

**THE ROLE OF HOPE AND OPTIMISM ON GRADUATE STUDENTS'
ACADEMIC PERFORMANCE, PHYSICAL HEALTH AND WELL-BEING**

A Dissertation

by

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ABSTRACT

Graduate school is a challenging time period in terms of dealing with the academic and life stressors that are unique to graduate students. Many students enrolled in graduate school, particularly doctoral students, do not complete their programs. The current investigation sought to extend previous research on hope and optimism by examining their roles in student outcomes in a diverse sample of graduate students. Findings have implications for identifying factors that may be associated with student attrition rate.

In this non-experimental quantitative research study, 358 graduate students voluntarily participated by completing an online survey. The findings suggest that hope and optimism support better academic and healthy functioning to some extent. Based on the results, hope might be a more adaptive personality variable than optimism with regard to students' academic functioning. A high degree of hope was associated with a higher belief in personal ability to accomplish academic tasks, which in turn predicted a higher overall GPA. A high degree of hope also accounted for significant variance in predicting students' self-perceived graduation. By contrast, optimism was found to be a relevant individual difference variable in predicting self-perceived physical health. Students high in optimism, not hope, reported significantly less concerns with their physical health. With regard to subjective well-being, hopeful and optimistic students were found to be equally satisfied with their life.

DEDICATION

This dissertation is dedicated to my parents for their encouragement, prayers and love throughout my entire life. It would have been impossible to reach my goals without the support of my beloved parents. I also greatly appreciated the support, love, and prayers of my family members, including my sister, brother, grandmother, grandfather, aunts, and uncles. I consider myself lucky for having such a caring and supportive family. I would like to extend my sincere thanks to my mother-in-law and father-in-law for their incredible help in taking care of my little baby and for their incredible support during the writing process of this dissertation. I am also grateful to my dear husband for his patience, love, encouragement and constant support whenever I struggled in life and graduate school. I am glad to meet you during the course of my doctoral study and share my life with you. Most importantly, I am thankful to God for blessing me with a precious gift, Asim, whose existence is my source of motivation, happiness, and positive outlook toward life.

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TABLE OF CONTENTS

	Page
ABSTRACT	ii
DEDICATION	iii
ACKNOWLEDGEMENTS	iv
TABLE OF CONTENTS	v
LIST OF FIGURES.....	vii
LIST OF TABLES	viii
CHAPTER I INTRODUCTION	1
Statement of the Problem	3
Significance of the Research	4
The Purpose of the Study and the Research Questions	6
CHAPTER II LITERATURE REVIEW	7
Positive Psychology	7
Hope	9
The Relationship between Hope and Academic Performance	11
The Relationship between Hope, Health and Well-Being	13
Optimism	15
The Relationship between Optimism and Academic Performance	22
The Relationship between Optimism, Health and Well-Being	25
CHAPTER III METHODOLOGY	29
Participants	29
Instruments	31
Demographic Information Questionnaire.....	31
Adult Hope Scale (AHS).....	31
Revised Life Orientation Test (LOT-R).....	32
Academic Self-Efficacy Scale.....	32

Achievement Goal Questionnaire-Revised (AGQ-R).....	33
Academic Performance	33
Anticipated Graduation Time.....	33
Multidimensional Scale of Perceived Social Support (MSPSS).....	34
Financial Support	34
Cohen-Hoberman Inventory of Physical Symptoms (CHIPS).....	35
Satisfaction With Life Scale (SWLS)	35
Perceived Stress Scale (PSS).....	36
Procedures	36
Data Analysis	37
 CHAPTER IV RESULTS	 39
Preliminary Analysis	39
Descriptive and Inferential Statistical Analysis	41
Differences in Major Variables based on Demographics.....	41
Gender	42
Age	42
Time in the Program.....	42
Educational Level.....	43
Marital Status	43
Ethnicity	43
Holding F1/J1 International Student Visa	44
English Language Proficiency.....	44
Research Question 1	45
Research Question 2	49
Research Question 3	53
 CHAPTER V DISCUSSION AND CONCLUSION	 61
The Role of Hope and Optimism in Academic Performance.....	61
The Role of Hope and Optimism in Physical Health	67
The Role of Hope and Optimism in Subjective Well-Being.....	70
Conclusion.....	73
Limitations and Future Directions.....	74
 REFERENCES	 78

LIST OF FIGURES

FIGURE	Page
1 Schematic Description of the Feedback Loop.....	18
2 A Structural Equation Model of the Relationships among Hope, Optimism, GPA, Physical Health, Well-Being and Academic Self-Efficacy.....	60

LIST OF TABLES

TABLE	Page
1 Demographic Information of Participants	30
2 Mean and Standard Deviation of the Study Variables	41
3 Partial Correlation Results for GPA, Hope, Agency, Pathways, Optimism and Anticipated Graduation	45
4 Hierarchical Multiple Regression Analysis for Predicting Anticipated Graduation	49
5 Partial Correlation Results for Hope, Optimism, Financial and Social Support, Perceived Stress, SWLS, and Physical Health	50
6 Hierarchical Multiple Regression Analysis for Predicting Satisfaction with Life	52
7 Hierarchical Multiple Regression Analysis for Predicting Physical Health	53
8 Partial Correlation Results for GPA, Hope, Optimism, Academic Self-Efficacy and Goal Orientations	56

CHAPTER I

INTRODUCTION

According to data from Council of Graduate Schools (CGS) Ph.D. Completion Project, only 57% of students complete their education within 10 years of starting their Ph.D. program (Sowell, Zhang, Redd, & King, 2008). This statistic suggests that almost half of the doctoral students are leaving their programs unfinished. Sowell et al. (2008) identified financial support, good academic mentoring, and advising, as well as non-financial family support as facilitator factors for students pursuing a doctoral degree. On the other hand, mismatch between student goals and the program, lack of connectedness with other students and faculty, absence of well structured cognitive maps to succeed in graduate school, inadequate advising, funding related issues, and some personal factors were listed as the causes of leaving graduate school unfinished (Lovitts, 2001).

The high attrition rate from graduate school has negative impacts on students, universities, and society. Non-completion of the graduate degree results in missing out not only the well-educated and trained individuals in the society, but also the contributions that they would have made throughout their careers (Lovitts, 2001). It negatively affects universities, in terms of lost resources and time. In addition to societal and institutional costs, dropping out has financial, psychological and emotional consequences for individuals who do not finish their graduate programs (Litalien & Guay, 2015; Lovitts, 2001; Lovitts & Nelson, 2000).

Researchers have shown a keen interest in understanding and investigating the factors that contribute to the optimal functioning of students in school and that lead to

desirable student outcomes such as high academic performance, good health, and greater well-being. As a result of their efforts, a number of factors have been identified as predictors of desirable student outcomes (e.g., Paunonen & Ashton, 2001; Robbins et al., 2004; Ting & Robinson, 1998). While some of these factors are considered as less easily altered or cultivated, such as the intelligence quotient and socioeconomic status, some can be developed or nurtured throughout the lifespan, such as self-efficacy, resilience, and some personality variables (Steinberg, 2007). Though identifying both the innate and cultivated predictors is important to understand how they jointly influence learning and favorable life outcomes, determining predictors that could be acquired later in life may be more beneficial (Steinberg, 2007), especially for adult learners, in that adaptive indicators of functioning could be targeted and enhanced to promote desirable outcomes and prevent problematic ones.

Hope (Snyder et al., 1991) and optimism (Scheier & Carver, 1985) are two personality traits that can contribute to several positive outcomes (Rand, 2009). For instance, studies have revealed that hopeful and optimistic thinking have significant positive relationships with academic performance, physical health, and well-being (Carver & Scheier, 2014; Carver, Scheier, & Segerstrom, 2010; Rand, Martin, & Shea, 2011; Snyder, 2002; Snyder et al., 1991). More specifically, a higher level of hope is linked to a variety of desirable outcomes, including: better academic performance even when the personal capability or previous academic performance is statistically controlled for (Day, Hanson, Maltby, Proctor, & Wood, 2010; Gallagher, Marques, & Lopez, 2016; Snyder et al., 2002); less likelihood of dropping out of school (Snyder et al., 2002);

fewer health related problems (Snyder, Feldman, Taylor, Schroeder, & Adams III, 2000); and lower levels of depression (Snyder et al., 1991). Likewise, optimism is associated with numerous benefits, such as better academic performance (Solberg Nes, Evans, & Segerstrom, 2009; Pajares, 2001), fewer physical health-related symptoms (Scheier & Carver, 1985; 1992), and fewer problems with adjustment, as well as lower levels of psychological distress (Aspinwall & Taylor, 1992; Scheier & Carver, 1992). In brief, these two human traits play a significant role in enhancing the quality of human experiences and promoting optimal functioning.

Statement of the Problem

Graduate school is considered a time of dealing with arduous and intense tasks and higher levels of stress in comparison to the bachelor's level of education (Nelson, 1999). Many graduate students carry greater demands and responsibilities and the difficulties they experience are not restricted to school. For instance, based on the U.S. Census Bureau data (2011), 82.4 percent of graduate students in the U.S. are employed, and more than half of these students work full time. In brief, graduate students deal with challenges that may arise due to finances, family obligations, and job-related concerns besides academics. Thus, they are at a high risk for experiencing academic challenges and stress, which may be the reason for the high dropout rate in graduate school.

