Using Positive Psychological Capital to Predict Mental Health in College Students: Implications for Counseling and Higher Education

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Abstract

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Using Positive Psychological Capital to Predict Mental Health in College Students: Implications for Counseling and Higher Education

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In studying human behavior, there has been a tradition of focusing on deficits and problems, rather than strengths and resources. To emphasize a holistic perspective and a wellness approach, the field of positive psychology redirects attention to individual strengths and assets to ensure optimal functioning. Using a positive psychology lens, this cross-sectional, exploratory study measured college students' mental health and Psychological Capital [PsyCap] (Luthans, Youssef, & Avolio, 2007). PsyCap is comprised of four positive psychological strengths:- Hope, Efficacy, Resilience, and Optimism (HERO), measured using the Academic PsyCap Questionnaire [A-PCQ] (Luthans, Luthans, & Jensen, 2012), within Overall-life and School-work categories. Mental health was assessed using Keyes Mental Health Continuum-Short Form (MHC-SF; Keyes, 2002, 2009), which provides: (i) a mental health score; (ii) well-being clusters (emotional, social, and psychological); and (iii) mental health categories (languishing, moderately mentally healthy, and flourishing). In addition to descriptive analyses of the sample characteristics, the objectives of the study were: (i) to evaluate the relationship between PsyCap and mental health; (ii) to determine differences in PsyCap within individuals who fell into languishing, moderately mentally healthy, and flourishing mental health categories; and (iii) to determine the extent of variability in mental health

using PsyCap HERO dimensions as predictors. Multiple regression and one-way ANOVAs were used to address the research objectives. Results indicated a positive linear relationship between PsyCap and mental health. Furthermore, PsyCap significantly varied within each of the mental health categorical groupings and also predicted about 43% of the variance in mental health. Findings suggest that developing positive psychological strengths such as hope, efficacy, resilience, and optimism within college students could increase their positive mental health. Based on the findings of this study, implications and recommendations are provided for counselors, counselor educators, and higher education personnel including those in student affairs and administration. Limitations and suggestions for future research are presented.

Dedication

To my little world: Achi, Amma, Appa, Akka, Anna, & my Future Athan

All of you are instrumental in completion of this work & in

my successful doctorate degree!

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Chapter 1: Introduction

In recent years mental health issues such as depression, anxiety, suicidal ideation, and self-injury among college students are growing in prevalence and severity (Blanco et al., 2008; Drum, Brownson, Burton Denmark, & Smith, 2009; Eisenberg, Hunt, & Speer, 2013; Fink, 2014; Gallagher, 2008; Hunt & Eisenberg, 2010). Since the last decade of twentieth century, mental illness has been considered a public health issue alongside other physical illnesses (Keyes, 2014). Despite efforts to shift the conception of mental health from the mere "absence of mental illness" (Keyes, 2002, p.207) to something complete and positive (Keyes, 2005, 2014), or to the presence of "well-being" (Seligman, 2012; World Health Organization [WHO], 2004), policy makers and scholars are still largely focused on addressing mental illness and instituting risk reduction programs initiatives, rather than focusing on the promotion of positive mental health (Keyes, 2014).

The WHO emphasizes the need to promote positive mental well-being by defining a good mental health as—"… a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" (WHO, 2004, p. 12). Furthermore, the Keyes' mental health continuum model (Keyes, 2002, 2007) is exemplified in the WHO's perspective on mental health—as a complete state that represents not only absence of disease, but also consists of the presence of positive states of human capacities and functioning categorized along a continuum by levels of flourishing, moderate, and languishing (Keyes, 2002, 2007, 2013).

Additionally, with the emergence of the scientific field of positive psychology (Seligman & Csikszentmihalyi, 2000; Seligman, Steen, Park, & Peterson, 2005), and its applied specialty in studying positive organizational behavior (POB) (Luthans, 2002a, 2002b; Wright, 2003), the interest in understanding individuals from a positive psychological perspective called psychological capital (PsyCap) (Luthans, Youssef, & Avolio, 2007) has become a current development in higher education scholarship and practice (Jafri, 2013; Luthans, Luthans, & Jensen, 2012; Riolli, Savicki, & Richards, 2012).

Given that there are not many studies that explore positive mental health of college students (Eisenberg, Hunt, & Speer, 2013; Keyes, 2012), the aim of the study was to explore the plausible extent of predictability and associations between college students' PsyCap (Luthans et al., 2012) and mental health (Keyes, 2002). Additionally, studies indicate that students who scored high on positive mental health had certain socio-demographic characteristics (Peter, Roberts, & Dengate, 2011; Keyes, 2012). Therefore, to provide a holistic profile of student population with regard to their current level of mental health, self-reported socio-demographical characteristics such as gender, age, race/ethnicity, sexual orientation, and enrolled degree were explored.

This dissertation study presents a brief overview of the rationale for the proposed study, evidence already available, and limitations of previous research, research questions and the significance of the study. Additionally, the research design, context, and methods are described briefly. The preliminary support for PsyCap as a higher-order, core-positive factor encompassing positive constructs of hope, self-efficacy, resilience, and optimism

was an additional intent of the study. Additionally, the study also includes the significant findings of the research with regard to the associations of college students' PsyCap, mental health, and demographics that potentially adds to the previous theoretical body of literature.

Brief Overview of the Current Body of Literature

There is a plethora of evidence suggesting increasing severity and prevalence of mental illness among college students (Hunt & Eisenberg, 2010). However, there is limited research on measuring and studying positive mental health (Keyes, 2014), specifically among the broad population of graduate and undergraduate college student. Additionally, drawing from the positive psychology paradigms, the newly-defined ultimate goal of positive psychology—"well-being" (Seligman, 2012) within Keyes' mental health continuum model (Keyes, 2002, 2009) was studied as outcomes of yet another burgeoning positive psychological construct called PsyCap (Luthans, Youssef, & Avolio, 2007). Positive psychology researchers and practitioners recommend that higher education scholars and professionals complement the existing studies on negative aspects of human functioning with empirical studies that investigate alongside various other factors that distinguish individual students who flourish and thrive from those who are limited in their mental health functioning (Lyubomirsky & Abbe, 2003).

Between 2007 and 2009, a nationwide survey with a total of 14,175 college students presented startling data on the prevalence mental illness—17.3% for depression, 15.3% for non-suicidal self-injury, 7.0% for generalized anxiety, 6.3% for suicidal ideation, and 4.1% for panic disorder and (Eisenberg, Hunt, & Speer, 2013, p. 60). Some

examples of established studies that have investigated the mental health concerns of college students include American College Health Association, 2008; Blanco et al., 2008; Center for the Study of Collegiate Mental Health, 2009; Drum, Brownson, Burton-Denmark, & Smithet, 2009; and Gallagher, 2008. In the late 1990s, with the emergence of positive psychology (Seligman & Csikszentmihalyi, 2000), positive approaches that bring complementary focus on remediating mental illness through an emphasis on human strengths and emotional well-being (Seligman, 2003; Seligman et al., 2005) have gained impetus in fields beyond clinical psychology.

Similar to organizations, the core goal of higher education is to develop human capital that represents distinctive competencies, knowledge, abilities, and ultimately a profound competitive advantage (Luthans et al., 2012). Improving insufficient performances, identifying and building up students' various domains of deficiencies, and implementing generic learning skills have always been the primary striving mission of universities (Mather, 2010). Although the tools of positive psychology can be useful for maximizing college student learning and development, its application in higher education is happening at a slower pace and a limited scope when compared to business organizational settings (Luthans et al., 2012; Mather, 2010).

The most often overlooked approach of higher education institutions across the globe has been the focus on building students' strengths and positive psychological capacities such as hope, efficacy, resilience, and optimism (acronym HERO) (Luthans et al., 2012). This is conceptualized through an emerging positive construct called *psychological capital* (Luthans, Luthans, & Luthans, 2004; Luthans et al., 2007). PsyCap

has a developmental structure, requiring time and energy investment (Luthans, Avey, Avolio, & Peterson, 2010; Luthans et al., 2007).

Strong evidence exists supporting the relationship between the well-being and PsyCap of employees in organizational settings, which implies that developing PsyCap enhances well-being (Avey, Luthans, Smith, & Palmer, 2010; Culbertson, Fullagar, & Mills, 2010; Luthans, Avey, Avolio, Norman, & Combs, 2006). More recently, the scholarship on PsyCap has grown within the educational context, enriching the existing body of literature in psychology, management, military, leadership, business studies, educational technology and health sciences (Clapp-Smith, Vogelgesang, & Avey, 2009; Gooty, Gavin, Johnson, Frazier, & Snow, 2009; Jafri, 2013; Lifeng, 2007; Luthans et al., 2012; Nath & Pradhan, 2012; Riolli et al., 2012; Simsek & Sali, 2014; Qingquan, & Zongkui, 2009). However, there are not many studies that could be found particularly in the field of counseling and among college student population. Given that there is limited research exploring the connections between PsyCap (Luthans, Youssef, & Avolio, 2007)and mental health (languishing-moderately mentally healthy-flourishing; Keyes, 2002) in any educational setting, the study was designed to enrich the literature of counseling, higher education, positive mental health, and positive psychology.

Limitation of previous studies. With the advent of positive psychology, there has been a growing interest in higher education to adopt a positive approach for examining student development, behavior, attitudes and performance (Luthans et al., 2012; Mather, 2010). Since the emergence of the positive psychological capital (PsyCap) concept (Luthans et al., 2007), a majority of the published studies are in relation to

employee and manager positive organizational outcomes (Avey, Luthans et al., 2010; Goldsmith, Veum, & Darity, 1997; Liu, Chang, Fu, Wang, & Wang, 2012; Luthans, Avolio et al., 2007). Although Culbertson and colleagues (2010) explored PsyCap in relation with emotional well-being (hedonia) and positive functioning (eudaimonia) the context of the study was employees within an organizational setting.

Therefore, taking the clue from the relationship with organizational outcomes, some scholars expanded the applicability of PsyCap within educational settings. Recently, there have been a few studies that sought to measure PsyCap in higher education context. However, they have assessed PsyCap of undergraduate students in particular and most often primarily correlated PsyCap with academic stress, leadership or academic performance (Ambler, 2006; Clapp-Smith et al., 2009; Jafri, 2013; Luthans et al., 2012; Riolli et al., 2012).

On the other hand, there were a few studies that looked at students' PsyCap in relation to physical health and psychological wellbeing (Nath & Pradhan, 2012; Qingquan, & Zongkui, 2009), but in different geographical and cultural contexts. These studies were not based on Keyes' concept of mental health that viewed mental health on a continuum (Keyes, 2002). This study addressed the recommendation of earlier study in the field of positive mental health that indicates that research was needed to understand psychosocial factors that may contribute to positive mental health among college students (Keyes et al., 2012).

Additionally, there has been minimal evidence of studies existing in the field of counseling that examined PsyCap of U.S. college students to assess their relationship

with mental health using positive psychology paradigm. Therefore, by using the conceptual framework of PsyCap to investigate relationships of mental health with other correlates that characterizes college students, this study proves to be exploratory in nature, with a potential for enriching the literature of counseling and higher education.

Purpose of the Study

The purpose of this study was to evaluate the current level of psychological capital (PsyCap) within Overall-life and School-work categories, where positive psychological assets of hope, efficacy, resilience, and optimism (HERO) that make up the higher order construct of PsyCap are examined to predict mental health scores and well-being (emotional, social and psychological) levels among college students. This study examined both traditional and non-traditional aged undergraduate and graduate college students within a large public university in a Midwestern region of the United Sates.

Mental health and psychological capital were the primary construct measured. Mental health was measured using Keyes' Mental Health Continuum- Short Form (MHC-SF) (Keyes, 2009). The three mental health categories-languishing, moderately mentally healthy, and flourishing divided the sample into groups that established certain unique characteristics. The prime predictor variable, PsyCap, was measured by the Academic Psychological Capital Questionnaire (A-PCQ) (Luthans, Luthans, & Jensen, 2012), and referred to the positive psychological strengths that individuals possess. The four positive psychological constructs within Overall-life and School-work categories were: hope, efficacy, resiliency, and optimism (Luthans et al., 2004; Luthans et al., 2007; Luthans et al., 2008; Luthans et al., 2012). The purpose of the study was not only to

understand the association between PsyCap and mental health, but also to determine whether PsyCap differed significantly among the three mental health categories. Additionally, for the interest of this study other socio-demographics of college students (such as gender, age, race/ethnicity, sexual orientation, and enrolled degree) were included to examine their associations with the primary outcome variables—mental health.

Keyes (2002) operationalizes mental health as—"a syndrome of symptoms of positive feelings and positive functioning in life" (p.207)—and categorizes individuals from flourishing- to moderately mentally healthy-to languishing (Keyes, 2002, 2005, 2007, 2009). This therefore provides a valuable perspective on mental health, where complete state consists of "the presence and the absence of mental illness and mental health symptoms" (Keyes, 2002, p. 607). Currently, as research methodology for assessing states of complete mental health emphasizes combining indicators of mental illness and positive mental health, Keyes developed and studied the model of complete mental health, called the two (or the *dual*) continua model (Keyes, 2007, 2012) that conceptualized mental health on a continuum consisting of both complete and incomplete mental health (Keyes, 2002).

Researchers who support the dual continua model imply the need for conception of positive mental health beyond the idea of "absence of disease" (Keyes, 2012; Peter, Roberts, & Dengate, 2011; Venning, Kettler, Zajac, Wilson, & Eliott, 2011). Therefore, in addition to categorizing individuals with their positive mental health diagnosis along the continuum, the individuals would also be scored for the three facets of well-being—

emotional well-being, psychological well-being, and social well-being (Keyes, 2000, 2009). By doing so, we measure their hedonic well-being (positive feeling) and their eudaimonia well-being (positive functioning). Therefore, this study proves to be an effort toward establishing a thesis that positive psychological strengths relate and predict positive mental health, which is not just an absence of mental illness.

One's work life tends to spill over into one's personal life (Culbertson et al., 2010). The study by Culbertson et al. (2010) suggested that once the relationship is defined between PsyCap and well-being, enhancing one can have a positive effect on the other. Thus, working using the overarching theoretical framework of positive psychology guided this study to redirect focus on positives of individuals in classrooms and mental health care services, to finally recommend creation of programs to develop positive PsyCap and design mental health promotion initiatives in college campuses.

Research Objectives

A sample of 338 graduate and undergraduate students from a large public Midwestern university in the United States was assessed using traditional paper-based test that measured mental health and psychological capital. The goal of this research was to empirically test the following research objectives:

1. To describe college students at a large public university in the Midwestern region of the United States based on the following socio-demographic characteristics—
    a. Age
    b. Gender
    c. Race/Ethnicity

d. Sexual Orientation

e. Enrolled Degree

2. To describe the level of psychological capital and mental health of college students at a large public university in the Midwestern region of the United States using their PsyCap scores and mental health scores.
3. a. To explore the relationships between psychological capital and mental health of college students in the studied sample.

   b. To explore the relationship between mental health and socio-demographics of college students in the studied sample.
4. To determine if differences exist in PsyCap of college students whose scores place them in one of three mental health continuum categories (Keyes, 2002, 2005, 2009); languishing, moderately mentally healthy, and flourishing.
5. To determine the extent to which PsyCap HERO dimensions within the Overall-life and the School-work categories predict the variability in mental health among college students at a large public university in the Midwestern region of the United States.

Significance of the Study

The study challenges the conventional conceptual frameworks for mental health by enlightening the positive aspects of human functioning and wellness, as well as by emphasizing the significance of individual positive strengths. This is accomplished by drawing connections among a management/organizational concept and an overarching positive psychology approach of mental health among within student population. By

doing so, this study addressed knowledge gap in the literature and added implications to the counseling and higher education body of research.

Academic work environment for students is very similar to an organizational or business environment (Riolli et al., 2012). Additionally, the findings of this study can be helpful to professionals in college-settings to redirect their focus on developing positive psychological resources such as the hope, efficacy, resiliency, and optimism in order to attain optimal mental health (flourishing). By making a case of integrating PsyCap into academic curriculum, the findings of this research study helps students persevere in their educational studies in a psychologically healthier manner.

As PsyCap and its dimensions are malleable (Luthans et al., 2007; Luthans et al., 2012), they can be developed through trainings interventions (Luthans, Avey, & Patera, 2008; Luthans, Avey, Avolio, Norman, & Combs, 2006; Luthans, Avolio, Avey, & Norman, 2007; Luthans, Youssef, & Avolio, 2007), in addition to various positive psychology exercises that focuses on enhancing well-being in conjunction with PsyCap (Avey, Luthans, Smith, & Palmer, 2010; Singh and Mansi, 2009). Exploring further in this regard revealed a variety of potent, low-cost approaches that impact mental health through development of positive strengths such as hope, efficacy, resilience, and optimism (Luthans et al., 2008). Additionally, finding the relationship of socio-demographic variables with mental health would pave the way for researchers to further examine distinct and 'at-risk' sections of the population. Furthermore, the findings of this study will have potential to guide and frame student development programming for

college students in both overall life and academic areas. The results may be applicable for individuals' as well as for institutional development (Luthans et al., 2007).

Since the emergence of the PsyCap concept, for the most part, it has been studied in relation to employee and manager positive organizational outcomes. However, to date there has been limited attention in the higher education where the impact of positive core construct of PsyCap is examined on student mental health and well-being related outcomes. As mental health of college students has routinely been investigated through the lens of deficiency and disease model, it is significant initiative to develop a college-culture where students' mental health and well-being is paid equal attention as that of their GPA. Thus, to bring a positive light on mental health and psychological resources of college students, this study proposes to explore the role of PsyCap and additional correlates (academic achievement, and socio-demographics such as gender, age, race/ethnicity, sexual orientation, current educational degree) in predicting mental health.

The intent of this study is to break the obsessive focus on mental illness, and render rationale toward pro-activeness in developing programs and approaches that enhances individuals' psycho-cognitive resources for optimal student growth and development within both academic and personal realms, in order to achieve higher levels of mental health and well-being. Therefore, the primary effort of such positive psychological approaches is to extend the horizon of psychology by taking its mission into a new beginning and meaning (Seligman & Csikszentmihalyi, 2000).

Positive therapeutic interventions are seen as, "a supplement to therapy focused on troubles, another arrow in the quiver of the therapist" (Seligman et al., 2005, p. 420).

Furthermore, the application of this research in counseling field would be in light of the claim positive psychologists' make—present day psychotherapy is where one goes to talk about problems and weaknesses, perhaps in the future one would go to have a positive talk and build upon one's strengths (Seligman & Csikszentmihalyi, 2000; Seligman, 2012).

This study utilizes the overarching positive psychology framework (Seligman, 2002, 2003; Seligman & Csikszentmihalyi, 2000; Seligman et al., 2005) to investigate various positive psychological constructs among college student population. The findings of this study will provide rationale for developing various programs and initiatives that ensure fostering higher levels of positive mental health (flourishing) in college campuses. As the psychological strengths could be empirically linked to positive mental health outcomes in this study, the ultimate goal as an extension of this study is to design a program that builds and sustains these assets within students to help them increase their chances of living a healthier, longer life.

Furthermore, the plausible associations between PsyCap and mental health can render in incorporating different strategies and activities at the classrooms, mental health facilities, residence-housing, and in overall administration for student affairs. Therefore, this research is anticipated to provide an unique impact in the field of counseling as it is an extensive research connecting literature from various mental health and college students' related professional fields (i.e., positive psychology, counseling, positive organizational behavior, and higher education).

Limitations of this Study

The study employs self-reported, cross-sectional, survey data. This study is a quantitative study—where examination of the prevalence, relationships, and predictions occur rather than descriptive, in-depth, and deeper understanding of phenomenon that comes with qualitative data. Additionally, as it is a non-experimental research, the results would provide only the existence or non-existence of relationship between variables and not the causal factor. Studies without a true experimental design such as the current one, it is not possible to assume causality. The best alternative was to explain the variance by predicting a model through regression analyses as employed in this study.

Furthermore, this study was administered to a selective large public university located in the Midwestern region of the United States using a convenience sampling method. This may raise concern with regard to generalization of the findings. The research setting is considerably diverse, however, when it comes to diverse population in terms of socio-economic status, race, religion, nationality or culture, generalization has to be done with caution. In this study, the responses and results are self-reported using survey test instruments. This may raise concern regarding the authenticity of the data. However, the instruments that was used to measure PsyCap and mental health—A-PCQ and MHC-SF, and were both validated and standardized measures (Keyes, 2009; Luthans et al., 2012).

Delimitations

The study is delimited to undergraduate and graduate college students in a single large public University within the Midwest. Individuals had to be 18 or above 18 years to

be eligible for participating in the study. Other factors that could have impacted students' current level of mental health; however, only hope, efficacy, resilience and optimism (dimensions of PsyCap) were considered for the interest of this study.

Glossary of Terms

The two major constructs in this study are- (i) mental health (Keyes, 2002) and (ii) psychological capital (Luthans et al., 2007; Luthans et al., 2012). Under each of these constructs there are sub-domains that are defined and explained for furthering our understanding of these constructs. These are the definition of several key terms that is used throughout this manuscript.

College students. Individuals enrolled in a degree program at the university.

Efficacy. Based on Bandura's (1997) work, self-*efficacy or efficacy* is concerning beliefs about one's abilities to successfully perform a given task. It is a cognitive resource (Culbertson, Fullagar, & Mills, 2010, p. 423).

Emotional well-being. Emotional well-being is a specific dimension of subjective well-being and a subset of symptoms used to diagnose states of mental health, which reflects on the degree to which individuals self-report the experience of symptoms of positive and negative affect (Keyes, 2000, p. 71).

Flourishing. *Flourishing* is defined by Keyes and Haidt (2003) as "being filled with emotional vitality and… functioning positively in the private and social realms of their lives" (p.6). Flourishing can be described as complete state or optimal level of functioning (Keyes, 2005, 2013), as well as a diagnosis of the presence of positive mental health (Keyes, 2013).

Hope. Based on Snyder's (2000) work, *hope* involves components that entail persevering (will-power) and redirecting (pathway) paths toward goals attainment.

Languishing. *Languishing* is a state of incomplete mental health that marks an individual's low levels of mental illness and low levels of overall mental well-being (Keyes, 2002, p. 210).

Mental health. Keyes (2002) defines mental health as "a syndrome of symptoms of positive feelings and positive functioning in life" (p. 207). The three categories of mental health on the continuum are languishing, moderately mentally healthy, and flourishing (Keyes, 2002, p. 210). Keyes' describes dimensions of subjective well-being that accounts for mental health symptoms, broadly are of three clusters- (i) Emotional Well-Being; (ii) Psychological well-being; and (iii) Social well-being (Keyes, Shmotkin, & Ryff, 2002, p. 1007).

Moderately mentally healthy. Who are neither flourishing nor languishing in their mental health are diagnosed with *moderate* mental health (Keyes, 2002, p. 210).

Optimism. It is based on Seligman's (2011) work, which involves an individual's positive attributional style about success, with caveats of being both realistic and flexible.

Overall-life. One of the categories in the Academic PsyCap questionnaire (Luthans, Luthans, & Jensen, 2012) focusing on the overall life PsyCap of college students. Scores on this subscale range from 24-144.

Positive organizational behavior. *Positive Organizational Behavior* (POB) has is the study and application of "positively oriented human resource strengths and psychological capacities" (Luthans, 2002b, p. 59).

Positive psychological capital. Luthans, Youssef, and Avolio (2007) defines PsyCap as a positive psychological strength or resource "characterized by (a) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (b) making a positive attribution (optimism) about succeeding now and in the future; (c) persevering toward goals and, when necessary, redirecting paths to goals (hope) in order to succeed; and (d) when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success" (p. 3).

Psychological well-being. *Psychological well-being* is said to result when an individual is finding meaning and purposeful direction in life, accepting oneself, seeking continued personality development, acting and thinking anonymously and establishing potential relationships with others (Ryff & Keyes, 1995; p. 722). Also referred as *Eudaimonic well-being* (Ryan & Deci, 2001).

Resilience. *Resilience* is defined as "the capacity to rebound or bounce back from adversity, conflict, failure, or even positive events, progress, and increased responsibility" (Luthans, 2002a, p. 702).

School-work. One of the categories in the Academic PsyCap questionnaire (Luthans, Luthans, & Jensen, 2012) focusing specifically on the school related PsyCap of college students. Scores on this subscale range from 24-144.

Social well-being. Keyes' (1998) states that, "individuals are mentally healthy when they view special life as meaningful and understandable, when they see society as possessing potential for growth, and when they feel they belong in their communities, are

able to accept all parts of society, and when they see their lives as contributing to society" (p.300).

Well-being. The term *well-being* by itself refers to a broader, more comprehensive construct of human happiness, flourishing, and thriving (Culbertson et al., 2010).

Summary

The researcher reviewed the prevalence of mental illness among college students and provided a comparative profile of the significance of the positive aspects of mental health. Within this chapter, the researcher established the justification for this study that was rooted in positive psychology field, and in specific the positive organizational behavior (POB) framework. Additionally, the research objectives of this study were established that directed the completion of this study by addressing several limitations and gaps in the current body of literature related to PsyCap and mental health. The following chapter critically reviews the current body of literature related to mental health, positive psychology, PsyCap, and other socio-demographic variables associated with the sample characteristics. Subsequently, the research design and methodology used in the study is reviewed in chapter 3. Furthermore, the results are analyzed and presented in the findings section in chapter 4, followed by discussion and conclusions in Chapter 5. Finally, within the section, discussion about potential implications of these findings to counselors, educators and higher education policy makers and administrators, and future researchers are described.

Chapter 2: Literature Review

The primary objective of the proposed study was to explore: - (i) the current level of mental health and psychological capital (PsyCap) of college students and to explore (ii) the plausible extent of associations between PsyCap (Luthans, Youssef, & Avolio, 2007; Luthans, Luthans & Jensen, 2012) and mental health (Keyes, 2002, 2005, 2009). In order to address these listed aims, this chapter first provides an overview of the current mental health of students on college campuses. Following this section, an introduction to the field and concepts of positive psychology (Seligman, Steen, Park, & Peterson, 2005)—an emerging field of scholarly inquiry that deepens understanding of the concept of *flourishing* (Seligman, 2012) — is provided.

Thereafter, the positive psychological construct of psychological capital (PsyCap) (Luthans, Luthans, & Luthans, 2004; Luthans et al., 2007), encompassing hope, efficacy, resilience, and optimism is examined, particularly describing the extent to which this body of research resonates with the core emphases of positive psychology. PsyCap is an emerging, empirically-tested, effective, and validated construct in the fields of business and management. In the last decade, PsyCap has begun to be applied in other settings, including with college students (Clapp-Smith, Vogelgesang, & Avey, 2009; Jafri, 2013; Luthans et al., 2012; Riolli, Savicki, & Richards, 2012; Qingquan & Zongkui, 2009). However, there is limited research on the relationships between PsyCap and the mental health and well-being of college students. Therefore, this study attempts to investigate PsyCap in college students with two distinct domains—Overall-life and School-work, and their relationships with mental health.

Additionally, the socio-demographic characteristics such as age, gender, race/ethnicity, sexual orientation, and current enrolled degree are described as relevant factors of the study. Therefore, this chapter will also shed light on the available literature that justify examining the extent of possible relationships between mental health (*languishing, moderately mentally healthy, and flourishing*) and individual PsyCap (hope, efficacy, resilience, and optimism) within Overall-life and School-work domains.

Current Mental Health Scenario

The mental health profile of college students is a growing concern as there is an upward trend in the number of students with severe psychological problems being reported in recent studies (Fink, 2014). Attending college marks a significant and stressful developmental period of an individual's life (Furstenberg, Rumbaut, & Settersten, 2005). Additionally, it is at this phase of life when various psychological disorders have their first onset (Kessler, Berglund, Demler, Jin, Merikangas, & Walters, 2005). Research by the Center for Collegiate Mental Health (CCMH, 2008) reported that 75 percent of all diagnosable psychological disorders become apparent by age 24.

The prevalence of developmental and mental health issues in college student communities is currently becoming more diverse and complex than ever in the history of higher education (Fink, 2014). It is therefore imperative that mental health professionals at the college level consider the problems associated with identity formation and the gradual manifestations of mental illnesses during these high-risk early adult years.

The demographic profile of college students continues to change each year with the growth in enrollment of students across a broad spectrum of diversity, including race,

ethnicity, national origin, sexual orientation, religion, socioeconomic status, age, and disability (Sharkin, 2006). Psychological problems that might have been rare in the past are now increasingly becoming common within universities and other institutions of higher education (Eisenberg, Downs, Golberstein, & Zivin, 2009; Kadison & DiGeronimo, 2004).

The National Alliance on Mental Illness (NAMI) report of 2012 suggested that many students are unable to attend college because of mental health issues such as depression, bipolar disorder, and post-traumatic stress disorder (Gruttadaro & Crudo, 2012). In a recent survey of directors of college counseling centers across the United States by the Association for University and College Counseling Center Directors (AUCCCD, 2013), anxiety was found to be the top presenting concern among college students (41.6 %), followed by depression (36.4 %) and relationship problems (35.8 %). According to the directors, on average 24.5 percent of the students visiting college counselors were already taking psychotropic medications (AUCCCD, 2013). Students who enter college with prior mental health conditions start off with a higher likelihood of experiencing distress than their peers who do not have similar conditions.

A 13 year longitudinal research study on changes in college students' mental health problems at Kansas State University revealed that the rate of anxiety disorders doubled, and the rates of depression and serious suicidal ideation and intent tripled (Benton, Benton, Newton, Benton, & Robertson, 2004). The data on college students' mental health by the Center for the Study of College Student Mental Health affirm that

anxiety remains as the primary presenting problem for today's students; however, suicidality, self-injury, and thoughts of harming others are on the rise (CCMH, 2008).

Yet another longitudinal research study by Zivin, Eisenberg, Gollust, and Golberstein (2009) found that mental health issues were more than transient or adjustment-related issues, and were prevalent in more than one third of the students being studied. Depression was the fourth leading cause of disease burdens among107 acute and chronic medical conditions and illnesses (Keyes, 2014; Ustun, Ayuso-Mateos, Chatterji, Mathers, & Murray, 2004). Mental illness – in particular, unipolar depression – is projected to be the leading cause of burden to both the developing and developed nations by the year 2030 (World Health Organization [WHO], 2008).

Major changes in cultural, demographic, societal, and technological advancements are additional factors contributing to serious developmental, mental, emotional and psychological problems among current college students. Kadison and DiGeronimo (2004) consider identity development, relationships and sexuality, and interpersonal issues to be the most common developmental issues that affect college-aged students' personal development and academic success. Regardless of specific situations, all who go through a developmental transition process, experience a reshaping of their identity (Kessler et al., 2005; Maggs, Schulenberg, & Hurrelmann, 1997). Both in theory and in practice, student affairs professionals and counselors in higher education have had a sustained interest in exploring how students grow and change in college, and in how institutional structures, programs, and services promote students' optimal mental health functioning (Ambler, 2006).

College environment in itself has an effect on student development and outcomes. Researchers have examined factors such as learning, moral reasoning, identity development, and cognitive growth, that explain how college impacts student outcomes (Astin, 1993; Pascarella & Terenzini, 1991, 2005). Research has also shown that college does indeed have a crucial influence where students grow and develop during their education period in higher education (Boyer, 1987; Hernandez, Hogan, Hathaway, & Lovell, 1999; Moore, Lovell, McGnn, & Wyrick, 1998; Pascarella & Terenzini, 1991, 2005). This understanding of overall change in the students can be attributed to a student's college experience (Ambler, 2006; Pascarella & Terenzini, 1991, 2005).

Looking through the lens of Chickering, Erikson, and Schlossberg's theories, the shift from dependent to independent living can be an abrupt, drastic, and difficult transition for most of the young adults beginning their college life (Evans, Forney, Guido, Patton, & Renn, 2009). This change might lead some students in experiencing uncertainty, bewilderment, and acute anxiety (Kadison & DiGeronimo, 2004). However, research also shows that not all who go through hardships and difficulties experience depression or Post Traumatic Stress Disorder (PTSD) (Seligman, 2012). Some individuals thrive and demonstrate resilience even after traumatic experiences. This is the concept of *post trauma growth* (Calhoun & Tedeschi, 2006)—the positive psychological change that occurs as the result of one's struggle with a highly challenging, stressful, and traumatic event.

Researchers suggest students who have positive psychological variables fostered in them are able to achieve more in the classroom, and that proactive positive approaches

may prevent problem behaviors in students (Seligman, 2002). To acquire positive insights about the mental health of college students, positive psychologists focus on studying those who exhibit positive, healthy and adaptive features of human functioning (Diener & Seligman, 2004; Keyes, 2002; Keyes & Haidt, 2003; Keyes & Lopez, 2002; Lyubomirsky & Abbe, 2003; Peterson & Park, 2003; Ryff, 1989; Snyder, 2000). In the next section, the concepts of positive psychology will be further explained.

Positive Psychology: A Science of Well-being

Emergence and significance. The positive-approach movement initiated by Martin Seligman, called *Positive Psychology*, has grown in influence and emphasis since its advent in 1998. Positive psychology is "an umbrella term for the study of positive emotions, positive character traits, and enabling institutions" (Seligman, Steen, Park, & Peterson, 2005, p. 410). This emerging field acts as an overarching and uniting entity that bridges what has been scattered and disparate between theory and research, and explicates what makes life most worth-living (Seligman et al., 2005; Peterson & Park, 2003). The positive approach redirects focus away from the most emphasized function of psychology on curing symptoms of mental illness, towards making people's lives more productive and meaningful, and ultimately actualizing human potential (Seligman, 2002, 2003; Seligman et al., 2005). The latter are described by positive psychologists as the two forgotten tenants of psychology. Individuals who work from this perspective seek to identify what makes life most worth living and what makes one happy.

Traditional models of psychotherapy are primarily focused on human functioning from a deficit perspective and are grounded in the medical model (Ryff & Keyes, 1995).

It is important to acknowledge that positive psychology is a field of scientific study that does not deny the concern of human weakness or mental illness. However, it seeks to augment lives with a focus on positive emotions, positive traits, strengths, and talents, as well as offers the examination of strengths as a field lending itself worthy of research and application (Seligman, 2002). Therefore, unlike the traditional approaches of counseling and psychological services which view people through the lens of a deficit model, positive psychology claims that "understanding what is worst and weakest about us is less important than understanding what is best and bravest" (Maddux, 2002, p. 22).

Positivity promotes adaptive brain activity, enhances intelligence, and fosters a more powerful and positive life, therefore the focus of professionals who work from a positive psychological framework is building strengths and the best things that life has to offer, besides managing weaknesses and repairing the worst things in life (Mather, 2010). Counseling approaches at the college level ought to be concerned with helping clients (students) who are experiencing pathology to overcome it, as well as helping those who are free of pathology to lead the most fulfilling lives possible (Seligman & Csikszentmihalyi, 2000). Lyubomirsky (2008) studied characteristics of people who were positive and happy, and therein found that these people have better physical, as well as mental health outcomes and behavior. Specifically they were observed to have higher levels of resilience, optimism, social support, spirituality, and gratitude (Lyubomirsky, 2008).

