physical health QOL and life satisfaction compared to student veterans in earlier years of their college education. There is a dearth of research on whether class standing affects student veterans' college life adjustment, physical health QOL, mental health QOL, and life satisfaction. However, Misra and McKean (2000) reported that freshman and sophomore students were found

to have higher reactions to stress than juniors and seniors. In another study, class standing was negatively linked to aggressive behavioral tendency, indicating that students who are in upper academic years tended to be less aggressive than those who were in lower academic years (Yang, 2002). It has also been found that class standing was positively linked to GPA (Yang, 2002). Oleckno and Blacconiere (1990) examined differences in wellness by race, gender, and class standing among college students. They found that level of wellness tended to increase with class standing, indicating that students who are in upper academic classes have more positive wellness. In addition, class standing can be related to physical health because people get healthier over time in college or because students with poor health drop out college, so that healthier students remain in later college grades.

Conclusion. Findings from this study build on existing literature that supports the idea that demographic covariates should be incorporated into rehabilitation and mental health interventions for student veterans as a means to improve overall college life adjustment, HRQOL, and life satisfaction. Given that demographic covariates (e.g., age, class standing, and marital status) are difficult to modify, interventions should focus on how demographic risk and protective factors affect student veterans' well-being. Specifically, interventions should pay attention to service-connected disabilities affecting student veterans' functioning, because medical and psychosocial rehabilitation interventions may improve functioning, which enhances psychosocial outcomes. Therefore, rehabilitation interventions and resources (e.g., physical therapy and increased use of assistive technology) are all vital to improving functioning and ultimately well-being of student veterans with service-connected disability.

FEPPTs

In general, the various FEPPTs were found to be positively associated with more positive college life adjustment, physical health QOL, mental health QOL, and life satisfaction among the sample of student veterans.

Optimism. Optimism is expecting something good to occur in one's life, and such positive expectations are linked to greater subjective well-being, even under conditions of distress and adversity (Carver, Scheier, Miller, & Fulford, 2009). Optimism has been found to be linked to better mental health, physical health, post-traumatic growth, quality of life and was linked to lower levels of pain and depressive symptoms among veterans (Achat, Kawachi, Spiro, DeMolles, & Sparrow, 2000; Feder et al., 2008; Kostka & Jachimowicz, 2010; Lee, Aldwin, Choun, & Spiro, 2017). Research has highlighted that optimistic college students were found to have lower ratings on depression, stress, loneliness, and physical symptoms, and were found to have higher ratings on goal engagement and attainment, hedonia, gratitude and hope, social support, meaning in life, and level of well-being compared to pessimistic college students (Cha, 2003; Chang, 1998b; Chang & Sanna, 2003; Geers et al., 2009; Jones, You, & Furlong, 2013; Khallad, 2013; Scheier & Carver, 1991; Sahin-Baltaci & Tagay, 2015). Consistent with these findings, the current study found that student veterans with higher optimism scores endorse more positive college life adjustment, physical and mental health QOL, and life satisfaction.

Optimism is an important positive psychological trait which may contribute to college life adjustment, physical and mental health QOL, and life satisfaction of student veterans. It has been emphasized that optimism is malleable and that pessimists can become optimists by utilizing techniques such as cognitive-behavioral therapies and positive psychology interventions (Carver et al., 2009; Seligman, 2011b). Rehabilitation and mental health interventions can be

utilized to help student veterans cultivate their optimism. Specifically, positive psychology interventions aim to promote positive psychological states such as optimism (Nikrahan et al., 2016). Seligman (2011b) and Rashid (2015) emphasized optimism as one of the strengths built into psychotherapy. As an example, positive psychotherapy techniques have been implemented in clinical settings to cultivate character strengths and positive emotion including optimism (Rashid, 2015; Seligman, Rashid, & Parks, 2006).

Hope. Hope is the perceived ability to produce pathways to accomplish desired goals and to motivate oneself to use those pathways (Rand & Cheavens, 2009). A number of studies have demonstrated that hope was positively linked to academic self-efficacy, academic success, GPA, goal attainment, healthy behaviors, hedonia, gratitude, life satisfaction, meaning in life, and well-being and was negatively linked to depression, anxiety, drinking, and smoking among college students (Bailey & Snyder, 2007; Berg et al., 2011; Feldman & Kubota, 2015; Feldman, Rand, & Kahle-Wroblewski, 2009; Gallagher, Marques, & Lopez, 2017; Jones, et al., 2013; Snyder et al., 2002).

For veterans, hope has been negatively linked to depression, PTSD symptoms, and emotional avoidance coping, and positively linked to recovery from substance dependence (Hassija, Luterek, Naragon-Gainey, Moore, & Simpson, 2012; Irving et al., 1998). Consistent with previous findings, hope was found to be positively linked to college life adjustment, physical and mental health QOL, and life satisfaction of student veterans, indicating that student veterans who scored high on the hope scale tended to have more positive college life adjustment, physical and mental health QOL, and life satisfaction than those with low scores on hope. Hope is an important positive emotion and positive human trait that rehabilitation and mental health practitioners should implement within their clinical and research practice to increase

student veterans' hope. Efforts during hope interventions aimed at developing agency and pathways thinking may help student veterans achieve their goals by generating new routes to a goals and abilities to use those new routes.

Resilience. Resilience is described as a dynamic process encompassing both a behavioral and psychological manifestation of positive adaptation within the context of significant adversity (Todd & Worrell, 2000). Previous research findings have indicated that resilience was positively linked to well-being, social support, self-esteem, and meaning in life and was negatively linked to depression, anxiety, PTSD symptoms, alcohol consumption, and maladaptive coping among college students (Banyard & Cantor, 2004; Clauss-Ehlers, 2008; Hartley, 2013; Johnson et al., 2011; Mak et al., 2011; Robinson, Larson, & Cahill, 2014). Student veterans who scored higher on resilience scales were found to have higher well-being and post-deployment social support than those who scored lower on resilience (Rea, 2015). Consistent with previous findings, this study revealed that resilience was positively associated with college life adjustment and physical health QOL of student veterans, indicating that student veterans who scored high on resilience tended to have better college life adjustment and physical health QOL than those with lower scores.