Hope and optimism are two individual strengths with variable components of “internalized agency, motivation, perseverance, and success expectations” (Avey, Luthans, & Youssef, 2010 p. 438). Thus, they may play an important role in the successful functioning of graduate students in attaining a graduate degree and dealing

with the stressors and anxiety that are inherent in the environment of graduate school. Although hope and optimism are essential human traits that could potentially enhance student functioning and result in academic success and better health (e.g., Carver et al., 2010; Carver & Scheier, 2014; Snyder, 2002; Solberg Nes et al., 2009), a recognition of their benefits related to academic performance and health among graduate students has not fully emerged in the literature. The limited research studies conducted in graduate settings also are not without limitations (e.g., small sample size) and necessitate further investigations to understand the influence of hope and optimism on graduate students' functioning.

Significance of the Research

Researchers have investigated the benefits of hope and optimism on student functioning. However, the majority of the existing studies regarding the influence of hope and optimism on student functioning have been conducted among traditional high school or undergraduate students (Rand et al., 2011). Research studies regarding the influence of hope and optimism on graduate students who have unique risk factors and stressors not usually encountered by undergraduate students are very limited (Rand et al., 2011). Moreover, the limited research on the joint influence of hope and optimism on higher education students functioning is mostly restricted with domestic students in their samples, which lack or underrepresent international graduate students, who may be more in need of hopeful and optimistic thinking to deal with demanding tasks or challenges in educational settings they are not familiar with. Thus, higher levels of hope and optimism may serve as a source of resiliency for them when dealing with academic struggles and

health-related problems in their new environment.

Based on the most recent Graduate Enrollment and Degrees data, the total number of graduate enrollment in the U.S. was approximately 1.7 million in the fall of 2014 (Allum & Okahana, 2015), whereas the total enrollment for international graduate students was 362,228 for the 2014-2015 academic years (Institute of International Education, 2015). The present study aimed to examine the role of hope and optimism on academic performance and health among a sample graduate student population that included international graduate students and to assess whether hope and optimism help against adversities, such as academic failure and illness.

Moreover, the relationship between hope and optimism on student functioning (i.e., academic performance) remains weak in several research studies (Feldman & Kubota, 2015). Also, conflicting results have been reported in the literature, especially regarding the role of optimism in achievement (Feldman, Davidson, & Margalit, 2015; Rand et al., 2011). Thus, this study investigated the potential mediating conditions of two essential constructs – academic self-efficacy and achievement goal orientation associated with academic work – to have a thorough understanding about the mechanism in which hope and optimism are related to academic performance.

Prior research demonstrated that social and financial resources support students in the pursuit of attaining degree (e.g., Danielsen, Wiium, Wilhelmsen, & Wold, 2010; Ehrenberg & Mavros, 1995; Jairam & Kahl, 2012) and promote healthy functioning (Aspinwall & Taylor, 1992; Choi, 2014; Reblin & Unchino, 2008; Segerstrom, 2007). Therefore, this research study assessed whether hope and optimism provide additional

predictions on student functioning above and beyond those provided by social and financial supports. In addition, as cited in the literature, further research with a large enough sample size is warranted to provide adequate power for detecting the hypothesized effects between the following study variables: hope, optimism, GPA, and well-being (Rand et al., 2011) and to test the generalizability of the findings of previous research in graduate school settings (Feldman & Kubota, 2015). Thus, this study examined the hypothesized relationships of the study variables in a large and diverse graduate student sample. The findings from this study are expected to contribute to the literature by clarifying the potential roles of hope and optimism in the academic performance, physical health, and subjective well-being of graduate students.

The Purpose of the Study and the Research Questions

The purpose of this study was to investigate, in a diverse sample of graduate students, whether hope and optimism predict academic performance, physical health, and well-being above and beyond financial and social support. The present study also intended to examine the effects of potential mediators on the relationship between hope and optimism in predicting students' academic functioning.

In this study the following research questions were addressed:

1. Do hope and optimism predict academic performance among graduate students?
2. Do hope and optimism provide unique predictions to graduate students' physical health and well-being above and beyond financial and social support?
3. Do academic self-efficacy and goal orientation mediate the relation between hope and optimism on graduate students' academic performance?

CHAPTER II

LITERATURE REVIEW

Positive Psychology

The identification of factors that could promote academic performance and enhance well-being is becoming an increasingly important scholarly area of research, and this approach or perspective is often associated with the field of positive psychology. Positive psychology shifted the focus of researchers in psychology from exploring human dysfunction and pathology to studying the positive elements of human functioning. As a result, the favorable aspects of human functioning and the strengths of humans (e.g., hope, optimism, creativity, forgiveness, curiosity) have started to receive greater scientific attention.

The Positive Psychology movement came about as a reaction to the exclusive focus of the discipline of psychology on pathology and problematic aspects of human functioning (Luthans, 2002). Until World War II, psychology as a field had been concerned with three missions: (1) healing mental health problems (2) fulfilling the lives of all people, and (3) nurturing human excellence (Seligman & Csikszentmihalyi, 2000). However, after World War II, the majority of psychologists began to focus on mental illnesses and pathology rather than fulfilling and optimizing human life and functioning. Thus, for decades, a heavy emphasis on human deficits and how to alleviate them has often resulted in neglect of the positive aspects of human nature and humans' strengths and potential (Seligman & Csikszentmihalyi, 2000).

The term "positive psychology" first appeared in Abraham Maslow's book titled

as *Toward a Positive Psychology* (Froh, 2004). In his writing, Maslow drew attention to the exclusive scientific focus on investigating pathology rather than the positive elements of human functioning and stated,

The science of psychology has been far more successful on the negative than on the positive side; it has revealed to us much about man's shortcomings, his illnesses, his sins, but little about his potentialities, his virtues, his achievable aspirations, or his full psychological height. It is as if psychology had voluntarily restricted itself to only half its rightful jurisdiction, and that the darker, meaner half (Maslow, 1954, p. 354, as cited in Froh, 2004).

In the beginning of the 21st century, the field of psychology was re-challenged by Martin Seligman, one of the progenitors of the positive psychology discipline, through his scientific contributions in the area of human resilience and optimism. During his presidency of the American Psychological Association, he bravely advocated for a revolutionary change in psychology by shifting the focus of the field from exploring human pathology and curing pathological deficits to recognizing the neglected positive aspects of human existence and how to nurture the lives of humans (Donaldson, Dollwet, & Rao, 2014).

Building on the earlier work of Maslow and then becoming widely known thanks to effort and work of Seligman and his colleagues, positive psychology has started to urge psychologists to adopt an understanding of all aspects of human functioning and has begun a paradigm shift away from the outdated and traditional disease model approach (Sheldon & King, 2001). With a fresh approach, positive psychology encourages researchers to explore the neglected positive aspects of human nature and draw a complete and clear understanding of the reality on human functioning.

Positive psychology aims to develop a holistic understanding of human nature by

exploring the neglected positive elements of functioning and cultivating what is right within the individual (Stebbleton, Soria, & Albecker, 2012), as opposed to the psychological focus that is heavily based on remedying the pathology and fixing what is wrong with the individual (Seligman & Csikszentmihalyi, 2000; Shushok & Hulme, 2006, in Stebleton et al., 2012). Nonetheless, it should be stated that positive psychology came about not as a replacement of, but as a complement to, the disease-oriented practice of psychology. Thus, disease-oriented and strengths-oriented research studies have both contributed to the literature on human development and functioning (Wright & Lopez, 2002).

In short, positive psychology aims to examine human strengths and virtues not just human weaknesses, contributors to success and health not just causes of problems, and nurturing and fulfilling lives of humans not just treating illnesses and fixing problems (Seligman & Csikszentmihalyi, 2000).

Hope

In the 1950s, psychological constructs that are similar to or closely related to hope started to appear in the literature (Magaletta & Oliver, 1999). The term *hope* emerged in literature first as a one-dimensional construct and defined as the general expectation to achieve goals (Snyder et al., 1991). This early definition of the construct was considered insufficient to explain the mechanism of the goal-seeking process (Snyder, 1995), resulting in reconceptualization of the construct. C.R. Snyder and his colleagues (1991) redefined hope as “a cognitive set that is based on a reciprocally derived sense of successful (a) agency (goal-directed determination) and (b) pathways

(planning of ways to meet goals)” (p.571) and proposed hope as a two-dimensional construct. The widely accepted conceptualization of hope by Snyder et al. (1991) emphasizes the goal-directed nature of hope and its two distinct components in explaining the goal-seeking process.

The first component, *agency thinking*, refers to the motivation and commitment to persistently move in the direction of desired goals whereas the second component, *pathways thinking*, refers to one’s perceived capability to develop effective strategies to reach desired goals. Pathways thinking requires the individual to possess the ability to formulate alternative routes to meet goals in the face of challenges. To provide a clear understanding of the goal-seeking process, it is necessary to integrate both agency and pathways components in conceptualizing hope. The two components of hope are considered mutually and positively linked to each other, but at the same time distinct from each other (Snyder, 2002; Snyder et al., 1991).