This study of positive emotions, positive character traits, and positive institutions enhances understanding of *flourishing* (Seligman, 2002, 2012; Seligman et al., 2005), in

addition to supplementing traditional interventions that focus on alleviating pain. The well-being theory presents twenty-four strengths that undergird the five pillars of flourishing—positive emotion, engagement, relationships, meaning, and achievement (PERMA; Seligman, 2012). Therefore, by taking a positive approach, individuals can enjoy healthier, happier, and flourished lives, wherein, the goal of positive psychology in well-being theory—building human flourishing—is ultimately fulfilled. Closely aligned with the concept of flourishing are Keyes (2002, 2005, 2013) views of positive mental health.

Using Keyes' Mental Health Continuum Model to View Positive Mental Health

A shift in the description of mental health is taking place, from "a medical model that focuses on illness to a consideration of human well-being and flourishing" (Diehl, Hay, & Berg, 2011, p. 883). With this shift had come a focus in policy and science on *positive mental health and well-being* (Keyes & Simoes, 2012). This more recent perspective is consistent with World Health Organization's (WHO) definition of mental health—"a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" (WHO, 2004, p. 12).

The dimensions of well-being are reflected in this definition (Keyes, 2013), wherein, a "state of well-being" refers emotional well-being, the reference to the ability of people to "realize their abilities and cope with normal stress" is indicative of the measurement of psychological well-being, and the reference to individuals' abilities to "work productively" and "make a contribution to community" is reflected in assessment

of social well-being (Keyes, 2013, p. 14; Westerhof & Keyes, 2010). Mental health promotion according to Keyes (2007) is an essential element, amenable to a public health approach that serves as a complement rather than an alternative to treatment.

Keyes (2002) developed the idea of *flourishing* as the positive end of the mental health dimension which is part of a holistic model of a mental health continuum, and specified criteria on his Mental Health Continuum Scale. Keyes (2002) conceptualizes mental health under the rubric of subjective well-being, which is individuals' evaluation of the quality of their lives. Three dimensions of well-being are presented in Keyes model: emotional, social, and psychological. Two streams of subjective well-being as described by Keyes and Simoes (2012) stem from the popular viewpoint on happiness that includes- (i) feeling good, pleasurable, and positive (hedonic tradition); and (ii) functioning well in life, with an emphasis on striving toward excellence (eudaimonic tradition).

Hedonic dimension. Feeling good in life or positive affect is the basis of hedonic dimension of mental health.

Emotional well-being. Emotional well-being is a "specific dimension of subjective well-being" and a "subset of symptoms used to diagnose states of mental health", which shows "the degree to which individuals self-report the experience of symptoms of positive and negative affect" (Keyes, 2000, p. 71). The emotional well-being is a cluster of symptoms that "reflects the presence and absence of positive feelings about life operationalized as evaluations of happiness and satisfaction with life, and the

balance of positive to negative affect experiences over a time period" (Keyes & Waterman, 2003, p. 478).

In the literature, the most measures of positive and negative affect that encompasses emotional wellbeing investigate the frequency or the duration of time those individuals report such experiences (Keyes & Waterman, 2003). Symptoms of negative affect typically include: feeling (1) so sad nothing could cheer you up, (2) nervous, (3) restless or fidgety, (4) hopeless, (5) that everything was an effort and (6) worthless (Keyes & Waterman, 2003, p. 479). On the other hand, the symptoms of positive affect usually means, feeling (1) cheerful, (2) in good spirits, (3) extremely happy, (4) calm and peaceful, (5) satisfied and (6) full of life (Keyes & Waterman, 2003, p. 479; Mroczek and Kolarz, 1998). As the hedonic tradition is connected to emotional well-being, scholars use measures of satisfaction with life and positive affect to measure it (Diener, 1984; Gurin, Veroff, & Feld, 1960; Keyes, 2013).

Eudaimonic dimension. Positive functioning is the basis of eudaimonic tradition. The tradition of eudaimonia is reflected in research on psychological (Ryff, 1989) and social (Keyes, 1998) well-being, where scholars use "multidimensional scales" to capture individuals' evaluation of how well they see themselves functioning in life as they "thrive to reach secular standards of purpose, contribution, integration, autonomy, intimacy, acceptance, and mastery in life" (Keyes, 2014, p.181).

It consists of individuals' self-report of the quality with which they are functioning in their lives, without the part that reflects their feelings or emotions toward or about their life.

Psychological well-being. Psychological well-being is conceptualized as a "primarily private phenomenon focused on the challenges encountered by individuals in their personal lives" (Keyes, 2014, p. 181). Based on the preliminary work of Ryff (1989), Keyes, Shmotkin, and Ryff (2002) describes the six dimensions of psychological well-being as the following-

> People attempt to feel good about themselves even while aware of their own limitations (*self-acceptance*). They also seek to develop and maintain warm and trusting interpersonal relationships (*positive relations with others*) and to shape their environment so as to meet personal needs and desires (*environmental mastery*). In sustaining individuality within a larger social context, people also seek a sense self-determination and personal authority (*autonomy*). A vital endeavor is to find meaning in one's efforts and challenges (purpose in life). Lastly, making the most of one's talents and capacities (*personal growth*) is central to PWB. (p. 107)

According to Keyes (2003), psychological wellbeing characterizes specialized reliable and valid, private and personal criterion for evaluation- that includes six dimensional scales: "self-acceptance, positive relations with others, personal growth, purpose in life, environmental mastery, and autonomy" (p. 300).

Social well-being. Social well-being focuses on the social tasks encountered by individuals in their social structures and communities (Keyes, 2002, 2013). Keyes (1998) operationalized multiple dimensions of social well-being which indicate whether and to what extent individuals are functioning well and facing challenges in their social lives,

groups, institutions, and communities (Keyes, 1998, 2013, 2014), they are described further. According to Keyes and Waterman (2003*), social integration* is the "evaluation of the quality of one's relationship to society and community" (p. 480). Herein, integration is the degree to which individuals feel a sense of belongingness to their communities and the extent to which they feel they have something in common with others (Keyes, 1998, 2013, 2014; Keyes & Waterman, 2003). Additionally, the second component of social well-being is the *social contribution*- "an evaluation of an individual's value to society that includes the belief that one is a vital member of society and possesses something of value to give to the world" (Keyes & Waterman, 2003, p. 480). Furthermore, Keyes (1998) points out the significance of *social coherence*, which according to Keyes and Waterman (2003) is, "the perception of the quality, organization, and operation of the social world which includes a concern for knowing about the world" (p. 480).

Subsequently, Keyes and Waterman (2003) states that *social actualization* is the "evaluation of the potential and the trajectory of society," which can be understood as having the "belief in the positive evolution of society and that society has a potential to be realized by the institutions and citizens" (p. 481). Finally, *social acceptance* (Keyes, 1998) is formulated as "the construal of society through the character and qualities of other people in general" (Keyes & Waterman, 2003, p. 481). Individuals with higher levels of social well-being have the ability to illustrate these characteristics components efficiently.

In measuring the comprehensive subjective well-being, studies support the tripartite model that includes emotional, psychological, and social well-being in U.S. adults (Gallagher, Lopez, & Preacher, 2009), college students (Robitschek & Keyes, 2009), and adolescents (Keyes, 2005, 2006). Keyes (2002) developed an instrument to measure the three dimensions of well-being that supported the tripartite model with confirmatory factor analysis (Keyes, 2014). A person's well-being is not only about their mental illness status, but also the extent to which they experience positive well-being. Accordingly, Keyes' instrument categorizes people on a mental health continuum beyond their recent mental illness status, by categorizing their level of mental health on a continuum ranging from languishing at the lower end, to moderate in the middle, to-flourishing at the upper end of continuum (Keyes, 2002, 2005, 2009).

Keyes (2014) pointed out some implications of this model- (a) the absence of mental illness does not imply the presence of mental health, (b) the presence of mental illness does not imply the absence of mental health, and (c) the absence of mental illness does not guarantee the presence of mental health, but the presence of mental illness does not imply the absence of certain level of good mental health (p.183). As the need for assessing states of complete mental health was being understood, Keyes developed and studied the model of complete mental health, called the two (or the *dual*) continua model combining indicators of mental illness and positive mental health (i.e., subjective wellbeing) (Keyes, 2005, 2007).

Mental health categories. *Flourishing* is a state of optimal functioning or complete health which is not just the absence of mental illness, but rather, the presence of

high levels of subjective well-being (Keyes, 2002, p. 210). Individuals who flourish in life feel positive, fulfilling their goals and aspirations, and fare better than others with regard to their physical, psychological, and psychosocial functioning (Grant & Cavanagh, 2007).

On the other hand, *languishing* is a state of incomplete mental health that encompasses low levels of mental illness and low levels of subjective well-being (Keyes, 2002, p. 210). Individuals who are languishing in life are found to be lacking positive emotion and not fulfilling goals or aspirations in life (Grant & Cavanagh, 2007). Languishing mental state according to Keyes (2002) is "associated with poor emotional health, with high limitations of daily living, and with a high likelihood of a severe number (i.e., 6 or more) of lost days of work … that respondents attribute to their mental health..." (p. 614). In other words, the absence of mental health and mental illness makes this state of health that is associated with substantial psychosocial impairment (Keyes, 2002).

Results of Keyes' studies consistently show that individuals who are diagnosed as anything less than flourishing are doing worse in terms of physical health outcomes, healthcare utilization, missed days of work, and/or psychosocial functioning (Keyes, 2002, 2007, 2013). Moreover, symptoms of depression and anxiety were among the strongest negative predictors of flourishing in college context (Peter, Roberts, & Dengate, 2011). Contrary to this, outcomes to date suggest that individuals who are flourishing function better (i.e., in terms of fewer missed days of work, better physical health etc.)

compared to those with moderate mental health, who in turn function better than languishing individuals.

As reported by Keyes (2006), flourishing youth exhibit the lowest prevalence of conduct problems, followed by moderately mentally healthy youth, while languishing youth exhibit the highest prevalence on all indicators of conduct problems. Flourishing youth also engage in more prosocial behavior, providing more help and emotional support to friends, siblings, and parents (Keyes, 2006). Research by Lim, Ko, Shin, and Cho (2013) supports the claim that flourishing individuals function better psychosocially than moderately mentally healthy adults and those adults with moderate mental health have better psychosocial functioning than those adults who are languishing.

Further on in the review, other positive psychological correlates that plausibly have an impactful association with mental health among college students are explored. Traditional methods at universities aim to meet the institutional goal of improving insufficient performance of students by providing theoretical knowledge, technical skill, and intellectual abilities. Focusing on building strengths and positive psychological resources of individual student is too often overlooked. In the next section the positive psychological approach of understanding individual and organizational behavior is used to explain a burgeoning concept: psychological capital (PsyCap).

Framework of Positive Psychological Functioning in Organizational Psychology

The newly emerged field of *positive psychology* primarily evolved from the scientific branch of clinical psychology and further extended to the workplace setting by the effort of "positive organizational scholarship" (POS) and "positive organizational

behavior" (POB) areas (Luthans, Youssef, & Avolio, 2007). POB is one of the positive psychology applied fields of study which draws on positive-orientated human resource strengths and psychological assets that have potential to be measured, developed, and effectively managed for enhanced performance and satisfaction (Luthans, 2002a, 2002b; Wright, 2003). Such applied research areas investigated both the value of micro-oriented positivity within individuals (Luthans, 2002a, 2000b; Luthans et al., 2007; Wright, 2003), and the macro-oriented positivity within larger context of organizations (Cameron & Caza, 2004; Cameron, Dutton, & Quinn, 2003).

The mission of POB is to strive for the "the pursuit of employee happiness, health, and betterment issues as viable goals or ends in themselves" (Wright, 2003, p. 441), of which the positively oriented psychological well-being is associated with job satisfaction, performance at work, employee turnover, and successful relationships (Luthans et al., 2007). Moreover, POS does not depend on a single theory, rather integrates significant elements such as excellence, thriving, flourishing, abundance, resilience, and virtuousness (Cameron, Dutton, & Quin, 2003).

In order to include a positively loaded construct in POB, Luthans and his colleagues set up the following criteria- (a) grounded in theory and research, (b) valid instrument, (c) state-like (unlike trait-like) and open to development, (d) positive evidence-based impact on work-related attitudes, behaviors, and performance (Luthans et al., 2007). The four identified constructs that met these criteria were hope, efficacy, resilience, and optimism, and when combined, formed a higher order core construct called psychological capital (PsyCap) (Luthans et al., 2007).

Positive psychological capital (PsyCap). PsyCap is a positive psychological resource that has emerged from the positive psychology movement (Luthans et al., 2007), and is widely studied within human resource management (HRM), POB, and POS literature. Additionally, PsyCap has strong theoretical underpinnings and constitutes constructs that are well-established, well-researched and validated in the field of positive psychology. Luthans and his colleagues have expounded beyond economic, human and social capital, where they unveiled a brand-new fourth dimension for sustained competitive advantage- Psychological Capital (PsyCap). Thus, Luthans, Youssef, and Avolio (2007) define PsyCap as:

> an individual's positive psychological state of development that is characterized by: (i) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (ii) making a positive attribution (optimism) about succeeding now and in the future; (iii) persevering toward goals and, when necessary redirecting paths to goals (hope) in order to succeed; and (iv) when beset by problems and adversity, sustaining and bouncing back and even beyond (resiliency) to attain success. (p. 3)

With the increase in recognition of human resources as an imperative asset in today's global economy, positive psychological capital is being utilized in both research and practice, in addition to traditional economic capital, human capital, social capital (see figure 1). The operational definition of PsyCap differs from the well-known aspects of economic capital (money, case, and finance), human capital (what one knows in terms

of knowledge, skills, abilities, and experience), and social capital (who you know in your network of relationships) (Luthans et al., 2004).

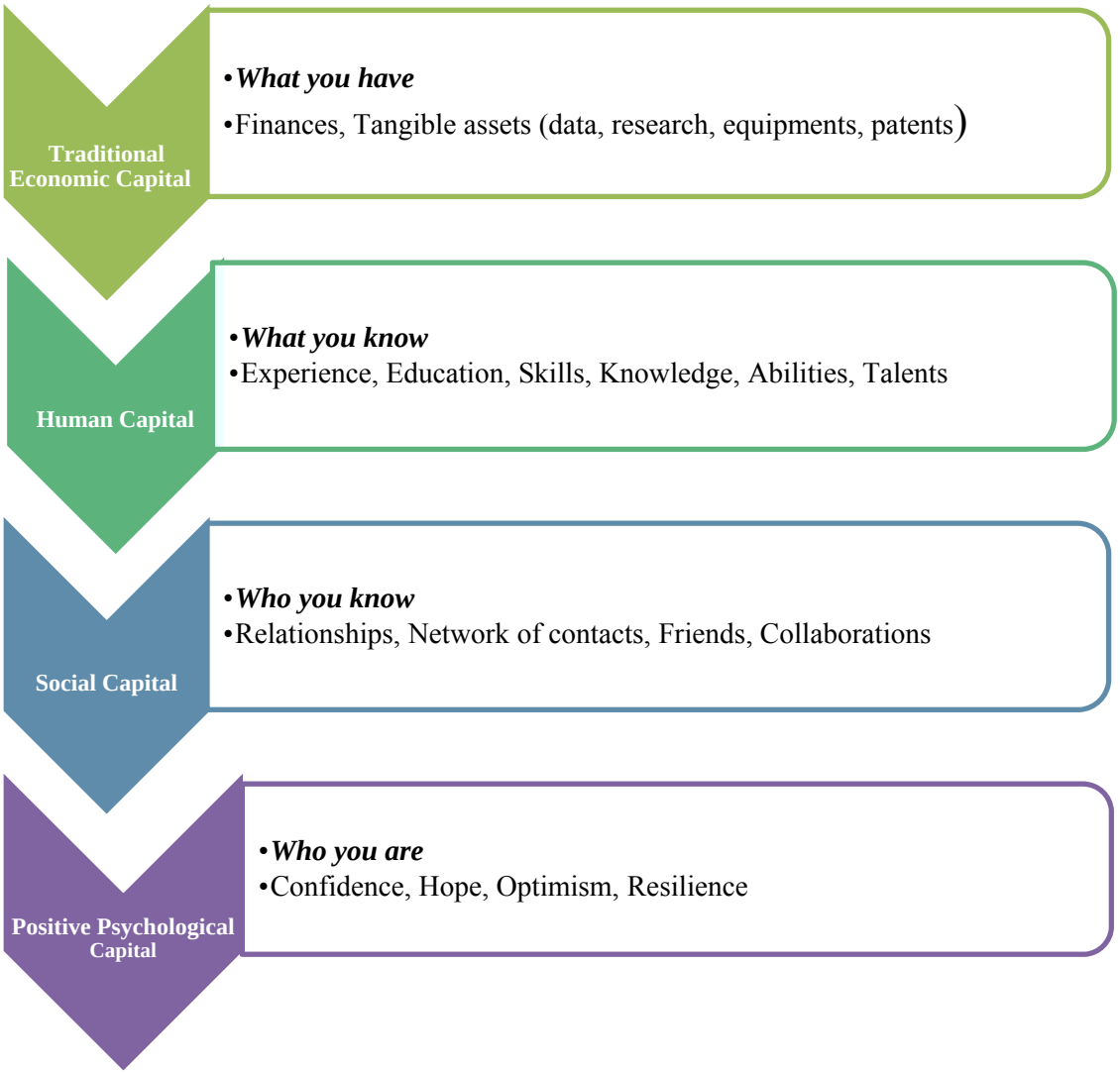


Figure 1: Expansion of Capitals in Organization Leading to Positive Psychological Capital.
Source: Luthans, F., Luthans, K. W., & Luthans, B. C. (2004). Positive psychological capital: Beyond human and social capital. *Business Horizons*, *47*(1), 45-50.

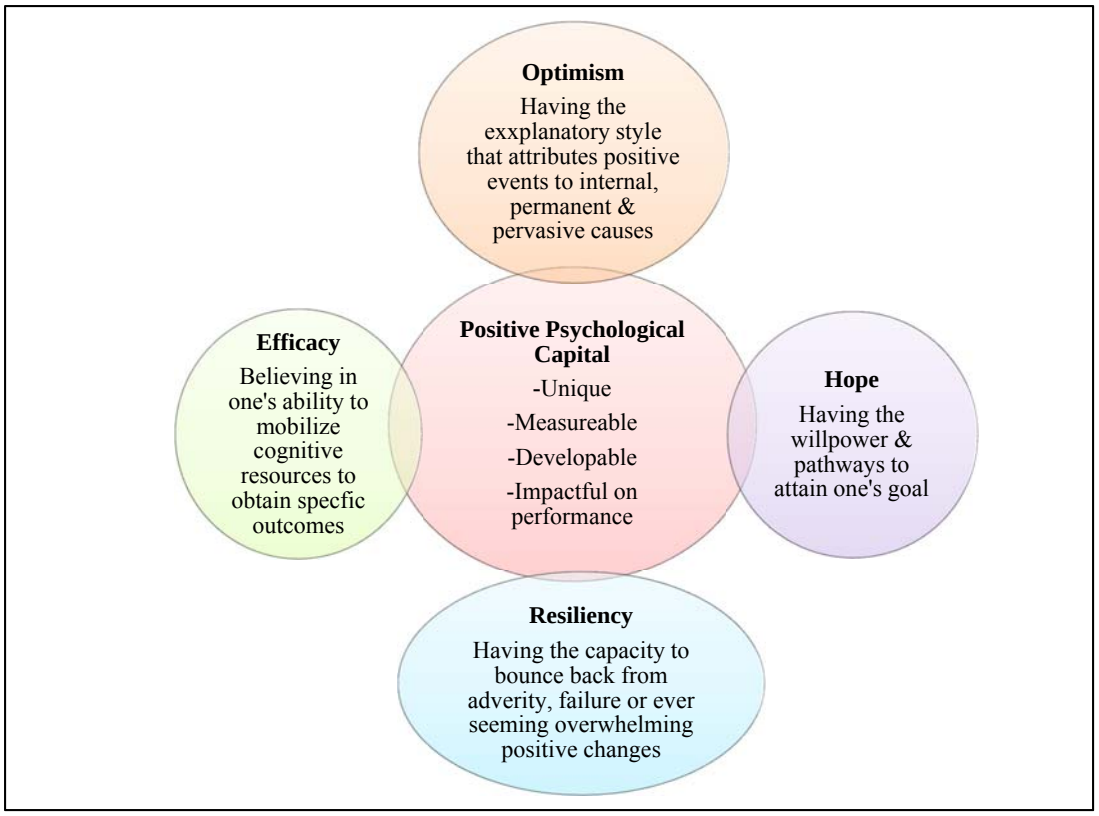


Figure 2: Components of Positive Psychological Capital (PsyCap).
Source: Luthans, F., & Youssef, C. M. (2007). Emerging positive organizational behavior. *Journal of management*, *33*(3), 321-349.

The encompassing higher order constructs that together make up PsyCap are Hope, Efficacy, Resilience and Optimism (often referred by the acronym HERO). See figure 2 and Figure 3. As proposed in the exploratory study by Luthans, Luthans, and Jensen (2012), for students to be effective and competent in the new paradigm environment, development of PsyCap using HERO dimensions is imperative.

The HERO within. In simple terms, PsyCap can be understood as an individual's positive state of development that are characterized by the four higher order constructs or

capabilities: Hope: something constituting one's Will and the Way; Self-Efficacy: otherwise known as self-confidence, is something that is needed to succeed; Resiliency: bouncing back and beyond in hardship; and Optimism: being realistic and flexible (Luthans & Youssef, 2004, p. 334; Luthans et al., 2007, p. 3).

Figure 3. HERO Dimensions of PsyCap.

Positive constructs such as hope, optimism, efficacy, and resiliency are by themselves factors that determine an individual's response to various stressful situations at workplace (Luthans & Youssef, 2004). In this instance, the researcher applies these constructs within an educational setting. Further, the sub-constructs of hope, efficacy, resilience, and optimism (HERO) is described in detail.

Hope. Hope is the construct developed by positive psychologist Rick Snyder (2000) and is defined by Snyder, Irving, and Anderson (1991) as a positive motivational state that is based on an interactively derived sense of successful (1) "agency" (goal-directed energy) and (2) "pathways" (planning to meet goals) (p. 287). The overall perception that one's goals can be met is hope is common terms. Snyder (2000) asserts that individuals with higher levels of hope are less likely to identify themselves and the situation with feelings of uncontrollability, unpredictability, and vulnerability. Hope include- "the quality of goals being set and the mechanisms through which increasingly challenging goals are selected, approached, accomplished, and changed if necessary in light of additional evidence and new realities of the situation" (Luthans & Youssef, 2004, p. 230).

It is hope that provides not only the "will" to succeed, but also the ability to identify, clarify, and pursue the "way" to success (Luthans & Jensen, 2002, p. 305). According to Luthans and Jensen (2002), the will-power and way-power components of hope are much relevant in today's workplace with regard to self-motivation, autonomy, and contingency actions. Hope has been found in various studies to have positive relationship with individuals' desired outcomes, including success, performance, satisfaction, retention, merit salary increase, organizational commitment and work happiness (Luthans et al., 2007). Additionally, hope has been strongly linked to academic performance and athletic success (Snyder, 2000). No matter the level of pain experienced, hope fostered the ability to tolerate (Peterson, 2013).

According to the implication of Venning et al. (2011) study, the content of mental health promotion strategies in young individuals has to be inclusive of the positive psychological correlate—hope. Hope is an ability that can be enhanced through goal design, pathway generation, and strategies for overcoming obstacles (Synder, 2000; Luthans et al., 2012). Luthans et al. (2012) remark that enhancing hope among students would be by asking them to identify personally valuable academic goals which are measurable and achievable, in addition to conceptualizing multiple pathways to attain them.

Hope is a cognitive strength that has been studied to have strong associations with greater well-being and positive health outcome levels, and on the other hand, is associated with lesser levels of pathology and mental illness (Cheavens, Feldman, Gum, Scott, & Snyder, 2006; Snyder et al., 1996; Venning et al., 2011). In other words, hope is a stronger and significant predictor of mental health in comparison to mental illness (Venning, Kettler, Zajac, Wilson, & Eliott, 2011). Individuals who fall under the higher range of hope are generally viewed as someone who proactively generates multiple pathways in any given situation in order to accomplish their goals.

Furthermore, while executing any pathway, these individuals exhibit the capacity to initiate predetermined alternate pathways in order to continue toward goal accomplishment (Luthans, Avey, Avolio, & Peterson, 2010) Additionally, such individuals possessing higher levels of hope are well motivated by their sense of capability to develop multiple paths and alternatives in ultimately achieving their goals (Luthans & Jensen, 2004; Luthans & Youssef, 2004). In Vennings et al. (2011) study,

specifically, hope was established as a stronger predicted of mental health (31%) in adolescence population than mental illness (19%), wherein the component agency (17%) explained better variance than pathways (2%). Thus, it was concluded by Vennings and colleagues (2011) that goal-setting and determination to achieve the set goals are significant than developing alternative paths to reaching them.

Additionally, in the study of Venning et al. (2011), there were no gender differences seen in the association between Hope and mental health. Based on Fredrickson (1998) study, individuals low in hope experience a range of negative emotions that narrows their responses in crisis situations. On the other hand, findings show that people high on hope exhibit positive emotions resulting from hopeful thinking that accumulates and compounds to equip them with- skills and resources required to cope with adverse times, shield against the onset or reduce the harshness of mental illness by enabling higher and sustained level of positive mental health.

Efficacy. Efficacy is based upon social cognitive theory and the work of Albert Bandura. Stajkovic and Luthans (1998) define efficacy of an individual at the workplace context as—"an individual's conviction about own abilities to mobilize the motivation, cognitive resources, and courses of action needed to successfully execute a specific task within the given context" (p.66).

Efficacy and Self-Efficacy are terms interchangeably used within the PsyCap construct. Self-Efficacy refers to a person's self-confidence, believing in his or her own ability to mobilize the motivation, cognitive resources, and courses of action that are required in order to adapt a particular course of action in a presented circumstance

(Bandura, 1997). Thus, efficacy is to do with an individual's convictions about his/her own ability in carrying out a set of actions successfully that carried on to reaching an anticipated outcome (Shahnawaz & Jafri, 2009).

Self-confident people select challenging tasks and aspire to audaciously accomplish their goals (Luthans & Youssef, 2004). Bandura (2008) attributed the significant role of self-efficacy in determining an individual's ability to manage stress and success. Therefore, Luthans et al. (2007) provides some of the characteristics of self-efficacious individuals—highly motivated, goal-oriented and self-selective in pursuing difficult tasks, striving on challenging tasks, investing maximum potential in accomplishing their goals, and persevering at the face of adversity or obstacle. However, an individual with low efficacy will tend to experience more fatigue, illness, anxiety, depression, and stress in comparison with an individual of higher self-efficacy (Avy, Luthans, & Jensen, 2009). Bandura (1997) provides four routes that can be taken to acquire and modify an individual's confidence—"mastery experiences", "vicarious learning", "social persuasion", and "emotional or psychological arousal" (p. 53).

Resilience. Luthans (2002a) defines resilience as, "the positive psychological capacity to rebound, or 'bounce back' from adversity, uncertainty, conflict, failure or even positive change, progress, and increased responsibility" (p.702).

In other words, resilience is "the capacity to remain well, recover, or thrive in the face of adversity" (Hardy, Concato & Gill, 2004, p. 257). Two distinct dimensions of resilience (Lamers et al., 2011) are: (a) significant adversity and (b) positive adaptation. Researchers suggest that resilience is not a trait or personality characteristic, but a process

or phenomenon that may be referred to as *resilient adaptation*. Research also suggest following characteristics of resilience: (i) the capacity to make realistic plans and execute necessary actions; (ii) possessing positive view of self and having confidence in one's own abilities and strengths; (iii) exhibit and develop skills in communication and problem solving; and (iv) the capacity to manage strong feelings and impulses in a healthy way (Luthans et al., 2007).

Resilience can also be understood as "a phenomenon or process reflecting relatively positive adaption despite experiences of significant adversity or trauma" (Luthar, Lyman, & Crossman, 2014, p. 126). However, individuals who fall under the lower levels of resilient adaptation are unable to move forward after traumatic or adverse situation, and tend to have trouble rising to positive changes like increased responsibility and progress (Luthans & Youssef, 2007). Tugade and Fredrickson's (2004) study illustrated that a resilient individual is in a better position to adapt to changes and is more stable emotionally to deal with challenges.

Furthermore, Luthar and colleagues (2014) in their study mentioned that resilience is not an across- the-board phenomenon; rather it is a circumspect term specific to resilience-manifested domains such as academic resilience, emotional resilience, or external (behavioral) resilience. Additionally, resilience is conceived as a protective factor that can be taught and learned. This is why the US Army uses the Resilience Training curriculum that focuses on fostering optimism, faith, problem solving, self-efficacy, flexibility, empathy, sense of meaning, and spirituality (Moran & Nemec,

2013). Therefore, because of resilience's potential for growth and development within individuals, it is studied as one of the constructs of PsyCap.

Optimism. In a broad sense, Optimism can be understood as "positive expectations about future events" (Sharpe, Martin, & Roth, 2011, p. 946). Martin Seligman pioneered the work of Optimism within positive psychology and viewed it as "an attribution style that explains positive events through personal, permanent and pervasive causes, and negative events through external, temporary, and situation-specific ones" (Luthans & Youssef, 2007, p. 331). There is a need for optimism to be realistic and flexible, especially when it comes to organizational setting.

Studies indicate that individuals who were seen with higher levels of optimism were also seen to exhibit lower levels of work-related stress (Totterdell, Wood, & Wall, 2006), and were able to take personal credit for the positive events in their overall life or workplace. Such individuals would be able to distance personal faults form negative events, because of which they may avoid a myriad of negative consequences such as depression, guilt, self-blame, rumination, and despair.

Seligman developed the concept of "learned optimism" suggesting that optimism can be developed (2011). Carver and Scheier (2002) affirm Seligman's claim and remarks that "change in an optimistic direction is possible" through various developmental interventions (p. 240). Thus, this positive state-like capacity of optimism provided the theoretical support for optimism to be included as a construct of PsyCap (Luthans & Youssef, 2007). Therefore, it is essential for administrators or employers to

equip self and others with the ability to use optimistic explanatory styles, as well as the capacity to adapt those styles realistically to various situations (Luthans et al., 2012).

Socio-Demographics Characteristics

Gender, age, race/ethnicity, sexual orientation, and enrolled degree. Hunt and Eisenberg (2010) indicate certain demographics (such as gender, socioeconomic status), social factors (such as social support, relationship stressors, victims of sexual violence), personality traits (such as perfectionism), genetic factors, and academic environmental factors (competitiveness, supportiveness of personnel, selectivity) as risk factors among college students. Participants from the different age groups exhibit significantly different scores on the total scale of the MHC–SF (Lim et al., 2013).

In that study, there were no evidences of significant differences between males and females on either the total or subscale scores of the MHC–SF. However, previous research on college students showed a positive relationship between few socio-demographic variables and mental health. Specifically, a significant difference in mental health with regards to gender was found in Keyes study (2014). Furthermore, Caucasians and females were found to be more likely enjoying higher levels of mental health (Keyes, 2002; Peter et al., 2011). Those students who identified themselves as LGBT had negative associations with mental health in Fink's study (2014). The result of Fink's (2014) study suggests that discriminatory climates experienced by LGB students within college campuses may cause barrier to flourishing.

In the review of Diener and colleagues on emotional well-being (Diener, Suh, Lucas, & Smith, 1999), the findings on variability with regard to demographics were

remarkable—a higher education, being married, being employed, and being in good physical health were all related positively to emotional well-being, whereas gender remained unrelated to emotional well-being. Positive affects were found to be lower in older age groups, whereas life satisfaction tends to be equally high, or sometimes even higher, in older age groups (Diener et al., 1999). In Westerhof and Keyes (2010) study, older adults were not found to be flourishing when compared with younger adults, despite fewer mental illness problems. Older adults in their study experienced higher emotional well-being, but lower level of psychological well-being.

The research by Ryff and Singer (2008) suggest that a higher level of education tends to correlate with psychological wellbeing; specifically, the sub-dimensions personal growth and purpose in life dimensions. Other findings of Ryff's study were—women happened to score higher on positive relations than men, older adults scored higher on autonomy and environmental mastery and lower on purpose in life and personal growth, and also similar on the dimensions of self-acceptance and positive relations in younger adults (Ryff & Singer, 2008). In Keyes (2007) study, African-Americans reported a higher level of overall mental health than Caucasians (p. 104). Particularly, within African-American community, men reported higher overall mental health than women, although white men and women showed no difference in their overall level of mental health.

Reports in Keyes (2007) study indicate that while discrimination is controlled, Blacks excel in mental health (specifically psychological well-being) over the Whites. However, in Peter et al. (2011) study, there were no statistical significance results in the

overall model with regard to ethnic identity and sexual orientation. Most of the studies that used mental health continuum model and PsyCap construct studied only using the Undergraduate students for the most part (Ambler, 2006; Luthans et al., 2012; Keyes, 2007). However, owing to the exploratory nature of this study, the entire college student community was included. Thus, making the study more comprehensive and broader in scope.

Venning et al. (2011) also found that emotional well-being was better among older adults, women, married persons, and those with good physical health; and on the other hand, there were no relationship between educational attainments to emotional well-being. Psychological well-being was explained by a lower age, being female, and having higher education and good physical health. There was no stronger predictor of social well-being in the Vennings' study (2011). In Vennings (2011) study, the older adults experienced lower levels of mental illness problems, higher emotional well-being, lower psychological well-being, but equal levels of social well-being as younger adults.

Variability in demographics is not only found in the studies at the U.S, but internationally such as in Canada by Clarke, Marshall, Ryff, and Wheaton (2001) and Sweden by Lindfors, Berntsson, and Lundberg (2006). In reviewing various studies, socio-demographic status has found to be explaining only some of the variance in mental illness and mental health (Keyes, 2014), but not in the studies that explored individuals' PsyCap (Avey, Luthans, Smithm, & Palmer, 2010; Riolli et al., 2012). Therefore, this study proposes to describe basic demographics of the college students as the first objective and not include in further analysis of explaining predictors.

Relationship between Mental Health and PsyCap

Positive psychology scholarship provides variety of factors (such as faith, purpose in life, optimism, academic confidence, significance of community service, nutrition, substance-use problems, physical health, and exercise) that have been empirically tested to predict flourishing and other similar measures of positive psychological functioning in college students (Adams, Bezner, Drabbs, Zambarano, & Steinhardt, 2000; Byron & Miller-Perrin, 2009; Fink, 2014; Howell, 2009; Low, 2011; Ouweneel, Le Blanc, & Schaufeli, 2011; Peter et al., 2011).