Resilience has been regarded as a fundamental tenet of positive psychology research and interventions (Masten, Herbers, & Reed, 2009; Seligman, 2011a). Mental health practitioners have been studying resilience for a long time, and research has demonstrated that there are many aspects of resilience that are malleable (Reivich, Seligman, & McBride, 2011). Resilience training has been very popular in the U.S. Army, where they created the CFS to build an Army that is just as psychologically fit as it is physically fit (Cornum, Matthews, & Seligman, 2011). It is a long-term strategy, which consists of four program components, including program

assessment, universal resilience training, individual training, and master resilience trainers. These components aim to test and train resilience skills and increase emotional, physical, spiritual, social, and family strengths through continuous self-development. Student veterans may benefit from similar resilience programs and program components that rehabilitation and mental health practitioner might incorporate into case conceptualization, treatment planning, and clinical rehabilitation and mental health practice for student veterans.

Secure attachment. Attachment security is one of the vital positive psychology constructs, which has been found to be linked to positive outcomes (Lopez, 2009). For college students, secure attachment has been positively linked to positive academic, social, and personal-emotional adjustment to college, coping skills, life satisfaction, social support seeking, positive affect, problem focused coping, romantic relationship and was negatively associated with stress, social anxiety, and negative affect (Deniz & Isik, 2010; Kumar & Mattanah, 2016; Li & Yang, 2009; Mattanah et al., 2004; Parade, Leerkes, & Blankson, 2010; Rice et al., 1995). Among veterans, secure attachment has been found to be negatively correlated with PTSD symptoms, depression, anxiety, and somatization and positively correlated with better sleep (Dekel, Solomon, Ginzburg, & Neria, 2004; Troxel & Germain, 2011; Zakin, Solomon, & Neria, 2003). Consistent with these findings, the current study found that secure attachment is linked to college life adjustment, physical and mental health QOL, and life satisfaction of student veterans, indicating that student veterans who are securely attached tend to have better college life adjustment, physical and mental health QOL, and life satisfaction.

Although attachment styles are primarily established through the earliest caregiver experiences, literature indicates that a sense of others being trustworthy, loving, and caring can be developed by a strong working alliance with rehabilitation health professionals (Blake et al.,

2017; Bordin, 1979; Chan, Shaw, McMahon, Koch, & Strauser, 1997; Umucu et al., 2016; Wilson et al., 2013). Therefore, our results and previous findings provide evidence for the importance of building working alliance and helping student veterans in the professional practice of rehabilitation and mental health counseling.

Conclusion. While there has been limited research on FEPPTs for student veterans and limited development of specific interventions, there has been more robust research among other groups including individuals with various disabilities and chronic illnesses. Intervention development among these other groups suggests that FEPPTs training can be incorporated into a broad array of existing rehabilitation and mental health interventions. Findings from this study clearly illustrate that various FEPPTs (except coping flexibility) positively impact college life adjustment, physical and mental health QOL, and life satisfaction of student veterans. While optimism, hope, resilience, and secure attachment can improve well-being of student veterans, coping flexibility was not found to be predictive of college life adjustment, physical and mental health QOL, and life satisfaction of student veterans, perhaps due in part to difficulty in measuring coping flexibility, which is a relatively new concept in positive psychology. Rehabilitation and mental health field are still in need of developing and validating coping flexibility measurements. Overall, the results of this study suggest that rehabilitation and mental health practitioners might incorporate optimism, hope, resilience, and secure attachment into case conceptualization, treatment planning, and clinical rehabilitation and mental health practice to increase student veterans' flourishing in college life adjustment, HRQOL, and life satisfaction.

PERMA

Positive emotion. The first element in well-being theory is positive emotion (Butler & Kern, 2016). Positive emotion plays a vital role in the mission of positive psychology

(Fredrickson, 2001; 2013). Positive emotion is a marker of individual overall well-being and happiness, but it also may enhance success and future growth (Cohn & Fredrickson, 2009). Smedema and colleagues (2015) found that positive emotion was positively associated with life satisfaction among college students with disabilities. Recently, positive emotion was found to be positively associated with well-being, physical health, gratitude, hope, life satisfaction, and work performance and was found to be negatively associated with loneliness, depression, anxiety, fatigue, and stress (Bastian, Kuppens, Roover, & Diener, 2014; Butler & Kern, 2016).

In the present study, simultaneous regression analysis revealed that positive emotion was positively correlated with better college life adjustment, enhanced physical and mental health QOL, and higher life satisfaction among the sample of student veterans. However, hierarchical regression analysis results suggested that positive emotion was a unique predictor of college life adjustment, mental health QOL, and life satisfaction, but not physical health QOL among student veterans, when demographic covariates and FEPPTs were included in the final prediction model. This suggests that positive emotion was no longer significant predictor of physical health QOL due to possible overlap with demographic covariates and FEPPTs in prediction.

Positive emotion has been found to enhance the development and maintenance of flourishing and health (Fredrickson, 2013). This study provided support for the use of positive emotion within the PERMA model, building on the work of Seligman (2011a), in that positive emotion may play a protective role in enhancing student veterans' well-being.