Snyder (2002) clarified the hope construct by discussing the essential elements in the definition and elaborated a visual model that represents the mechanism of hope for attaining goals. The framework of hope theory was developed on the assumption that the life of humans is goal-directed (Snyder, 2002). To initiate the goal pursuit process, it is essential to clearly articulate the desired goals, since hopeful thinking is not applicable to vague goals (Snyder, 1995; 2002).

Snyder’s definition of hope stresses the cognitive nature of the construct. Though the goal-seeking process is cognitive in nature, it is also not independent from emotions. Based on hope theory, an individual’s perceptions of attaining goals, or not, influence

his or her subsequent emotions, which in turn reflect his or her emotional state during goal pursuit activities. While positive emotions arise after successful goal attainment, negative emotions are experienced as a result of unsuccessful goal pursuits. For instance, individuals with high hopes possess a higher sense of commitment to achieving their goals. They also perceive their abilities as sufficient to generate routes towards reaching their goals, and focus on accomplishments instead of failures. All of these, in turn, create a positive emotional state during the goal pursuit process, and vice versa (Snyder, 2002; Snyder, 1995; Snyder et al., 1991).

Over the past twenty years, a large body of research studies has examined the role of hope in the goal pursuit process. Existing research studies in the literature on hope reveal a link between hopeful thinking and several positive outcomes, involving school achievement, employee performance, health, psychotherapy and adjustment. The following sections will provide a review of the relevant empirical findings on academic performance and health.

The Relationship between Hope and Academic Performance

The relation between hope and academic functioning has been demonstrated in several previous research studies conducted among different student samples. Snyder et al. (1991) described the profile of high-hope students, characterizing them as self-assured, inspired, excited, and challenged by their desired goals. A six-year longitudinal study revealed that higher hope scores predicted higher cumulative GPAs, even controlling for the variance relating to American College Testing (ACT) scores (Snyder et al., 2002). Moreover, study findings have reported that students with high hope levels

were more likely to graduate from college and less likely to be dismissed or drop out from school due to poor grades (Snyder et al., 2002). Consistently, the findings of a recent longitudinal study on dispositional hope showed that high hope levels predict student academic performance above their innate ability, personality variables, and previous academic scores (Day et al., 2010).

Furthermore, significant associations were found between hopeful thinking and obtaining higher scores on a standardized achievement test for grade school students (Snyder et al., 1997); the attainment of a higher cumulative grade-point average among high school, undergraduate and graduate students (Gallagher, Marques, & Lopez, 2016; Rand et al., 2011; Snyder et al., 1991); and increased levels of student academic performance among students enrolled in an online course (Bressler, Bressler, & Bressler, 2010). Studies among college athletes echoed similar results and revealed a significant positive correlation between hope and academic performance, measured in the form of grade-point averages (Curry, Snyder, Cook, Ruby, & Rehm 1997). In addition, higher levels of hope were related to greater academic life satisfaction and greater use of problem-solving abilities and coping strategies among college students (Chang, 1998).

Based on the theoretical framework of hope, the positive relation found between hope and academic performance is not surprising. More specifically, the academic performance of high-hope students is related to their ability to clearly conceptualize academic goals, to establish manageable pathways to attain academic goals, and to persistently engage in the process of reaching desired academic goals (Snyder, 2002; Snyder et al., 1991). In addition, high-hope students are better at breaking down goals

into manageable parts while students with low levels of hope tend to set vague and big goals, which may result in increase feelings of anxiety and frustration. Also, while students with high levels of hope are less likely to get distracted by task-irrelevant activities and negative feelings, low-hope students have difficulty staying focused and on-task (Snyder, 2002).

Although the findings of the above studies have shown hope to be a predictor of academic performance, the relation between hope and achievement remains weak in several previous research studies (Feldman & Kubota, 2015). In addition, contradictory findings regarding the unique effects of hope on academic performance are also found in the literature (e.g., Herrero, 2014; Yager-Elorriaga, Berenson, & McWhirter, 2014).

Given the conflicting findings of previous research, the need for further studies is warranted, since, in a number of studies, hope appears as a potential human strength to improve achievement. The influence of hopeful thinking on achievement might be more apparent in students (i.e., graduate students) dealing with more challenging scholastic demands for success. Hopeful thinking might serve as a protective buffer under such demanding circumstances. However, the aforementioned studies that did not demonstrate a significant or direct influence of hope on achievement either were conducted with traditional undergraduate students or had limitations, such as relatively small sample size (e.g., Yager-Elorriaga et al., 2014).

The Relationship between Hope, Health and Well-Being

Health and well-being are two essential elements tied to students' school performance (Novello, Degraw, & Kleinman, 1992). Evidence shows that healthy

students are more successful at academics, as well as at other aspects of life (Bradley & Green, 2013). Thus, the identification of variables that relate to physical health and well-being, which in turn promote student functioning, is vital. As a desirable personal attribute, hope has been associated with several positive health outcomes (see Snyder, 2002, for a review). Snyder (2002) related high hope levels to more engagement in preventative activities that reduce the development of physical and psychological illnesses. For instance, high-hope individuals reported more engagement with cancer prevention activities (Irving, Snyder, & Crowson, 1998) and stronger intentions to perform physical exercise (Harney, 1990 in Snyder, 2002).

The association between higher levels of hope and greater psychological functioning has been also reported in the literature. Findings of a recently conducted longitudinal study supported the notion that hope plays a supportive role in maintaining overall well-being for adolescents (Ciarrochi, Parker, Kashdan, Heaven, & Barkus, 2015). Moreover, higher levels of hope predicted better mental health for high school students (Marques, Pais-Ribeiro, & Lopez, 2011), lower levels of depression for undergraduates (Snyder et al., 1991), and high levels of satisfaction with life for law school students (Rand et al., 2011). In addition, higher levels of hope are linked to less psychological distress among cancer patients (Berendes et al., 2010) and greater well-being for parents with children who have externalizing problems (Kashdan et al., 2002).

As suggested by Seligman and Csikszentmihalyi (2000), hope is a desirable human strength with important outcomes for healthy well-being. Based on the findings of the above studies, hope is related to several health benefits in the domains of

prevention, effective coping, functioning, and recovery (Snyder, 2002). Given the health-related advantages of hope and the fact that health is an essential indicator of increased academic performance, developing interventions for nurturing hope in students seems a profitable way of assisting their functioning in school, as well as in everyday life. The fact remains that the role of hope in health outcomes has mostly been investigated among samples of patients and undergraduate students. Findings among undergraduate samples may not be applicable and generalizable to graduate students, since graduate students deal with more rigorous and advanced academic tasks and have a different profile in terms of age, experience, and responsibility, compared to undergraduates. Thus, this study investigated the influence of hope on graduate students' health, since stress and anxiety are high and prevalent among graduate students due to the nature of graduate school, which may negatively affect physical health and well-being.

Optimism

Early theoretical discussions of the concept of optimism have been emerged in the writings of seventeenth and eighteenth century philosophers such as Descartes, Voltaire, and Kant (Domino & Conway, 2001, in Boman & Mergler, 2014). Eminent psychologists and philosophers such as Hegel, Schopenhauer, Nietzsche, Freud, and James over the following two centuries also expressed opinions on the concept of optimism in their works (Domino & Conway, 2001). In their writings, these early influential scholars held either a neutral or a negative outlook on positive thinking, which was due to the dominant negative perspective on human nature in psychology in

their times. With the change in the outlook on human nature that occurred toward the end of the twentieth century, the construct of optimism started to be recognized as an essential attribute that individuals possessed at varying levels (Peterson, 2000).

Contemporary research has described two fundamental models of optimism that rely on different theories: Scheier and Carver's (1985) dispositional optimism model and Seligman's (1991) explanatory style model. In this dissertation, Scheier and Carver's (1985) dispositional optimism model was adopted, since it is the most widely used model of optimism and shows the strongest evidence for construct validity (Bryant & Cvengros, 2004).

Michael Scheier and Charles Carver are two notable researchers who studied optimism as a personality variable. They define optimism as "an individual difference variable that reflects the extent to which people hold generalized favorable expectancies for their future" (Carver et al., 2010 p. 879). As reflected in the definition, optimism is a general expectancy about life and is not tied to any specific context (Carver et al., 2010; Scheier & Carver, 1985). Thus, optimists are individuals with a tendency to have positive expectations about the world in general, whereas pessimists tend to anticipate negative outcomes in their lives (Carver et al., 2010).