Diehl et al. (2011) mentions that individuals are found to be flourishing while the proportion of positive affect (including life satisfaction, health status, dispositional optimism, and positive self-esteem) is greater than the proportion of negative affect. Positive emotions of people contribute to transformational outcomes such as creativity, resilience, and connectivity (Tuck & Anderson, 2014). Psychological capital (Luthans et al., 2007) has been studied as a moderator between various constructs relationships. For instance, PsyCap had moderating effect on the relationship between narcissism and psychological well-being (Erkutlu, 2014). PsyCap has also been studied as a buffer to student stress, where the relationship between stress and negative outcome was decreased among students because of the role of PsyCap (Riolli et al., 2012).

A previous study investigated the relationship between PsyCap and mental health focused on: (i) organizational employees and (ii) the conceptualization of mental health as hedonic and eudaimonic well-being (Culbertson, Fullagar, & Mills, 2010). In this study, mental health was assessed using Ryff's (1989) Psychological Well-being Scale

and Happiness scale by Watson, Clark, and Tellegen (1988) [PANAS]. However, in that study, PsyCap was assessed using the original PsyCap questionnaire as it was a study that explored employees' outcomes in organizational workplace context. Furthermore, the results of that study by Culbertson et al. (2010) indicated that the relation between PsyCap and hedonic well-being was mediated by eudaimonic well-being when measured over time (two weeks later). Additional result of significance to this study was the observed variance in eudaimonic work well-being, which was predicted by one's PsyCap score.

There are evidences of positive relationship between PsyCap and well-being, specifically- the psychological well-being (Avey et al., 2010; Singh & Mansi, 2009). These researches also indicate that PsyCap is a positive resource that can be used to enhance an individual's psychological well-being. PsyCap is also conceptualized as an empowering tool that provides students with requisite mental strength to cope with tough circumstances (Riolli et al., 2012). Among students, Riolli et al. (2012) study suggests that exploring PsyCap acts as a potential antidote to the effects of stress and offers a platform to boost student immunity to stressors.

As mentioned, hope was found to be a better predictor of mental health than was mental illness, and regardless of gender, the component of hope- agency could explain significant portion of variability in mental health in comparison to pathways (Venning et al., 2011). Focusing on positive strengths, such as hope, is considered by Venning et al. (2011) as a crucial module in the advancement of mental health of young adults globally. Thus, it is suggested to be playing a strong role in strategies designing of mental health

promotion. It can be therefore concluded that strategies that focus on developing hopeful thinking increases subjective well-being and decreases the symptoms of mental illness based on Cheavens et al. (2006) study.

Hope is a strong and significant predictor of mental health (Venning et al., 2011). High levels of hope appears to activate a positive upward spiral of functioning that better prepares people with competence and resources needed to overcome challenges and obtain a state of flourishing in life (Venning et al., 2011). Presence of high levels of psychological strengths and resources when young is linked to positive mental health outcomes in later adulthood (Arehart-Treichel, 2006; Venning et al., 2011). Young people who have higher levels of hope report increased physical and psychological functioning, compared to young people who have lower levels of hope within them (Snyder, 2000).

Research among college students illustrates evidences of strong association between mental health and self-confidence, while it is available in addition to socially supportive climates, smooth transitioning into college, and a deep sense of belonging (Fink, 2011). The global self-concept scale (a measure of confidence) correlates between 0.44 with social well-being and a high of 0.54 with psychological well-being categories of mental health scale. Thus, adults who report greater levels of each component of mental health—emotional, psychological, and social well-being—also tend to report a greater measure of self-confidence (Keyes, 2002, 2013). Fink (2014) suggests that students' higher self-efficacy in academic skills and easier academic transition significantly predicts higher scores on the mental health scale (p.14).

Results of the study by Quinlan, Swain, and Vella-Brodrick (2012) indicated that the students' scores on the PsyCap components Self-Efficacy, Hope, and Optimism increased after participating in one of their research interventions. The increases in Hope were found to be bigger for participants of the strengths intervention. Moreover, participating in the strengths intervention showed increases in Resilience but not in the deficiency intervention. In deficiency model, at the other hand, it showed slight decrease in Resilience variable. Researchers explained this discrepancy in findings through the theory —"that is, only becoming aware of and using one's strengths provides individuals with the feeling that they have the necessary personal resources to deal with hardships (Park, 2004) —but not by the assumptions that the interventions induced the participants to focus on developing their PsyCap" (Quinlan et al., 2012, p. 59). However, as indicated in Riolli et al. (2012) study, by studying PsyCap, we are able to understand the way in which students appraise and redefine events as motivational challenges, rather than some debilitating threats directed on them.

In another study, individuals who had been completely mentally healthy had shown higher levels of resilience and goal-formation ability than on any other criterion (Lim et al., 2013). The following characteristics were shown while identifying the survivors of high-risk situations—positive affect, optimism, cognitive flexibility, active coping (including religious coping), social support, intimacy, ability to regulate negative emotions, and mastery (Tuck & Anderson, 2014; Yehuda, Flory, South-wick, & Charney, 2006). This provides bases from the earlier studies that there is a strong association between resilience and other positive psychological constructs examined in the scope of

this study and beyond, i.e., people who are resilient are also believed to be optimistic, hopeful, confident, and flourishing.

In a bigger picture, the core aim of this study was to provide a model that focuses on strengths to predict positive mental health among college students in the universities within the US. Research indicates that this approach has been piloted by few universities. The division of student affairs in the University of Arkansas created the Office of Strengths-Based Initiatives as an extension to their commitment to the success of students and staff members on our campus by stating their mission to "Strengthen Students For Success"(University of Arkansas). The office of strengths-based initiative provides workshops, training, coaching, advising and programming that helps students identify and apply their individual strengths for academic, personal and career success.

Summary

In this chapter, the researcher provides the background to understand how PsyCap framework while applied onto Keyes' theory of mental health, is suggestive of positive contribution to students' mental health. It is believed that college students' individual characteristic—measured by hope, efficacy, resiliency, and optimism within overall life and school domains—fosters their optimal mental health referred as *flourishing*. With this idea, the study provides significant implications to build on psychological strengths and resources within students so that there is a shift from poorer states of functioning toward a sustainable and optimal state of *flourishing* of life (Venning et al., 2011). In the next chapter the methodology and research design of the proposed study would be discussed.

Chapter 3: Methodology

The first two chapters of this manuscript enunciated the purpose and significance of this study. Despite the significant contribution of the scientific field of positive psychology in understanding human behavior, the analysis of previous literature clearly reports limitations and gaps with regard to college student population. Therefore, in order to address the limitations found in the existing body of research on mental health and the positive psychological construct called psychological capital (PsyCap) among college students, the study was developed.

Using positive psychology paradigm, the cross-sectional exploratory study is designed to examine levels of mental health and their relationships with Overall-life (OL) and School-work (SW) psychological capital (PsyCap) among college students. Additionally, the explained variance of mental health by PsyCap dimensions (hope, efficacy, resiliency, and optimism [HERO]) within college students was explored. For a better understanding of the associations between students' mental health (Keyes, 2002, 2003) and their positive PsyCap HERO strengths (Luthans et al., 2007), some additional socio-demographical characteristics of the participants were examined. In this study, the demographic variables were limited to—gender, age, race/ethnicity, sexual orientation, and enrolled degree.

The reminder of this chapter describes the methodology of the study, including the research design, research objectives, variables examined, instrumentation, sampling plan and procedure, participant characteristics, data analysis procedure that will be used in testing each objective of the study.

Research Objectives

The goal of the current research is to empirically test the following research objectives:

1. To describe college students at a large public university in the Midwestern region of the United States based on the following socio-demographic characteristics—
    a. Age
    b. Gender
    c. Race/Ethnicity
    d. Sexual Orientation
    e. Enrolled Degree
2. To describe the level of psychological capital (PsyCap) and mental health of college students at a large public university in the Midwestern region of the United States using their PsyCap scores and mental health scores.
3. a. To explore the relationships between psychological capital and mental health of college students in the studied sample.
   b. To explore the relationship between mental health and socio-demographics of college students in the studied sample.
4. To determine if differences exist in PsyCap of college students whose scores place them in one of three mental health continuum categories (Keyes, 2002, 2009); languishing, moderately mentally healthy, and flourishing.

5. To determine the extent to which PsyCap HERO dimensions within the Overall-life and the School-work categories predict the variability in mental health among college students at a large public university in the Midwestern region of the United States.

Variables Used in the Study

Outcome variables. For the purpose of understanding predictions in this study, mental health is the dependent variable that is conceptualized according to the Keyes' (2002, 2009) Mental Health Continuum (MHC) Model. "Mental health" refers to mental state of emotional, social and psychological well-being on a continuum marked by states of languishing, moderately mentally healthy, and flourishing (Keyes, 2002, 2005). Mental health is assessed using Keyes' Mental Health Continuum- Short Form [MHC-SF] (Keyes, 2009). The three well-being clusters assessed by the MHC-SF (Keyes, 2002, 2009) are emotional well-being, social well-being, and psychological well-being (Keyes, 2002, 2009; Keyes & Waterman, 2003).

Predictor variables. The positive psychological construct of psychological capital [PsyCap] (Luthans et al., 2007) is the primary independent variable that consists of four sub-constructs that are considered as positive psychological resources or strengths—hope, efficacy, resilience, and optimism (referred by the acronym HERO) (Luthans et al., 2007). Luthans et al. (2007, p. 3) define PsyCap as an individual's positive psychological state of development that is characterized by: "(i) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (ii) making a positive attribution (optimism) about succeeding now and in the future; (iii) persevering toward goals and, when necessary redirecting paths to

goals (hope) in order to succeed; and (iv) when beset by problems and adversity, sustaining and bouncing back and beyond (resilience) to attain success." Further, PsyCap in this study is measured using Academic PsyCap Questionnaire (A-PCQ) modified and adapted by Luthans, Luthans, and Jensen (2012). PsyCap score in A-PCQ are assessed using two distinct domains: Overall-life (OL) and School-work (SW), and an overall PsyCap score (Luthans et al., 2012).

Additional variables. Additional variables that are part of socio-demographic information include- (a) age (b) gender (c) race/ethnicity (d) sexual orientation and (f) enrolled degree. Age of the participants were indicated in their actual ages (raw data), which were then grouped into the following categories: (a) 18-22; (b) 23-27; (c) 28-32; (d) 33-37; (e) 38 and above. Gender was a self-reported variable, with options "male", "female", and "others". Race/Ethnicity was a self-reported construct. "African-American", "Asian", "Asian American", "Caucasian", "Hispanic/Latino", "Native American", "Mixed race", and "Others" were the options provided in the survey.

Sexual orientation was yet another self-reported measure that included options such as "Gay", "Lesbian", "Heterosexual", and "Others". Finally, the enrolled degree variable was referring to students' current degree program that they have enrolled in. The options provided were "Undergraduate", "Master's", and "Doctorate" degree. See Appendix N for the predictor and outcome variables, and the interacting dynamics of various variables involved in the study.

Sampling Plan and Procedures

The research context. This quantitative, cross-sectional, survey method test explores mental health and psychological capital, in additional to certain socio-demographic characteristics of college students within graduate and undergraduate programs at a large public university in the Midwestern region of the United States. This particular university is classified as *Research Universities* (high research activity) according to the recent Carnegie Classification (The Carnegie Foundation for the Advancement of Teaching, 2008-2010). The total population of the university during the academic year 2013-14 was reported to be 22,118, with 17,375 undergraduate students and 4,743 graduate students. There were 1,859 international students, which is about 8% of the college student population.

The 2010 Fall enrollment statistics of student enrollment by race shown in the School's Campus diversity records were indicating that 4.5% of students were African American, 1.0% were Asian American, 81.6% were Caucasian, 0.1% were Hawaiian/Pacific, 2.4% were Hispanic, 7.0% were International, 0.3% were Native American and Two-to-More races were 1.8% of the population. Additionally, the statistics about the student population indicates that 7% of the students were non-traditional (over age 24) and that it was predominantly a residential campus. Throughout this study, the name of the institution is de-identified in order to maintain confidentiality of the data.

Population. The target population for this study was undergraduate and graduate students who were 18 and above years, and enrolled in any degree program at the selected Midwestern University.

Sampling procedure. For this study, purposeful convenience sampling method was employed as the study was exploratory in nature. To be able to gather a representative sample, various departments and majors within the university were selected. The researcher selected the classes from online course catalog of the university by keeping in mind to have a blend of students from various colleges and have more representatives of diverse majors. Students of 18 and above years in graduate or undergraduate programs were selected for participating in the study. The students had to be enrolled in full-or-part time courses during the period of the study (fall 2014). Data was collected during the class time with the permission of the class instructor. Because of the data-collection format the researcher was not be able to examine non-response bias (this was accepted limitation given the data collection method).

The nature of this cross-sectional study was "exploratory", as there were not many studies that have examined mental health in conjunction to PsyCap dimensions within a college setting in the Midwestern region of the United States. Necessary sample size was calculated using the standard method—G power (see Appendix G). The total sample size ($N = 338$) of the study met the required level of power. A total of 338 students completed the survey packet and all of them were found to be usable data for analysis. Of the participants, about 70% were enrolled in undergraduate degree programs and the rest 30% in either master's or doctorate.

Age ranged from 18 to 54 years, with majority of them within 18-22 years range. Regarding gender, 54.7% identified themselves as female and the rest 45.3% as male. The racial composition of the population was 78.7% Caucasian, 6.2% African American, 5.0% other non-specified race, 3.3% multiracial, 2.4% Hispanic/Latino, 2.3% Asian, 1.2% Native American, and 0.9% Asian American. Participants were predominantly heterosexual, 94.4%. This indicated that the characteristics of the sample were representative of the overall college student population.

Instrumentation

The data for the study were collected using traditional paper-based testing. Participants responded to the survey items provided to them in a four sections packet: (1) Informed consent, (2) Socio-Demographic Form (3) Academic PsyCap Questionnaire (Luthans et al., 2007), and (4) Mental Health Continuum- Short Form (Keyes, 2009). The A-PCQ instrument developed by Dr. Brett Luthans and his colleagues (2012) required permission to use in the research (see Appendix D). The author Dr. Corey Keyes, the developer of MHC-SF has provided permission in the Keyes (2009) article (see Appendix E). The instruments in this study (sections 3 and 4) were selected based upon their strong psychometric properties, which are summarized below.

Keyes' mental health continuum-short form (MHC-SF). Keyes' Mental Health Continuum-Short Form (MHC-SF; Keyes, 2009) is derived from the MHC-Long Form (MHC-LF; 40 items) and consists of 14 items, wherein the most prototypical items representing each facet of emotional, psychological, and social well-being are compiled (see Appendix B). The dependent variable—Mental health is conceived as individuals'

evaluations or subjective well-being that combines feeling good and functioning well in life, leading an ultimate state of completeness that is described as "flourishing" (Keyes, Dhingra, & Simoes, 2010; Keyes et al., 2012).

These dimensions align with Wellness-Theory of Martin Seligman (2011) as mental health symptomology here is not only defined by hedonia or emotional well-being, but also eudaimonia or positive functioning (Keyes, 2002). Thus, the MHC-SF (Keyes, 2009) represents mental health within two broad domains—emotional well-being (items 1-4) and positive functioning, where the latter includes social well-being (items 4-8) and psychological well-being (items 9-14). The 3 factor structure of this survey—emotional, social, and psychological well-being has been confirmed in nationally represented samples of college students (Keyes, 2009; Robitschek & Keyes, 2009) and in the U.S adult population (Gallagher, Lopez, & Preacher, 2009; Keyes, 2009).

In the MHC-SF, similar to the survey assessment of mental illness (e.g. major depressive episode) according to the DSM criteria, there are categorizations of various levels in mental health that provides unique standard for its assessment (Keyes, 2002). Thus, the response options of MHC-SF measures the frequency (from 'never' to 'every day') with which participants experienced each sign of mental health during the period of last one month (Keyes, 2002, 2009). Individuals with *"flourishing"* mental health need at least have 6 out of 11 signs of positive functioning as "almost every day" or "every day", with at least 1 out of 3 signs of mental health within hedonic emotional well-being domain (Keyes, 2009; Keyes et al., 2012). On the other hand, for an individual who exhibit low levels to be diagnosed with *"languishing"* mental health, there has to be

"never" or "once or twice" in at least one measure of hedonic well-being and at least 6 measures of positive functioning (Keyes, 2009). Subsequently, individuals who neither fall under flourishing or languishing categories are diagnosed with *"moderate"* mental health (Keyes, 2009).

The MHC-SF has been validated (discriminant validity) and has shown excellent internal consistency (> 0.80) in adolescents of 12 through 18 years and adults in the United States (Keyes, 2009). In addition to the U.S, this instrument has been extensively tested-retested for assessing reliability and validity in Netherlands and South Africa population. The three successive three-month periods test-retest reliability of the instrument averaged 0.68, additionally the 9 month test-retest averaged 0.65 (Keyes, 2007; Lamers et al., 2011). Additionally, the test-retest reliability for the Long-Form was over a time period of 4 weeks and estimated as 0.57 for the overall psychological well-being domain, 0.64 for the overall emotional well-being domain, and 0.71 for the overall social well-being domain (Keyes, 2009; Robitschek & Keyes, 2009). Thus, the MHC-SF is an empirically tested, highly reliable and valid instrument to measure positive mental health cross-culturally and over a period of time.

The MHC-SF was created to address the problem of the diagnostic threshold; however it is not a traditional diagnostic tool for mental illness assessment (Keyes et al., 2012). Keyes and his colleagues in a recent study found that languishing college students were more frequently screening positive for generalized anxiety, depression, and panic disorder (Keyes et al., 2012). As mentioned by Keyes (2007, 2013, 2014), MHC-SF can be useful tool in improving the our overall understanding of various outcomes associated

with risks in relation to mental illness, social issues such as suicide and premature death, educational problems such as academic impairment in schools and colleges, and also other health and disability related concerns. Thus, by categorizing mental health in a continuum as flourishing, moderately mentally healthy, and languishing (Keyes, 2002, 2009), this instrument proves to be an ideal outcome measure to use for examining other additional predictors and correlates of mental health among college students.

Academic psychological capital questionnaire (A-PCQ). For measuring psychological capital (PsyCap) variable (Luthans et al., 2007), the Academic PsyCap Questionnaire (A-PCQ) is used in this study (see Appendix A). A-PCQ is the adapted version of the original PsyCap Questionnaire (PCQ) by Luthans et al. (2007). This modified instrument developed by Brett Luthans and his team (2012) was a result of a panel of experts that included the original researchers of the PCQ. A-PCQ measures collective as well as individual psychological construct of hope, self-efficacy, resiliency, and optimism (referred to as "HERO" within; Luthans et al., 2007) for two separate categories- Overall-life (OL) and School-work (SW) (Luthans et al., 2012).

The finalized four positive psychological constructs that met POB criteria were included in the scale; They were the following four constructs- (a) hope (Snyder et al., 1996), (b) efficacy (Parker, 1998), (c) resiliency (Wagnild & Young, 1993), and (d) optimism (Scheier & Carver, 1985). Based on content and face validity, each standardized scale includes 6 items. Wordings were adapted to be state-like, and fit the needs of the workplace setting (for original PCQ) and the college setting (for A-PCQ). The summative score of each individual category (OL & SW) is the overall PsyCap score

of the individual. Confirmatory factor analysis showed that PsyCap was a higher-order, core-positive factor which is indicated by the HERO sub-constructs (Luthans et al., 2007; Luthans et al., 2014). Minimum and maximum scores possible for each HERO dimension may range from 6 to 36. Overall-life PsyCap and School-work PsyCap categories may range from 24 to 144. Finally, the total PsyCap score of students may range from 48 to 288.

This 24-item, self-report questionnaire includes a six-point Likert-like scale for responses, where a six-item scale for each construct drawn from four well-established, existing instruments has been compiled with considerable psychometric support in prior researches and across multiple samples. In order to meet the selection criteria the scale had to demonstrate reliability and construct validity in the published empirical literature, have relevance to workplace (as originally it was organization and management focused), and be capable of measuring the state-like constructs that make up the higher order core construct of PsyCap.

The Crobach's alpha reliability for A-PCQ in the preliminary study with college students was 0.90 (Luthans et al., 2012) and for the study is 0.95. Dr. Brett Luthans, developer of A-PCQ indicates that all the psychometric properties of the instrument remain the same as that of original PCQ (see Appendix D).

Reliability. In calculating reliability estimate for the total PsyCap and each adapted measure from four sample populations, Luthans et al. (2007) found that reliability of the overall PsyCap measure in all samples was consistently above conventional standards (Luthans, Avolio, Avey, & Norman, 2007). The Cronbach alphas

as mentioned in Luthans et al. (2007) were: overall PsyCap (0.88, 0.89, 0.89, 0.89); hope (0.71, 0.75, 0.80, 0.76); efficacy (0.75, 0.84, 0.85, 0.75); resiliency (0.71, 0.71, 0.66, 0.72); optimism (0.74, 0.69, 0.76, 0.79). Internal consistency reliability for optimism and resilience were found to be consistently lower than self-efficacy and hope domains (Dawkins, Martin, Scott, & Sanderson, 2013). However, Luthans believed that this difference is because of the reverse-scored items in resilience and optimism scales that can reduce scale reliability (Schmitt & Stults, 1985).

Discriminant/convergent validity. Youssef and Luthans (2007) report that each of the four constituting positive constructs (HERO) shows empirically based discriminant validity in addition to previous studies of Bryant and Cvengros (2004), Carifio and Rhodes (2002), and Magaletta and Oliver (1999). PsyCap was found to be not related to age or education demographics and personality dimensions of agreeableness or openness (Luthans, Avolio, et al., 2007). However, in the same study, PsyCap was strongly associated to core self-evaluations (0.60) and moderately related to extraversion (0.36) and conscientiousness (0.39).

In the studies with PsyCap, the regression model without the PsyCap composite was found to be significant ($R^2 = 0.13$, $p < 0.001$), however the change in R^2 was also significant ($\Delta R^2 = 0.04$, $p < 0.001$) (Luthans et al., 2007; Luthans, Avolio et al., 2007). This indicated that PsyCap predicted unique variance in job satisfaction which was beyond the two personality traits and core self-evaluations. PsyCap was confirmed to be the greater contributor in predicting affective organizational commitment as the beta weight for PsyCap was largest in the regression model (Luthans et al., 2007).

Criterion validity. Study by Luthans, Avolio et al. (2007) found that PsyCap had a stronger relationship to job satisfaction ($p < 0.01$) than conscientiousness and extraversion, however, not as much as core-evaluations and affective organizational commitment had ($p < 0.001$) with PsyCap. Studies have reported that impact of PsyCap is greater in studies based in the US in comparison to the studies outside of the US (Avey, Wernsing, & Mhatre, 2011). Additionally, PsyCap's impact varied based on the sample, for example, the service industry versus manufacturing industry (Luthans et al., 2007). However, it is empirically validated that PsyCap significantly predicted variances in a wide array of attitudes and behaviors that comprised various demographics characteristics and personality traits (Luthans et al., 2007).

Additionally, the self-ratings of individuals and ratings by supervisors have both shown similar relationship with PsyCap, thus, indicates that source bias is not a concern in measurement (Avey, Reichard, Luthans, & Mhatre, 2011). Therefore, having a quantitative measurement scale such as A-PCQ makes the concept more appealing and beneficial resource for Human Resource managers, technical people, mental health providers, and researchers in higher education to study related outcomes.

Socio-demographic data form. This form (see Appendix C) intended to gather certain demographic information of the participants that are significant for furthering understanding about the constructs being studied. This survey form was constructed to collect salient personal variables that are found in the body of literature to be correlates of mental health and PsyCap to some extent. The items included in this form indicate the

following of individuals- (a) age, (b) gender, (c) race/ethnicity, (e) sexual orientation, and (f) enrolled degree.

Age of the participants were indicated in their actual ages (raw data), which were then grouped into the following categories: (a) 18-22; (b) 23-27; (c) 28-32; (d) 33-37; (e) 38 and above. Gender was a self-reported variable, with options "male", "female", and "others". Race/Ethnicity was a self-reported construct, where "African-American", "Asian", "Asian American", "Caucasian", "Hispanic/Latino", "Native American", "Mixed race", and "Others" were the options provided in the survey. Sexual orientation was yet another self-reported measure that included options such as "Gay", "Lesbian", "Heterosexual", and "Others". Finally, the enrolled degree variable was referring to students' current degree program that they have enrolled in. The options provided were "Undergraduate", "Master's", and "Doctorate" degree. All these demographic information provided a basic characteristic profile of the sample and helped in creating better understanding of the context of the study.

Data Collection Procedures

After the Institutional Review Board (IRB) approval, a list of courses and instructors were created based on the course offerings university catalog. The selection of classes was random and diverse as possible (i.e., different departments, programs, colleges, class levels etc.). Recruitment emails were sent to the selected class faculty in the list. The recruitment email explained the purpose of the study, IRB approval number, time and the procedure required for survey administration. Few of the faculty members were also contacted face-to-face to discuss the purpose of the study. Additionally, data

were collected during the class time with the prior permission of the respective faculty/instructor. Thus, the traditional method of paper-based survey testing proved to be the best method of collecting the data, as it provided credibility and relevance, in addition to assured larger response rate from the target population.

The researcher had a prepared script for debriefing students prior to beginning the administration. Students were informed of the objective of the study—to better understand the relationship between an individual's intrinsic capacities and mental health. Participation would be voluntary and confidential. Moreover, data was collected only after explaining the risks and the benefits involved in the process, and their informed consent to participate in the study. It was assured to the participants that their responses will be reported in aggregate, and will have no impact on their grades. When participants completed responding to the surveys, they placed it (themselves) into the box in order to protect the anonymity. Finally, all students present in the classroom were provided with information on how to access counseling services at the University Counseling Center.

Data Analysis Procedures

After survey administration, participants' responses were entered to the Statistical Package for the Social Sciences (SPSS version 22.0) program, which was used to conduct all data analyses in the study. PsyCap was scored and interpreted based on the instructions in the Psychological Capital Manual purchased from Mind Garden Inc. Similarly, for MHC-SF, scoring and interpretation of results were based on Keyes' (2009) article published online. The syntax for scoring the sub-dimensions of MHC-SF was provided in the published manuscript (Keyes, 2009). The socio-demographic

variables (see Appendix C) also were analyzed using basic descriptive statistics in the SPSS. Preliminary analyses and data screening procedures were executed prior to analyzing the research objectives individually. Outcome (mental health) and predictor (PsyCap) variables were examined for assumptions of normality. Descriptive statistics (including skewness and kurtosis) of the mental health and PsyCap variables are provided in the appendix H. Below is a description of how the data analysis was carried out for each objective:

To analyze the research objective one. The first research objective was to describe college students at a large public university in the Midwestern region of the United States based on the following socio-demographic characteristics— (a) age; (b) gender; (c) race/ethnicity; (d) sexual orientation; and (e) enrolled degree. To describe the sample using socio-demographic characteristics, descriptive statistics were used. All socio-demographics characteristics were analyzed depending on their data type. As objective one was overall descriptive in nature, it was analyzed using basic descriptive statistics in SPSS. Categorical data (gender, age, race/ethnicity, sexual orientation, and enrolled degree) were analyzed using frequencies and percentages. Some of the variables were dummy coded as well.

To analyze the research objective two. The second research objective was to describe the level of psychological capital and mental health of college students at a large public university in the Midwestern region of the United States using their PsyCap scores and mental health scores. To begin with, data was scored and analyzed based on the information provided by the developers of the MHC-SF (Keyes, 2009) and A-PCQ

(Luthans et al., 2012)— the primary testing instruments for the constructs mental health (Keyes, 2002, 2005) and PsyCap (Luthans et al., 2007). Mean and standard deviations were calculated for each sub-dimension and category, including the overall scores for both the scales. Basic descriptive statistics was run in SPSS to give the current level of mental health and PsyCap among college students.

To analyze the research objective three. The research objective three were: (a) to explore the relationships between psychological capital and mental health of college students in the studied sample; and (b) to explore the relationship between mental health and socio-demographics of college students in the studied sample. The relationship between PsyCap dimension scores and mental health scores were analyzed using correlation coefficients. Additionally, using correlation coefficients, the associations between mental health and socio-demographic characteristics of the sample were also measured. In this analysis, PsyCap comprised of scores of both the categories—Overall-life PsyCap score and the School-work PsyCap score, in addition to the total PsyCap score.

On the other hand, mental health includes the three well-being clusters, total mental health continuum score, and the three mental health continuum categories-languishing, moderately mentally healthy, and flourishing. While addressing the second section of this research objective, mental health continuum score and other demographic characteristics (age, gender, race/ethnicity, sexual orientation, and enrolled degree) were analyzed to observe the correlations between them. Relationship between mental health

and other demographics in the correlation matrix was the interest of this objective; therefore, interactions between the socio-demographics are ignored.

To analyze the research objective four. The fourth research objective was to determine if differences exist in PsyCap of college students whose scores place them in one of three mental health continuum categories (Keyes, 2002, 2005, 2009): languishing, moderately mentally healthy, and flourishing. To begin with, Levene's test was used to examine the homogeneity of variance. This aided in examining whether there were serious violations of the assumptions of homogeneity of variance across the groups. A one-way ANOVA was done to compare the mean scores on a PsyCap scale for participants who were grouped to one of the three mental health continuum categories. Specifically, the total PsyCap score, total scores within Overall-life and School-work categories, and PsyCap HERO dimensions were observed to see the differences across each of the mental health continuum categories: languishing, moderately mentally healthy, and flourishing.

To analyze the research objective five. The research objective five was to predict the variability explained by PsyCap in mental health score of individuals. Upon completion of the data preparation for regression analysis, the researcher first analyzed the data for correlation and then the entire model was entered into a stepwise regression. Mental health continuum score (continuous variable of mental health) was entered as the outcome variable and psychological capital dimension scores (HERO) within both Overall-life and School-work categories were entered stepwise into the equation as a

block owing to the exploratory nature of the study. Interactions were not be examined due to limited degrees of freedom. All assumptions of regression analyses were tested.

Summary

This chapter provided a brief overview of procedures, operational definitions of the variables, sampling plan and procedure, and instrumentation used in this research study. The psychometric properties of the two instruments (A-PCQ, Luthans et al., 2012; MHC-SF, Keyes, 2009) utilized in this study were discussed. The method of data collection and data analyses procedures used to test the research objectives of this study was described. The results of the study are reported in chapter four.

Chapter 4: Results and Findings

The primary purpose of this cross-sectional, exploratory study was to examine relationships and predictions that exist between current levels of mental health (Keyes, 2002, 2005, 2009) and psychological capital [PsyCap] (Luthans, Youssef, & Avolio, 2007) among college students as measured by the Keyes' Mental Health Continuum-Short Form [MHC-SF] (Keyes, 2009) and Academic Psychological Capital Questionnaire [A-PCQ] (Luthans, Luthans, & Jensen, 2012). Mental health was measured by MHC-SF and participants were categorized into three groups languishing, moderately mentally healthy, and flourishing (Keyes, 2002). Similarly, PsyCap was measured using A-PCQ (Luthans et al., 2012) and participants were measured for their current level of Hope, Efficacy, Resilience, and Optimism [HERO] (Luthans et al., 2007). The foremost aim of the study was to establish the associations between the studied variables and to test psychological capital as a predictor of mental health. This chapter focuses on addressing the following five research objectives by providing statistical analysis and results. The five research objectives are below:

1. To describe college students at a large public university in the Midwestern region of the United States based on the following socio-demographic characteristics—
    a. Age
    b. Gender
    c. Race/Ethnicity
    d. Sexual Orientation
    e. Enrolled Degree

2. To describe the level of psychological capital and mental health of college students at a large public university in the Midwestern region of the United States using their PsyCap scores and mental health scores.

3. a. To explore the relationships between psychological capital and mental health of college students in the studied sample.

   b. To explore the relationship between mental health and socio-demographics of college students in the studied sample.

4. To determine if differences exist in PsyCap of college students whose scores place them in one of three mental health continuum categories (Keyes, 2002, 2005, 2009); languishing, moderately mentally healthy, and flourishing.

5. To determine the extent to which PsyCap HERO dimensions within the Overall-life and the School-work categories predict the variability in mental health among college students at a large public university in the Midwestern region of the United States.

Data Screening and Preliminary Analyses

The preliminary analyses of the study included an initial review of the integrity and completeness of the dataset through a data cleaning process. There were a few respondents that could be defined as outliers (i.e., had responses more than 3 standard deviations below the mean) but these respondents were not removed because there was no evidence that their low psychological capital scores or low mental health scores were not accurate self-reports (Luthans et al., 2007; Keyes, 2005, 2012).

Furthermore, by including all of the respondents in the analyses, there were negative skews ($G < -0.399$) for the following mental health variables (Keyes, 2002:

emotional well-being, social well-being, and psychological well-being. Similarly, skewness was observed in three dimensions (hope, efficacy, and optimism) within both the categories (Overall-life and School-work) of PsyCap, but not in resilience. The analyses were also run after excluding the outliers, but found no significant difference. Having a large sample size may be the reason of no significant change in the mean scores. Descriptive statistics are provided in Appendix H.

There were no missing values or unusable data in the study as no participants left items unanswered. Therefore, all items were used in the data analysis. No apparent patterns were observed when reviewing individual cases, implying that participants were paying attention to the survey. Data screening was done to decide whether typical assumptions were violated. No assumptions were violated except homogeneity of variance on some variables (for more details, see objective 4). The study incorporated survey method to investigate the variables, due to which there were no assumptions about causation.

The reliability of the survey scales were tested using the Cronbach's alpha. The Cronbach's alpha for the fourteen items in Mental Health Continuum-Short Form (MHC-SF) survey was 0.91. This suggested that the items in MHC-SF have relatively high internal consistency. Furthermore, each clusters of well-being were measured for internal consistency in MHC-SF. The Cronbach's alpha for the emotional well-being (m1, m2, m3) is 0.86. Social well-being (m4, m5, m6, m7, m8) on the other hand has a Cronbach alpha of 0.81. Finally, the psychological well-being cluster (m9, m10, m11, m12, m13, m14) has a Cronbach's alpha of 0.84.

Furthermore, the internal consistency within the A-PsyCap questionnaire for each of the HERO dimensions was: hope (OL 0.80, SW 0.83); efficiency (OL 0.85, SW 0.84); resilience (OL 0.66, SW 0.68); and optimism (OL 0.82, SW 0.77). In other words, the Cronbach's alpha for Overall-life and School-work categories (24 items in each categories) were 0.92. Finally, the total PsyCap score measured by the sum of all the items has a reliability coefficient of 0.95, which was indicative of high internal consistency overall.