Positive emotion is an indicator of optimal well-being (Fredrickson, 2004), so positive psychology interventions may help student veterans cultivate positive emotion in their own lives. Fredrickson (2004) indicated that (a) positive emotion undoes lingering negative emotions, (b) positive emotion fuel psychological resiliency, (b) positive emotion builds personal resources,

and (c) positive emotion fuels psychological and physical well-being. Therefore, positive emotion should be incorporated into rehabilitation and mental health interventions for student veterans as a means to improve overall college life adjustment, physical and mental health QOL, and life satisfaction and can then bolster a number of outcomes including well-being.

There has been limited research on positive emotion and how to cultivate positive emotion for student veterans because scholars and clinicians have had a tendency to emphasize research on psychopathology and negative emotions, especially on PTSD of student veterans. Given that positive emotion may help student veterans build lasting resources, such as resilience (Cohn, Fredrickson, Brown, Mikels, & Conway, 2009), this research provides support for rehabilitation and mental health practitioners to help student veterans cultivate positive emotion for the purpose of improving their sense of well-being.

Engagement. Engagement refers to the act of becoming highly interested, absorbed, or focused in daily life activities (Butler & Kern, 2016; Csikszentmihalyi, 1990; Seligman, 2011b). A high level of engagement in an activity is also referred to as “flow” (Csikszentmihalyi, 1990), or the overall feeling of being “in the zone.”

In this study, engagement was found to be linked to higher life satisfaction among student veterans; however, in the final models resulting from the hierarchical regression analyses, engagement was not a significant contributor to prediction, perhaps because of overlap with FEPPTs. Research findings have indicated that engagement was positively associated with other indicators of well-being, including life satisfaction and positive affect (Gabriele, 2008; Ruch et al., 2010; Vella-Brodrick et al., 2009). Butler and Kern (2016) found that engagement was positively associated with well-being, physical health, gratitude, hope, life satisfaction, and work performance and was negatively associated with loneliness, depression, anxiety, fatigue, and

stress. It has also been linked to increased academic commitment and achievement in high school students (Carli et al., 1988) and academic performance in college students (Engeser et al., 2005). However, in this study, engagement was not found to predict college life adjustment and physical and mental health QOL.

The second element of a happy life is an engaged life, which is a life pursuing engagement, involvement, and absorption in work, intimate relationships, and leisure activities (Csikszentmihalyi, 1990; Seligman et al., 2006). Given that an engaged life comprises the use of one's talents and strengths to meet challenges, it is important to identify one's main talents and strengths to enhance engagement (Duckworth, Steen, & Seligman, 2005). Nakamura and Csikszentmihalyi (2009) indicated that the goal of interventions fostering flow is to help people to identify activities that they enjoy and to learn how to invest their attention in the work of these activities. Seligman et al. (2006) identified session-by-session descriptions of positive psychotherapy, which has specific tools and techniques for positive psychology themes including engagement. For example, he specifically reported "*Identifying Signature Strengths*" as an engagement tool (Seligman et al., 2006). Rehabilitation and mental health practitioners can identify student veterans' talents and strengths during case conceptualization, treatment planning, and clinical rehabilitation and mental health practice in order to increase student veterans' engagement.

Relationships. Relationships refer to feelings of being cared about by others, authentically connected to others, and secure in those connections (Seligman, 2011b). They involve a sense of connectedness, loving, and sharing emotions with others. Positive relationships are considered to represent a fundamental human need and are strongly linked to happiness (e.g., Peterson, 2006).

In simultaneous regression analysis, relationships were found to be a significant predictor of mental health QOL, and in the hierarchical regression analyses, relationships were found to be a significant contributor to prediction of both mental health QOL and life satisfaction among the student veterans. Previous findings have revealed that positive relationships were associated with happiness (Diener, et al., 2009). Butler and Kern (2016) found that relationships were positively associated with well-being, physical health, gratitude, hope, life satisfaction, and work performance and negatively associated with loneliness, depression, anxiety, fatigue, and stress. Allen (1992) reported that positive relationships with faculty was one of the predictors of academic achievement among African-American college students. Diener and Seligman (2002) reported that college students who had stronger romantic and social relationships and who socialized more frequently tended to be happier than students who did not.

Social support is one of the very important protective factors for student veterans. However, student veterans may experience interpersonal problems due to their age and status (Barry et al., 2014). Overseas deployment, particularly with combat exposure, may increase interpersonal relationship issues with friends, family, and co-workers when veterans return home (Basham, 2008; Milliken et al., 2007). Student veterans may think that there is no one who can understand the experiences of veterans on campus (Whitley et al., 2013). Due to fewer common interests between student veterans and traditional students, student veterans may feel a sense of isolation (Alschuler & Yarab, 2016; Whitley et al., 2013). Therefore, rehabilitation and mental health practitioners can identify student veterans' relationship patterns during case conceptualization, treatment planning, and clinical rehabilitation and mental health practice in order to increase student veterans' positive relationships. One of the Master Resilience Training modules focuses on building strong relationships. This module aims to provide practical tools for

building relationships and to challenge beliefs interfering with positive communication.

According to Seligman, teaching assertive communication and active constructive (authentic, enthusiastic support) responding help individuals build positive relationships. Overall, these interventions may help student veterans increase their healthy relationship with their family, friends, faculty, and community as well.

Meaning. Meaning refers to a sense of purpose in life derived from something greater than the self (Butler & Kern, 2016; Seligman, 2011b; Steger, et al., 2008). In this study, neither simultaneous regression analyses nor hierarchical regression analyses results revealed meaning uniquely predict college life adjustment, physical and mental health QOL, and life satisfaction of student veterans. This is not consistent with previous research findings that a greater sense meaning has been found to be positively associated with higher life satisfaction, positive affect, and positive mental health outcomes (e.g., Brassai et al., 2011; King et al., 2006; Steger & Frazier, 2005; Steger & Shin, 2010), along with better academic achievement in college students (DeWitz et al., 2009). As discussed in limitations section, PERMA variables are highly correlated with each other, which reduces the likelihood of significance of meaning given more sample size is needed.