Dispositional optimism was originally conceptualized as a one-dimensional psychological trait (Scheier & Carver, 1985), which was predominantly accepted by scholars. However, a bidimensional model of optimism, with two related but separate dimensions, one relevant to the positively framed optimism, and the other related to negatively framed pessimism, also existed in the literature (Bryant & Cvengros, 2010;

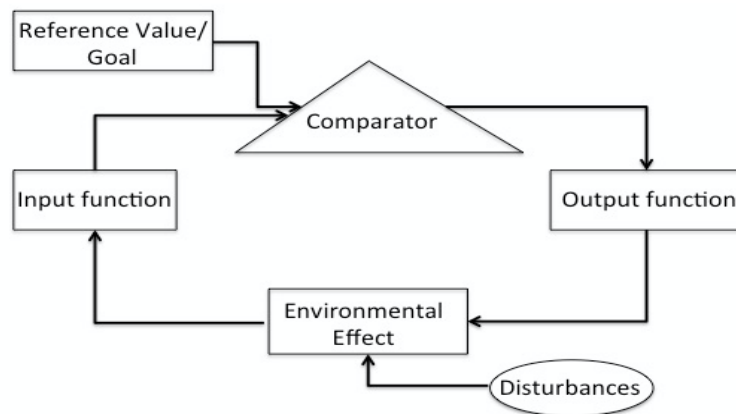
Carver et al., 2010). While the unidimensional assertion is that a person is either an optimist or pessimist (Scheier & Carver, 1985), the bi-dimensional model contends that optimism and pessimism are not the reverse sides of the same spectrum, but two distinct constructs, both possessed by people at varying levels (Dember, Martin, Hummer, Howe, & Melton, 1989 in Bryant & Cvengros, 2010). The controversy of whether optimism is unidimensional or bi-dimensional still remains in the literature (Carver & Scheier, 2014), which calls for further research for clarification (Carver et al., 2010).

Carver and Scheier embed the notion of dispositional optimism in their theory of self-regulation, which is rooted in the expectancy-value theory of motivation (Carver & Scheier, 2001; Scheier, Carver & Bridges, 1994). According to their self-regulation model, behaviors are construed as goal-directed and feedback-controlled (Carver & Scheier, 2001). They proposed that goal-directed behaviors are guided by a hierarchical discrepancy-reducing feedback loop. A feedback loop is composed of the following four elements—an input, a reference value, a comparator, and an output (Carver & Scheier, 1982; 2001).

An *input function* corresponds to the awareness of the present state and is influenced by the environment. The *reference value* corresponds to what is desired (i.e., goals). The role of the *comparator* is comparing the current state (input function) and the desired outcome (reference value) to determine the gap between the present state and what is desired, and the *output function* refers to a behavior or any mental/physiological response. If the comparison of the input and reference values does not produce any gap, the output function does not change. If there is a gap, the output function changes to

either diminish or increase the gap. In a discrepancy-reducing feedback loop (see Figure 1), the output changes to lessen the discrepancy/gap between the input and reference values. This change in the output reflects the attempt to attain a valued goal (Carver & Scheier, 1982; 2001).

Figure 1 Schematic Description of the Feedback Loop (adapted from Carver & Scheier, 2001)



When difficulties are experienced in a discrepancy-reducing feedback loop, the process shifts to an expectancy-assessment mechanism (Carver & Scheier, 1982). The expectancy assessment process begins with self-focused attention. Directing the attention to the self activates the comparator, which in turn may lead to a perceptible decrease in the discrepancy between one's perception of the present behavior (the input function) against the desired goals (reference value). If closing the gap, between the present state and the reference value is perceived as doable, the attempt for discrepancy reduction is successfully completed. However, if discrepancy reduction is perceived as

difficult, or if challenges occur while approaching the goal, the discrepancy reduction attempt remains unfinished, and a new process for assessing outcome expectancies becomes activated. This assessment process leads to either the further reengagement if expectancies –the sense of confidence or doubt in accomplishing a goal- are viewed as favorable. If expectancies are not seen as sufficiently favorable, the assessment process results in disengagement from further attempts (Carver & Scheier, 1982; 2001; Scheier & Carver, 1985).

Based on the expectancy-value theory of motivation, human actions are oriented to attaining desired goals. As reflected in the name of the theory, values and expectancies are the two core concepts. Based on the theory, goals are states or actions that vary in range from very general to more specific and are related to different aspects of life, such as work, relationships, etc. If people perceive a goal as desirable, they will express an increased *value*, a perceived importance of, or interest in, a domain, to attain the desired goal (Carver & Scheier, 2001). On the other hand, if people do not value a goal, they will not perform any action. Besides values, *expectancy* is the other facet of the theory; it is defined as the perceived self-assurance/confidence or doubt in the pursuit of attaining desired goals. If people possess enough confidence in reaching goals, they will put more effort in accomplishing those goals (Carver & Scheier, 2001). Conversely, being doubtful about attaining a goal will result in a lack of motivation and lack of engagement in goal-directed efforts. Dispositional optimism is more concerned with the expectancy aspect of the theory than the value aspect (Rand, 2009), since expectancies are the most essential concept of the construct (Scheier & Carver, 2009; Scheier, Carver,

& Bridges, 2001).

An individual's level of expectancy pertinent to the attainment of a goal predicts his or her behavior. While individuals with a high level of confidence in reaching a goal will persevere towards attaining the goal, individuals who are doubtful and hesitant may not start to perform an action or may withdraw effort at any time. As previously stated, optimism is proposed as a "general expectancy" about life independent from a specific context (Carver & Scheier, 2002; Scheier & Carver, 1985), so that individuals with high level of optimism are confident about attaining a goal in any given goal pursuit. Even in the face of great adversity and challenges, optimists expect that difficulties will be successfully handled, so they remain confident and persistent (Carver & Scheier, 2010; 2014).

During difficult times, not only do behavioral responses (continued efforts to attain goals for the optimist) vary between optimists and pessimists, but also their emotional reactions differ. Expectations of positive life outcomes increase positive emotions for optimists in any goal pursuit, no matter how challenging. Conversely, pessimistic individuals expect bad outcomes in life, so they experience more negative sets of emotions when confronted with adversity. Therefore, they tend to avoid initiating action or do not remain engaged with attaining goals when those goals seem challenging (Scheier & Carver, 1992; Scheier et al., 2001).

Dispositional optimism was conceptualized as a stable individual characteristic over time (Carver et al., 2010; Scheier & Carver, 1985). Consistently, several research studies provided findings to support to its stability, despite the fact that its stability was

found lower than that of many other personality traits (Carver et al., 2010). Nevertheless, a change in the optimistic trait over time has also been documented in several recent studies (Carver et al., 2010). For instance, Segerstrom (2007) examined the effect of optimism among law school students in a longitudinal study that lasted ten years. Based on her study findings, students' optimism levels showed stability as well as shifts over the course of the research study. This suggests that optimism is not always constant, but it is a changeable personality variable to some extent. Similarly, a recent intervention study looking at the changes in three personal resource variables (hope, optimism and self-efficacy) over time provided evidence that optimism is a changeable trait that can be enhanced through interventions (Feldman et al., 2015).

The reason why optimism has gained increased attention and popularity among psychologists in the last two decades is related to the variety of its consequences in various domains, ranging from health to aging to academics (Rudhig, Perry, Hall, & Hladkyj, 2004). Research has shown that individuals who possess positive beliefs about (a) their personal characteristics, (b) their ability to attain desired goals, and (c) their futures fare better than those who are either realistic or pessimistic (Brown & Marshall, 2001). Since the presence of this optimistic disposition has a variety of consequences, individual differences in optimism are believed to be essential indicators of performance and health among students.

The following section addresses the studies that have identified the contribution of optimism in the school setting. More specifically, research findings that relate to students' academic performance and healthy physical and psychological functioning are

presented.

The Relationship between Optimism and Academic Performance

Optimists are described as individuals who possess positive expectations and belief in attaining their desired goals in life. The question is: Do optimistic students who possess high expectations of success perform better in school compared to students with a realistic or pessimistic outlook? The answer to this question has become the focus of several research studies that examine the utility of optimism in academic settings.

Brown and Marshall (2001) investigated the influence of expectations on student task performance in laboratory settings among a sample of undergraduate students. Students with moderate or higher levels of expectancies for test performance did better academically than those with low expectancies under the difficult task condition of the study. Nevertheless, no difference was reported between student expectancy level and performance under the easy task condition. They concluded that while moderate or high expectancies benefit students by facilitating academic performance, negative thinking serves as a liability and is linked to poor performance.

Gibbons, Blanton, Gerrard, Buunk, and Eggleston (2000) researched the relationship between performance and the degree to which students compared themselves academically to others and assessed the role of optimism in this relationship. While a decrease in academic performance resulted in a decrease in the level of academic comparison for students with low levels of dispositional optimism, high-optimist students did not lower their academic comparison level due to a decline in performance. That is optimistic students maintained their higher level of academic

comparison, which facilitated performance through modeling and inspiration, even when they performed poorly. On the other hand, a decline in grades led to a decline in academic comparison levels among pessimists, which is consistent with theoretical tenet of dispositional optimism that pessimists are more likely to give up or deviate from attaining goals in the face of threat and stress.

Pajares (2001) tested whether a relationship existed between several positive psychological constructs, including optimism and academic achievement, among a sample of middle school students. The findings of the investigation revealed that optimism was significantly associated with motivation and academic achievement, measured in terms of GPAs. Due to the significant relationship that was found between optimism and achievement, he emphasized the importance of nurturing personality traits that have a positive influence on human functioning.

Optimism has also been shown to strongly affect academic functioning among first-year college students (Chemers, Hu, & Garcia, 2001). High-optimist college students expected to obtain better academic outcomes, which in turn influenced their attainment of better academic performance than students who were less optimist. As noted by the authors, optimist students perceived their university experiences not as threats but as challenges, and believed that challenges in their new environment could be successfully handled. This proactive dispositional tendency led them to show confidence and persistence in the face of academic difficulties, rather than causing them to drop out of school (Chemers et al., 2001).