Research Objective One

The first research objective was to describe the sample using socio-demographic characteristics. The descriptive of the five socio-demographic variables were analyzed: (a) age, (b) gender, (c) race/ethnicity, (d) sexual orientation, and (e) enrolled degree.

Age. Participants were asked to provide their actual ages, which were then grouped into the following categories: 1) 18-22; 2) 23-27; 3) 28-32; 4) 33-37; 5) 38 and above (see table 1).

Table 1

Age Distribution of College Students in the Studied Sample (N = 338)
Note. $M = 23.33$; $SD = 6.52$

Age in Years	*N*	%
18-22	229	67.8
23-27	62	18.3
28-32	15	4.4
33-37	14	4.1
38 and above	18	5.3

The age of participants ranged from 18 to 54 years. The largest group of respondents was between 18 and 22 years (n = 229, 67.8%). The second largest group was between 23 and 27 years (n = 62, 18.3%). In the sample, there were 18 students of 38 and above years. They contributed to about 5.3% of the student population. The Mean of the sample overall was 23.33 and standard deviation was 6.52.

Gender. Gender was self-reported. The options were "male", "female", and "other". Table 2 shows the distribution of the participants across the variable gender.

Table 2

Descriptive Analysis of Gender Variable in the Studied Sample (N = 338)

Gender	*N*	%
Female	185	55
Male	153	45
Other	None	N/A

In the studied sample with 338 participants, 55% were female (*n* = 185) and 45% were male (*n* = 153). There were no participants who identified as "other" genders.

Race or ethnicity. In this demographic question, participants were asked to indicate their race/ethnic identity. The options were based on the institution's classification of race. The majority of the respondents identified themselves as Caucasians (*n* = 266, 78.7%). The second largest group identified themselves as African

American (*n* = 21, 6.2%). Table 3 illustrates data regarding the race and ethnicity of the respondents.

Table 3

Self-Identified Race/Ethnicity of College Students in the Studied Sample (N = 338)

Race/Ethnicity	*N*	%
Caucasian	266	78.7
African-American	21	6.2
Other non-specified	17	5.0
Mixed race	11	3.3
Hispanic/Latino	8	2.4
Asian	8	2.3
Native American	4	1.2
Asian American	3	0.9

For analysis purposes, the two categories that race were coded were Caucasian or Non-Caucasian. All other races other than Caucasians were collectively grouped into "Non-Caucasians" (*n* = 72, 21.3%). Table 4 shows the two compiled categories of race/ethnicity.

Table 4

Grouped Categories based on the Self-Identified Race/Ethnicity of the Studied Sample

Race/Ethnicity	*N (N = 338)*	%
Caucasian	266	78.7
Non-Caucasian	72	21.3

Sexual orientation. "Gay" or "lesbian", "bisexual", "heterosexual", and "other" were the options that were provided. As seen in Table 5, there were 319 (94.4%) students who identified themselves as heterosexual and the rest of the students reported to be among the other categories such as "bisexual" (2.4%), "lesbian" or "gay" (2.7%), and "other" (0.6%).

Table 5

Self-Identified Sexual-Orientation of College Students in the Midwestern Region of the United States (N = 338)

Sexual Orientation	*N*	%
Heterosexual	319	94.4
Lesbian or Gay	9	2.7
Bisexual	8	2.4
Other	2	0.6

Table 6

Grouped Categories based on the Self-Identified Sexual-Orientation of the studied sample (N=338)

Sexual Orientation	*N*	%
Heterosexuals	319	94.4
Non-Heterosexuals	19	5.6

For the interest of this study and for further analyses, all participants were grouped within the categories of "Heterosexuals" and "Non-Heterosexuals", wherein "Non-Heterosexuals" category (n = 19, 5.6%) included "bisexuals", "lesbian" or "gay", and "others". Table 6 shows the compiled categories of sexual orientation.

Enrolled degree. Students were asked to indicate their current level of degree program. As seen in Table 7, in this study, respondents were categorized with two groups- undergraduates and graduates.

Table 7

Enrolled Degree in the college of the students in the studied sample

Enrolled Degree	Frequency	%
Undergraduate degree	235	69.5
Graduate degree:		
- Master's	68	20.1
- Doctorate	35	10.4

There were 235 (69.5%) undergraduate students and 103 (30.5%) graduate students. Graduate students comprised of students in both Master's degree (n = 68, 20.1%) and Doctoral degree (n = 35, 10.4%).

Summary of sample characteristics. The age of participants ranged from 18 to 54. The results indicated that the more than two third of the respondents were between

the age group of 18-22 years (n = 229, 67.8 %). The second largest group of respondents fell under the age range of 23 and 27 years (n = 62, 18.3%). The majority of the respondents reported their gender as female (n = 185, 54.7%) while the remaining 45.3% (n = 153) of respondents indicated their gender as male. None identified as transgender or other genders. About 79% of the participants identified themselves as Caucasians (n = 266, 78.7%) and the remainder 21.3% (n = 72) of students, classified in this study as "Non-Caucasian, " identified with other races that included African-American, other races, Mixed race, Hispanic/Latino, Asian, Native American, and Asian American.

There were 319 (94.4%) students who identified themselves as individuals with heterosexual sexual orientation, while 19 (5.6%) students identified as non-heterosexual, who identified themselves as bisexual (2.4%), lesbian or gay (2.7%), and others (0.6%). There were 235 (69.5%) students enrolled in undergraduate degree programs and 103 (30.5%) in graduate degree programs. Within the graduate degree group, there were 68 (20.1%) master's students and 35 (10.4%) doctoral students. Appendix O provides a summarized pictorial representation of the sample's significant characteristics.

Research Objective Two

The second research objective seeks to describe the level of psychological capital and mental health of college students at a large public university in the Midwestern region of the United States using their PsyCap scores and mental health continuum scores. This objective focused on describing the current level of PsyCap and mental health of the studied sample using basic descriptive statistics.

PsyCap variables. This objective was analyzed through the calculation of means and standard deviations of the summated scores. There were two categories of the PsyCap scale—Overall-life (OL) and School-work (SW). In both of these categories, four dimensions- Hope, Efficacy, Resilience, and Optimism [HERO] (Luthans et al., 2007)—were assessed. Hope: items 7, 8, 9, 10, 11, 12; Efficacy: items 1, 2, 3, 4, 5, 6; Resilience: items 13R, 14, 15, 16, 17, 18; and Optimism: items 19, 20R, 21, 22, 23R, 24. Items 13, 20, and 23 were reverse scored in both the categories.

Figure 4. Overall-life and School-work PsyCap dimension Scores

In this study, the individual HERO dimension scores were calculated by taking the sum of all the items within each dimension. Thus, this yielded a total of eight PsyCap dimensions.

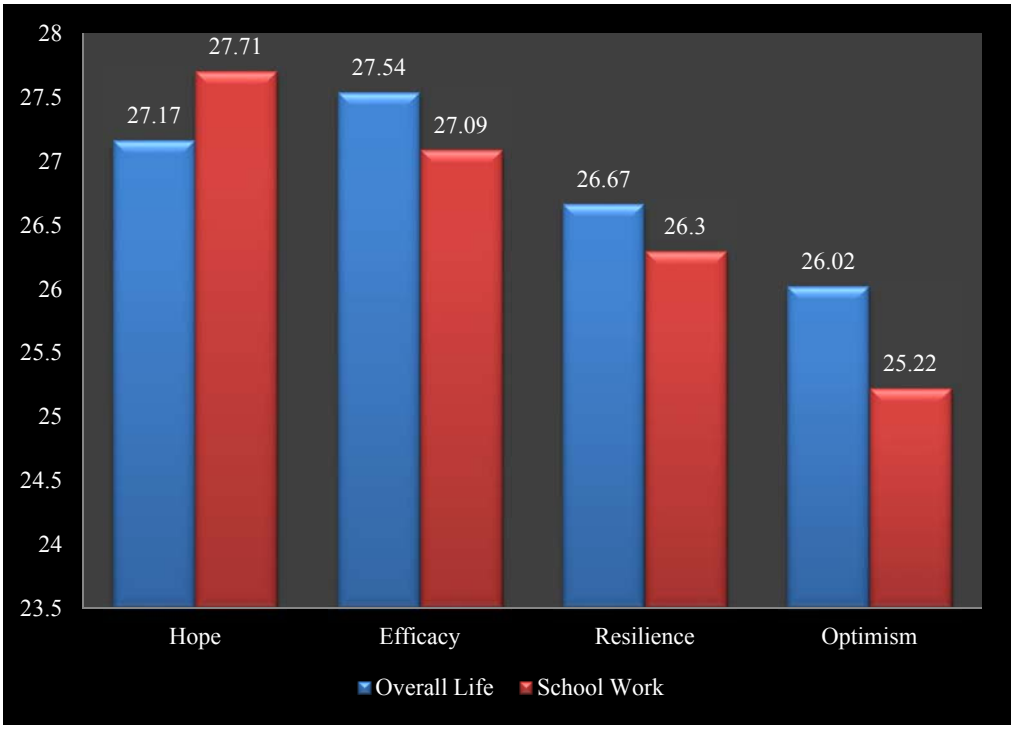


Figure 5. Hope, Efficacy, Resilience, and Optimism within Overall-life and School-work PsyCap dimensions.

Furthermore, the Table 8 provides the individual dimension scores: Overall-life Hope (M = 27.17, SD = 4.75), Overall-life Efficacy (M = 27.54, SD = 5.01), Overall-life Resilience (M = 26.67, SD = 4.15), and Overall-life Optimism (M = 26.02, SD = 5.29). The total Overall-life PsyCap score (M = 107.39, SD = 16.17) was the sum of the dimension (HERO) scores within Overall-life categories. Similarly, as indicated in table 8, the School-work PsyCap score (M = 106.33, SD = 16.09) was the sum total of the individual scores of HERO within the School-work category: School-work Hope, School-work Efficacy, School-work Resilience, and School-work Optimism. Finally, the sum of Overall-life and School-work categories was represented by the total PsyCap score (M = 213.72, SD = 30.23) in the Academic PsyCap questionnaire (A-PCQ).

Table 8

Descriptive Statistics of the Predictor Variable PsyCap and its Dimensions (N = 338)

Variable	*M*	*SD*
Overall-life Category:		
Overall-life Hope	27.17	4.75
Overall-life Efficacy	27.54	5.01
Overall-life Resilience	26.67	4.15
Overall-life Optimism	26.02	5.29
Total Overall-life Score	107.39	16.17
School-work Category:		
School-work Hope	27.71	4.84
School-work Efficacy	27.09	5.09
School-work Resilience	26.30	4.23
School-work Optimism	25.22	2.92
Total School-work Score	106.33	16.09
Total PsyCap Score	213.72	30.23

Dimensions of PsyCap scale has an interpretation based on the construct measured. Higher scores are reflective of higher levels of the construct being measured.

Mental health variables. Table 9 below illustrates the mean scores and standard deviations for each item in the MHC-SF representing respondent's current level of mental health. MHC-SF provided an overall mental health score, three well-being clusters (Keyes, 2002)—emotional well-being (EWB), social well-being (SWB) and psychological well-being (PWB), and three mental health continuum categories (Keyes, 2002, 2009)—languishing, moderately mentally healthy, and flourishing.

Based on Keyes (2009), responses in MHC scale were categorized within three well-being clusters: Cluster 1 comprises of items 1-3 = *Hedonic* or *Emotional* well-being (EWB) with Mean 11.63 and Standard Deviation 5.20; Cluster 2 includes items 4-8 = *Eudaimonic,* Social well-being (SWB). Wherein, item 4 = Social Contribution (M = 3.05, SD = 1.24), item 5 = Social Integration (M = 3.63, SD = 1.36), item 6 = Social Actualization (i.e., Social Growth with M = 2.74 and SD = 1.50), item 7 = Social Acceptance (M = 3.12, SD = 1.32), item 8 = Social Coherence (i.e., Social Interest M = 2.36, SD = 1.47).

Furthermore, the Cluster 3 includes items 9-14 = *Eudaimonic,* Psychological well-being (PWB). Wherein, item 9 = Self-Acceptance (M = 3.77, SD = 1.13), item 10 = Environmental Mastery (M = 3.71, SD = 1.01), item 11 = Positive Relations with Others (M = 3.89, SD = 1.22), item 12 = Personal Growth (M = 3.68, SD = 1.19), item 13 = Autonomy (M = 3.82, SD = 1.09), and item 14 = Purpose in Life (M = 3.81, SD= 1.32). See table 10 for the well-being cluster scores. The highest Mean score is for the item "interested in life" (M = 4.11, SD = 0.92) and the lowest is for the item under social well-being "…that the way our society works makes sense to you" (M = 2.36, SD = 1.47).

Table 9

Mean scores and Standard Deviations for each item in the Mental Health Continuum Scale-Short Form (MHC-SF) (N = 338)

	M	*SD*
1. happy (hedonic)	3.87	0.86
2. interested in life (hedonic)	4.11	0.92
3. satisfied with life (hedonic)	3.65	1.12
4. that you had something imp to contribute to society (Social Contribution)	3.05	1.24
5. that you belong to a community (Social Integration)	3.63	1.36
6. that our society is a good place for all people (Social Actualization)	2.74	1.50
7. that people are basically good (Social Acceptance)	3.12	1.32
8. that the way our society works makes sense to you (Social Coherence)	2.36	1.47
9. that you liked most parts of your personality (Self-Acceptance)	3.77	1.13
10. good at managing the responsibilities of your daily life (Environmental Mastery)	3.71	1.01
11. that you had warm and trusting relationship with others (Positive Relations with Others)	3.89	1.22
12. hat you had experiences that challenges you to grow and become a better person (Personal Growth)	3.68	1.19
13. confident to express your own ideas and opinions (Autonomy)	3.82	1.09
14. that your life had a sense of direction or meaning to it (Purpose in Life)	3.81	1.32

Individuals who exhibited low levels (i.e., 'never' or 'once or twice' during the past month) on at least one measure of hedonic well–being and low levels on at least six measures of positive functioning were diagnosed with languishing mental health (Keyes, 2002, 2009). In the sample, 2.1% (n = 7) of students were categorized as "languishing mental health". On the other hand, based on Keyes (2009) work, individuals were diagnosed with "flourishing mental health" if they experienced 'every day' or 'almost every day' at least one of the three signs of hedonic well–being and at least six of the eleven signs of positive functioning during the past month. Appendix P provides a graph with distribution of sample across mental health categories.

Table 10

Descriptive Statistics of the Outcome Variable Mental Health and its Categories, Clusters and Overall Mental Health Continuum (MHC) Score based on Keyes' Mental Health Continuum Questionnaire (N = 338)

Variable	*N*	%
Mental Health Continuum Category:		
Languishing	7	2.1
Moderately Mentally Healthy	122	36.1
Flourishing	209	61.8
	M	*SD*
Well-being Clusters:		
Emotional Well-Being	11.63	2.59
Social Well-Being	14.89	5.24
Psychological Well-Being	22.69	5.20
Mental Health Score	49.21	11.43

The majority of the participants in this study were categorized into the "flourishing" group (61.8%, $n = 209$). Finally, individuals who are neither were flourishing nor languishing were diagnosed as "moderately mentally healthy" ($n = 122$, 36.1%). Table 10 provides the mental health categorical scores in addition to the overall mental health score. The overall mental health score ($M = 49.21$, $SD = 11.43$) is the sum of three well-being clusters and is a continuous variable measured within the range of 0-70. Figure 6 provides the mean scores of each of the well-being clusters.

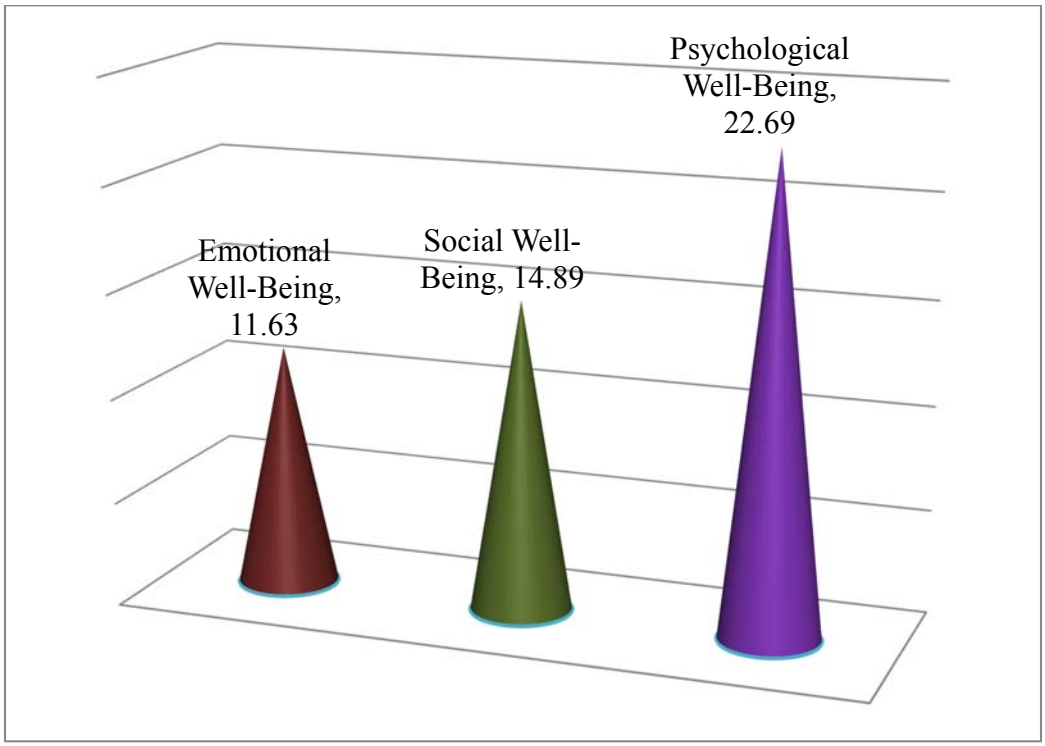
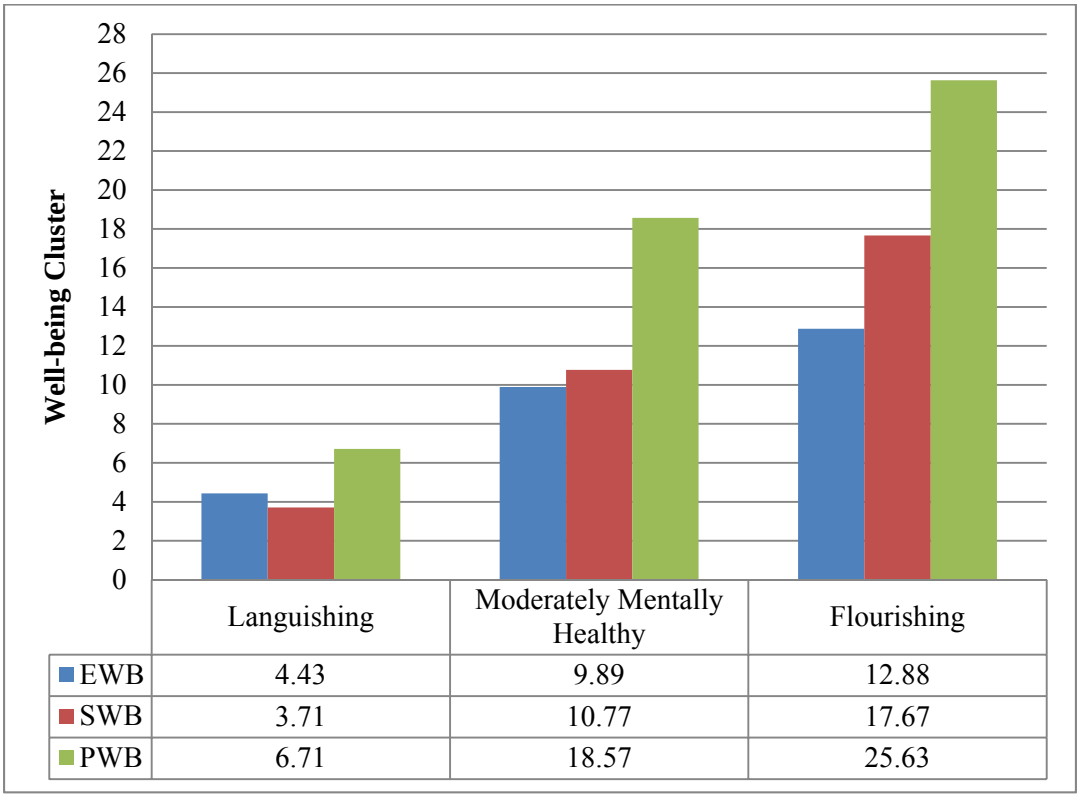


Figure 6. Emotional, Social, and Psychological Well-Being Clusters Scores of Mental Health

As indicated in the Figure 7, the well-being scores differ across the three mental health continuum categories. The psychological well-being cluster compared to other

clusters is higher in all the three mental health categories (EWB $M = 12.88$, SWB $M = 17.67$, and PSW $M = 25.63$). The ANOVA test showed that there is a significant Mean score difference between and among mental health continuum categories on the mental health score variable: $F\ (2, 335) = 379.58$, $p < .001$.



	Languishing	Moderately Mentally Healthy	Flourishing
EWB	4.43	9.89	12.88
SWB	3.71	10.77	17.67
PWB	6.71	18.57	25.63

Figure 7: Classifying Well-being Clusters along the Mental Health Categories.

Furthermore in this study, the categorical version of mental health (mental health continuum categories—languishing, moderately mentally healthy, and flourishing) was used for the purpose of addressing research objective four using ANOVA statistics and the continuous variable (mental health score) was used for the purpose of regression analysis in objective five.

Research Objective Three

Third research objective focused on exploring the relationships between psychological capital and mental health of college students in the studied sample. Additionally, the relationship between mental health and socio-demographics of college students were also explored within this research objective.

Relationship between PsyCap and mental health. The relationship between PsyCap scores (predictor variable) and mental health scores (outcome variable) were analyzed using correlation coefficients. Here PsyCap is comprised of scores of both the categories—Overall-life PsyCap score and the School-work PsyCap score.

Table 11

Zero-Order Correlations for the PsyCap[a] Variables and Mental Health[b] Variables (N=338)

	1	2	3	4	5	6	7	8
1. Overall Life PsyCap	------							
2. SchoolWork PsyCap	.757*	------						
3. Total PsyCap Score	.938*	.937*	------					
4. Emotional Well-Being	.615*	.445*	.566*	------				
5. Social Well-Being	.442*	.342*	.418*	.602*	------			
6. Psychological Well-Being	.647*	.540*	.633*	.713*	.624*	------		
7. Mental Health Score	.636*	.503*	.608*	.827*	.878*	.902*	------	
8. Mental Health Continuum Categories [c]	.514*	.418*	.498*	.673*	.703*	.779*	.829*	---

*. p <0.01 Correlation is significant at the 0.01 level (2 tailed).
[a].PsyCap variables include: Overall Life PsyCap and SchoolWork PsyCap categories, and Total PsyCap Score
[b] Mental Health variable includes: Emotional, Social, and Psychological Well-being clusters, Mental health score, and Mental Health Continuum Categories.
[c] Languishing, Moderately Mentally Healthy, and Flourishing.

Mental health includes the three well-being clusters and the mental health score (Keyes, 2002, 2009). The mental health instrument divides the sample into languishing, moderately mentally healthy, and flourishing categories (Keyes, 2009). See Table 11 for all correlations. There are statistically significant correlations between all of the PsyCap variables and mental health variables (df = 336, $p < .01$). Total PsyCap score is the sum of Overall-life PsyCap and the School-work PsyCap (Luthans et al., 2012). However, total PsyCap score has roughly the same relationship with Overall PsyCap score (r = 0.938, $p < .01$) and the School-work PsyCap score (r = 0.937, $p < 0.01$). Well-being clusters are moderately correlated with the Overall-life PsyCap, School-work PsyCap, and Total PsyCap score. In particular, psychological well-being cluster has slightly stronger relationship with Overall-life PsyCap (r = 0.647, $p < 0.01$), School-work PsyCap (r = 0.540, $p < 0.01$), and total PsyCap score (r = 0.633, $p < 0.01$) compared to emotional well-being and social well-being. Although the relationship between social well-being and School-work PsyCap is statistically significant (r = 0.342, $p < 0.01$), it has the lowest correlation amongst the variables.

Additionally, the correlational matrix in Table 11 also indicated a slightly higher correlation between Total PsyCap score and psychological well-being ($r = 0.633$, $p < 0.01$) compared to the mental health score ($r = 0.608$, $p < 0.01$). However, it should also be noted that psychological well-being has very strong correlation with mental health score ($r = 0.902$, $p < 0.01$). Mental health continuum categories—languishing, moderately mentally healthy, and flourishing—have least association with School-work PsyCap ($r = 0.418$, $p < .01$) and strongest with the mental health score ($r = 0.829$, $p <$

.01). To conclude, we can say that the independent variable of psychological capital and its dimensions are moderately-to-highly correlated with the predictor variables of mental health. The correlational matrix with mental health score and PsyCap dimensions scores-HERO-within each of the categories is provided in Table 12.

Table 12

Correlational Matrix for Mental Health Score and PsyCap Dimension Scores

	1	2	3	4	5	6	7	8	9
1.Mental Health Score	-----								
2. OL- Hope	.532**	--------							
3.OL- Efficacy	.590**	.705**	------						
4.OL-Resilience	.410**	.537**	.617**	--------					
5.OL- Optimism	.584**	.591**	.626**	.572**	------				
6.SW-Hope	.405**	.688**	.593**	.457**	.423**	-------			
7.SW-Efficacy	.420**	.515**	.658**	.403**	.334**	.730**	------		
8.SW-Resilience	.346**	.486**	.528**	.679**	.426**	.625**	.631**	------	
9.SW-Optimism	.515**	.536**	.548**	.529**	.798**	.576**	.553**	.570**	---

Note. OL: Overall-life and SW: School-work
**. Correlation is significant at the 0.01 level (2-tailed).
N = 338

This table also provides a basis for exploring further into the variability in the mental health due to the dimensions of PsyCap (see objective 5) within individuals. The relationship between mental health score and Overall-life Efficacy ($r = .590$, $p < .01$) is the strongest among the other PsyCap dimensional variables. Overall-life Optimism ($r = .584$, $p < .01$) follows Overall-life Efficacy in the strength of the relationship with mental

health variable. Overall-life Hope ($r = .532$, $p < .01$) and School-work Optimism ($r = .515$, $p < .01$) also is statistically significant in relationship with mental health variable.

Other PsyCap variables are moderately related to mental health ($r < .500$, $p < .01$). It should be noted that School-work Resilience ($r = 0.346$, $p < 0.01$) is the least significant in the strength of the relationship with mental health. However, there are ranges of very strong to low statistically significant correlations observed within the PsyCap dimensions. This can indicate the issue of multi-collinearity. However, as there were no serious concerns with regard to multi-collinearity (VIF was less than 2.3), no remedial measures were considered while answering the research objective 5.

Relationship between mental health and socio-demographics. There was no statistically significant correlation between the mental health score and the five socio-demographic variables: gender ($n = 338$, $r = 0.028$, $p = 0.606$), age ($n = 338$, $r = 0.056$, $p = 0.303$), sexual orientation ($n = 338$, $r = -0.013$, $p = 0.805$), race/ethnicity ($n = 338$, $r = -0.068$, $p = 0.209$), and enrolled degree ($n = 338$, $r = 0.001$, $p = 0.989$). The correlation matrix for the dependent variables mental health and socio-demographics used in this study analyses is included in Table 13.

Table 13 indicates few additional correlations— the strongest correlation was found between the variables of age and enrolled degree ($r = 0.695$, $p < 0.01$). Race ($r = 0.257$, $p < 0.01$) and sexual orientation ($r = 0.221$, $p < 0.01$) were moderately correlated with enrolled degree. Age and sexual orientation had similar correlation as race and enrolled degree ($r = 0.257$, $p < 0.01$).

Table 13

Correlational Matrix for Mental Health Score and Socio-Demographics

	1	2	3	4	5	6
1. Mental Health Score	-----					
2. Gender	.028	-----				
3. Age	.056	.093	-----			
4. Race	-.068	.0 41	.180**	-----		
5. Sexual Orientation	-.013	-.049	.257**	.061	-------	
6. Enrolled Degree	.001	.176**	.695**	.257**	.221**	-------

**. Correlation is significant at the 0.01 level (2-tailed).
N = 338

Race correlated moderately with enrolled degree ($r = 0.257$, $p < 0.01$), however, not significant correlation with sexual orientation ($r = 0.061$, $p > 0.01$). Additionally, gender and enrolled degree were least related ($r = .175$, $p < 0.01$), yet statistically significant. This was similar to the correlation of age and race ($r = 0.180$, $p < 0.01$).

Research Objective Four

The fourth research objective was to determine if differences exist in PsyCap of college students whose scores place them in one of three mental health continuum categories (Keyes, 2002, 2005, 2009): languishing, moderately mentally healthy, and flourishing. A one-way ANOVA was done to compare the mean scores on a PsyCap scale for participants who were grouped to one of the three mental health continuum categories. Prior to the analysis, the Levene test for homogeneity of variance was used to examine whether there were serious violations of the assumptions of homogeneity of variance across the groups.

Violations of the assumption of homogeneity were found in the scores for Resilience and Optimism within Overall-life and School-work PsyCap categories. Due to fewer members in the languishing group (n = 7) and higher deviation of scores within this group, it is safe to assume that this relates to heteroscedasticity. There were few significant violations of homogeneity (see Table 14); however, this does not affect the ANOVA tests (Warner, 2012).

Table 14

Homogeneity of Variances for all PsyCap Dimensions and Scores across Mental Health Categories

Test of Homogeneity of Variances				
	Levene Statistic	df1	df2	*p*
Overall-life Hope	12.253	2	335	<.001*
Overall-life Efficacy	7.694	2	335	.001*
Overall-life Resilience	.670	2	335	.513
Overall-life Optimism	.486	2	335	.616
School-work Hope	7.934	2	335	<.001*
School-work Efficacy	5.635	2	335	.004*
School-work Resilience	.002	2	335	.998
School-work Optimism	.722	2	335	.486
Total Overall-life Score	6.778	2	335	.001*
Total School-work Score	4.236	2	335	.015
Overall PsyCap Score	7.662	2	335	.001*

*$p < .01$

Descriptive data of the HERO dimensions within Overall-life and School-work categories are presented in Table 15 and Table 16.

Table 15

Descriptive Statistics of Overall Life PsyCap Categorical Scores within the Mental Health Continuum Categories

Descriptive Statistics					95% Confidence Interval	
	Mental Health Continuum Categories	N	Mean	SD	Lower Bound	Upper Bound
Overall-life Hope	Languishing	7	18.29	9.013	15.080	21.491
	Moderately Mentally Healthy	122	25.29	4.183	24.519	26.055
	Flourishing	209	28.56	4.174	27.973	29.146
Overall-life Efficacy	Languishing	7	18.00	8.185	24.362	25.933
	Moderately Mentally Healthy	122	25.15	4.554	27.142	28.207
	Flourishing	209	29.25	4.160	14.722	21.278
Overall-life Resilience	Languishing	7	21.14	5.014	27.275	28.534
	Moderately Mentally Healthy	122	25.25	3.856	12.846	19.726
	Flourishing	209	27.67	3.911	24.557	25.951
Overall-life Optimism	Languishing	7	16.29	5.559	63.428	84.001
	Moderately Mentally Healthy	122	23.35	4.867	96.577	101.505
	Flourishing	209	27.90	4.451	111.510	115.275
Overall-life Score	Languishing	7	73.71	25.369	24.519	26.055
	Moderately Mentally Healthy	122	99.04	13.511	28.654	29.853
	Flourishing	209	113.39	13.548	15.080	21.491

Table 16

Descriptive Statistics of School-work PsyCap Categorical Scores within the Mental Health Continuum Categories

Descriptive Statistics					95% Confidence Interval	
	Mental Health Continuum Categories	N	Mean	SD	Lower Bound	Upper Bound
School-work Hope	Languishing	7	18.86	9.063	10.48	27.24
	Moderately Mentally Healthy	122	26.40	4.585	25.58	27.22
	Flourishing	209	28.78	4.305	28.19	29.36
School-work Efficacy	Languishing	7	17.86	8.375	10.11	25.60
	Moderately Mentally Healthy	122	25.40	4.787	24.54	26.26
	Flourishing	209	28.39	4.507	27.77	29.00
School-work Resilience	Languishing	7	20.86	3.891	17.26	24.46
	Moderately Mentally Healthy	122	25.25	4.022	24.53	25.97
	Flourishing	209	27.10	4.106	26.54	27.66
School-work Optimism	Languishing	7	15.86	5.242	11.01	20.70
	Moderately Mentally Healthy	122	23.16	4.185	22.41	23.91
	Flourishing	209	26.74	4.525	26.12	27.35
School-work Score	Languishing	7	73.71	25.369	50.25	97.18
	Moderately Mentally Healthy	122	99.62	13.511	96.62	101.46
	Flourishing	209	113.39	13.548	111.54	115.24

To provide clear understanding, figure 8 represents the graph that compares the total PsyCap score across the three mental health categorical groups- languishing, moderately mentally healthy, and flourishing

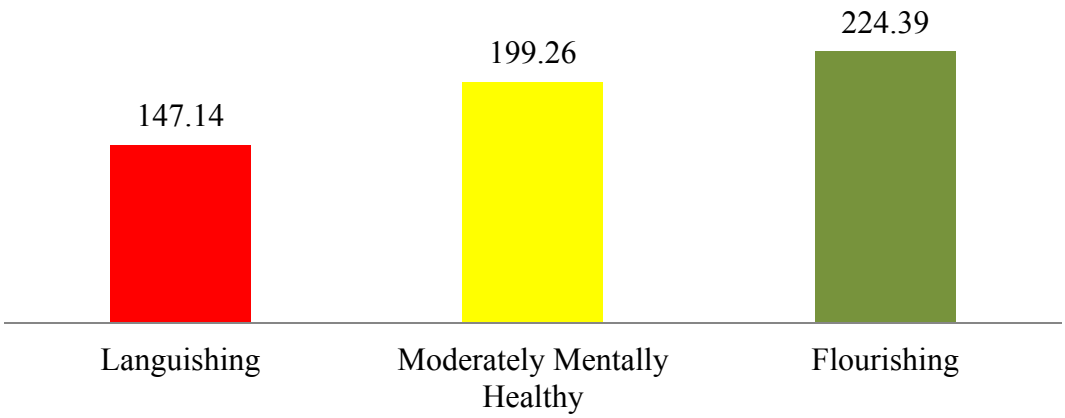


Figure 8: Comparing Mean Total PsyCap Score across Mental Health Categories.

Additionally, the table 17 shows descriptive statistics such as mean and standard deviation of PsyCap across the mental health categories. The mean (and standard deviation in parentheses) for group 1- Languishing was 147.14 (48.670), the mean (S.D.) for group 2- Moderately Mentally Healthy was 199.26 (24.538), and the mean (S.D.) for group 3-Flourishing was 224.39 (226.00).