Accomplishment. Accomplishment refers to a persistent drive to make progress toward personal goals and having a sense of achievement in one's life (Butler & Kern, 2016; Seligman, 2011b). In this study, simultaneous regression analyses revealed that accomplishment was positively correlated with college life adjustment, physical and mental health QOL, and life satisfaction among student veterans. However, the final model of the hierarchical regression analyses revealed that accomplishment was a significant predictor of only college life adjustment and physical health QOL, perhaps because of overlap with accomplishment with components of

the demographic covariates and FEPPTs. Researchers have found that accomplishment was positively associated with well-being, physical health, gratitude, hope, life satisfaction, and work performance and was negatively associated with negative emotion, depression, loneliness, anxiety, fatigue, and stress (Butler & Kern, 2016).

To effectively help student veterans transition to colleges and universities, a comprehensive understanding must be developed regarding facilitators and barriers to the academic success of student veterans (Norman et al., 2015). Age differences from peers, mental health issues, physical health issues, and perceived GI Bill implementation inefficiencies are some of reasons that may lead student veterans to have academic problems (Barry et al., 2014; DiRamio & Spires, 2009; Elliot et al., 2011; Norman et al., 2015; Rudd et al., 2011). These findings clearly illustrate that student veterans' sense of accomplishment can be improved by helping student veterans set attainable academic and career goals and make progress toward goals. In order to increase accomplishment, Gander, Proyer, and Ruch (2016) asked participants "remember three things you have experienced today where you were successful or where you had the impression that you did something really well. Write thee things down and describe how you felt." Rehabilitation and mental health practitioners should implement similar positive psychology interventions (such as Gander and colleagues) to help student veterans increase their sense of accomplishment.

PERMA. Seligman's PERMA model is a multidimensional well-being concept that mental health practitioners have started implementing in post-secondary education for college students, including students with disabilities (Butler & Kern, 2016; Coffey et al., 2016; Kern et al., 2014; Tansey et al., 2017). In this study, PERMA was examined as to whether it added above and beyond demographic covariates and FEPPTs to the prediction of college life adjustment,

physical and mental health QOL, and life satisfaction. Research findings suggested that the addition of PERMA accounted for a significant amount of variance beyond demographic covariates and FEPPTs in predicting college life adjustment, physical and mental health QOL, and life satisfaction of student veterans.

While considering and addressing demographic covariates and FEPPTs may improve college life adjustment, physical and mental health QOL, and life satisfaction of student veterans, PERMA still appears to add explanatory power, which supports Seligman's (2011) statement that PERMA helps mental health practitioners have a more comprehensive understanding of well-being. Therefore, findings inform the development of positive psychology interventions for student veterans at risk for mental and physical health problems, academic problems, substance use problems, and relationship problems.

Rehabilitation and mental health practitioners, social workers, and student veteran centers should be informed about strengths of FEPPTs and PERMA on college life adjustment. In addition, university counseling centers should provide evidence-based positive psychotherapy interventions and exercises (e.g., positive psychotherapy, three-good-things) in conjunction with problem-based preventive interventions to strengthen psychological and social resources and build PERMA.

Overall, PERMA would appear to hold a great deal of promise as a higher-order contributor to college life adjustment, physical and mental health QOL, and life satisfaction of student veterans. PERMA constructs are malleable, and rehabilitation and mental health professionals can learn and implement evidence-based positive psychology interventions supported by meta-analytic studies (e.g., Bolier et al., 2013) to build PERMA constructs in student veterans. Positive psychotherapy (Seligman et al., 2006; Rashid, 2015), well-being

therapy (e.g., Fava et al., 1998), mindfulness-based cognitive therapy (e.g., Brown & Ryan, 2003), and other positive psychotherapy interventions and exercises (e.g., Master Resilience Training, Penn Resilience Program, Comprehensive Soldier Fitness) would appear to have promise in building PERMA with student veterans.

Implications for Future Research

The findings from this study support PERMA as a happiness and well-being model for college life adjustment, HRQOL, and life satisfaction among student veterans, adding to a growing body of empirical research validating PERMA as a tool to quantify the role of positive psychology constructs on the well-being of student veterans. Although much of the empirical research evaluating positive psychology constructs, including this study, has been comprised of descriptive correlational studies, more research is needed to establish the causality or directionality of the relationships between positive psychology predictors (i.e., FEPPTs and PERMA) and college life adjustment, HRQOL, and life satisfaction of student veterans. Future longitudinal research is needed to further determine the causal relationships between variables in the proposed positive psychology model. In addition, FEPPTs and PERMA significantly predict college life adjustment, HRQOL, and life satisfaction; however, randomized control trial studies are needed to test positive psychology interventions with student veterans.

To date, the positive psychology continues to find support as an empirical model. Most of positive psychology measurements, including PERMA, have not been validated for student veterans, which is a major limitation. Therefore, proposed positive psychology constructs need to be further operationalized and validated. In addition, measures of the constructs need to be refined and validated.

The scope of this study explores proposed positive psychology model, which excluded a psychopathological perspective, except for service-connected disability. It is well-documented that psychopathological variables (e.g., PTSD symptoms) are major determinates of well-being; however, they were not included in this study to better facilitate the understanding of the potential contributions of the proposed positive psychology model. Although this study explores service-connected disability as a mediator, future research must be conducted to quantify the unique contribution of specific psychopathological factors to well-being and to understand how they interact with FEPPTs and PERMA to influence level of college life adjustment, HRQOL, and life satisfaction. Mediator and moderator variables between service-connected disability and psychosocial adjustment outcomes provide an important target for intervention.