Moreover, Solberg Nes, Evans, and Segerstrom (2009) examined whether an

optimistic tendency has an influence on college retention among college freshman. As expected, their findings suggest that optimism is a beneficial personality trait that plays a significant role in the retention of first-year college students through motivation and adjustment. Related to this, in a longitudinal study of first-year college students, Ruthig, Haynes, Stupnisky, and Perry (2008) tested whether perceived academic control mediates the roles of optimism and social support in psychological well-being, which in turn predicts degree attainment and GPA. The researchers reported that perceived academic control did mediate the role of optimism in students' psychological well-being, which in turn predicted their degree commitment and cumulative GPA.

McBride (2012) examined the role of three motivational measures in predicting students' academic achievement and well-being. The findings show that individual motivational measures, including optimism, influence the system of competence and control – a complex interaction among beliefs, actions and outcomes –, which in turn strongly influences student achievement, as well as general well-being.

The results of the aforementioned studies reported optimism as a trait adaptive to school settings and provided support for its contributions to positive academic functioning. However, contrary findings indicating a weak or insignificant relationship between optimism and achievement also exist (e.g. Aspinwall & Taylor, 1992; Feldman et al., 2015; Rand et al., 2011; Rand, 2009). This equivocal findings between optimism and academic achievement necessitate further research for clarification, since optimism is a potentially beneficial personality variable associated with optimal human functioning (Gallagher & Lopez, 2009).

The Relationship between Optimism, Health and Well-Being

A large number of research studies reveal the contribution of optimism for good health and well-being and furnish evidence that optimists are more healthier than pessimists (e.g., Carver et al., 2010; Gallagher & Lopez, 2009; Rasmussen, Scheier, & Greenhouse, 2009; Scheier & Carver, 1992). The relevance of optimism to health is a reasonable expectation and can be justified in several ways. As noted previously, the model of self-regulation begins with self-focused attention and ends with either goal attainment for optimists or goal avoidance for pessimists. Individuals high in dispositional optimism pay attention to their body and monitor their wellness to make sure their state of health is at the ideal level. If a discrepancy exists between the present state of health and the ideal state of health, optimists regulate their behaviors and use proactive effort in order to stay healthy and fit. For example, individual with higher level of self-attention have a higher tendency to seek out knowledge about their health, see physician for a routine check-up or to monitor their wellness and symptoms (Scheier & Carver, 1982).

Optimism is a trait linked to positive expectations and constructive thinking in life (Lobel, DeVincent, Kaminer, & Meyer, 2000). Since optimists expect to encounter positive outcomes in life, they believe that their efforts will be successful instead of going down the drain. Also, thinking constructively may lead to more productive responses to stressful and negative life events and circumstances, and increase resiliency (Carver et al., 2010).

When confronted with a threat to health, individuals with a higher level of

optimistic thinking are more likely to perceive threats as manageable, and their cognitive reaction will be more affirmative, which may lower physiological stress, and this, in turn may result in less bodily damage and better physical health (Carver & Scheier, 2014; Carver et al., 2010). Optimism also influences health through the promotion of health-protecting behaviors and the avoidance of health-defeating behaviors, which minimizes risks to wellness (Carver & Scheier, 2014; Carver et al., 2010; Scheier et al., 2001). For example, health-protecting habits expressed by optimists are smoking less, exercising more, taking vitamins, consuming more healthy food, and drinking less alcohol (Carver & Scheier, 2014; Giltay, Geleijnse, Zitman, Buijsse, & Kromhout, 2007; Scheier & Carver, 1992).

On the other hand, pessimism was associated with negative health outcomes (Carver et al., 2010). For instance, cancer patients who received radiation treatment were followed for eight months. At the last follow-up, pessimistic cancer patients were found less likely to be alive than optimists (Schulz, Bookwala, Knapp, Scheier, & Williamson, 1996). Moreover, pessimism was found to be a stronger risk factor in engaging with health-defeating behaviors such as suicide, substance abuse, and so forth (see Carver et al., 2010).

Prior work that revealed the positive impact of optimism on physical health was mostly conducted in the domain of health psychology (Carver et al., 2010). Nonetheless, the findings were to applicable to academic settings and to various student samples. Scheier and Carver (1985) assessed the physical well-being of a sample of college students over the final weeks of their academic semester, a stressful time period for most

of the students. Their findings revealed that optimist college students developed significantly fewer physical symptoms over the final period than their counterparts who had low levels of optimism.

Aspinwall and Taylor (1992) examined the adjustment of a group of first-year undergraduate students to college. The participants' physical and psychological well-being were assessed at the beginning and the end of the first semester. The results showed that optimism had a significant influence on psychological distress, which in turn affected physical well-being. Also, these students were found to adjust better to college than pessimists. Scheier and Carver (1991) assessed the adjustment of a sample of freshmen. They found that optimism was significantly related to being less distressed, less depressed, less socially isolated, and more socially supported throughout the first semester at college. Moreover, the role of optimism in psychological health was assessed among freshmen in Canada (Ruthig et al., 2008). As expected, optimism was significantly related to lower levels of stress and depression.

In a study involving medical students, Stewart et al. (1997) examined the factors that predicted stress in medical school. Students with low levels of dispositional optimism were more likely to encounter symptoms of depression and anxiety. Segerstrom, Taylor, Kemeny, and Fahey (1998) explored the effects of dispositional optimism on law school students' psychological well-being and immune systems. Not surprisingly, optimism was related to better mood and immune responses. More recently, Lench (2011) assessed the health related benefits of optimistic thinking among undergraduate students and found that optimism as a significant predictor physical health

symptoms, which was due to the lesser number of avoidance goals students set in their life.

To conclude, all of the above studies reported that optimists differ from pessimists in coping with and responding to health threats. The differences may stem from their coping strategies when confronting stressful situations. Research suggests that while optimist individuals are prone to using both problem-focused and adaptive-emotion focused coping strategies (e.g., accepting of the reality, the use of humor, putting the situation in the best light possible, etc.), when stressors are interfering, pessimists are more likely to use avoidant coping by either mentally or behaviorally disengaging from goals or overtly denying a challenging situation (Carver et al., 2010; Scheier et al., 1994; 2001).

Comparing to their native colleagues, the benefits of optimistic thinking on health and well-being might be more apparent and stronger among international graduate students, since they suffer more from health-related problems (Sam & Eide, 1991). This study assessed the role of optimism on health among a diverse sample of graduate students including international students, as well.

CHAPTER III

METHODOLOGY

Participants

The study was conducted at Texas A&M, the largest research university in the southwest U.S. According to the Texas A&M University Data and Research Services Enrollment Profile (2016), the number of graduate students at Texas A&M University College Station Campus was 10,378 during the spring 2016 semester. While the number of master's students was 5,831, the remaining 4,547 students were studying at the doctoral level. Moreover, among the total number of graduate students, the number of international students was 4,152. For this study, participants were recruited from among the graduate student population, which was part of a convenient sample at Texas A&M University. All potential study participants were contacted via email and informed about the study with the assistance of Texas A&M University Information Technology.

A total of 358 graduate students voluntarily participated in the survey. The participants consisted of 62.8% ($n = 225$) female graduate students, and 37.2% ($n = 133$) male graduate students. The age of the participants ranged from 18 to 62 years old ($M = 27.97$ years, $SD = 6.88$). While 68.4% of the sample ($n = 245$) consisted of native graduate students, 31.6% of the sample ($n = 113$) consisted of international graduate students. Table 1 presents the participants' demographic information in more detail.

Table 1
Demographic Information of Participants

	<i>n</i>	<i>%</i>
Gender		
Male	133	37.2
Female	225	62.8
Time in the Program		
Less than a year	142	39.7
1 to 2 years	97	27.1
2 to 3 years	47	13.1
3 to 4 years	28	7.8
4 to 5 years	31	8.7
More than 5 years	13	3.6
Educational Level		
Master's	197	55
Ph.D.	161	45
Ethnicity		
White	185	51.7
Hispanic, Latino	35	9.8
Black or African	14	3.9
Asian	103	28.8
American Indian	2	0.6
Native Hawaiian	1	0.3
Middle Eastern	7	2.0
Other	11	3.1
Marital Status		
Single	181	50.6
Dating for more than 6 months	81	22.6
Married	91	25.4
Other (Divorced, Widowed and etc.)	5	1.4
Holding F1/J1 International Student Visa		
Yes	245	68.4
No	113	31.6
English Language Proficiency*		
Fair	9	8.0
Satisfactory	15	13.3
Good	43	38.1
Excellent	46	40.7

N=358 *N=113

Instruments

In the current study, the following instruments were utilized and the internal consistency of the study instruments (e.g., the Cronbach alpha statistics) was calculated.

Demographic Information Questionnaire

The demographic questionnaire included questions about the participants' demographics, such as gender, age, educational level, ethnic background, marital status, and the length of residency in the graduate program. The questionnaire also included a specific question for international students in order to assess their self-reported English language proficiency, on a 5 point Likert-scale that ranged from 1 (poor) to 5 (excellent).