Table 17

Mean and Standard Deviations of PsyCap Scores across the Mental Health Continuum Categories

Mental Health Continuum Categories	*Group 1, Languishing*	*Group 2, Moderately Mentally Healthy*	*Group 3, Flourishing*
M	147.14	199.26	224.39
(SD)	(48.670)	(24.538)	(226.00)
N	7	122	209

Additionally, for better understanding of the group difference among PsyCap categories, figure 5 illustrates the comparative positions of Overall-life PsyCap and School-work PsyCap categories across the three mental health dimensions. This result show that both the languishing (M = 73.71) mental health category and flourishing (M = 113.39) mental health category were found to have higher Overall Life PsyCap compared to the PsyCap in School-work category. The Appendix I for supplementary Error Box chart the shows means for mental health/ PsyCap data with 99% confidence intervals for each group mean.

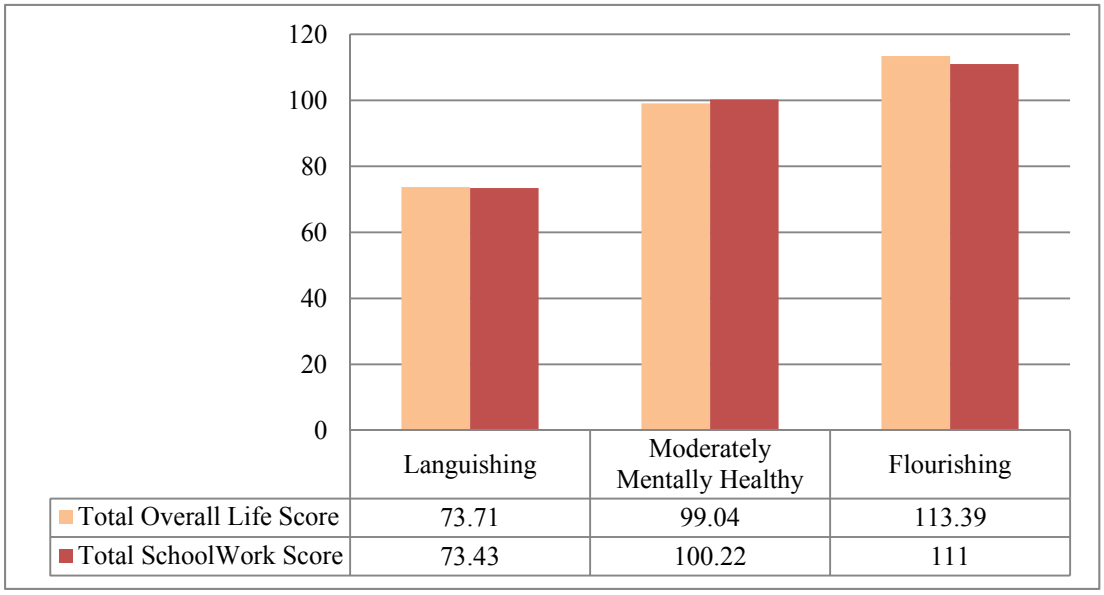


Figure 9: Comparing Total Overall-life Score and Total School-work Score vs. Mental Health Categories.

As shown in Table 18, scores of PsyCap HERO dimensions and categories differs significantly across the mental health categories.

Table 18

Analysis of Variance for Mental Health Categories and individual dimensions of PsyCap variable.

	Variation	*SS*	*Df*	*F*
Overall-life Hope	Between Groups	1388.832	2	37.353*
	Within Groups	6227.890	335	
	Total	7616.722	337	
Overall-life Efficacy	Between Groups	1949.096	2	50.143*
	Within Groups	6510.904	335	
	Total	8460.000	337	
Overall-life Resilience	Between Groups	669.366	2	21.848*
	Within Groups	5131.856	335	
	Total	5801.222	337	
Overall-life Optimism	Between Groups	2273.496	2	53.102*
	Within Groups	7171.359	335	
	Total	9444.855	337	
School-work Hope	Between Groups	994.555	2	24.176*
	Within Groups	6890.607	335	
	Total	7885.163	337	
School-work Efficacy	Between Groups	1296.372	2	29.265*
	Within Groups	7419.784	335	
	Total	8716.157	337	
School-work Resilience	Between Groups	474.742	2	14.315*
	Within Groups	5554.870	335	
	Total	6029.612	337	
School-work Optimism	Between Groups	1610.253	2	41.228*
	Within Groups	6542.105	335	
	Total	8152.358	337	
Total Overall-life Score	Between Groups	23972.398	2	62.613*
	Within Groups	64130.051	335	
	Total	88102.450	337	
Total School-work Score	Between Groups	16688.149	2	39.642*
	Within Groups	70512.739	335	
	Total	87200.888	337	
Total PsyCap Score	Between Groups	80333.567	2	59.095*
	Within Groups	227698.291	335	
	Total	308031.858	337	

*p is significant at 0.001 level ($p < 0.001$)

Specifically, emphasis as seen in table 18 is on the fact that there is a statistically significant difference in PsyCap total score by the mental health categorization as

determined by one-way ANOVA F (2, 335) = 59.095, $p < .001$, $\eta^2 = 0.3528$. This (large) effect size corresponded to about 35.28% of the variance in PsyCap scores. Thus, indicating that variables of PsyCap are predictable based on the type of mental health categorical membership of the students.

All possible pairwise comparisons were made using the Tukey HSD and LSD tests (see Appendix R). The mean differences of the mental health categories on PsyCap variables were statistically significant while carrying out multiple comparisons in Post Hoc test at an alpha level of 0.05. See Appendix Q for HERO dimensions in Overall-life and School-work categories of PsyCap across three mental health categories. To conclude, it was found that all three mental health categories were different on PsyCap.

Research Objective Five

The fifth and final research objective was to determine the extent to which PsyCap HERO dimensions within the Overall-life and the School-work categories predict the variability in mental health among college students at a large public university in the Midwestern region of the United States. This research objective focuses on determining if a model exists which would explain a significant portion of the variance in mental health as measured by the mental health score due to the PsyCap dimensions (HERO) within Overall-life and School-work categories. Respondents' scores from the three well-being clusters are summed up to obtain the overall mental health score and utilized as the dependent variable in the regression equation.

As stepwise multiple regression analysis establishes "which subset of a group of predictors may be used to predict some criterion" (Keith, 2006, p. 95), this method was

selected to address research objective 5. For running regression analysis, PsyCap dimension scores are considered as predictors for explaining the variance in the outcome variable—mental health score. Thus, stepwise multiple regression is used to select the best model for predicting college students'' mental health score (dependent variable) using the following independent variable: (a) Overall-life Hope, (b) Overall-life Efficacy, (c) Overall-life Resilience, (d) Overall-life Optimism, (e) School-work Hope, (f) School-work Efficacy, (g) School-work Resilience, and (h) School-work Optimism.

As a first step, a bivariate Pearson product moment correlation was undertaken between the mental health score (dependent variable) and the PsyCap dimension variables to evaluate their placement into the regression model as additional independent variables. Table 12 shows the correlation matrix. The variable whose correlation with the dependent variable was least significant or not statistically significant was intended to be dropped from further regression analysis. It was observed that no PsyCap variables were excluded from entering into the model as they were statistically significant and strong in relationship with mental health.

Prior to running the regression analyses, variables were examined for potential problems with multicollinearity, which according to Keith (2006) occurs when several independent variables correlate at an excessively high level with each other (p. 199). Several diagnostic checks for collinearity suggested by Hair, Anderson, Tatham and Black (1998) were undertaken (see Appendix K & M). An examination of the correlation matrix for independent variables revealed some high correlations among PsyCap dimension variables and the dependent variable.

Table 19

Showing the Non-Parametrics: One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		338
Normal Parameters [a,b]	Means	.000
	SD	8.543
Most Extreme Differences	Absolute	.049
	Positive	.029
	Negative	-.049
Test Statistic		.049
Asymp. Sig (2-tailed)		.050 [c]

Note. a. Test distribution is normal
b. Calculated from data
c. Lilliefors significance correction

As part of the stepwise regression analysis, standard diagnostic procedures were conducted to detect outliers, influential cases, violations of test assumptions, and multicollinearity. After examining the diagnostics of the studentized residuals and studentized deleted residuals, it appears that there were outliers, but there were no influential cases. The sample appeared to be normally distributed (see Appendix L). The one-sample Kolmogorov-Smirnov was not significant ($p = .05$), which means the assumption of normality of the residuals was not violated (see Table 19). Additionally, the errors appeared to not violate the assumption of homoscedasticity. No other problems were detected, including multicollinearity (tolerance < .2; VIF < 4).

However, a look at the Variance Inflation Factor (VIF) and the tolerance values indicated no significant presence of collinearity problems when PsyCap dimensions scores were entered in the regression model. VIF of all the dimensions were lesser than 2.3, which according to Keith (2006) is not an issue. Thus, in regression analysis all PsyCap variables were entered stepwise as one block and with the mental health score entered as the dependent variable. Therefore, the table 20 summarizes the individual regression coefficients for the three models resulting from the regression analysis.

Table 20

Summary of Stepwise Multiple Regression Analysis for Variance Predicting Mental Health Score (N = 338.)

Variable	*B*	*SE B*	β	*t*	p^a	*VIF*
Step 1						
Overall-life Efficacy	1.346	.100	.590	13.400	.000	1.000
Step 2						
Overall-life Efficacy	.843	.121	.369	6.949	.000	1.644
Overall-life Optimism	.762	.115	.353	6.633	.000	1.644
Step 3						
Overall-life Efficacy	.673	.143	.295	4.721	.000	2.298
Overall-life Optimism	.690	.119	.320	5.824	.000	1.773
Overall-life Hope	.324	.145	.135	2.232	.026	2.147

Note. Regression model excluded variables were Overall-life Resilience, School-work Hope, School-work Efficacy, School-work Resilience, and School-work Optimism.
[a].05 Alpha Level for the Two-Tailed Test of Significance

As Keith (2006) writes, researchers also must not ignore the magnitude of effects when reporting statistical significance in regression analyses. The value of β, therefore, is listed among the regression coefficients. Using Keith's (2006) guidelines for judging the magnitude of effects we can say that β below 0.05 are too small to be considered meaningful. A β above .05 but less than 0.10 are small, but meaningful. Also, β from 0.10 to 0.25 are considered moderate and above 0.25 are considered large. In this study, an evaluation of the β values for variables in the regression models was important for interpreting the effect sizes of the variables which are statistical significance in predicting mental health. A linear combination of three out of eight PsyCap variables yielded the best model in predicting mental health score- Overall-life Efficacy, Overall-life Optimism, Overall-life Hope, $R^2 = 0.432$, F (3, 334) $= 84.822$, $p < .001$ (see Table 21).

Table 21

Model Summary for Stepwise Multiple Regression Analysis for Variables Predicating Mental Health Score[d] (N = 338)

Model	R	R^2	Adj. R^2	R^2 Δ	F	*p*
Model 1	.590[a]	.348	.346	.348	179.570	< 0.05
Model 2	.651[b]	.424	.421	.076	44.003	< 0.05
Model 3	.658[c]	.432	.427	.008	4.980	< 0.05

a. Predictors: (Constant), Overall-life Efficacy
b. Predictors: (Constant), Overall-life Efficacy, Overall-life Optimism
c. Predictors: (Constant), Overall-life Efficacy, Overall-life Optimism, Overall-life Hope
d. Dependent Variable: Continuous score on MHC (0 to 70 range)

There were large effect sizes for Overall-life Efficacy (β = 0.295) and Overall-life Optimism (β = 0.320), however, a moderate effect size for Overall Hope (β = 0.135). The adjusted R^2 for the model was 0.427, indicating that the three PsyCap variables combined to account for about 43% of the variance in mental health score. There were some variables that were excluded from being entered into the model. They were the Overall-life Resilience and four School-work PsyCap HERO variables.

Table 22

Excluded Variables, Standardized Coefficients, t Values, Significance Levels, and Partial Correlations for the Regression Equation Predicting Mental Health [a] score.

Variable	Beta In	*t*	*p*	Partial Correlation
Overall-life Resilience	-.049	-.883	.378	-.048
School-work Hope	.004	.077	.939	.004
School-work Efficacy	.091	1.643	.101	.090
School-work Resilience	-.016	-.324	.746	-.018
School-work Optimism	.073	1.061	.289	.058

Note: Predictors in the Model: Overall-life Efficacy, Overall-life Optimism, Overall-life Hope
[a] Dependent Variable: Continuous of MHC-SF

Finally, the variables excluded from the regression equation and their corresponding t values and significance levels are illustrated in Table 22. See Appendix J to find regression graphs for all eight PsyCap variables.

Summary

In this chapter, the researcher reviewed the results of a cross-sectional study of 338 college students from a Midwestern region of the United States that aimed to evaluate the role of PsyCap in the prediction of mental health. A series of robust statistical analyses were conducted to address the research objectives. Based on Keyes' (2002, 2005) Mental Health Continuum model, more than two-thirds of the respondents were classified as being flourishing (61.8%), with the remainder being classified along the continuum as being moderately mentally health (36.1%) and languishing (2.1%).

Overall-life PsyCap score was slightly higher than School-work PsyCap score, and this in turn indicated strong relationship with the total PsyCap score and well-being clusters of Mental Health Continuum scale. Further, analysis of variance data revealed that PsyCap differed significantly by mental health categories—languishing, moderately mentally healthy, and flourishing ($p < 0.001$). In all between group post hoc comparisons, the mean cores of participants who were categorized as "flourishing" were significantly higher than the mean scores for participants who were categorized as "moderately mentally healthy." Likewise, those who were categorized as "moderately mentally healthy" had mean scores that were significantly higher than the mean scores of those who were categorized as "languishing."

In exploring the relationships between mental health and PsyCap, mental health score (a weighted composite of item scores from Keyes' MHC-SF instrument) was used as a continuous variable. Therefore, for stepwise multiple regression analysis, PsyCap the eight HERO dimensions within Overall-life and School-work categories were included.

The regression analysis confirmed that nearly 43% of the variance in mental health score of college students can be predicted by the most significant predictors of PsyCap variable—Overall-life Efficacy, Overall-life Optimism, and Overall-life Hope (in the order of their effect sizes). Thus, the results reflect that higher the optimism, efficacy and hope of college students, the more likely they were to enjoy positive mental health.

Based on the relationships of mental health, positive PsyCap, and various demographic elements, this study proposed interventions and strategies that may be used by higher education professionals and mental health providers while working with college students in Chapter 5. The chapter that follows therefore provides a thorough discussion of these findings within the context of previous research regarding PsyCap and mental health, acknowledges several limitations, discusses cautious implications, and concludes with recommendations for the future direction of research focusing on the promoting positive mental health of counseling students and professional counselors.

Chapter 5: Discussion, Implications, and Recommendations

The increase in the prevalence of mental illness among college students, and treatment inadequacies on college campuses has been of concern to higher education administrators, college student personnel, mental health professionals, faculty and researchers, and the public at large in recent years (Benton, Robertson, Tseng, Newton, & Benton, 2003; Kadison & DiGeronimo, 2004). The predominant discourse has revolved around psychopathology, clinical diagnoses, associated risks factors, and treatment options. However, the evolving field of positive psychology instigates the "pursuit of complementary scholarship on healthy, adaptive features of human functioning" (Ambler, 2006, p.32). It is argued that people who are functioning at an optimal level; those who are emotionally, socially, and psychologically flourishing have so much to offer to others (Keyes & Haidt, 2003).

There is a need for further empirical research investigating factors that distinguish individuals who flourish and function on an optimal level from those who are limited in their functioning (Lyubomirsky & Abbe, 2003). Numerous studies have shown that positive psychological strengths and resources that are inherent within individuals aid in achieving higher levels of functioning and affect (Keyes, 2014; Avey, Luthans, & Jensen, 2009). Drawing from positive psychology constructs and empirical research, the four psychological strengths that best fit the POB criteria were- hope, efficacy, resilience, and optimism (Luthans, 2002a; Luthans et al., 2007). This was termed *psychological capital* or PsyCap by Luthans and colleagues (Luthans, Youssef, & Avolio, 2007). Because PsyCap significantly predicts positive workplace outcomes and performances, this study

explored the extent to which PsyCap could be applied to the college setting, using PsyCap to predict the mental health of college students measured on Keyes' mental health continuum (2002, 2005). In particular, this study examined the mental health and PsyCap of undergraduate and graduate level college students at a mid-sized, selective, public university in the Midwest region of the United States. Beyond describing the sample with regard to socio-demographics, PsyCap and mental health variables, the study explored relationships, variability and the best predictive model utilizing statistical analyses. Findings of this study could help institutions to determine levers or interventions to promote psychological strengths and positive mental health.

Constructs and Dimensions Discussed

Socio-demographics that were explored in this study were gender, age, race/ethnicity, sexual orientation, and enrolled degree. These characteristics were helpful in describing the sample. Keyes' (2009) Mental Health Continuum –Short Form (MHC-SF) questionnaire measured current level of mental health of college student participants on a Likert-type scale which asked about their subjective sense of personal well-being in three distinct areas (Keyes, 2002, 2009): (a) emotional well-being, (b) social well-being, and (c) psychological well-being. The weighted sum of all items measuring the well-being clusters provided a continuous variable - the "mental health score," which was considered as the dependent variable and ranged from 0-70 (Keyes, 2009). However, the mental health of participants was also identified based on one of three diagnostic criteria categories—languishing, moderately mentally healthy, and flourishing.

The 24 item, Academic PsyCap questionnaire used Likert-type scale items measuring Hope, Efficacy, Resilience, and Optimism within two broad domains—Overall-life and School-work. The total PsyCap score was derived by summing both the PsyCap categories, and represented participants' current level of comprehensive PsyCap index. The continuous variable for mental health allowed for more sophisticated multiple regression analyses in determining which PsyCap dimension variables best predicted mental health.

Objectives of the Study

The primary purpose of this study was to understand the relationship between Psychological Capital and mental health of college students in the Midwestern region of the United States. Specifically, the study addressed the following objectives:

1. To describe college students at a large public university in the Midwestern region of the United States based on the following socio-demographic characteristics—
    a. Age
    b. Gender
    c. Race/Ethnicity
    d. Sexual Orientation
    e. Enrolled Degree
2. To describe the level of psychological capital and mental health of college students at a large public university in the Midwestern region of the United States using their PsyCap scores and mental health scores.

3. a. To explore the relationships between psychological capital and mental health of college students in the studied sample.

   b. To explore the relationship between mental health and socio-demographics of college students in the studied sample.

4. To determine if differences exist in PsyCap of college students whose scores place them in one of three mental health continuum categories (Keyes, 2002, 2009): languishing, moderately mentally healthy, and flourishing.

5. To determine the extent to which PsyCap HERO dimensions within the Overall-life and the School-work categories predict the variability in mental health among college students at a large public university in the Midwestern region of the United States.

Report on Procedures and Methods

The study focused on college students in both undergraduate and graduate level programs in a mid-sized, public university located in the Midwestern region of the United States. After obtaining approval from the university Institutional Review Board (IRB) the researcher administered the survey packets using the traditional paper-test method. The survey packet comprised of consent form, socio-demographic survey, Academic-PsyCap questionnaire (A-PCQ) and Keyes' (2009) Mental Health continuum-Short Form (MHC-SF), in addition to a copy of debriefing note with information on counseling and psychological assistance available on campus.

The instruments in total had 36 items. A total of 338 college students participated in this research study and provided 100% response rate. Students were provided with information on the background of the study and their role as participants in the study.

They were encouraged to attend to all the items and ask clarifying questions if any during the process of completion. The researcher aimed to include a representative sample by collecting data from different colleges and departments within the university from undergraduate and graduate college students.

Discussion and Conclusion of Major Findings

Research objective one. *To describe college students at a large public university in the Midwestern region of the United States based on the following socio-demographic characteristics: (a) age; (b) gender; (c) race/ethnicity; (d) sexual orientation; and (e) enrolled degree.*

The university where the study was conducted had predominantly students of White/Caucasian (79%) racial background and also had more female students (51%) than male students in the University. According to the data from the university, there were more undergraduate students than master's and doctoral students combined. This also indicated that most of them were traditional-aged (undergraduate) students (age < 21 years) as reflected in the study. Furthermore, the majority of the students in the study were heterosexual. The sample appears to be representative of the overall student population in the university with regards to socio-demographics of age, gender, race, sexual orientation and enrolled degree. Overall, the socio-demographic characteristics of the sample of the study were seen as being consistent with other studies that measured PsyCap (Luthans, Luthans, & Jensen, 2012) and mental health of college students (Keyes, 2007; 2009, 2014).

Research objective two. *To describe the level of Psychological Capital and Mental Health of college students in a large public university in the Midwestern region of the United States using their PsyCap dimension scores and Mental Health scores.*

Some of highlights of the results reported while addressing this research objective are:

Psychological capital. On whole, the sample had a very high level of PsyCap on all the four individual HERO dimensions within the Overall-life category. Additionally, the PsyCap Efficacy dimension was the highest psychological strength, closely followed by the Hope PsyCap dimension in the Overall-life category of the sample. Scores on the construct Resilience was the lowest among the four positive strengths that are exhibited in life of students within this sample. The School-work PsyCap category was the sum of School-work Hope, School-work Efficacy, School-work Resilience, and School-work Optimism.

Here, the Means on the School-work category HERO dimensions from highest to lowest were Hope, Efficacy, Resilience, and Optimism. Scores slightly vary between Overall-life and School-work categories. The School-work Optimism was slightly lower than that of the Overall-life Optimism, as opposed to the School-work Resilience that remains lower than the Overall-life Resilience. The total PsyCap (M = 213.72, SD = 30.23) of college students, calculated as the sum of Overall-life PsyCap and School-work PsyCap, indicated a higher level of PsyCap overall. The maximum possible score of total PsyCap was 240. This suggests that students in the selected Midwestern university have

greater levels of hope, efficacy, resilience, and optimism within their school and life in general.

Mental health. The respondents were grouped into one of three mental health continuum categories (Keyes, 2002, 2009). The majority of the participants in this study were in the category of flourishing (61.8%, $n = 209$), while 36.1% ($n = 122$) were moderately mentally healthy and 2.1% ($n = 7$) were in the category of languishing. Contrary to the earlier studies (Keyes, 2002, 2006; Peter et al., 2011), findings of this study suggest that the proportion of students who exhibited optimal mental health and well-being (flourishing) were almost two-thirds (61.3%) of the sample.

The prevalence rate of flourishing students was higher than the studies conducted by Keyes' (2002, 2006) and Peter, Roberts, and Dengate (2011). However, the number of students categorized as languishing were consistent with these prior studies (i.e., lower than other two categories). One possible reason for a higher number of flourishing students in the current sample could be that participants were older than those in Keyes' (2006) study on 12-18 year olds, and considerably younger than the middle-aged participants in Keyes' (2002) research.

The mental health score was the weighted sum of all items in the scale ($M = 49.21$, $SD = 11.43$), and provided a continuous variable of mental health ranging from a minimum of 0 to a maximum of 70. The Mean score of the sample (49.21) indicates that individuals scored in the upper third on the mental health. Additionally, based on the item scores, three clusters of well-being were determined—emotional well-being ($M = 11.63$), social well-being ($M = 14.89$), and psychological well-being ($M = 22.69$).

As expected, the participants in the flourishing mental health category had higher emotional, social, and psychological well-being (Keyes, 2002, 2009), than those in the languishing and moderately mentally healthy categories. However, among all the three Keyes' (2002) mental health continuum categories (flourishing, moderately mentally health, and languishing), specifically, psychological well-being was found to be higher compared to the other three well-being clusters. Overall emotional well-being was lower than both overall social and psychological well-being, contrary to Keyes' (2013) study with adolescents (12-18 years). Thus, as suggested by Keyes (2013), improving the positive mental health of individuals has to address the deficit of emotional well-being.

Research objective three. (*3a). To explore the relationships between psychological capital and mental health of college students in the studied sample. (3b). To explore the relationship between mental health and socio-demographics of college students in the studied sample.*

Relationships between scores for mental health, well-being clusters, categories of mental health and eight dimensions of PsyCap were determined by examining the correlations between those variables. Additionally, the correlations aided in responding to the third research objective that evaluated the relationship between the socio-demographic characteristics of the students and their mental health score. Determining these relationships was crucial for this study as they provided bases for building predictions and implications. Although determining the relationship between various variables under demographics was not a primary aim of the study, they were explored in conjunction with the outcome variable- mental health.

Relationship between PsyCap and mental health. The highlight of the relationship between the dimensions and categories of PsyCap and mental health are described below:

Psychological well-being and other constructs. It was found that students' psychological well-being had slightly stronger relationship with PsyCap in Overall-life domain than in School-work domain. As expected, there was a strong correlation between psychological well-being and mental health score ($r = .902$, $p < .01$). However, it was interesting to note that students' total PsyCap had stronger associations with their psychological well-being compared to their overall mental health score. Previous studies of Keyes (2005) show that while considering mental health as an outcome variable, significant relationships have been found with resilience, goals (similar to Hope in this study), and perceived helplessness (opposite of Optimism in this study). Additionally, the core construct of PsyCap (in specific the Overall-life PsyCap) showed strong associations with psychological well-being. Thus, it is important to study more about the aspects of psychological well-being of the college students.

In the literature, we find that psychological well-being is an operationalized construct of individuals that primarily focuses on the challenges encountered in their personal lives (Keyes, 2012). The college students sample within the study have the six dimensions of psychological well-being incorporated into their lives: "a positive evaluation of oneself and one's past life, a sense of continued growth and development as a person, the belief that one's life is purposeful and meaningful, the possession of quality relations with others, the capacity to manage effectively one's life and surrounding world,

and a sense of self-determination" (Keyes, 2013, p. 8). Due to the strong association between the Overall-life PsyCap and psychological well-being, development of PsyCap within the category of Overall-life can be seen to impact the psychological well-being in a positive way among individuals.

School-work PsyCap dimension and social well-being. On the other hand, the relationship between social well-being and School-work PsyCap, while statistically significant showed the lowest correlation ($r = .342$, $p < .01$). In other words, social well-being is observed to be significantly correlated with the School-work PsyCap of individuals, even though the strength of this association is the weakest among all interactions. Therefore, this indicates that although significant associations exist between one's social life and School-work HERO dimensions, it is not as strong as other interacting relationships. School-work can also be seen as a subset of other aspects of life that contributes to a person's overall mental health. This serves as a reminder that by using a holistic perspective, we can understand students as individuals beyond the "school".

The associations between social well-being and School-work may also be explained by the fact that majority of the students within the university are residential and in a college-age group. There are more pressures/demands about their School-work which may result in lower opportunity of reaching out to people or be involved in social activities (Ambler, 2006). This might also be attributed to the reality that being on a residential campus, respondents are likely to have less variability than people living independently (i.e., residential campus and a college town). Therefore, Ambler suggests

that engagement of students in various college-level activities beyond School-work can help in developing social well-being of students and overall impact their School-work PsyCap.

Efficacy HERO PsyCap dimension. Individuals with high Overall-life Efficacy *have* been found to have higher mental health score. In other words, mental health of the students had greater relationship with efficacy exhibited in Overall-life domain. Some of the characteristics of self-efficacious individuals according to Luthans et al. (2007) and Luthans and Youssef (2004) were—being highly motivated, setting high goals, selecting difficult tasks, welcoming and thriving on challenging tasks, investing maximum potential in attaining one's set goals, and persevering in the face of hardship. This can directly be associated with the positive mental health of college students in this sample of college students.

Resilience HERO PsyCap dimension. Resilience in School-work related areas have the least relationship with mental health score. Resilience is known as a circumspect term specific to resilience-manifested domains (such as academic resilience, emotional resilience, or external behavioral resilience), rather than an across-the-board phenomenon (Luthar et al., 2014). Additionally, resilience is conceived as a protective factor that is learned and taught (Masten, 2001) with age and experience. This may explain why individuals in this study scored considerably lesser on resilience than other positive PsyCap dimensions.

Relationship between mental health and socio-demographics. There was no significant relationship between the mental health score and the five socio-demographic

variables in this study. Findings in the study did not show a statistically significant relationship between gender and mental health (predictor variable in the study). This is consistent with previous research (Lim, Ko, Shin, & Cho, 2013; Diener, Suh, Lucas, & Smith, 1999), but contradicts the Keyes (2014) study. Additionally, unlike the studies by Lim et al. (2013), Ryff and Singer (2008), and Westerhof and Keyes (2010), age was not significantly different on the mental health scale. Similar to previous research of Peter et al. (2011), there were no significant relationship of mental health with ethnic or racial identity, and sexual orientation.

Research objective four. *To determine if differences exist in PsyCap of college students whose scores place them in one of three mental health continuum categories (Keyes, 2002, 2005); languishing, moderately mentally healthy, and flourishing.*

This objective addresses whether the total PsyCap score differ across the mental health categories—languishing, moderately mentally healthy, and flourishing, using One-Way ANOVA. The findings of this objective showed that PsyCap dimensions and categories differed significantly across the mental health categories: F (2, 335) = 59.095, $p < .001$.

ANOVA confirmed that total PsyCap score significantly differed between groups' mental health categories, i.e., students in the flourishing group scored higher on PsyCap and were significantly different than the students in languishing group. In this study, the vast majority of the students were flourishing with regard to mental health and only a small portion of them in the sample were languishing. These percentages differ from earlier studies were moderately mentally healthy students where the largest among all the

other mental health categories (Ambler, 2006). Based on Keyes' (2002, 2005) mental health continuum model, in Ambler's (2006) study more than two-thirds of the respondents were classified as being moderately mentally healthy (67.2%) and the remainder were classified on the two extremes of the continuum – flourishing (15.4%) and languishing (17.4%). Unlike many other previous studies, majority of students are flourishing, while very few are in the languishing part of the continuum. This difference makes this specific college student population interesting for future follow-up studies.

It is evident from the results that about 35% of the variance in PsyCap scores were predictable from the type of mental health categorical groups. The results suggest that flourishing students scored higher on PsyCap in overall life and schoolwork domains than moderately mentally healthy students and languishing students. In other words, students with greater positive psychological strengths of HERO reported greater positive mental health. The results of the study by Culbertson, Fullagar, and Mills (2010) supports this finding by providing comparable relationship between PsyCap and well-being, with emphasized significance on the observed variance in eudaimonic work well-being that was predicted by one's PsyCap. Therefore, it is evident that one of the most significant contributions of the study is its application within college student population, as opposed to Culbertson et al. (2010) study which was within an organizational setting.

Furthermore, flourishing students reported having considerably higher emotional, social, and psychological well-being than other students in other categories on the mental health continuum. Multiple studies support this finding by claiming that flourishing individuals function better psychosocially than moderately mentally healthy adults and

those adults with moderate mental health have better psychosocial functioning than those adults who are languishing (Lim et al., 2013; Peter et al., 2011). Furthermore, college students in this study can be identified with the following possible key characteristics based on their psychological well-being scores (Keyes, 2013, 2014): *Self- acceptance, Positive relations with others, Autonomy, Environmental mastery, Purpose in life, and Personal growth*. The current findings supports the established theoretical idea that PsyCap allows individuals to view events more positively, less negatively, and more engaging in productive coping styles (Riolli, Savicki, & Richards, 2012).

Research objective five. *To determine the extent to which PsyCap HERO dimensions within the Overall-life and the School-work categories predict the variability in mental health among college students at a large public university in the Midwestern region of the United States.*

In other words, this objective can be rephrased as a question—To what extent does PsyCap dimensions predict the variability in mental health among college students? Dependent variable was the continuous variable of mental health score and the predictors were eight PsyCap (HERO) dimension variables. A stepwise multiple regression analysis was conducted to address this objective. Results show that a linear combination of three out of eight PsyCap variables yielded the best model in predicting mental health score- Overall-life Efficacy, Overall-life Optimism, Overall-life Hope, $R^2 = .432$, $F\ (3, 334) = 84.822$, $p < 0.001$. In other words, we can say that three components of Overall-life PsyCap—Efficacy, Optimism, and Hope were significantly stronger predictor of mental health than the other five variables.

The adjusted R^2 for the model was 0.427, indicating that the three PsyCap variables combined to account for about 43% of the variance in mental health score. In other words, hope, efficacy, and optimism from the Overall-life PsyCap scores combined could explain about 43% of variance in Mental Health. The results also suggest that the PsyCap component of resilience was excluded from the model, and considered as a non-significant predictor of mental health in this model. Consistent with the results of the study by Quinlan, Swain, and Vella-Brodrick (2012), PsyCap components of self-efficacy, hope, and optimism were prominent predictors of mental health, and not resilience.

Similar to the theorized argument of Quinlan et al. (2012), the researcher believes that only by becoming aware of and using one's strengths can individuals gain the awareness of their personal resources that can be used to deal with hardships (Park, 2004). Resilience is reinforced and brought to one's awareness with age, life experiences, and interventions directed to exploration of that particular quality within individuals. In this study, majority of the respondents were at the undergraduate level and within the age group of 18-23 years. The assumption holds good for the explanation that resilience, as an existing characteristic may not yet be well-developed.

Additionally, the Resilience and Optimism PsyCap dimensions were only two components of PsyCap that had reverse scoring items in the A-PCQ. Internal consistency reliability for Optimism and Resilience was found to be consistently lower than self-efficacy and hope domains (Dawkins, Martin, Scott, & Sanderson, 2013). Luthans and colleagues believed that this difference is because of the reverse-scored items in

resilience and optimism scales that can reduce scale reliability (Schmitt & Stults, 1985). This could justify the discrepancies seen in the Resilience dimension in this study.

Previous research studies claim that individuals who flourish in life feel positive (i.e., optimistic), fulfilling their goals and aspirations (i.e., hope), and fare better than others with regard to their physical, psychological, and psychosocial functioning (i.e., self-efficacy), than others who are languishing or moderately mentally healthy (Grant & Cavanagh, 2007). Students with languishing mental health have lower levels of subjective well-being (Keyes, 2002); this may explain the lack of positive thinking and emotions, inability to form fulfilling goals, and substantial psychosocial impairment. On the other hand, while the majority among the current sample was flourishing, based on Keyes (2014) instrument, one must consider the fact that the presence of flourishing mental health does not equate to the absence of the mental illness.

The correlation analysis shows that PsyCap was positively correlated with mental health. Students with higher levels of PsyCap are more likely to have higher levels of mental health. This also indicates that increase in the levels of PsyCap (and its dimensions) will predict increase in levels of mental health and well-being among college students. Further, regression analysis indicated a predictive relationship between PsyCap and mental health. Thus, it could be assumed that higher levels of hope, efficacy, and optimism—constructs (in particular) of PsyCap—while combined will lead to higher levels of mental health among college students.