In addition to individual level research to measure student veterans' positive outcomes, group and institutional level research is needed to explore how university administrators, university and VA counseling centers, and policy makers approach student veterans as well as new evidence-based practices in counseling (e.g., positive psychotherapy) and positive education, which might help rehabilitation and mental health practitioners understand college life adjustment, HRQOL, and life satisfaction of student veterans.

Limitation of Study

There are several limitations to this study that should be considered when interpreting the findings. First, a cross-sectional convenience sampling was used. Participants were recruited online through Veteran Services and Military Assistance Centers in colleges in the U.S. Although the researcher attempted to collect data from various states, participants were predominantly Caucasian. In addition, the use of online recruitment likely reduced the

representativeness of student veterans who are less technologically savvy (e.g., student veterans with severe functional impairments).

Second, the current study used descriptive correlational analysis, meaning that no statement can be made about causation or directionality of the observed effects between the proposed positive psychology predictors and outcomes. Third, this study used self-report measures for data collection. Therefore, data are subject to the effects of bias and social desirability. Moreover, student veterans' perception and appraisal of college life adjustment, HRQOL, and life satisfaction is idiosyncratic and may further bias the data collected. Fourth, sample size was calculated with both G*Power program, and Maxwell's (2000) suggestion for computing the power to detect the unique effects of PERMA. Findings revealed that there is a considerable amount of overlap between positive psychology constructs, which results in a need for larger sample sizes to find the unique effect for each predictor. Lastly, this study does not include sample from community colleges, which results would be different for student veterans from community colleges. Thus, it is important to consider how data were collected when interpreting findings.

Conclusion

This study found that the constructs within the demographic covariates, FEPPTs, and PERMA predict college life adjustment, HRQOL, and life satisfaction of student veterans and support the proposed well-being model of college life adjustment of student veterans. Specifically, the study findings support PERMA as a happiness and well-being model for college life adjustment, HRQOL, and life satisfaction. In addition, PERMA adds above and beyond demographic covariates and FEPPTs to the prediction of college life adjustment, HRQOL, and life satisfaction of student veterans. FEPPTs and PERMA hold a great deal of promise as a

higher-order contributor to college life adjustment, HRQOL, and life satisfaction. FEPPTs and PERMA are malleable, so rehabilitation and mental health practitioners can learn and implement evidence-based positive psychology interventions to build FEPPTs and PERMA in student veterans.

Future research is needed to further validate the findings from this study and refine a model of well-being of college life adjustment for student veterans. Moreover, future studies should develop and examine clinical rehabilitation and mental health interventions aimed at improving college life adjustment, HRQOL, and life satisfaction of student veterans.

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APPENDIX A

INSTITUTIONAL REVIEW BOARD NOTICE OF APPROVAL

**Education and Social/Behavioral Science IRB**

11/30/2016

Submission ID number: [2016-1352-CP001](#)
Title: Evaluating Optimism, Hope, Resilience, Coping Flexibility, Secure Attachment, and PERMA as a Well-Being Model for College Life Adjustment of Student Veterans: A Hierarchical Regression Analysis
Principal Investigator: FONG CHAN
Point-of-Contact: FONG CHAN, EMRE UMUCU
IRB Staff Reviewer: LAURA CONGER

A designated ED/SBS IRB member conducted an expedited review of the above-referenced change of protocol application. The change of protocol application was approved by the IRB member for the remainder of the approval period. This study expires on 11/16/2017. The change of protocol application qualified for expedited review pursuant to 45 CFR 46.110 and, if applicable, 21 CFR 56.110 and 38 CFR 16.110. You must log in to your ARROW account in order to view the specific changes approved by the IRB.

To access the materials approved by the IRB, including any stamped consent forms, recruitment materials and the approved protocol, if applicable, please log in to your ARROW account and view the documents tab in the submission's workspace.

If you requested a HIPAA waiver of authorization, altered authorization and/or partial authorization, please log in to your ARROW account and view the history tab in the submission's workspace for approval details.

Please review the Investigator Responsibilities guidance (<http://go.wisc.edu/m0lovn>) which includes a description of IRB requirements for submitting continuing review progress reports, changes of protocol and reportable events.

Please contact the appropriate IRB office with general questions: Health Sciences IRBs at 608-263-2362 or Education and Social/Behavioral Science IRB at 608-263-2320. For questions related to this submission, contact the assigned staff reviewer.

APPENDIX B

INFORMED CONSENT

**UNIVERSITY OF WISCONSIN-MADISON
Research Participant Information and Consent Form**

Title of the Study: Evaluating Optimism, Hope, Resilience, Coping Flexibility, Secure Attachment, and PERMA as a Well-Being Model for College Life Adjustment of Student Veterans

Principal Investigator: Fong Chan, PhD (phone: 608-262-2137) (email: chan@education.wisc.edu)

Student Researcher: Emre Umucu, MS (email: umucu@wisc.edu)

DESCRIPTION OF THE RESEARCH

You are invited to participate in a research study about understanding college life adjustment of student veterans.

The purpose of the research is to collect baseline information about college life adjustment of student veterans and to identify factors affecting college life adjustment of student veterans.

Participants are eligible for this study if they meet all the following: (a) they are at least 18 years or older, (b) they are a retired, National Guard, or Reserve member of the United States Armed Services with active duty service, and (c) they are currently enrolled in college/university.

The research will be conducted online via a survey hosted at Qualtrics. You can participate in privacy (e.g., on their home computer) and at a time that that is convenient for you. You can skip any questions and may stop participation at any time.

WHAT WILL MY PARTICIPATION INVOLVE?

If you decide to participate in this research you will be asked to complete an online survey focused on college life adjustment of student veterans. We hope that you will respond to all items, which will take approximately 25 - 30 minutes in total. Upon completion of the survey, you will follow a link to a separate form that will be used to send you a gift card for your participation in the study.