Adult Hope Scale (AHS)

The AHS is a 12-item self-reporting measurement to assess an individual's dispositional hope level (Snyder et al., 1991). The instrument consists of two subscales: pathways and agency. The pathways and agency subscales are composed of four items, with four additional items serving as distracters that are not included in the scoring of the subscales. Based on Snyder's hope theory, pathways thinking refers to the perceived capability to come up with effective routes/paths in order to reach goals, and agency thinking reflects an individual's personal motivation to sustain efforts to achieve defined goals (Snyder et al., 1991). The AHS was developed to assess an individual's trait of hope, or dispositional hope, rather than his or her current state of hope. Previous research shows that the Adult Hope Scale positively correlates with some similar psychological constructs such as optimism and self-esteem, and negatively correlates with opposite constructs, such as depression, which supports the concurrent validity of the scale

(Snyder et al., 1991). Participants are expected to indicate their agreement with each item on an 8-point Likert-type scale. While 1 indicates (definitely false), 8 refers (definitely true). An overall score is calculated by adding together the scores of the two subscales (pathways and agency). The original study revealed a Cronbach's alpha score for the scale in a range between .74 and .84 (Snyder et al., 1991). In this present study obtained a coefficient alpha of .85 on the total scale. While the alpha coefficient of the agency subscale was .79, the alpha coefficient of the pathways subscale was .77.

Revised Life Orientation Test (LOT-R)

The LOT-R is a 10-item self-reported inventory that measures the trait optimism (Scheier, Carver, & Bridges, 1994). The original scale, the LOT (Scheier & Carver, 1985), was revised and improved by removing two items that did not deal with the intended purposes of the measure. The instrument is consisted of three optimism, three pessimism, and four distractor, or filler, items. Items on the LOT-R are rated on a 5-point Likert-type scale, ranging from 0 (strongly disagree) to 4 (strongly agree). An overall score is calculated by adding the scores of the optimism and pessimism items after reverse scoring the negatively coded pessimism items. The Cronbach's alpha of the scale was .78 in the original study (Scheier et al., 1994). A large body of existing research supports the reliability and the validity of the scale. In the current study, the Cronbach's alpha for this scale was .75.

Academic Self-Efficacy Scale

The Academic Self-Efficacy Scale consists of 8-items that measure confidence in performing academic work (Chemers, Hu, & Garcia, 2001). Respondents are asked to

rate their responses on items, using a 7-point Likert-type scale, ranging from 1 (very untrue of me) to 7 (very true of me). An overall score is calculated by adding scores across all the items, with a high score reflecting high confidence in performing academic tasks. The Cronbach's alpha of the instrument was .81 in the original study. In the present study, the Cronbach's alpha of this scale was .83.

Achievement Goal Questionnaire-Revised (AGQ-R)

The AGQ-R is a 12-item instrument that measures achievement goals (Elliot & Murayama, 2008). The instrument consists of four subscales: mastery approach, mastery avoidance, performance approach, and performance avoidance. Each of these subscale composed of three items that are rated on a 7-point, Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree). An overall score is calculated by adding all of the scores across items. Higher scores on the scale indicate a stronger endorsement of the achievement goal. In a study by Elliot and Murayama (2008), the Cronbach's alpha of the AGQ-R subscales ranged from .84 to .94. In the current study, the Cronbach's alpha of the subscales ranged from 0.70 to 0.87.

Academic Performance

Student academic performance was measured using participants' self-reported cumulative grade point average (GPA). GPA is a widely used measure of academic performance in the literature (Richardson, Abraham, & Bond, 2012) and is accepted as a predictor of student achievement and academic retention (Snyder et al., 2002).

Anticipated Graduation Time

Participants' anticipated graduation within a designated or expected time period

was assessed through a 10-point scale. Participants responded to the following question: “How likely do you think you will graduate from your program within the designated period of time?” and marked their response on a 10 point scale while the “1” at the bottom indicates “impossible”, and “10” at the top indicates “absolutely certain”.

Multidimensional Scale of Perceived Social Support (MSPSS)

The MSPSS is a 12-item inventory of assessing perceived social support (Zimet, Dahlem, Zimet, & Farley, 1988). The instrument assesses an individual’s perceived support from three sources: family, friends and significant others. Each of these three support sources is composed of four items. Items on MSPSS are rated on a 7-point Likert scale ranging from 1 (very strongly disagree) to 7 (very strongly agree). An overall score is calculated by adding the scores of all of the scale items, which ranged from 12 to 84. In Zimet, Dahlem, Zimet, and Farley (1988)’s study, the Cronbach’s alpha of the MSPSS subscales ranged from .84 to .92. In addition, the strong factorial validity of the scale was supported (Zimet, Powell, Farley, Werkman, & Berkoff, 1990). In the current study, the Cronbach’s alphas were .92, .89, and .97 for friends, family, and significant others, respectively, and the Cronbach’s alpha for the entire scale was .91.

Financial Support

The financial support resources of graduate students come from (a) personal off-campus earnings, (b) family financial support, (c) on-campus employment, (d) scholarships and grants, and (e) student loans (Abedi & Benkin, 1987). Respondents’ satisfaction with their financial resources was assessed through a one-item question. Respondents were asked, “How supported do you feel in paying your graduate school

expenses?” and they marked their responses on a 3-point scale.

Cohen-Hoberman Inventory of Physical Symptoms (CHIPS)

The CHIPS is composed of 33 commonly experienced physical symptoms (Cohen & Hoberman, 1983). The inventory does not include symptoms that are psychological in nature (e.g., feeling stressed, anxious or depressed). Respondents are asked whether they have been bothered or distressed by any of the 33 physical symptoms during the past two weeks including today. Symptoms on the CHIPS are rated on a 5-point Likert-type scale, ranging from 0 (not at all been bothered by the problem) to 4 (the problem has been an extreme bother). Respondents can mark only one number for each symptom. An overall score is calculated by summing the scores across the 33 symptoms. In Cohen and Hoberman's 1983 study, the Cronbach's alpha for the scale was .88. In the current study, the Cronbach's alpha was .92.

Satisfaction With Life Scale (SWLS)

The SWLS is a 5-item assessment of global cognitive perception with satisfaction in life (Diener, Emmons, Larsen, & Griffin, 1985). The scale is one of the most widely used and validated instruments for assessing well-being (Kobau, Snizek, Zack, Lucas, & Burns, 2010). The items on the SWLS are rated on a 7-point Likert type scale, ranging from 1 (strongly disagree) to 7 (very strongly agree). An overall score is calculated by adding all of the items together. Higher scores on the scale reflect greater satisfaction with life. The Cronbach's alpha score of the scale was determined to be .87 by the authors of the original study. The alpha coefficient of the SWLS was .89 for this study.

Perceived Stress Scale (PSS)

The PSS is a 10-item instrument for measuring the level of stress in one's life (Cohen, Kamarck, & Mermelstein, 1983). The PSS is widely adopted across nations and has been translated into many languages. Respondents are asked to report their emotions and beliefs during the last month on a 7-point, Likert-type scale ranging from 0 (never) to 4 (very often). An overall score is calculated by reverse scoring the positively stated items and then summing all of the 10 items together. A higher score indicates more stress; a low score indicates low perceived stress. In the current study, the Cronbach's alpha of the scale was .84.

Procedures

Prior to initiating data collection, approval from the Institutional Review Board (IRB) of Texas A&M University (TAMU) was sought. After obtaining IRB approval, online survey software was used to develop the survey for this study by compiling all of the study questionnaires. TAMU Information Technology (IT) was contacted to assist in creating and distributing a bulk e-mailing to reach out to potential study participants. With the guidance of the TAMU IT, a bulk e-mailing that explained the study and contained the survey link was created and submitted to the Bulk Email Request System. The request of the bulk emailing to all graduate students, to inform them about this study and ask for their participation in an online survey, was approved, and the email was distributed. To increase the response rate of the survey, students were assured about the confidentiality of their responses, and they were offered a chance to enter a drawing to win one of five \$20 online gift cards. The drawing was held after the data collection.

Participants who provided their email addresses to enter the gift card drawing were assigned an ID, and five participants were randomly selected from the pool of participants to receive a \$20 online gift card. One week after initiating data collection, access to the survey via the email link was denied to terminate the survey process. A total of 467 survey responses were collected.

Data Analysis

Prior to conducting analyses to test the study hypotheses, descriptive and inferential statistical analyses were performed. Before initiating the data analyses, the data were screened for missing information. Of the 467 surveys collected, 362 (78%) were fully completed, with the exception of six missing GPA responses. 22% percent of the participants consented to participate in this study, but decided to leave the survey unfinished. Of these unfinished surveys, 11% quit before completing the demographic information questionnaire, and 7% completed only the demographic information questionnaire, but none of the remaining scales in the survey. The remaining 3% of the dropouts from the study quit before or during their answering the questionnaires measuring the dependent variables of the study. The final dataset for this study consisted of 358 survey responses, after excluding significant outliers (see the Results section on method for the method of detecting and identifying outliers); these had been fully completed, with the exception of a few missing responses to the academic performance question. To summarize and organize the data, descriptive statistics were calculated (i.e., frequency, percent, means, etc.) with IBM SPSS 22.0 statistical software. Pearson correlation analyses were computed to report the relationships among the study

variables. A one-way analysis of variance was conducted to examine differences on the major variables based on demographic characteristics. Furthermore, analysis of covariance was computed to investigate the effect of the two independent variables of this study on the dependent study variable by controlling the influence of covariates. Hierarchical multiple regression analyses were also conducted to examine the nature and strength of the relationships among the study variables. In addition, structural equation modeling was utilized to detect the structured relationships among the variables of the study.