In Rand, Martin, and Shea (2011) study of the differences in hope and optimism and their individual effect on performance and well-being, hope was found to be a

stronger predictor than optimism. Although studies show that hope and optimism were closely related, but separate constructs (Bryant & Cvengros, 2004; Luthans et al., 2010), hope but not optimism was closely associated with self-efficacy (Rand et al., 2011). Earlier researchers suggest that hope and optimism influence well-being by increasing the use of adaptive coping behaviors during the time of stress (in order words can be understood as resilience) (Aspinwall & Taylor, 1992; Rand et al., 2011).

Hope, but not optimism was found to be a good predictor of student performance beyond previous academic achievement (Rand et al., 2011). However, Martin Seligman connects optimism and resilience in his book "learned optimism," and mentions about implementing more optimistic appraisals and using other strategies that enable fostering resilience within individuals (Seligman, 2011). Riolli et al. (2012) in referring to the optimism concept points out that training programs focused on enhancing one's optimism which might be successful in terms of improving students' long-term health outcomes. Thus, their suggestion is that universities understand the benefits of promoting a dynamic extent of increase in the level of positive psychological outlook as part of general training to the students and by doing so emphasize the incorporation of elements of PsyCap within classrooms.

Implications and Recommendations of the Study

In the field of counseling. As mental health professionals, counselors tend to primarily focus on treating the symptoms of mental illness and symptomology. The researcher along with many positive psychology researchers agrees that focus on mental illness at times of self-risk or dysfunction is necessary (Keyes, 2005; Venning, Kettler,

Zajac, Wilson, & Eliott, 2011); however, solely treating the symptoms alone may not develop the significant positive resources an individual student needs to develop and sustain for the state of complete mental health.

Focusing on building hope within students not only impacts their mental health, but could also reduce symptoms of depression and anxiety by being an effective therapeutic approach to treating mental illness (Arnau, Rosen, Finch, Rhudy, & Fortunato, 2007; Snyder et al., 1996). The finding of this study affirms earlier studies (Duckworth, Steen, & Seligman, 2005; Keyes, 2005, Venning et al., 2011), and proposes that counselors have to equip their toolbox with resources that can help individuals to build their psychological strengths thereby resulting in weakening the symptoms of mental illness. Using a diagnostic tool that assesses therapeutic change incorporating both positive and negative symptoms of functioning is essential, rather than exclusively measuring mental illness as an indicator of mental health.

There are various empirically tested ways to engage in developing positive psychological strengths and resources of college students in order to ensure enhance positive mental health. Below are some of the recommendations for counselor educators and counselors working with college students.

PsyCap development and interventions. As the positive constructs that constitute PsyCap are considered to be "state-like"—that which can change and be developed (Luthans et al., 2007), higher education institutions may make efforts to enhance their students' mental health and well-being by directly applying various strategies that develop hope, efficacy, resilience, and optimism. The one-hour micro-intervention

designed by Luthans and colleagues proved to be effective in fostering PsyCap among both management students and practicing managers (Luthans et al., 2006).

Additionally, Luthans, Avey, and Patera (2008) found that internet-based PsyCap development intervention programs proved to be more time and cost effective, and improved well-being better than more traditional interventions in organizational settings. Studies indicate that individuals need three times more positive than negative affect to be categorized as flourishing (Fredrickson & Losada, 2005). However, this research has been challenged and contested. Furthermore, researchers suggest that in order to enhance the positive side of the ratio without disregarding the associated negative emotions, there are certain steps that can be taken by individuals. The study by Luthans et al. (2012) concludes by pointing out that all the four HERO dimensions of PsyCap has potential to be readily used and adapted for developing students' PsyCap (p. 256).

Developing hope. Snyder (2000) and Luthans et al. (2012) describe a set of strategies and guidelines to develop hope within individuals. Firstly, clients or students can be encouraged to set specific and challenging organizational or personal goals. Identifying personally valuable academic goals that are measurable (e.g., increase in GPA) is another way to enhance hope. Implementing "stepping method" by breaking the goals down into sub-steps to make the goals more manageable and along the way taking time to celebrate small successes are other methods of developing one's hope. It is important to help clients/students generate multiple pathways to reach their goals and discard the unrealistic ones along the journey.

Counselor educators and counselors may take the opportunity to educate students and clients in knowing about agency and pathways- two components of hope (Snyder, 2000). It is essential for them to be aware of preparedness for executing alternate pathways in case of original goal failure. This process may also include focusing on working toward the goal, rather than focusing solely on the final completion. A clear understanding is required that in case of unfeasibility, despite different pathways and persistence toward goal, goal-makers must alter the original goal and restart the process.

Developing efficacy. Bandura (1997, 2008) provides four sources of efficacy development, which were further adapted by Luthans et al. (2006) and Luthans et al. (2012). "Mastery experiences" is a method where accomplishments boost efficacy, especially any specific, challenging, and achievable task that is planned as concrete, specific, and proximal goals. Additional similar strategy that counselors and educators can help clients or students to use is mental rehearsal (Bandura, 1997). In this method, individuals can visualize important upcoming event by exercising enhanced preparedness while anticipating for possible obstacles, alternate pathways, and also means of overcoming those obstacles.

It is also important for educators and counselors to remember that confidence enhances by vicarious learning and observing (modeling) other accomplished individuals (Bandura, 1997). Thus, clients or students can be encouraged to build efficacy through social persuasion method, i.e., when a credible and competent individual persuades someone with lower efficacy that they "have what it takes", the recipient develops efficacy (Bandura, 1989, p. 1179). Feedback and appreciation of students' efforts can

help build confidence, rather than commenting on their smartness (Luthans et al., 2012). Other factors that influences individuals' efficacy are psychological, physiological, or emotional arousal and wellness (Bandura, 1997, p. 176).

Developing resilience. Identifying assets and increasing them (through resources such as networking, participation in student organization, and/or mentorship programs) and minimizing risk factors (e.g., long hours of stressful work, loss of remarkable information) have shown to enhance resilience (Masten, 2001; Luthans et al., 2012) within individuals. Counselors or educators working with college students can aid in the three types of resilience-building strategies- (a) asset-focus; (b) risk-focus; and (c) influence or process focus (Masten, 2001). According to Masten (2001) this can be achieved by emphasizing and enhancing resources for positive outcomes, reducing risks and negative outcomes, and creating power structure to promote utility of resources.

It is important to note that the interventions prescribed by Luthans et al. (2010) in figure 10 are intended to affect each construct as well as the overall level of PsyCap in order to have a positive outcome. These strategies are applicable at both individual and organizational levels. Counselors and educators can make use of resilience development guidelines provided by Reivich and Shatte (2002). This can be achieved with clients or students through an interactive, activity-based training program that includes—(i) avoiding negative thinking traps when things go wrong, (ii) testing accuracy of beliefs regarding problems and solutions, and (iii) remaining calm and focusing when overwhelmed by emotions or stress (Reivich & Shatte, 2002).

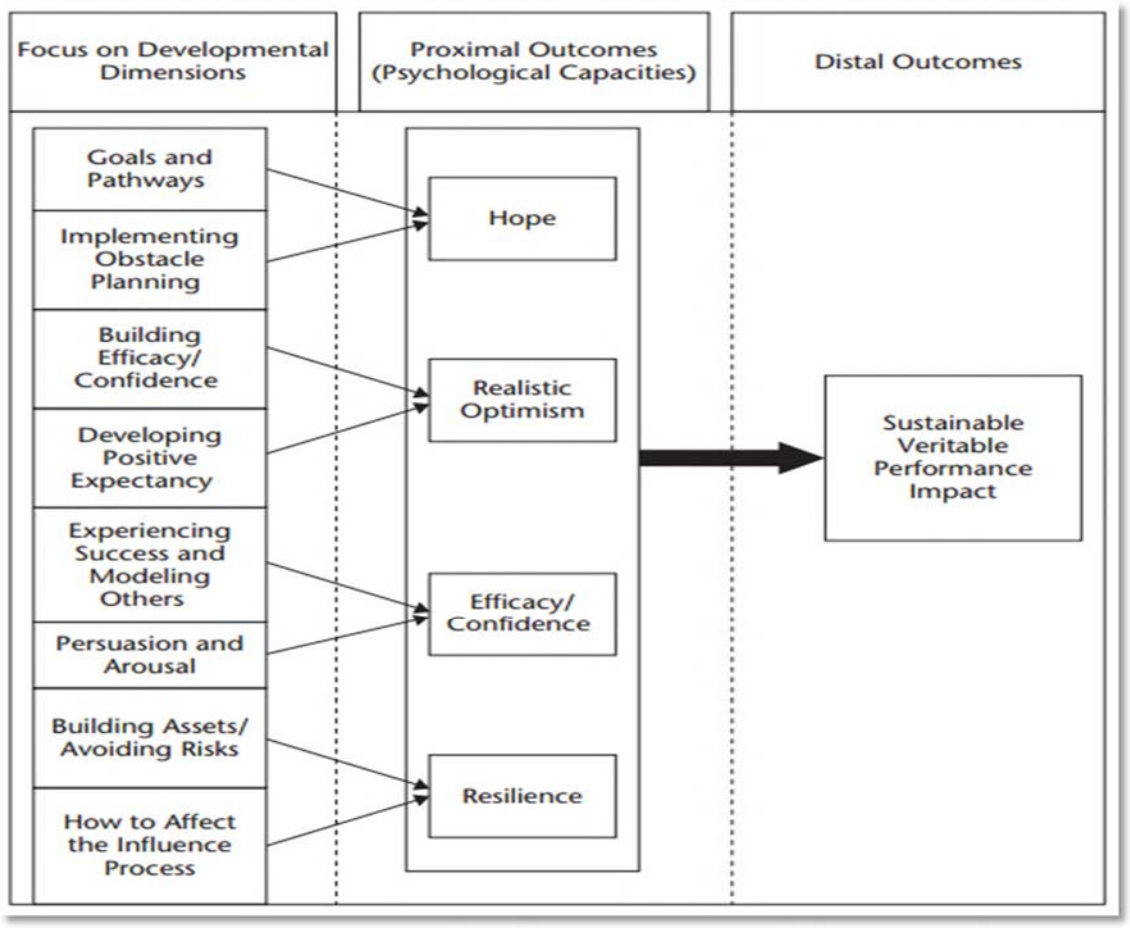


Figure 10: PsyCap Development Interventions.
Source: Adapted from Luthans, Avey, Avolio, & Peterson (2010); Luthans, Avey et al., (2006) and also found in Luthans et al., (2007).

Developing optimism. Having a sense of purpose and continuing to thrive can impact the levels of optimism (Seligman, 1998) among students or clients. Basic guidelines for developing optimism that are found in the literature are: (a) focusing on intentions and how it shapes perspective, and developing positive intentions to impact self-fulfilling prophecy (Eden, 1984); (b) utilizing certain game applications to drive focus into positive images and one's personal best each morning (Liang, Li, & Yang, 2014); (c) incorporating zooming-out technique to step out of the problem and see all the

advantages (Watkins, 2014); (d) considering the "silver-lining" in every difficult circumstance (Riskind, Sarampote,& Mercier, 1996). Additionally, Seligman (1998) and Schulman (1999) offer the following strategies to enhance optimism—identify self-defeating beliefs when faced with a challenge, evaluate the accuracy of the beliefs, and replace dysfunctional beliefs with constructive and accurate beliefs. This is evident in the Cognitive Behavior Therapy [CBT] (Beck, 1995; Ellis, 1973) techniques used by counselors in traditional counseling practice.

Maintaining ABCDE Disputation Record (Adversity-Beliefs-Consequences-Disputation-Energization) as suggested by Seligman (2011, 2012) is another technique similar to ABC model of Ellis (1973) used within CBT. Example of a specific exercise using this model would be to ask the following to students/clients: "During the next 5 adverse events faced in daily life, listening closely for one's beliefs, observing various consequences, and further disputing one's beliefs vigorously". Clients or students can be asked to record all this on a paper. The key goal is that, once individuals have done this on paper a few times, the rest of the times they can simply go through the process in their head.

The strategies mentioned here are directly focusing on developing PsyCap and individual constructs of hope, efficacy, resilience, and optimism. As this study intends to draw connections between PsyCap and mental health, there are additional means that suggest fostering flourishing mental health of college students. Therefore, in addition to PsyCap development strategies, mental health providers and counselor educators working with college students may use certain empirically tested positive psychology activities.

Positive psychology activities and interventions. Exercising positive emotions mitigates against hereditary dispositions that often undermine well-being and positive mental health (Lyubomirsky, 2008). According to Lyubomirsky (2008), experiencing and expressing positive emotions such as gratitude, in addition to performing services within communities are prominent ways of boosting well-being. Rashid (2008) proposes a model of 14 sessions, where a different theme or a positive psychology construct is addressed as homework assignments. These activities have been validated through a variety of web-based studies administered by Seligman, Steen, Park, and Peterson (2005).

As described by Rashid (2008), these assignments must be tailored to match the needs of each individual. Primarily the emphasis is on eliciting and attending to positive emotions and memories in discussions with the students/clients, in addition to engaging in discourse related to problems with the goal of integrating the positive and negative together (Rashid, 2008; Magyar-Moe, 2009). Thus, the professional working from this perspective would strive to completely validate negative experiences, as well as work to build positive emotions, positive functioning, character strengths, meaning in life, and overall flourishing in life.

Putting together the ideas of Rashid (2008) and other positive psychology resources the below listed positive, short-term, concrete and practical intervention strategies are described. Most of the activities mentioned below are empirically tested and evidence-based (Akhtar & Boniwell, 2010; Fredrickson, 1999; Lyubomirsky, 2008; Mongrain & Anselmo-Matthews, 2012; Rashid & Anjum, 2007; Schueller, 2010;

Seligman, Rashid, & Parks, 2006; Seligman, Steen, Park, & Peterson, 2005; Vella-Brodrick, Park & Peterson, 2009).

Firstly, a one page self-introduction at one's best and positive self can be used in the first session with a client or in the first day class. Clients/students may write a concrete story showing themselves at their best and illustrating how they used their highest character strengths. Secondly, identifying strengths using Clifton Youth StrengthsFinder Inventory, Values-in-Action (VIA) Inventory of Character Strengths, Brief Strengths Test, and Search Institute Profiles of Student Life are helpful: Additionally, the use of Broaden and Build theory (Fredrickson, 1999) to identify strengths to experience positive emotions by putting strengths into action plan is crucial for the development of positive aspects of individuals .

Exploring individual strengths, attitudes, and behaviors using strength-spotting and asset-mapping methods are additional means of developing positive psychological signature strengths. Measure happiness, emotions, meaning, engagement, life satisfaction, quality of life and other positive psychological constructs of individuals through scales such as Positive Psychotherapy Inventory (Seligman et al., 2006), PsyCap Questionnaire (Luthans et al., 2007), Authentic Happiness Inventory Questionnaire (www.authentichappiness.org), PANAS Questionnaire (Watson, Clark, & Tellegen, 1988). etc are other significant contribution of positive well-being and mental health development.

Optimism and hope exercise (one door closes, another door opens activity) based on work of Seligman (2011, 2012) additionally helps in developing some vital

components of psychological well-being and positive psychological strengths. Maintaining a *blessings journal* wherein students write, at the end of each day, three good things (big or small) that happened that day. Gratitude and forgiveness journal entry (express overtly through phone-call, surprise visit, letter, or mirror exercise) based on the work of Lyubomirsky (2008). Additionally, satisfice vs. maximize writing exercises provides different perspectives into the development of positive aspects of one's mental health (Schueller & Parks, 2012).

Asking clients or students to have a complete day aside called *Strengths-Date* also provides substantial benefit according to the earlier studies (Parks & Biswas-Diener, 2013). Genogram, life-map, family-tree of strengths, assets-mapping, spiritual-values and resources mapping are other ways of influencing support systems and well-being of individuals. Additionally, encouraging individuals to give and share the gift of time may positively result in fostering interpersonal relationships, community involvement, altruism, leisure and satisfaction (Parks-Sheiner, 2009). Majority of the above mentioned methods and strategies for developing PsyCap and mental health within clients/students are established in the literature. However, as suggested by Seligman (2011, 2012) empirical evidences are required in further validating and developing these techniques for specific future explorations.

Mental health promotion in early years. Studies show that there is an increased prevalence of young people with significant reported experience of mental health problems and health-risk behaviors leading to negative consequences (Boyd, Gullone, Kostanski, Ollendick, & Shek, 2000; Chen et al., 2006). On the other hand, youth is a

crucial period for the development of positive strengths and health behaviors (Maggs, Schulenberg, & Hurrelmann, 1997). In the book, The Optimistic Child, Seligman and colleagues (2007) provide adults various tools of how to teach children the skills of optimism that can help in combating depression, achieving more on the game field and at school, and improving their physical and psychological health. Therefore, focusing on developing PsyCap among young children prior to entering college environment may be a beneficial way to ensure continued positive mental health as they enter into adulthood.

Strengths interventions. Strengths interventions are directed toward increasing individual well-being and performance by providing help to individuals in identifying their strong points and by stimulating their strengths for better use and enhanced development (Quinlan et al., 2012). Typically a strengths intervention technique includes the following simple steps (Quinlan et al., 2012):

1. Identifying individual's strengths by engaging in exercises such as gathering feedback on strong points from one's surrounding (Spreitzer, Stephens, & Sweetman, 2009).
2. Proceeding with activities or exercises that are directed at the development of the identified strong points (Biswas-Diener, Kashdan, & Minhas, 2011).
3. Finally, finding ways to utilize the strengths that are identified and developed in various ways. This helps in motivating individuals to utilize their most prominent strengths either more often or in unique ways (Seligman et al., 2005).

The study on strengths intervention suggests that this technique is more effective in stimulating graduate students' hope (Quinlan et al., 2012). Thus, it is important to

focus on an individual's best qualities that stimulate development and growth, ultimately leading to achieving optimal mental health and well-being.

Recommendations for higher education: student affairs, administrators and advisors. Based on the findings of the study, relevant shareholders at tertiary institutions would be wise to create more learning opportunities focusing on individual positive qualities, both for students who are in undergraduate and graduate programs. Increasing the students' PsyCap components (HERO) is recommended as they provide a framework to predict better mental health and well-being. Higher levels of PsyCap could lead to more positive attitudes toward learning and change (Robitschek et al., 2012) and consequently greater success in college. These findings confirmed the positive relationship and prediction of mental health with positive psychological strengths, which could be beneficial to the students when integration of PsyCap development activities is provided within academic curriculum, as suggested by Luthans et al. (2012). Additionally, Riolli et al. (2012) indicates that PsyCap renders students to persevere in academics in both psychologically and physically healthier way. Therefore, PsyCap is regarded as a helpful in impacting students' anxiety and stress with exams or tests by designing customized evaluation tools for better adaption (Riolli et al., 2012).

Faculty may develop curricula that explore possibilities of combining strengths and deficiencies simultaneously in order to achieve optimal student outcome (Rust, Diessner, & Reade, 2009; Riolli et al., 2012). Effect sizes of the influence of PsyCap on mental health can be enhanced through extended period of studying the phenomenon, or in other words, engaging in longitudinal study by embedding the interventions of

developing PsyCap components in a strengths-based curriculum (Luthans et al., 2012). It has to be noted that research indicates that there is an inherent motivating feature of working on strengths: making people feel good, energized, and invigorated (Peterson & Seligman, 2004; Quinlan et al., 2012).

Results indicate that majority of the students in this sample are flourishing. Studies show that if administrators and college faculty personnel working with these students had solely focused on preventing mental illness, they would have neglected the positive aspect of promoting mental health within this student population (Ambler, 2006). As Keyes and Lopez (2002, 2009) claim, the absence of mental illness does not conclude the presence of positive mental health and vice versa. Therefore it is imperative that programs include strategies focused on preventing/treating mental illness as well as promoting/developing mental health. Incorporating activities that promote the psychological strengths of Hope, Efficacy, Resilience and Optimism, and events leading to increased levels of psychological well-being are some suggestions for consideration by college student personnel and administrators.

Other implications for faculty and administrators working with college students is to provide training for students in order for them to "develop more optimistic explanatory styles, lower levels of distressed thinking, and more constructive envisioning of the future" (Riolli et al., 2012, p. 1206). These researchers indicate that by providing such specialized trainings, students who have higher levels of PsyCap but lower levels of psychological resilience will be benefitted.

A practical implication of this study is that focusing on developing strategies to promote mental health among college students may be best redirected to building their positive strengths. This would enable engaging in a straightforward approach of promoting mental health and indirectly preventing mental illness (Keyes, 2005; Venning et al., 2011), rather than preventing or remedying mental illness with an attempt to indirectly build individuals' mental health. Additionally, the results of this study have implications for the content of strategies and programs to promote mental health in college students.

As PsyCap is a construct that is state-like and open to development through instructional programs (Luthans, Youssef, & Avolio, 2007) and PsyCap Intervention Training model (Luthans, Avey, Avolio, Norman, & Combs, 2006), Luthans et al. (2012) suggests a series of focused micro-training interventions can be incorporated that focuses on enhancing the current level of school-related PsyCap among college students throughout their academic career. As a result of these PsyCap development initiatives, students would have additional tools to enhance mental health and also overcome barriers to academic success, combat stress, and become a source of competitive advantage for future career success (Luthans et al., 2012).

Recently we find Student Affairs offices to have adapted positive approach. For instance, the Office of Strengths-Based Initiatives created by the Division of Student Affairs at the University of Arkansas demonstrates its commitment to the success of students and staff members on their campuses by focusing on a mission that states: "To Strengthen Students for Success". This office achieves their goal by providing

workshops, training, coaching, advising and programming that helps students identify and apply their individual strengths for academic, personal and career success (University of Arkansas). Other similar offices are in Baylor, George Mason, and Azusa Pacific universities. Such positive initiative from the administration in a higher education models a holistic approach to student learning and well-being.

Moreover, empirical evidence from PsyCap development studies suggest that by increasing PsyCap of individuals the burden of stress and anxiety lessens, resulting in improved general well-being over time (Avey, Wernsing, & Mhatre, 2011). This suggests that educators and mental health providers who work with students have a need to create an environment that may foster student engagement (Ambler, 2006) and additionally initiate certain PsyCap development interventions (Luthans, Avolio et al., 2007) in order for them to attain optimal mental functioning—*flourishing* (Seligman, 2012).

Combining evidences from positive psychology and POS, researchers conceived a new concept called "positive university," where classroom and formal learning environments (e.g. curriculum, academic achievement), social environments (e.g. student relationships), local community and external organizations (e.g. volunteerism), faculty and administration work environments (e.g. employee stress) and residential environments (e.g. student well-being) promote a positive environment (Oades, Robinson, Green & Spence 2011). Therefore, this study suggests that in order to reach this ideal "positive university" designation, student affairs professionals, mental health providers, and higher education personnel have to focus on primarily on PsyCap development interventions and the positive psychology based strategies mentioned above.

For future research. The study adopted a positive psychological approach and tested whether positive psychological assets of PsyCap within college students were a predictor of mental health. Future researchers can develop a comparative study to test whether positive PsyCap components are stronger predictor of mental health in college students than the mental illness. Similar to the recommendations suggested by Avey et al. (2010), the studied association between PsyCap and mental health can be evaluated over a period of time to provide a better understanding of their impact on other potential explicit outcomes. Future investigations may benefit from measuring other positive constructs such as gratitude, forgiveness, compassion and altruism as predictors of mental health. It is important for researchers to investigate more into the moderators of the relationship between individual components of PsyCap and mental health, so that their personal or contextual factors can be influenced by effective interventions (Riolli et al., 2012; Erkutlu, 2014).

Limitation of the Study

The focus of this study was to establish the relationship and prediction model between mental health and PsyCap of college students in a large Midwestern university. Although the current research provides evidence to suggest that there exists a significant relationship between college students' current level of mental health and psychological capital (specifically in hope, efficacy, and optimism in overall life domain), this research cannot show causality. In other words, it is not possible to know from these results if the majority of college students who are identified as flourishing are enjoying an optimal level of mental functioning as a result of their PsyCap, or if students who flourish are the

ones who choose to be so due other extraneous factors that are not explored within the scope of this study.

The data collected in the study were obtained exclusively from participants attending a public Midwestern university in the United States. As a result, the sample may not be representative of college students from other countries or cultures, and the constructs assessed may also differ due to the self-report nature or personal/cultural interpretation of questions. Although the results from the study suggest a promising line for future research on the mental health and PsyCap areas of human functioning, caution is necessary specifically in placing too much on the current prevalence estimates. It is imperative to note that the data were collected on a non-probability, convenience sample. Although the socio-demographics breakdown of the sample is consistent with university students in the university and the Midwest, the results still needs to be interpreted with caution. Future research needs to draw on elements of positive mental health from cross-cultural and multi-culturally diverse student population.

Measuring mental health using solely the Keyes' MHC-SF instrument did not fully represent the complexity with which students experience mental health. Thus, this study is limited to a positive mental health outcome, as the predictive model did not explore mental illness in conjunction with mental health. The study is also affected by the limitations of Keyes' (2002, 2009) model and the PsyCap questionnaire (Luthans et al., 2012). However, this study makes an effort in validating this model through the lens of psychological capital framework and an overarching field of positive psychology, by finally proposing application within higher education and mental health professions.

Conclusion

Taken together, the results of this study provide an essential contribution to theory on mental health continuum and psychological capital. In this study, majority of the respondents were flourishing. Ed Diener (2000) points out that there are high reports of individuals being happy and flourishing due to the feeling of (even mild) pleasant emotions most of the time and infrequently experiencing unpleasant emotions. There is no conclusion that claims that PsyCap is a sufficient condition for mental health, nor would the researcher choose to evaluate individual's lives solely on the basis of whether they are flourishing; researcher values additional characteristics. However, this study attempts to bridge a gap by establishing an additional empirical evidence to connect individuals' positive psychological strengths and mental health—in order to promote the best among the college students in the various universities.

Positive mental health and well-being have gained greater momentum as a serious alternative to the numerous mental illness prevention strategies in past few decades. Focusing on building positive resources in college students may be helpful in propelling students from a languishing mental health state towards a sustainable state of positive and complete mental health. The results highlight the value of further investigation into positive psychological strengths as pivotal components of college students' positive mental health, and have significant implications for the development and content of strategies to promote mental health in college students.

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Appendix A: Academic Psychological Capital Questionnaire

Academic PsyCap (A-PCQ; Luthans, Luthans, & Jensen, 2012)

Below are a series of statements that describe how you may think about yourself RIGHT NOW. We are asking you to consider each question relative to your overall life and school work aspects. Use the scale below to indicate your level of agreement or disagreement with each statement.

Strongly Disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly Agree
1	2	3	4	5	6

		Overall-Life	School-Work
1	I feel confident analyzing a long-term problem to find a solution concerning my …		
2	I feel confident in representing my ideas concerning my …		
3	I feel confident contributing to discussions about strategies on my …		
4	I feel confident setting targets/goals on my…		
5	I feel confident contacting people to discuss problems concerning my …		
6	I feel confident sharing information with a group of students about my…		
7	If I should find myself in a jam about my …, I could think of many ways to get out of the jam.		
8	At the present time, I am energetically pursuing my … goals.		
9	There are lots of ways around any problem concerning my…		
10	Right now, I see myself as being pretty successful concerning my…		
11	I can think of many ways to reach my current goals regarding …		
12	At this time, I am meeting the goals that I have set for myself concerning…		
13	When I have a setback with …, I have trouble recovering from it, moving on.		
14	I usually manage difficulties one way or another concerning my ...		

15	I can be "on my own" so to speak, if I have to regarding my…		
16	I usually take stressful things in stride with regard to my…		
17	I can get through difficult times at school because I've experienced difficulty before concerning my…		
18	I feel I can handle many things at a time with my…		
19	When things are uncertain for me with regards to …, I usually expect the best.		
20	If something can go wrong for me with my …, it will.		
21	I always look on the bright side of things regarding my…		
22	I'm optimistic about what will happen to me in the future as it pertains to my…		
23	With regards to my …, things never work out the way I want them to.		
24	I approach my … as if "every cloud has a silver lining."		

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- Adapted for Education by: Luthans, B.C., Luthans, K.W., Jensen, S. (2012). The impact of business school students' psychological capital on academic performance. *Journal of Education for Business*, 87: 253-259.

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Appendix B: Mental Health Continuum-Short Form (MHC-SF; Keyes, 2009)

Please answer the following questions are about how you have been feeling during the past month. Place a check mark in the box that best represents how often you have experienced or felt the following:

During the past month, how often did you feel …	NEVER	ONCE OR TWICE	ABOUT ONCE A WEEK	ABOUT 2 OR 3 TIMES A WEEK	ALMOST EVERY DAY	EVERY DAY
1. happy						
2. interested in life						
3. satisfied with life						
4. that you had something important to contribute to society						
5. that you belonged to a community (like a social group, or your neighborhood)						
6. that our society is a good place, or is becoming a better place, for all people						
7. that people are basically good						
8. that the way our society works makes sense to you						
9. that you liked most parts of your personality						
10. good at managing the responsibilities of your daily life						
11. that you had warm and trusting relationships with others						
12. that you had experiences that challenged you to grow and become a better person						
13. confident to think or express your own ideas and opinions						
14. that your life has a sense of direction or meaning to it						

Appendix C: The Socio-Demographic Data Form

Please check or circle the appropriate and fill in the information requested-

1. How do you identify your gender? Male Female Other_____

2. How old were you in your last birthday? _____ (mention your age in years)

3. How do you identify your sexual orientation?

Bisexual
Lesbian or gay
Straight or heterosexual
Other _____ (specify)

4. What is your current relationship status?

In a committed relationship
Not in a committed relationship

5. How do you identify your race/ethnicity?

African-American
Asian
Asian American
Caucasian
Hispanic/Latino
Native American
Mixed/multiple race
Other specify_____ (specify)

6. What is your enrolled degree?

- Bachelors in _____ (major)
- Masters in _____ (major)
- Doctorate in _____(major)

If you are an undergraduate student, identify the appropriate year that you are in currently-

- Freshman
- Sophomore
- Junior
- Senior

If you are first year Master's or Doctoral student, mark here _____ (X).

7. Are you an international student? Yes No

8. What was your grade point average (GPA) last semester? _____ (provide exact point score) and mention the term received _____ (eg. Sophomore or I year master).

Note. If this is your first semester in undergraduate program, provide your high school GPA.

Masters or doctoral first semester students, provide your overall GPA of undergraduate or master's.

9. To what extent do you consider yourself to be a religious person?

Not at all Slightly Moderately Very Extremely

10. To what extent do you consider yourself to be part of a religious community?

Not at all A little Moderately Mostly Completely

If so, which religious community are you a part of? _____

11. To what extent do you have spiritual beliefs?

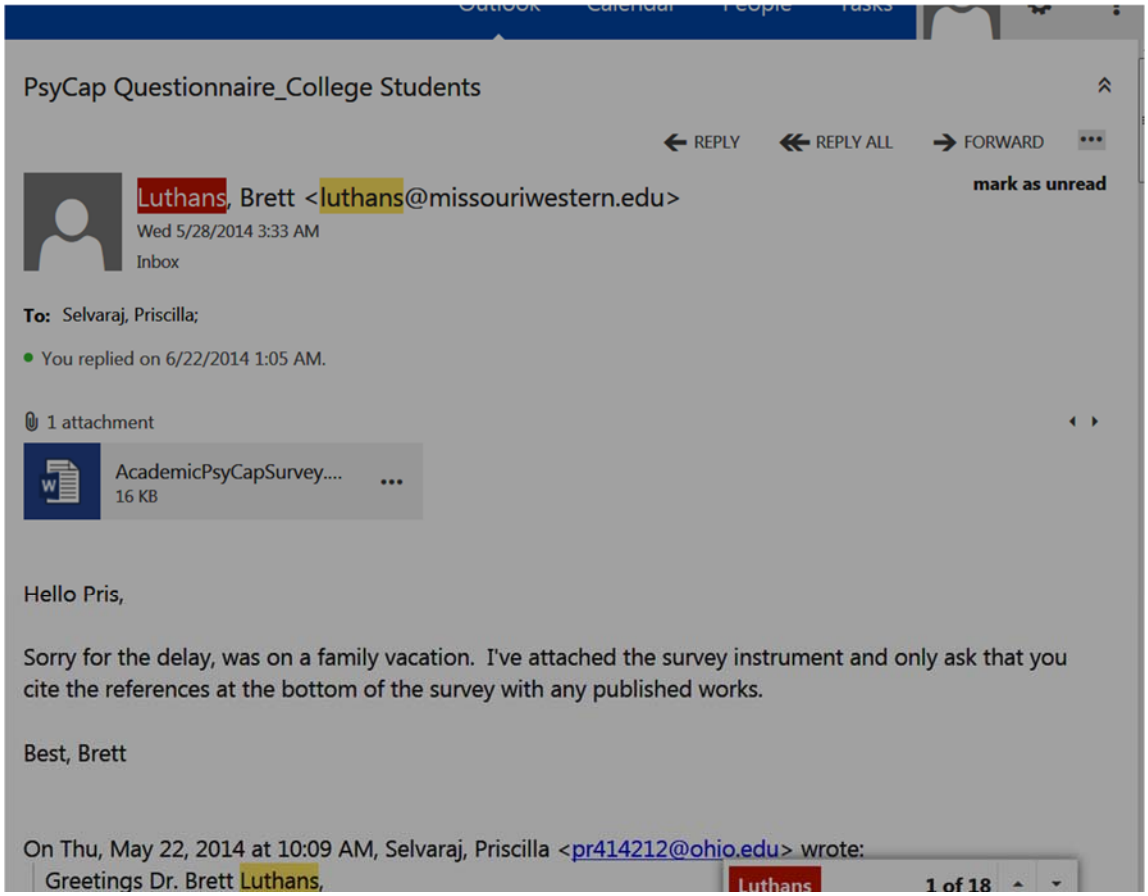
Not at all Slightly Moderately Very Extremely

12. Which of the following are the most significant social support system (s) you had/have (please check the appropriate)

- o Support system
- o Immediate family (spouse, parents, or siblings)
- o Relatives
- o Friends
- o Teachers/Professors
- o Mentors/Coaches/Consultants
- o Mental Health Providers (counselors, psychologists, social workers etc.)
- o Human Services Agencies
- o Clergy or members of religious/spiritual organizations (church, mosque, temple, synagogue, cathedral etc.)

- o Student organizations
- o Community-Based Organizations
- o Other (Specify) _____

Appendix D: Approval to Use A-PCQ by Dr. Brett Luthans



PsyCap Questionnaire_College Students

REPLY REPLY ALL FORWARD

mark as unread

Luthans, Brett <luthans@missouriwestern.edu>
Wed 5/28/2014 3:33 AM
Inbox

To: Selvaraj, Priscilla;

You replied on 6/22/2014 1:05 AM.