ARE THERE ANY RISKS TO ME?

We anticipate that will experience limited risks to you from participation in this study. There is a minimal risk for breach of confidentiality. In addition, there may be a risk that some of the items may make you uncomfortable or remind you of unpleasant memories. You can skip questions and are able to withdraw from the study at any time.

ARE THERE ANY BENEFITS TO ME?

We don't expect any direct benefits to you from participation in this study.

WILL I BE COMPENSATED FOR MY PARTICIPATION?

You will receive a \$15 gift card for participating in this study. You will have an option to sign up for the gift card. If you choose to, your mailing address will be required for us to send you the gift card. Please note that your names and mailing addresses will be obtained separately from your responses to the questionnaire. If you do withdraw prior to the end of the study, you will receive no compensation.

HOW WILL MY CONFIDENTIALITY BE PROTECTED?

While there will probably be publications as a result of this study, your name will not be used. Only group characteristics will be published. However, to send you your incentive we require you to complete a separate survey with potentially identifying information. With online surveys, there is a minimal risk that breach of confidentiality can occur when identifying information is recorded. To reduce this risk of your information being connected to your responses, we created a second survey to contain that information.

WHOM SHOULD I CONTACT IF I HAVE QUESTIONS?

You may ask any questions about the research at any time. If you have questions about the research after you leave today you should contact the Principal Investigator, Fong Chan, PhD, at (608) 262-2137 or chan@education.wisc.edu. You may also email the student researcher, Emre Umucu, MS, at umucu@wisc.edu.

If you are not satisfied with response of research team, have more questions, or want to talk with someone about your rights as a research participant, you should contact the Education and Social/Behavioral Science IRB Office at (608) 263-2320.

By selecting the "I agree to participate" link at the bottom of this page, you are indicating that you have read this consent form, had an opportunity to ask any questions about your participation in this research and voluntarily consent to participate. Please print a copy of this page if you would like a copy for your records.

Thank you very much for your time and participation in this study!

Sincerely,
Emre Umucu, M.S., CRC
Doctoral Candidate
Rehabilitation Psychology Program
University of Wisconsin-Madison

APPENDIX C

STUDY QUESTIONNAIRE

Section 1: Demographic Information

Instructions: Please check or fill in the blanks as best descriptions as your situations.

Personal Information		
1	Age	
2	Gender	<input type="checkbox"/> Male <input type="checkbox"/> Female
3	Race/ethnicity	<input type="checkbox"/> White <input type="checkbox"/> African American <input type="checkbox"/> Hispanic/Latino <input type="checkbox"/> Asian American, native Hawaiian or other Pacific Islanders <input type="checkbox"/> Native American/American Indian <input type="checkbox"/> Bi-racial <input type="checkbox"/> Multiracial Others (please specify): _____
4	Marital status	<input type="checkbox"/> Single <input type="checkbox"/> Married <input type="checkbox"/> Widowed <input type="checkbox"/> Separated <input type="checkbox"/> Divorced <input type="checkbox"/> Cohabiting <input type="checkbox"/> Civil union
5	How many children do you have?	
Military-related		
6	What branch did you serve in?	<input type="checkbox"/> Army <input type="checkbox"/> Navy <input type="checkbox"/> Marine Corps <input type="checkbox"/> Air Force <input type="checkbox"/> Coast Guard
7	Are you a Reservist or a member of National Guard?	<input type="checkbox"/> Yes <input type="checkbox"/> No
8	What year did you start your active duty? (e.g., 2001)	
9	What year were you discharged from the active military? (e.g., 2008)	
10	Are you currently using funding from the Post 9/11 GI Bill?	<input type="checkbox"/> Yes <input type="checkbox"/> No
11	Number of months left on GI Bill?	
12	Did you serve in the following Operations?	<input type="checkbox"/> Operation Enduring Freedom <input type="checkbox"/> Operation Iraqi Freedom <input type="checkbox"/> Operation New Dawn

		<input type="checkbox"/> Operation Desert Storm <input type="checkbox"/> Other (Please specify)-----
13	Have you ever been deployed to a combat zone?	<input type="checkbox"/> Yes <input type="checkbox"/> No
14	How many combat tours have you served? (more than three months?)	
15	Do you have a service-connected disability rating?	<input type="checkbox"/> Yes <input type="checkbox"/> No
16	If the answer to the above question is yes, please indicate your disability rating (%):	
17	If you have a disability rating, please indicate the nature of the rating (select all that apply)	<input type="checkbox"/> Physical <input type="checkbox"/> Cognitive <input type="checkbox"/> Mental health/Psychiatric
18	Did you receive any of these formal resilience training?	<input type="checkbox"/> BATTLEMIND <input type="checkbox"/> Comprehensive Soldier Fitness <input type="checkbox"/> Other (please specify)
School-related		
19	What was your high school Grade Point Average (GPA) (e.g., 3.50)?	
20	What is your current Grade Point Average? (e.g., 3.50)	
21	When did you start college (e.g., 2016)?	
22	What is your current or intended major?	
23	Are you a part-time or full time student?	<input type="checkbox"/> Part-time <input type="checkbox"/> Full-time
24	Is your major consistent with your career interest?	<input type="checkbox"/> Definitely not <input type="checkbox"/> Probably not <input type="checkbox"/> Might or might not <input type="checkbox"/> Probably yes <input type="checkbox"/> Definitely yes
25	What is your current academic level?	<input type="checkbox"/> Freshman <input type="checkbox"/> Sophomore <input type="checkbox"/> Junior <input type="checkbox"/> Senior <input type="checkbox"/> Master's degree <input type="checkbox"/> Doctoral degree
26	Are you a first-generation college student?	<input type="checkbox"/> Yes <input type="checkbox"/> No
27	How likely are you to finish your degree?	<input type="checkbox"/> Extremely unlikely <input type="checkbox"/> Moderately unlikely <input type="checkbox"/> Slightly unlikely <input type="checkbox"/> Neither likely or unlikely <input type="checkbox"/> Slightly likely <input type="checkbox"/> Moderately likely <input type="checkbox"/> Extremely likely