CHAPTER IV

RESULTS

Preliminary Analysis

Cronbach's alpha was calculated to determine the internal consistency of the instruments used in the study. Based on widely accepted criteria among researchers, Cronbach's alpha of over .70 is acceptable (Nunnally & Bernstein, 1994). The Cronbach's alpha results for all of the instruments adopted for this study were equal to or higher than .70, and ranged from .70 to .92. The Cronbach's alpha for each of the instruments is reported in the Methodology section above.

Regression diagnostics were computed to ensure that the dependent variables (physical health and satisfaction with life a component of subjective well-being) met the assumptions of linear regression in order to draw reliable conclusions from the results (Williams, Grajalez & Kurkiewicz, 2013). The dependent variable GPA was not evaluated for assumptions of normality, linearity, and homogeneity, since no relationships were found between the independent variables of interest and GPA scores. First, an analysis was conducted to determine whether significant outliers existed in the data set. Four significant outliers were detected and totally removed from further analysis. These outliers were excluded from further analysis by utilizing any of the following guidelines: (1) the studentized deleted residual was greater than +/- 3 standard deviation, (2) the leverage value was above than 0.2, or (3) the Cook's distance was higher than 1. In addition, twelve extreme values in the data set were found to fall more than three standard deviations away from the mean (*SD* ranged from = 3.27 to 5.18);

therefore, only the extreme data points in the data set were removed, not the total case, and replaced with a new value calculated by the linear interpolation technique, in order to retain as large a sample as possible.

Based on the univariate skew indices, the physical health variable was moderately positively skewed. Thus, data for physical health were transformed (squared-root) prior to analysis. Nevertheless, it should be noted that the absolute values of the skew and kurtosis indices for all study variables including physical health did not raise concern about the normal distribution of the study variables since there was no skew index with a value above than 3 or kurtosis above than 10 (Kline, 2005).

The assumption of normality was assessed with a Q-Q plot. Based on a visual inspection of the plot, the assumption of normality was met since the residuals were aligned in a diagonal line. Linear relationships were found between the predictors and the predicted variables because the overall shape of the residuals closely conformed to a horizontal band. Thus, the assumption of linearity was not violated. Across the analyses, the Tolerance values were greater than 0.1 and the VIF ranged from 1.30 to 1.31, which was quite acceptable and suggested that there was no violation of multicollinearity. Moreover, visual examinations of the plots of the standardized residuals and comparison with the unstandardized predicted values indicated that assumption of homoscedasticity was met.

Before conducting the descriptive and inferential statistical analyses, Little's MCAR test was computed to determine whether the missing data were completely missing at random. A non-significant Little's MCAR test suggested that data were

completely missing at random. Since only a very small portion of the data set was missing and completely at random, the linear interpolation method was used to estimate missing values for the analysis computed in SPSS. Moreover, the Full Information Maximum Likelihood (FIML) method was used as the estimation method for handling missing data for the structural equation modeling analysis using Mplus 7.2. statistical software.

Descriptive and Inferential Statistical Analysis

Descriptive statistics (mean and standard deviations) for the variables of interest were calculated; they are reported in Table 2.

Table 2
Mean and Standard Deviation of the Study Variables

Measures	Mean	SD
1. Hope	51.21	6.91
1.1. Agency	25.81	3.92
1.2. Pathways	25.39	3.78
2. Optimism	15.24	4.63
3. GPA	3.71	0.31
4. Physical Health	4.32	1.62
6. Subjective Well-Being	4.79	1.35
N= 358		

Differences in Major Variables based on Demographics

A series of one-way analyses of variance was computed to assess whether any significant demographic differences existed with regard to the following major variables: (1) hope, (2) optimism, (3) GPA, (4) physical health and (5) subjective well-being (measured in terms of life satisfaction). Moreover, though it is not a major variable,

demographic differences in the variable for anticipated graduation time were computed, since anticipated graduation time was assessed as a dependent variable that serves as an indicator of self-perceived academic performance.

Gender

Based on the ANOVA results, female participants had a significantly higher level of subjective well-being than males, measured on the Satisfaction with Life Scale ($F(1,356) = 5.364, p < .05$). Female participants also reported significantly more physical health symptoms than males ($F(1,356) = 14.275, p < .001$).

Age

The age variable was continuous, so that the variable was not converted into categorical groups. Thus, a one-way ANOVA was not conducted for the age variable. However, Pearson r correlation coefficients was computed to determine whether age was correlated with other major variables. Based on the correlation analysis, significant positive correlations were found between age and hope ($r = .186, p < .001$) and age and optimism ($r = .180, p < .001$), which suggested that older participants had higher levels of hope and optimism than younger ones.

Time in the Program

No significant difference on the five major variables was found when the length in the program was taken into account. However, students in the earlier years in their program had significantly higher expectations of graduating within the designated time span of their program than students in later years ($F(5,352) = 12.344, p < .001$).

Educational Level

Doctoral students reported significantly higher GPA than master's students ($F(1,356) = 9.902, p < .01$). Master's students reported significantly higher levels of expectation to graduate within their time frame than doctoral students ($F(1,356) = 36.972, p < .001$).

Marital Status

Based on marital status, students significantly differed on the scores for hope ($F(3,354) = 3.918, p < .01$), optimism ($F(3,354) = 4.297, p < .01$), satisfaction with life ($F(3,354) = 5.700, p < .001$), and GPA ($F(3,356) = 2.956, p < .05$). Post-hoc analyses were conducted to explore differences among groups. Participants who were either married or had been in a relationship for more than six months were found to experience significantly greater life satisfaction than single participants. Married students also had significantly higher levels of hope and optimism than single students. With regard to GPA, married students reported significantly higher GPAs than single students.

Ethnicity

To determine if there were any significant differences on major variables by ethnicity, two ethnic groups with fewer than three participants (American Indian and Native Hawaiian) were merged with the "others ethnicity not listed" group. One-way ANOVA analyses revealed significant ethnic differences on two major variables: hope, ($F(5,352) = 6.316, p < .001$), and optimism ($F(5,352) = 4.108, p = .001$). According to post-hoc analyses, students with white ethnic identity had significantly higher hope and optimism scores than Asian students.

Holding F1/J1 International Student Visa

Significant differences between domestic and international students were found. Domestic students were found to have higher levels of hope ($F(1,356) = 25.417, p < .001$), and optimism ($F(1,356) = 5.726, p < .05$) than international students. Domestic students also had significantly higher life satisfaction scores than their international colleagues ($F(1,356) = 9.645, p < .01$).

English Language Proficiency

For non-native students, a one-way ANOVA was conducted to assess whether their scores on major variables differed based on their English language proficiency. No significant differences were found on major variables when participants' language proficiency was taken into account.

To summarize, significant differences were found for the major variables of the study when the following demographic variables were taken into account: gender, age, study level, marital status, ethnicity and citizenship (native versus international). Therefore, the effect of these demographic variables was controlled for in further analyses (partial correlations, regression analysis, etc.). Except for the age variable, all other demographic variables were categorical in nature. Therefore, categorical variables were recoded into a series of dummy variables in further analysis. For each categorical variable, $n-1$ dummies were generated for n levels of each category. For instance, the gender variable had two levels (male vs. female), whereas the marital status variable had four levels (single, dating, married, and other). Thus, one dummy variable was generated for the gender variable, and three dummies were generated for marital status. The

following groups were used as the reference groups in each category in further analyses: the *male* group for the gender variable, the *less than a year* group for the program time variable, the *doctoral* group for the study level variable, the *single* group for the marital status variable, the *Asian* group for ethnicity, and the *domestic students* group for the holding F1/J1 visa variable.

Research Question 1

Do hope and optimism predict academic performance among graduate students?

The first step in answering this research question was to compute partial correlation coefficients to determine whether there were significant associations between the predictor and dependent variables, while controlling for demographic variables. The partial correlation coefficients of the variables are presented in Table 3. The magnitudes of the correlation coefficients were interpreted based on Cohen's (1988) widely accepted criteria: $r = .50$ is large, $r = .30$ is moderate, and $r = .10$ is small. Consistent with previous research, both the total hope scale and the subscales were positively correlated with optimism (LOT-R).