1 attachment

AcademicPsyCapSurvey....
16 KB

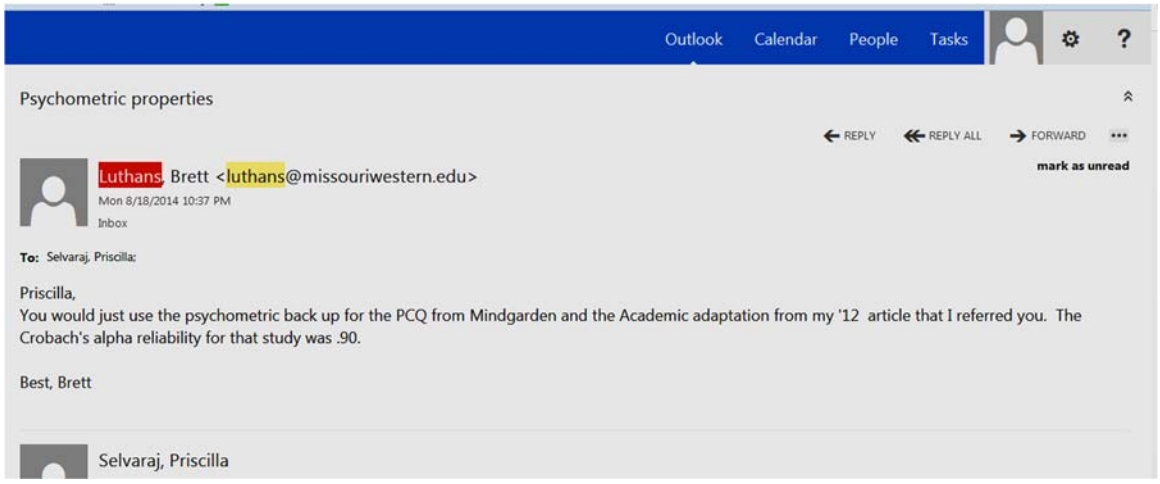
Hello Pris,

Sorry for the delay, was on a family vacation. I've attached the survey instrument and only ask that you cite the references at the bottom of the survey with any published works.

Best, Brett

On Thu, May 22, 2014 at 10:09 AM, Selvaraj, Priscilla <pr414212@ohio.edu> wrote:
Greetings Dr. Brett Luthans,

Luthans 1 of 18



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Psychometric properties

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Luthans, Brett <luthans@missouriwestern.edu>
Mon 8/18/2014 10:37 PM
Inbox

To: Selvaraj, Priscilla;

Priscilla,
You would just use the psychometric back up for the PCQ from Mindgarden and the Academic adaptation from my '12 article that I referred you. The Crobach's alpha reliability for that study was .90.

Best, Brett

Selvaraj, Priscilla

Appendix E: Permission to Use MHC-SF Provided Online

Brief Description of the Mental Health Continuum Short Form (MHC-SF)*

The short form of the Mental Health Continuum (MHC-SF) is derived from the long form (MHC-LF), which consisted of seven items measuring emotional well-being, six 3-item scales (or 18 items total) that measured the six dimensions of Ryff's (1989) model of psychological well-being, and five 3-item scales (or 15 items total) that measure the five dimensions of Keyes' (1998) model of social well-being. The measure of emotional well-being in the MHC-LF included six items measuring the frequency of positive affect that was derived, in part, from Bradburn's (1969) affect balance scale, and a single item of the quality of life overall based on Cantril's (1965) self-anchoring items. The estimates of internal consistency reliability for each of the three sets of measures—emotional, psychological, and social well-being—in the MHC short and long forms have all been high (> .80; see e.g., Keyes, 2005a). The MHC-LF form measures of social and psychological well-being have been validated (see Keyes, 1998; Ryff, 1989, Ryff & Keyes, 1995) and used in hundreds of studies over the past two decades, and their use as a measure of overall positive mental health was first introduced by Keyes (2002) and recently summarized in Keyes (2007).

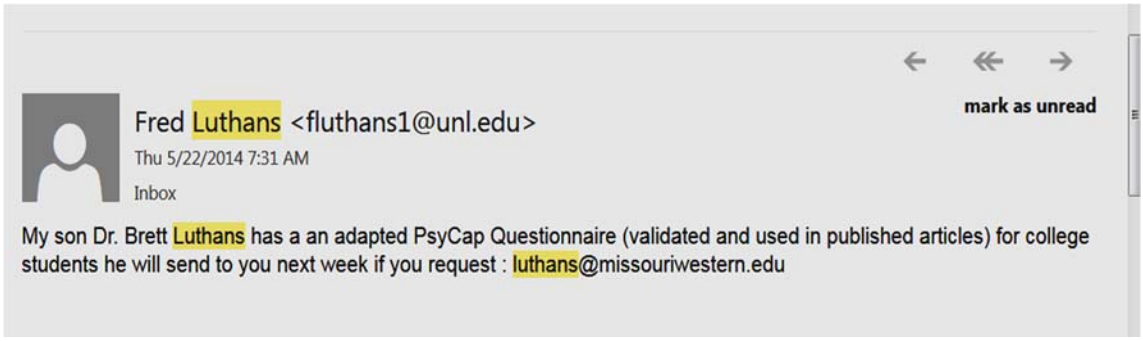
While the MHC-LF consisted of 40 items, the MHC-SF consists of 14 items that were chosen as the most prototypical items representing the construct definition for each facet of well-being. Three items were chosen (happy, interested in life, and satisfied) to represent emotional well-being, six items (one item from each of the 6 dimensions) were chosen to represent psychological well-being, and five items (one item from each of the 5 dimensions) were chosen to represent social well-being. The response option for the short form was changed to measure the frequency with which respondents experienced each symptom of positive mental health, and thereby provided a clear standard for the assessment and a categorization of levels of positive mental health that was similar to the standard used to assess and diagnosis major depressive episode (see Keyes, 2002, 2005a, 2007). To be diagnosed with flourishing mental health, individuals must experience 'every day' or 'almost every day' at least one of the three signs of hedonic well–being and at least six of the eleven signs of positive functioning during the past month. Individuals who exhibit low levels (i.e., 'never' or 'once or twice' during the past month) on at least one measure of hedonic well–being and low levels on at least six measures of positive functioning are diagnosed with languishing mental health. Individuals who are neither flourishing nor languishing are diagnosed with moderate mental health.

The short form of the MHC has shown excellent internal consistency (> .80) and discriminant validity in adolescents (ages12-18) and adults in the U.S., in the Netherlands, and in South Africa (Keyes, 2005b, 2006; Keyes et al., 2008; Lamers et al., 2011; Westerhof & Keyes, 2009). The 4-week test-retest reliability estimates for the long form scales ranging from .57 for the overall psychological well-being domain, .64 for the overall emotional well-being domain, to .71 for the overall social well- being domain

(Robitschek & Keyes, 2006, 2009). The test-retest reliability of the MHC-SF over three successive 3 month periods averaged .68 and the 9 month test-retest was .65 (Lamers et al., 2011). The three factor structure of the long and short forms of the MHC—emotional, psychological, and social well-being—has been confirmed in nationally representative samples of US adults (Gallagher, Lopez & Preacher, 2009), college students (Robitschek & Keyes, 2009), and in a nationally representative sample of adolescents between the ages of 12 and 18 (Keyes, 2005b, 2009) as well as in South Africa (Keyes et al., 2008) and the Netherlands (Lamers et al., 2011). Please contact Dr. Keyes (ckeyes@emory.edu) if you require the MHC-SF in a language other than English, or would like to translate and validate the MHC-SF in your country and culture.

Right now the MHC-SF has been translated and validated into French (Canadian), Korean, Chinese, Japanese, Dutch, Norwegian, Swedish, Finnish, and we hope others around the world will test the validity of it and begin using it in their country to build on the movement toward mental health promotion and protection. My only wish is that you first test whether the existing scale works in your culture before you add, delete or otherwise modify the scale response categories or items. If the scale retains its validity and reliability in your culture, my wish is only that you identify as by its acronym (MHC-SF) and then add your country's official acronym to it (e.g., the Dutch MHC-SF, the South Korean MHC-SF). Only when we proceed scientifically by building on existing scientific work do we make progress, and only if we can arrive at a common metric and scale can we engage in comparative research and learn from each other's best practices for promotion and protecting good mental health.

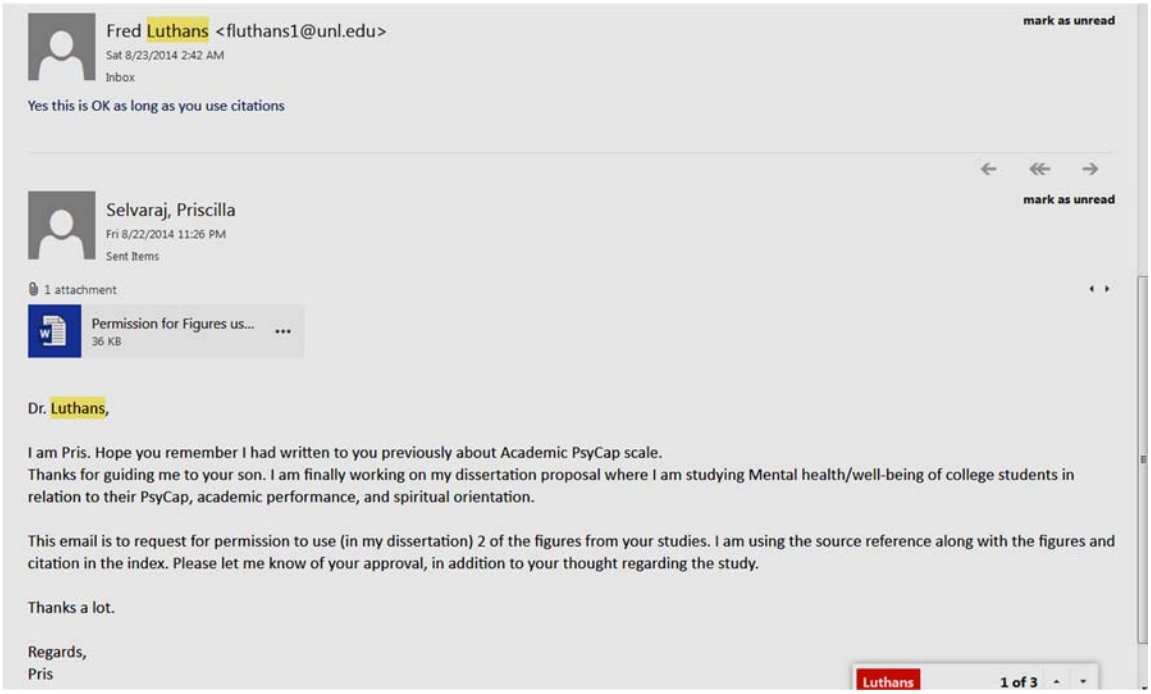
Appendix F: Email Communication with Dr. Fred Luthans



Fred Luthans <fluthans1@unl.edu>
Thu 5/22/2014 7:31 AM
Inbox

mark as unread

My son Dr. Brett Luthans has a an adapted PsyCap Questionnaire (validated and used in published articles) for college students he will send to you next week if you request : luthans@missouriwestern.edu



Fred Luthans <fluthans1@unl.edu>
Sat 8/23/2014 2:42 AM
Inbox

mark as unread

Yes this is OK as long as you use citations

Selvaraj, Priscilla
Fri 8/22/2014 11:26 PM
Sent Items

mark as unread

1 attachment

Permission for Figures us...
36 KB

Dr. Luthans,

I am Pris. Hope you remember I had written to you previously about Academic PsyCap scale.
Thanks for guiding me to your son. I am finally working on my dissertation proposal where I am studying Mental health/well-being of college students in relation to their PsyCap, academic performance, and spiritual orientation.

This email is to request for permission to use (in my dissertation) 2 of the figures from your studies. I am using the source reference along with the figures and citation in the index. Please let me know of your approval, in addition to your thought regarding the study.

Thanks a lot.

Regards,
Pris

Luthans 1 of 3

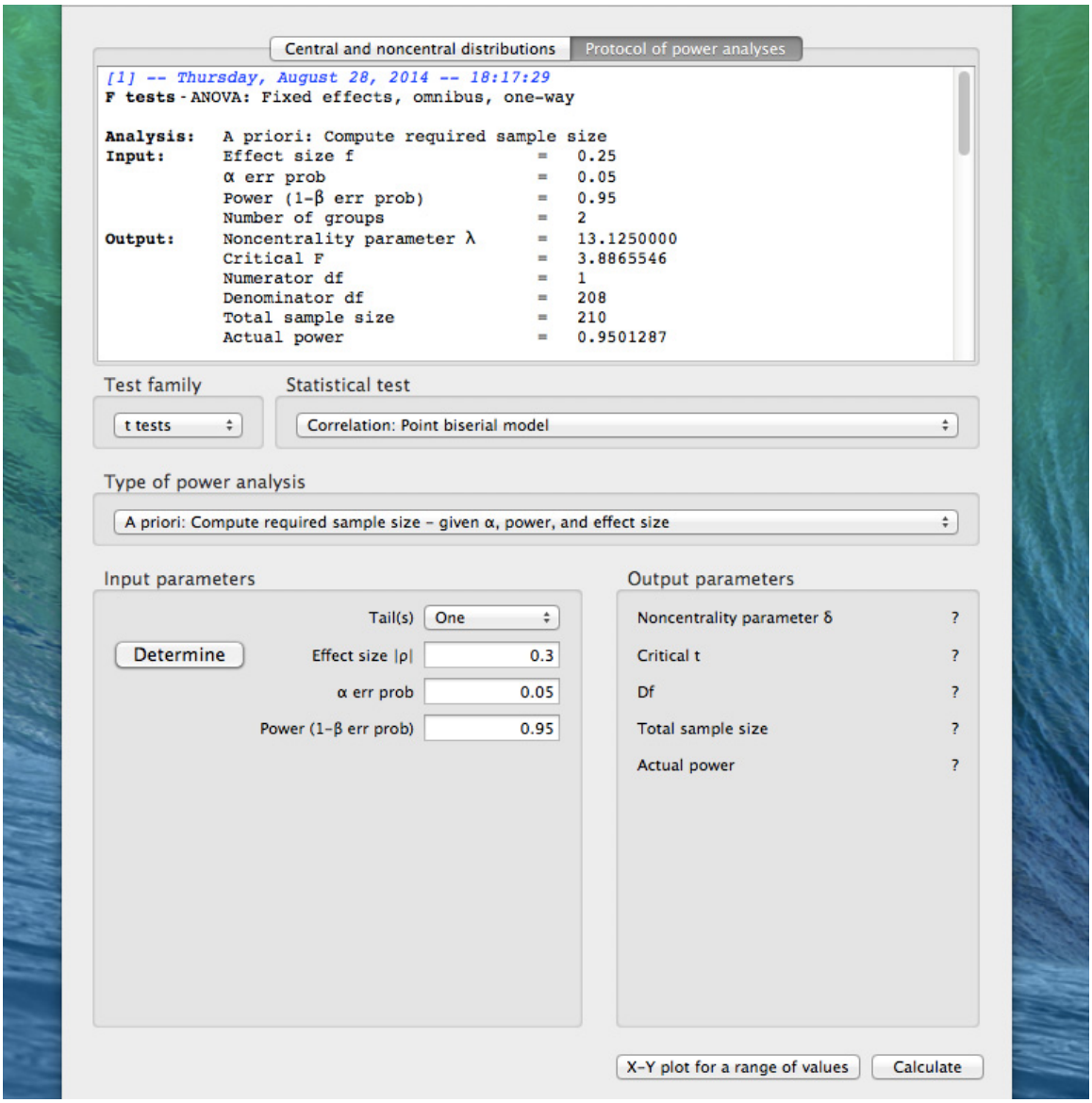
Fred Luthans <fluthans1@unl.edu>
Sat 8/23/2014 3:00 AM
Inbox

mark as unread

To: Selvaraj, Priscilla;

OK thanks Pris and good wishes on your research, Fred

Appendix G: Power Analysis



Appendix H: Descriptive Statistics of PsyCap and Mental Health Scales

	N	Range	Min	Max	M	SD	Skewness		Kurtosis	
							Statistic	SE	Statistic	SE
EWB	338	14	1	15	11.63	2.589	-1.255	.133	1.927	.265
SWB	338	25	0	25	14.89	5.237	-.593	.133	-.262	.265
PWB	338	29	1	30	22.69	5.200	-1.172	.133	1.796	.265
MHC score	338	64	5	69	49.21	11.431	-1.016	.133	1.108	.265
OL Hope	338	30	6	36	27.17	4.754	-.913	.133	1.941	.265
OL Efficacy	338	27	9	36	27.54	5.010	-.767	.133	1.092	.265
OL Resilience	338	24	12	36	26.67	4.149	-.374	.133	.160	.265
OL Optimism	338	30	6	36	26.02	5.294	-.553	.133	.887	.265
SW Hope	338	30	6	36	27.71	4.837	-.970	.133	1.929	.265
SW Efficacy	338	28	8	36	27.09	5.086	-.842	.133	1.061	.265
SW Resilience	338	24	12	36	26.30	4.230	-.329	.133	-.103	.265
SW Optimism	338	30	6	36	25.22	4.918	-.431	.133	.963	.265
Total OL Score	338	103	41	144	107.39	16.169	-.726	.133	1.558	.265
Total SW Score	338	93	43	136	106.33	16.086	-.707	.133	1.079	.265
Overall PsyCap Score	338	189	86	275	213.72	30.233	-.742	.133	1.761	.265

Appendix I: Error Box Plot

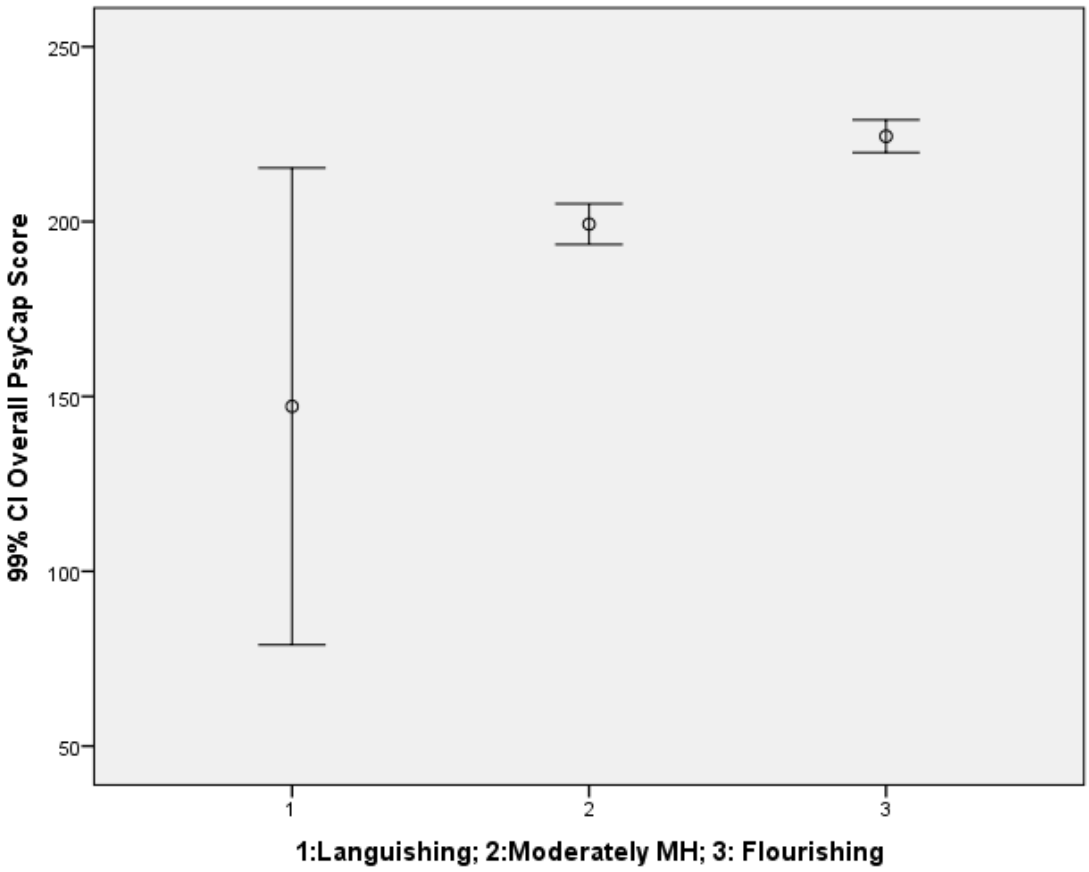
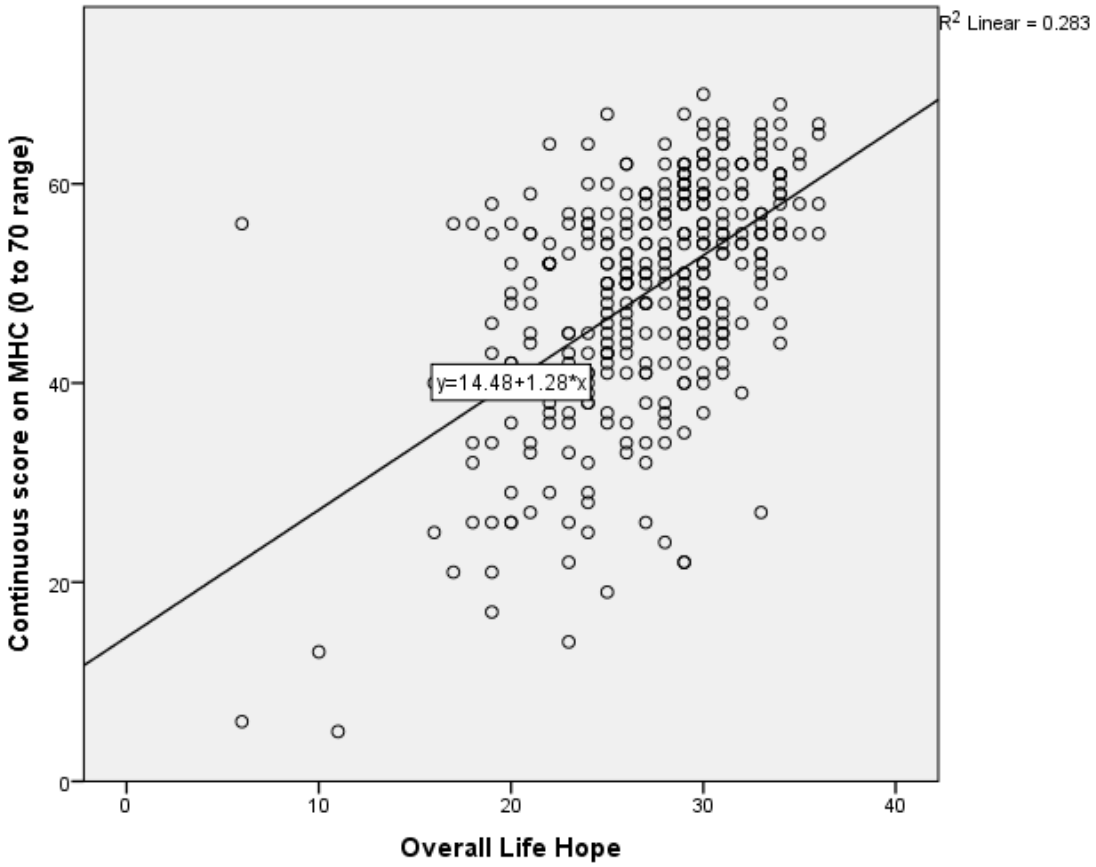


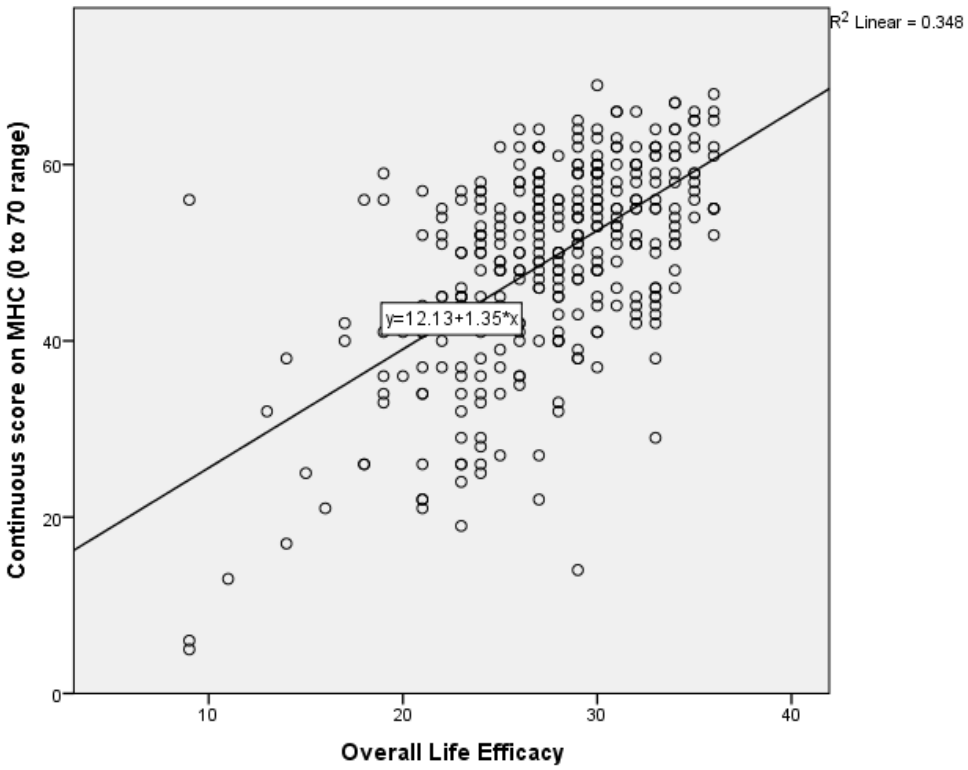
Figure Showing the Error Box Plot Indicates that there were no Significant Outliers in the Sample with a Confidence Interval of 99%

Appendix J: Regression Lines for Main Effects

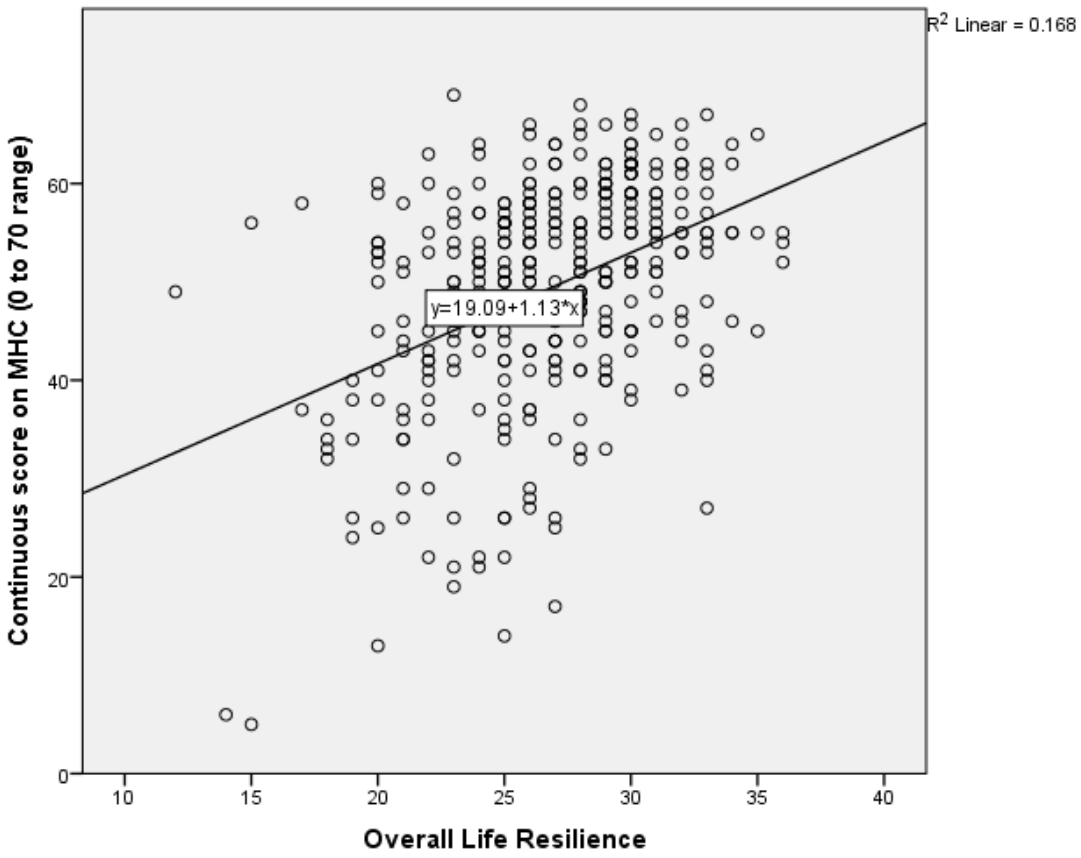
J (1) Overall-life Hope and Mental Health



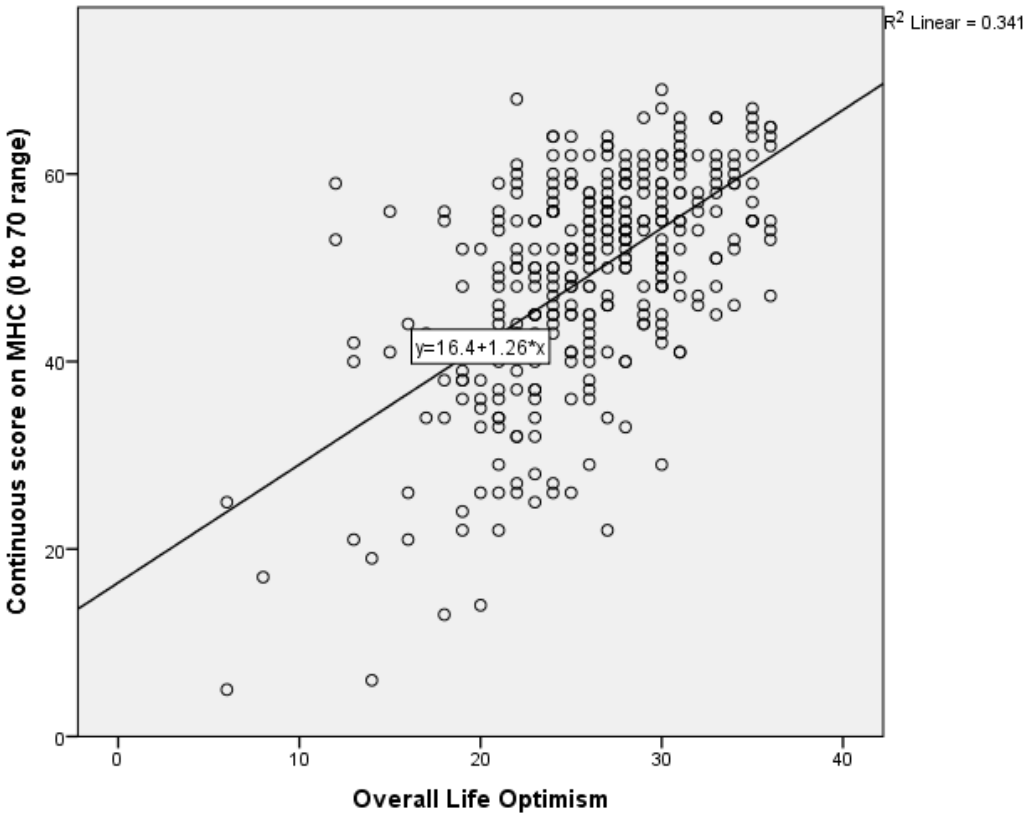
J (2) Overall-life Efficacy and Mental Health



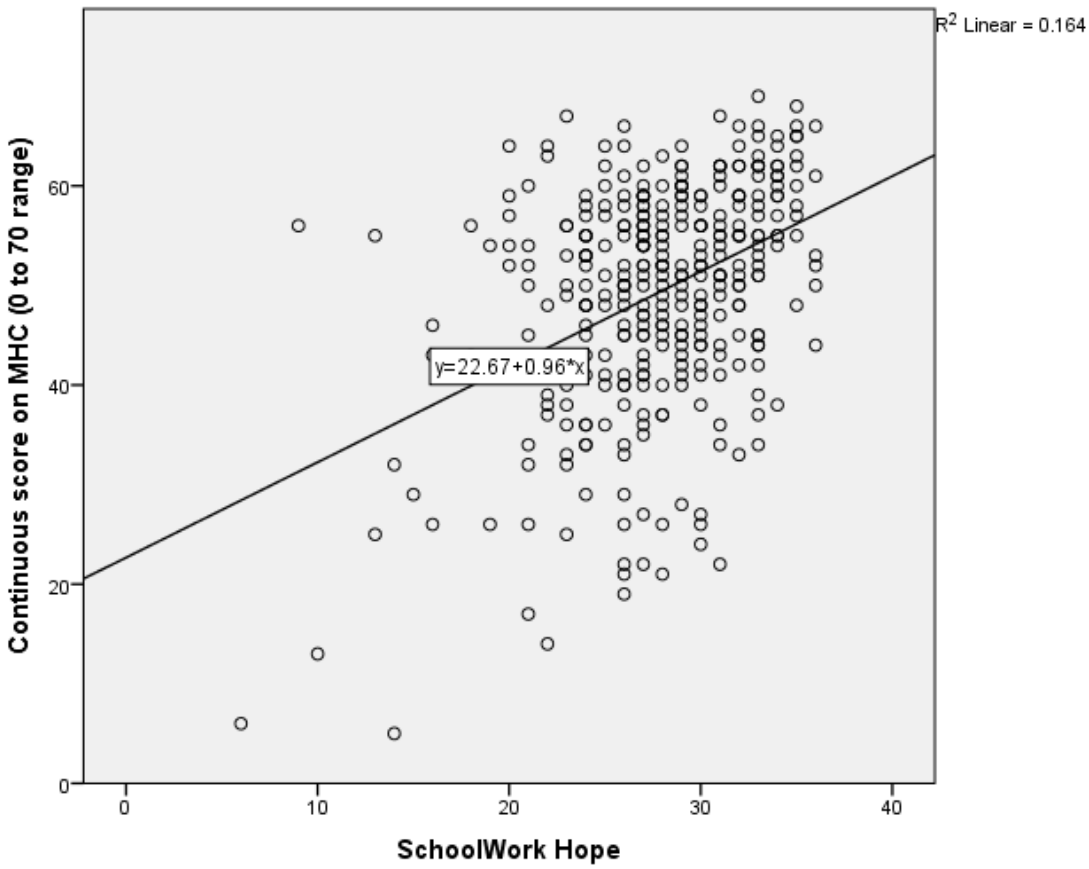
J (3) Overall-life Resilience and Mental Health