28	Do you serve as a volunteer in any capacity?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Employment-related		
29	Are you currently working?	<input type="checkbox"/> Yes <input type="checkbox"/> No
30	How many hours do you work in a week?	
Health-related (Emotional and Physical Health)		
31	What is the nature of your disability? (Check all that apply)	<input type="checkbox"/> Amputation <input type="checkbox"/> Traumatic brain injury <input type="checkbox"/> Posttraumatic stress disorder <input type="checkbox"/> Hearing impairment <input type="checkbox"/> Alcohol and other drug abuse <input type="checkbox"/> Depression <input type="checkbox"/> Anxiety Others (Please specify)_____
32	Are you currently seeking or receiving help from a mental health professional (e.g., psychologist, psychiatrist, mental health counselor, etc.) for an emotional problem (e.g., PTSD)? Either through the VA or external to the VA?	<input type="checkbox"/> Yes <input type="checkbox"/> No
33	Who are you willing to talk to if you have any emotional problems? (Check all that apply) Either through the VA or outside of the VA?	<input type="checkbox"/> Friends <input type="checkbox"/> Veterans <input type="checkbox"/> Family <input type="checkbox"/> Spiritual leader <input type="checkbox"/> Psychologist <input type="checkbox"/> Psychiatrist <input type="checkbox"/> Mental health counselor <input type="checkbox"/> Rehabilitation counselor <input type="checkbox"/> Clinical social worker <input type="checkbox"/> Pastoral counselor <input type="checkbox"/> Others (Please specify)
34	Do you know where to seek professional help on campus?	<input type="checkbox"/> Yes <input type="checkbox"/> No
35	Have you ever used any counseling services on campus for your emotional health?	<input type="checkbox"/> Yes <input type="checkbox"/> No
36	If yes, please rate how much it was/has been helpful for your emotional health on a 5-point scale	<input type="checkbox"/> Not at all helpful <input type="checkbox"/> Slightly helpful <input type="checkbox"/> Somewhat helpful <input type="checkbox"/> Very helpful <input type="checkbox"/> Extremely helpful

Section 2: PERMA-Profiler

Instructions: In general:												
		Never										Always
1	How much of the time do you feel you are making progress towards accomplishing your goals?	0	1	2	3	4	5	6	7	8	9	10
2	How often do you become absorbed in what you are doing?	0	1	2	3	4	5	6	7	8	9	10
3	In general, how often do you feel joyful?	0	1	2	3	4	5	6	7	8	9	10
4	How often do you achieve the important goals you have set for yourself?	0	1	2	3	4	5	6	7	8	9	10
		Not at all										Completely
5	In general, to what extent do you lead a purposeful and meaningful life?	0	1	2	3	4	5	6	7	8	9	10
6	To what extent do you receive help and support from others when you need it?	0	1	2	3	4	5	6	7	8	9	10
7	In general, to what extent do you feel that what you do in your life is valuable and worthwhile?	0	1	2	3	4	5	6	7	8	9	10
8	In general, to what extent do you feel excited and interested in things?	0	1	2	3	4	5	6	7	8	9	10
		Never										Always
9	In general, how often do you feel positive?	0	1	2	3	4	5	6	7	8	9	10
10	How often are you able to handle your responsibilities?	0	1	2	3	4	5	6	7	8	9	10
11	How often do you lose track of time while doing something you enjoy?	0	1	2	3	4	5	6	7	8	9	10
		Not at all										Completely
12	To what extent do you feel loved?	0	1	2	3	4	5	6	7	8	9	10
13	To what extent do you generally feel you have a sense of direction in your life?	0	1	2	3	4	5	6	7	8	9	10
14	How satisfied are you with your personal relationships?	0	1	2	3	4	5	6	7	8	9	10
15	In general, to what extent do you feel contented?	0	1	2	3	4	5	6	7	8	9	10

Section 3: Secure Attachment

Instructions: Show how much you agree with each of the following items by rating them on this scale.

		Totally disagree	Strongly disagree	Slightly disagree	Slightly agree	Strongly agree	Totally agree
1	I feel confident that other people will be there for me when I need them.	1	2	3	4	5	6
2	I feel confident about relating to others.	1	2	3	4	5	6
3	I find it relatively easy to get close to other people.	1	2	3	4	5	6
4	I am confident that other people will like and respect me.	1	2	3	4	5	6

Section 4: Resilience

Instructions: Please respond to each item by marking one response per row.

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	I tend to bounce back quickly after hard times	1	2	3	4	5
2	I have a hard time making it through stressful events.	1	2	3	4	5
3	It does not take me long to recover from a stressful event.	1	2	3	4	5
4	It is hard for me to snap back when something bad happens.	1	2	3	4	5
5	I usually come through difficult times with little trouble.	1	2	3	4	5
6	I tend to take a long time to get over set-backs in my life.	1	2	3	4	5

Section 5: Hope

Instructions: Read each statement carefully. Using the scale below, select the number that best describes you and circle that number.

		Definitely false	Mostly false	Mostly true	Definitely true
1	I can think of many ways to get out of a jam	1	2	3	4
2	I energetically pursue my goals	1	2	3	4
3	I feel tired most of the time.	1	2	3	4
4	There are lots of ways around any problem.	1	2	3	4
5	I am easily downed in an argument.	1	2	3	4
6	I can think of many ways to get the things in life that are most important to me.	1	2	3	4
7	I worry about my health.	1	2	3	4
8	Even when others get discouraged, I know I can find a way to solve the problem.	1	2	3	4
9	My past experiences have prepared me well for my future	1	2	3	4
10	I've been pretty successful in my life	1	2	3	4
11	I usually find myself worrying about something.	1	2	3	4
12	I meet the goals I set for myself	1	2	3	4

Section 6: Optimism

Instructions: Please be as honest and accurate as you can throughout. Try not to let your response to one statement influence your responses to other statements. There are no "correct" or "incorrect" answers. Answer according to your own feelings, rather than how you think "most people" would answer.

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	In uncertain times, I usually expect the best.	0	1	2	3	4
2	It's easy for me to relax.	0	1	2	3	4
3	If something can go wrong for me, it will.	0	1	2	3	4
4	I'm always optimistic about my future.	0	1	2	3	4
5	I enjoy my friends a lot.	0	1	2	3	4
6	It's important for me to keep busy.	0	1	2	3	4
7	I hardly ever expect things to go my way.	0	1	2	3	4
8	I don't get upset too easily.	0	1	2	3	4
9	I rarely count on good things happening to me.	0	1	2	3	4
10	Overall, I expect more good things to happen to me than bad.	0	1	2	3	4

Section 7: Coping Flexibility

Instructions: When we feel stress, we try to cope using various actions and thoughts. The following items describe stress- coping situations. Please indicate how these situations apply to you by choosing one of the following for each situation: “very applicable,” “applicable,” “somewhat applicable,” and “not applicable.”

		Not applicable			Very applicable
1	When a stressful situation has not improved, I try to think of other ways to cope with it	0	1	2	3
2	I only use certain ways to cope with stress	0	1	2	3
3	When stressed, I use several ways to cope and make the situation better	0	1	2	3
4	When I haven't coped with a stressful situation well, I use other ways to cope with that situation	0	1	2	3
5	If a stressful situation has not improved, I use other ways to cope with that situation.	0	1	2	3
6	I am aware of how successful or unsuccessful my attempts to cope with stress have been.	0	1	2	3
7	I fail to notice when I have been unable to cope with stress	0	1	2	3
8	If I feel that I have failed to cope with stress, I change the way in which I deal with stress.	0	1	2	3
9	After coping with stress, I think about how well my ways of coping with stress worked or did not work	0	1	2	3
10	If I have failed to cope with stress, I think of other ways to cope	0	1	2	3

Section 8: College Life Adjustment

Instructions: The following items represent common problems of college students. How much has each problem distressed, worried or bothered you in the past few weeks? Please select the answer that is most correct for you.

		Not at all	A little bit	Moderately	Quite a bit	Very much
1	Academic problems?	1	2	3	4	5
2	Difficulty caring about or concentrating on studies?	1	2	3	4	5
3	Indecision or concern about choice of career or major?	1	2	3	4	5
4	Feeling like I'm not doing as well at school as I should?	1	2	3	4	5
5	Problems with romantic or sexual relationships?	1	2	3	4	5
6	Family problems?	1	2	3	4	5
7	Difficulty getting along with others?	1	2	3	4	5
8	Feeling lonely or isolated?	1	2	3	4	5
9	Physical health problems?	1	2	3	4	5
10	Headaches, faintness, or dizziness?	1	2	3	4	5
11	Trouble sleeping?	1	2	3	4	5
12	Eating, appetite, or weight problems?	1	2	3	4	5
13	My use of alcohol?	1	2	3	4	5
14	My use of marijuana?	1	2	3	4	5
15	How many psychoactive drugs I use?	1	2	3	4	5
16	How many prescribed drugs I use?	1	2	3	4	5

Section 9: Depression and Anxiety

Instructions: Over the past 2 weeks, how often have you been bothered by any of the following problems?

		Not at all	Several days	More than half the days	Nearly every day
1	Feeling nervous, anxious or on edge	0	1	2	3
2	Not being able to stop or control worrying	0	1	2	3
3	Feeling down, depressed, or hopeless	0	1	2	3
4	Little interest or pleasure in doing things	0	1	2	3

Section 10: Quality of Life

Instructions: Please respond to each question or statement by marking one circle per row.						
		Poor	Fair	Good	Very good	Excellent
1	In general, would you say your quality of life is:	1	2	3	4	5
2	In general, how would you rate your physical health?	1	2	3	4	5
3	In general, how would you rate your mental health, including your mood and your ability to think?	1	2	3	4	5
4	In general, how would you rate your satisfaction with your social activities and relationships?	1	2	3	4	5
		Not at all	A little	Moderately	Mostly	Completely
5	To what extent are you able to carry out your everyday physical activities such as walking, climbing stairs, carrying groceries, or moving a chair?	1	2	3	4	5
In the past 7 days...						
		Never	Rarely	Sometimes	Often	Always
6	How often have you been bothered by emotional problems such as feeling anxious, depressed or irritable?	1	2	3	4	5
		None	Mild	Moderate	Severe	Very severe
7	How would you rate your fatigue on average?	1	2	3	4	5
		No pain				Worst pain imaginable
8	How would you rate your pain on average?	1	2	3	4	5

Section 11: Life Satisfaction

Instructions: Below are five statements that you may agree or disagree with. Using the 1 - 7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item.

		Strongly disagree						Strongly agree
1	In most ways my life is close to my ideal.	1	2	3	4	5	6	7
2	The conditions of my life are excellent.	1	2	3	4	5	6	7
3	I am satisfied with my life.	1	2	3	4	5	6	7
4	So far I have gotten the important things I want in life.	1	2	3	4	5	6	7
5	If I could live my life over, I would change almost nothing.	1	2	3	4	5	6	7