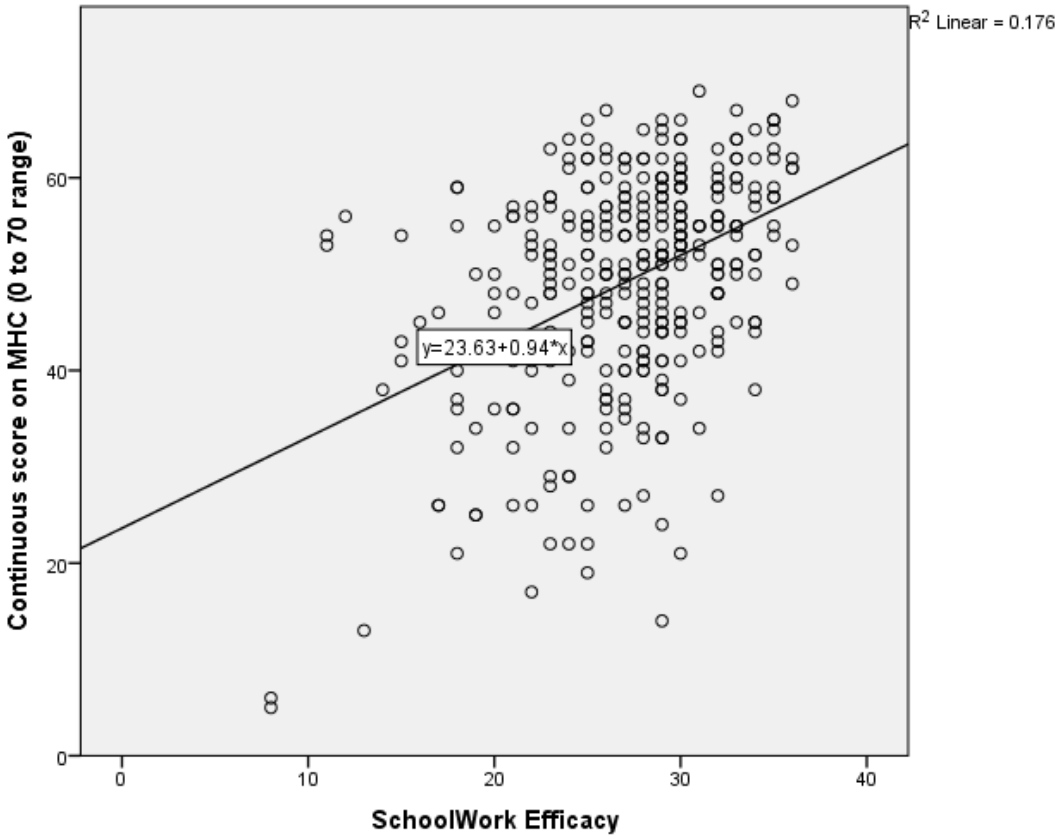
J (4) Overall-life Optimism and Mental Health



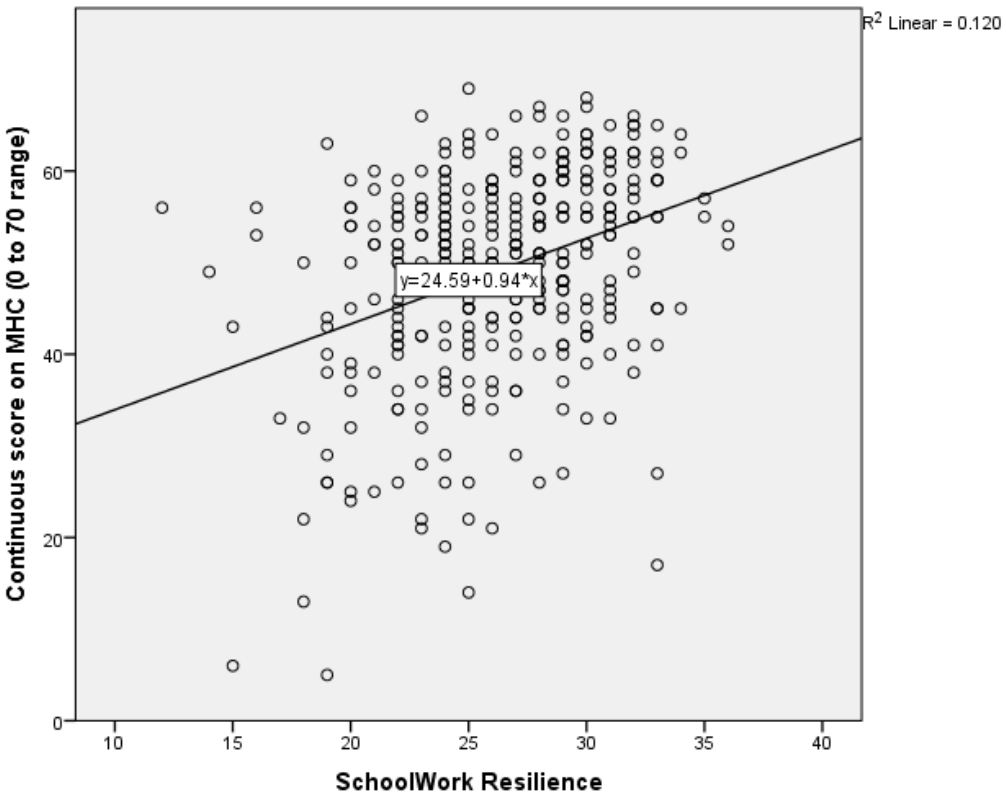
J (5) School-work Hope and Mental Health



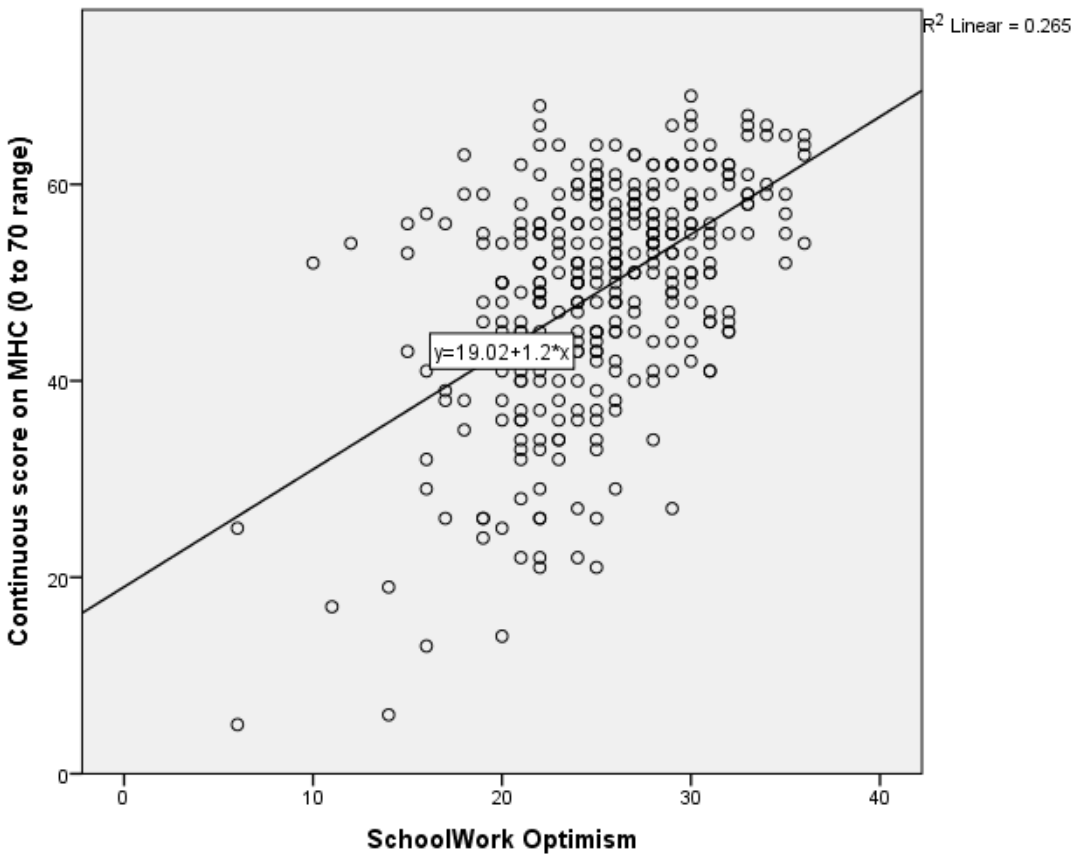
J (6) School-work Efficacy and Mental Health



J (7) School-work Resilience and Mental Health



J (8) School-work Optimism and Mental Health



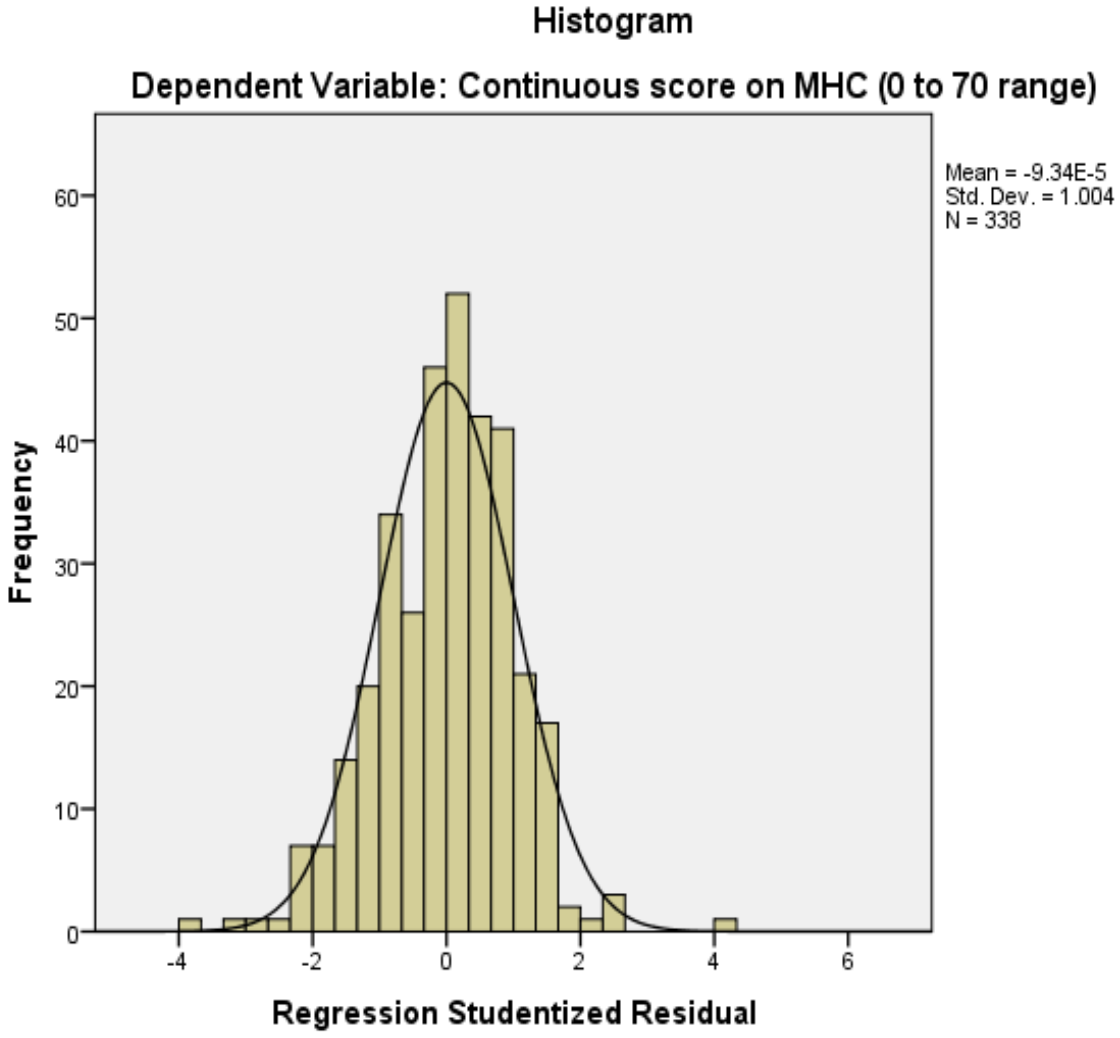
Appendix K: Outlier Statistics of Regression Analysis

Outlier Statistics Generated in Regression Analyses

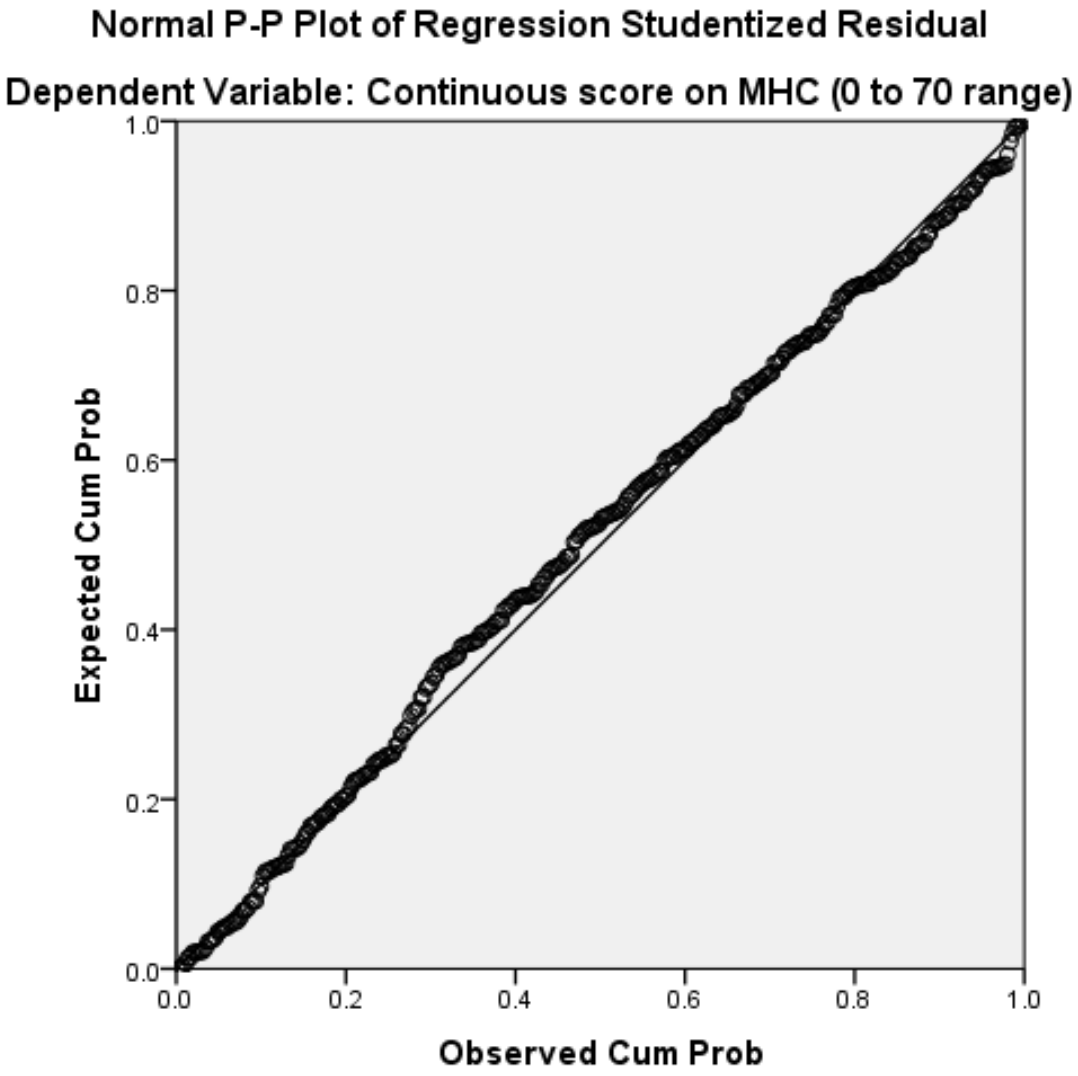
Outlier Statistics				
		Case Number	Statistic	Sig. F
Stud. Residual	1	85	4.009	
	2	184	-3.689	
	3	238	-3.271	
	4	116	-2.800	
	5	31	2.613	
	6	130	2.525	
	7	240	-2.500	
	8	285	2.422	
	9	300	-2.240	
	10	294	-2.213	
Stud. Deleted Residual	1	85	4.104	
	2	184	-3.762	
	3	238	-3.321	
	4	116	-2.830	
	5	31	2.636	
	6	130	2.546	
	7	240	-2.521	
	8	285	2.440	
	9	300	-2.254	
	10	294	-2.227	
Cook's Distance	1	85	.136	.999
	2	130	.078	1.000
	3	116	.068	1.000
	4	285	.044	1.000
	5	184	.035	1.000
	6	176	.034	1.000
	7	40	.030	1.000
	8	50	.027	1.000
	9	31	.025	1.000
	10	240	.024	1.000

Note. a. Dependent Variable: Continuous score on MHC (0 to 70 range)

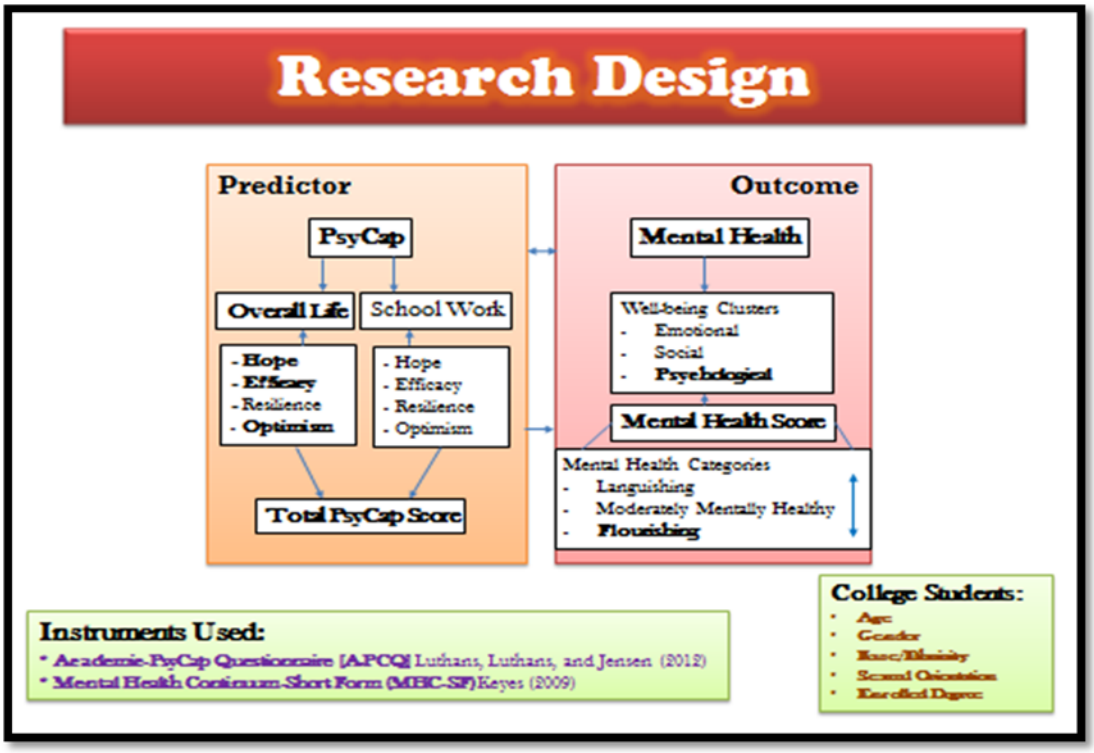
Appendix L: Histogram Showing the Normal Distribution of Regression Standardized Residual



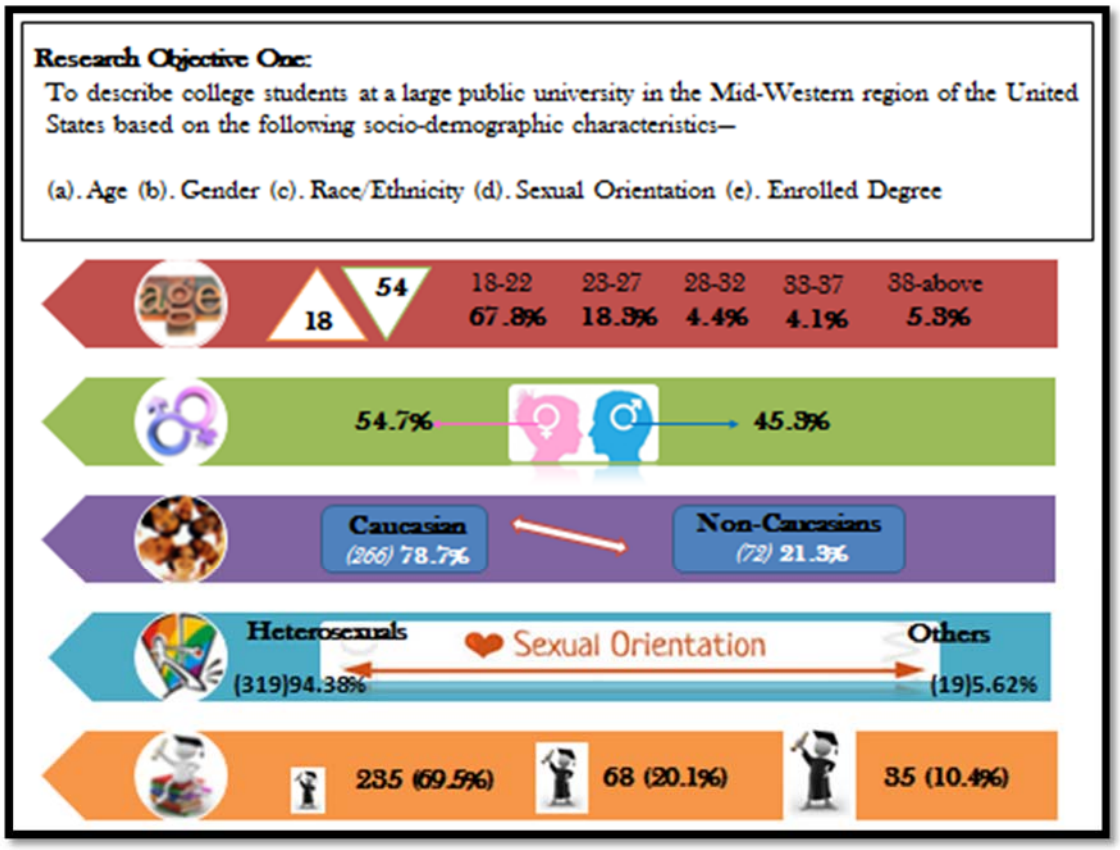
Appendix M: Graph Showing the Expected vs Observed Cumulative Probability



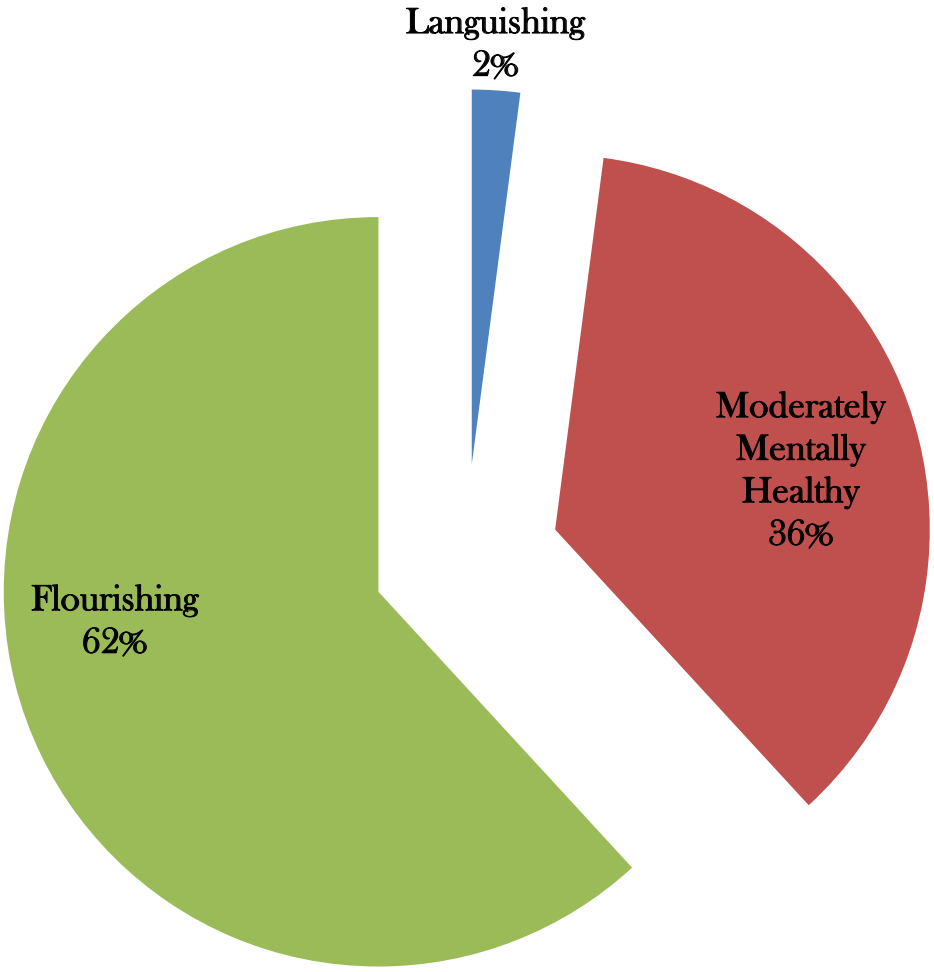
Appendix N: Research Design Shown in a Pictorial Form



Appendix O: Pictorial Representation of Research Objective One Findings



Appendix P: Pie-Chart Distribution of the Mental Health Categories of the Sample



Appendix Q: Bar Graphs Showing Eight HERO dimensions of both Overall-life and School-work PsyCap Categories across Three Mental Health Categories

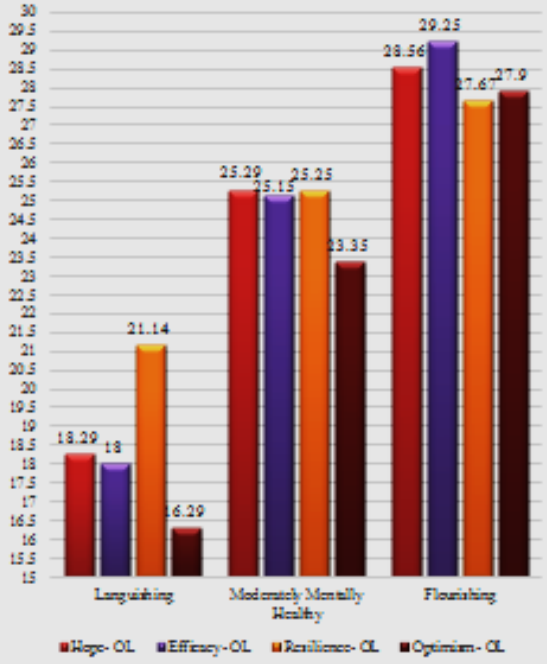


Figure Showing HERO dimensions of PsyCap in Overall-Life Category across Mental Health Categories

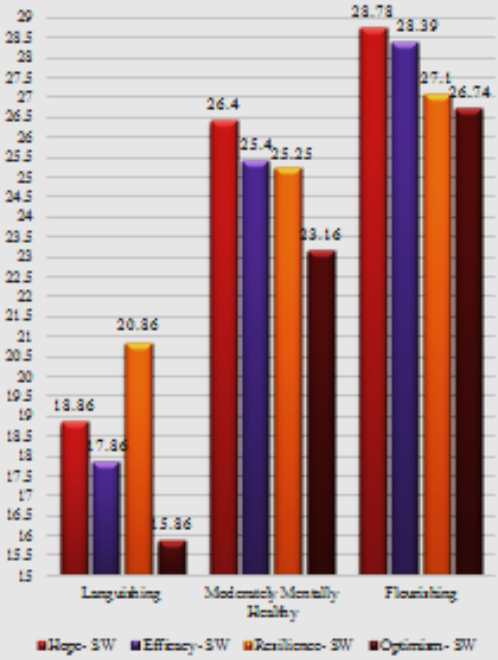


Figure Showing HERO dimensions of PsyCap in School-Work Category across Mental Health Categories

Appendix R: Pairwise Comparisons of Mental Health Categories Using Tukey HSD and LSD Tests.

DV		(I)	(J)	Mean Difference (I-J)	95% Confidence Interval	
					Lower Bound	Upper Bound
Overall-life Hope	Tukey HSD	1	2	-7.001*	-10.95	-3.06
			3	-10.274*	-14.17	-6.37
		2	1	7.001*	3.06	10.95
			3	-3.273*	-4.43	-2.12
		3	1	10.274*	6.37	14.17
			2	3.273*	2.12	4.43
	LSD	1	2	-7.001*	-10.30	-3.70
			3	-10.274*	-13.53	-7.02
		2	1	7.001*	3.70	10.30
			3	-3.273*	-4.24	-2.31
		3	1	10.274*	7.02	13.53
			2	3.273*	2.31	4.24
Overall-life Efficacy	Tukey HSD	1	2	-7.148*	-11.18	-3.11
			3	-11.254*	-15.24	-7.27
		2	1	7.148*	3.11	11.18
			3	-4.106*	-5.29	-2.92
		3	1	11.254*	7.27	15.24
			2	4.106*	2.92	5.29
	LSD	1	2	-7.148*	-10.52	-3.78
			3	-11.254*	-14.59	-7.92
		2	1	7.148*	3.78	10.52
			3	-4.106*	-5.09	-3.12
		3	1	11.254*	7.92	14.59
			2	4.106*	3.12	5.09
Overall-life Resilience	Tukey HSD	1	2	-4.111*	-7.69	-.53
			3	-6.532*	-10.07	-2.99
		2	1	4.111*	.53	7.69
			3	-2.421*	-3.47	-1.37
		3	1	6.532*	2.99	10.07
			2	2.421*	1.37	3.47
	LSD	1	2	-4.111*	-7.10	-1.12
			3	-6.532*	-9.49	-3.57
		2	1	4.111*	1.12	7.10
			3	-2.421*	-3.30	-1.54
		3	1	6.532*	3.57	9.49
			2	2.421*	1.54	3.30
Overall-life Optimism	Tukey HSD	1	2	-7.067*	-11.30	-2.83
			3	-11.619*	-15.80	-7.43
		2	1	7.067*	2.83	11.30
			3	-4.552*	-5.79	-3.31
		3	1	11.619*	7.43	15.80
			2	4.552*	3.31	5.79
	LSD	1	2	-7.067*	-10.60	-3.53
			3	-11.619*	-15.12	-8.12

		2	1	7.067*	3.53	10.60
			3	-4.552*	-5.59	-3.51
		3	1	11.619*	8.12	15.12
			2	4.552*	3.51	5.59
School-work Hope	Tukey HSD	1	2	-7.544*	-11.69	-3.39
			3	-9.918*	-14.02	-5.82
		2	1	7.544*	3.39	11.69
			3	-2.373*	-3.59	-1.16
		3	1	9.918*	5.82	14.02
			2	2.373*	1.16	3.59
	LSD	1	2	-7.544*	-11.01	-4.08
			3	-9.918*	-13.35	-6.49
		2	1	7.544*	4.08	11.01
			3	-2.373*	-3.39	-1.36
		3	1	9.918*	6.49	13.35
			2	2.373*	1.36	3.39
School-work Efficacy	Tukey HSD	1	2	-7.544*	-11.85	-3.24
			3	-10.530*	-14.79	-6.27
		2	1	7.544*	3.24	11.85
			3	-2.986*	-4.25	-1.72
		3	1	10.530*	6.27	14.79
			2	2.986*	1.72	4.25
	LSD	1	2	-7.544*	-11.14	-3.95
			3	-10.530*	-14.09	-6.97
		2	1	7.544*	3.95	11.14
			3	-2.986*	-4.04	-1.93
		3	1	10.530*	6.97	14.09
			2	2.986*	1.93	4.04
School-work Resilience	Tukey HSD	1	2	-4.397*	-8.12	-.67
			3	-6.243*	-9.93	-2.56
		2	1	4.397*	.67	8.12
			3	-1.846*	-2.94	-.75
		3	1	6.243*	2.56	9.93
			2	1.846*	.75	2.94
	LSD	1	2	-4.397*	-7.51	-1.28
			3	-6.243*	-9.32	-3.17
		2	1	4.397*	1.28	7.51
			3	-1.846*	-2.76	-.93
		3	1	6.243*	3.17	9.32
			2	1.846*	.93	2.76
School-work Optimism	Tukey HSD	1	2	-7.307*	-11.35	-3.26
			3	-10.880*	-14.88	-6.88
		2	1	7.307*	3.26	11.35
			3	-3.573*	-4.76	-2.39
		3	1	10.880*	6.88	14.88
			2	3.573*	2.39	4.76
	LSD	1	2	-7.307*	-10.69	-3.93
			3	-10.880*	-14.22	-7.54
		2	1	7.307*	3.93	10.69
			3	-3.573*	-4.56	-2.58
		3	1	10.880*	7.54	14.22
			2	3.573*	2.58	4.56
		1	2	-25.327*	-37.99	-12.67

Total Overall-life Score	Tukey HSD		3	-39.678*	-52.19	-27.16
		2	1	25.327*	12.67	37.99
			3	-14.351*	-18.06	-10.64
		3	1	39.678*	27.16	52.19
			2	14.351*	10.64	18.06
	LSD	1	2	-25.327*	-35.90	-14.75
			3	-39.678*	-50.14	-29.22
		2	1	25.327*	14.75	35.90
			3	-14.351*	-17.45	-11.25
		3	1	39.678*	29.22	50.14
			2	14.351*	11.25	17.45
Total School-work Score	Tukey HSD	1	2	-26.793*	-40.07	-13.52
			3	-37.571*	-50.70	-24.45
		2	1	26.793*	13.52	40.07
			3	-10.779*	-14.67	-6.89
		3	1	37.571*	24.45	50.70
			2	10.779*	6.89	14.67
	LSD	1	2	-26.793*	-37.88	-15.70
			3	-37.571*	-48.54	-26.61
		2	1	26.793*	15.70	37.88
			3	-10.779*	-14.03	-7.53
		3	1	37.571*	26.61	48.54
			2	10.779*	7.53	14.03
Overall PsyCap Score	Tukey HSD	1	2	-52.119*	-75.97	-28.27
			3	-77.249*	-100.83	-53.67
		2	1	52.119*	28.27	75.97
			3	-25.130*	-32.12	-18.14
		3	1	77.249*	53.67	100.83
			2	25.130*	18.14	32.12
	LSD	1	2	-52.119*	-72.05	-32.19
			3	-77.249*	-96.95	-57.54
		2	1	52.119*	32.19	72.05
			3	-25.130*	-30.97	-19.29
		3	1	77.249*	57.54	96.95
			2	25.130*	19.29	30.97

*Mean significance is significant at the 0.05 level

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