Table 3
Partial Correlation Results for GPA, Hope, Agency, Pathways, Optimism and Anticipated Graduation

Control Variables		1	2	3	4	5
Demographic Variables	1. GPA	--				
	2. Hope	.05				
	3. Agency	.14*	.89***			
	4. Pathways	-.04	.89***	.59***		
	5. Optimism	.02	.45***	.47***	.32***	
	6. Anti_Grad	.12*	.31***	.34***	.21***	.14*

Note: * $p < .05$ ** $p < .01$ *** $p < .001$ (2-tailed)

In this study, academic performance was measured using with self-reported GPA scores. Contrary to expectations, no correlations were found between GPA and hope or between GPA and optimism. Moreover, the correlation between GPA and the subscales of the hope scale was in the opposite direction. Specifically, there was a significant but small positive correlation between GPA and hope agency ($r = .14, p < .05$) whereas a non-significant negative correlation was found between GPA and hope pathways. Based on the descriptive analysis (see Table 2), the GPA variable had a high mean score and a small standard deviation ($M = 3.71, SD = 0.31$). This is probably because a grade point average less than 3.0 is not an indicator of good academic standing in graduate school. The small variance in the GPA variable might be the reason why hope and optimism were not associated with GPA in this study. Therefore, participants were grouped into three groups, based on their hope and optimism scores. Students whose scores fell within one standard deviation of the mean were considered the medium hope and optimism group, whereas students whose scores fell in above 1 or below -1 standard deviation from the mean of hope and optimism variables were considered the high and low groups, respectively. In other words, while the 68% of the participants were grouped together under medium hope and optimist, participants who fell at the upper and lower (34% in total) ends of the normal distribution were grouped as high- and low-hope-optimist participants, respectively. Students whose scores fell within one standard deviation of the distribution (the medium-level hope and optimism groups) were not included in further analyses.

With regard to the dispositional hope variable, two groups were formed with 54 low-hope participants ($M = 39.02$, $SD = 4.40$ with a range of 27 to 44) and 42 high-hope participants ($M = 61.19$, $SD = 1.78$ with a range of 59 to 64). A one-way analysis of covariance (ANCOVA) was conducted by entering dispositional hope as the predictor variable (with two levels: high and low) and GPA as the predicted variable and by controlling for selected study demographics for which significant differences were found for the hope, optimism and GPA variables. Analysis of covariance (ANCOVA) is a statistical technique that extends the basics of the analysis of variance (ANOVA) by allowing researchers to control for the effects of one or more covariates on the dependent variable (Field, 2009). The dummy coded variables for the marital status and study level categorical variables were used as the covariates in the analysis, since significant group differences were found for the GPA variable based on these two demographics.

Based on the one-way ANCOVA results, GPA scores were higher in the high-hope group ($M = 3.75$, $SD = .27$) compared to the low-hope group ($M = 3.67$, $SD = .31$). However, there was no significant GPA difference between the low- and high-hope participants, $F(1, 90) = .824$, $p = .366$, partial $\eta^2 = .009$. Similarly, a one-way ANCOVA was computed by entering dispositional optimism (at two levels with the upper and lower ends) as the predictor variable and GPA as the predicted variable, controlling for the effects of marital status and study level. The low-optimism group comprised 55 participants ($M = 7.83$, $SD = 2.01$ with a score range of 3 to 10) and the high-optimism group 71 participants ($M = 21.59$, $SD = 1.35$ with a score range of 20 to 24). Based on

the ANCOVA results, GPA scores were slightly higher for the high-optimism group ($M = 3.73$, $SD = .27$) compared to the low-optimism group ($M = 3.68$, $SD = .31$). However, no significant GPA differences between the low- and high-optimistic participants were found, $F(1, 120) = 1.473$, $p = .227$, partial $\eta^2 = .01$.

Unlike the GPA variable, the hope scale with both its subscales (agency and pathways) and the optimism scale had significant positive correlations with anticipated graduation. Anticipated graduation was rated on a 10-point, Likert-type, one-item scale and was included in the survey as an indicator of perceived academic performance. The correlation between anticipated graduation and GPA was also found to be significantly positive ($r = .12$, $p < .05$). Therefore, a hierarchical regression analysis was performed with hope and optimism for predicting anticipated graduation, in two steps. The dummy variables of the two demographics (study level and time in the program) that were related to anticipated graduation were entered in Step 1. The hope and optimism scores were entered into the equation in Step 2. Although the hope subscales were included in the partial correlations, only the total hope scale was adopted in all of the regression analyses.

The results from the hierarchical regression analysis showed that Step 1, with demographics, predicted anticipated graduation ($R = .41$, $F(6, 351) = 11.866$, $p < .001$). The demographic variables made a significant contribution to the prediction of anticipated graduation. The ΔR^2 from Step 1 to Step 2 was also significant, $\Delta R^2 = .07$, $p < .001$, indicating that the addition of the hope and optimism scores into the regression model resulted in a significant increase in predicting anticipated graduation. Overall,

24% of the variance in anticipated graduation was accounted for by the variables in Step 2 ($R = .49$, $F(8, 349) = 13.587$, $p < .001$). The regression coefficients and standard errors are presented in Table 4. As seen there, hope ($\beta = .26$, $p < .001$) was a significant predictor of anticipated graduation after the effects of demographics were controlled for whereas the contribution of optimism in predicting anticipated graduation was insignificant.

Table 4
Hierarchical Multiple Regression Analysis for Predicting Anticipated Graduation

Model	B	SE B	β	p	R	R Square
Step 1: Control Variables						
1 to 2 years	-.19	.26	-.04	.62		
2 to 3 years	-1.23	.35	-.19	.00		
3 to 4 years	-1.19	.44	-.15	.00		
4 to 5 years	-1.32	.43	-.17	.00		
More than 5 years	-2.59	.60	-.22	.00		
Master's	-.71	.25	-.16	.00	.41	.17
Step 2						
Hope	.08	.02	.26	.00		
Optimism	.01	.03	.02	.79	.49	.24

a. Dependent Variable: Anticipated Graduation

Research Question 2

Do hope and optimism provided unique prediction to graduate students' physical health and well-being above and beyond financial and social support?

To answer this question, partial correlation coefficients were computed to determine whether there were significant associations between the predictor and

dependent variables, while controlling for demographic variables (Table 5). As seen in Table 5, both hope and optimism were positively correlated with subjective well-being, measured on the Satisfaction with Life scale at the $p < .001$ level and both of the correlation coefficients were close or equal to large ($r = .48, r = .50$). The subscales for hope (agency and pathways) were also significantly correlated with satisfaction with life, at $p < .001$ levels. As expected, negative correlations existed with respect to physical health. These significant negative correlations between physical health and hope ($r = -.18$) as well as between physical health and optimism ($r = -.30$), indicate that participants with low hope and optimism traits reported more physical health problems. Moreover, greater levels of perceived stress were significantly associated with reporting more health problems ($r = .51, p < .001$) and less satisfaction with life ($r = -.53, p < .001$) at a large level. In addition, greater hope and optimism were associated with less perceived stress, $r = -.47$ and $r = -.53$, respectively.

Table 5
Partial Correlation Results for Hope, Optimism, Financial and Social Support, Perceived Stress, SWLS and Physical Health

Control Variables		1	2	3	4	5	6	7	8
Demographic Variables	1. Hope	--							
	2. Agency	.89***							
	3. Pathways	.89***	.59***						
	4. Optimism	.45***	.47***	.32***					
	5. Finan_Sup	.19**	.17**	.17**	.25***				
	6. Social_Sup	.26***	.27***	.20***	.30***	.11*			
	7. Per_Stress	-.47***	-.48***	-.35***	-.53***	-.22***	-.30***		
	8. SWLS	.48***	.52***	.34***	.50***	.28***	.54***	-.53***	
	9. Phy_Health	-.18***	-.20***	-.12*	-.30***	-.13*	-.25***	.51***	-.27***

Note: * $p < .05$ ** $p < .01$ *** $p < .001$ (2-tailed)

Hierarchical multiple regression analyses were conducted to examine whether hope and optimism predict satisfaction with life, an indicator of subjective well-being and physical health above and beyond financial and social support both of which were strongly related to greater healthy functioning in previous research. Consistently, both financial and social support significantly correlated with physical health ($r = -.13$, $r = -.25$) and satisfaction with life ($r = .28$, $r = .54$) in the current research study. Two separate hierarchical multiple (three-step) regression analyses (one to predict well-being and another to predict physical health) were performed. Step 1 included the dummy coded demographic variables that were significantly related to the dependent variable. These demographic variables were gender, marital status, and holding an F1/J1 international student visa. Step 2 included financial and social support, and the independent variables (the hope and optimism scores) were entered in Step 3.

With regard to satisfaction with life as the dependent variable, all three steps were significant. The demographic variables in Step 1 significantly predicted well-being, $F(5, 352) = 4.910$, $p < .001$, by accounting for 6% of the variance in satisfaction with life. Among the demographics being married ($\beta = .17$, $p < .01$) and dating for more than six months ($\beta = .12$, $p < .05$) had a significant unique contribution in predicting satisfaction with life. Furthermore, the addition of the financial and social support variables (Step 2) provided a unique prediction of satisfaction with life, $F(7, 350) = 32.438$, $p < .001$. Overall, 39% of the variance in predicting satisfaction with life was explained by financial and social support. The ΔR^2 from Step 2 to Step 3 was also significant, $\Delta R^2 = .12$, $p < .001$, indicating that the addition of the hope and optimism

score into the regression model resulted in a significant increase in the prediction of satisfaction with life, $F(9, 348) = 40.332, p < .001$. The overall model, explained 51% of the variance in life satisfaction an essential component of subjective well-being (see Table 6).

Table 6
Hierarchical Multiple Regression Analysis for Predicting Satisfaction with Life

Model	B	SE B	β	P	R	R Square
Step 1: Control Variables						
Female	.21	.15	.08	.16		
Dating	.40	.18	.12	.03		
Married	.54	.17	.17	.00		
Divorced and etc.	-.34	.60	-.03	.58		
International	-.29	.16	-.10	.07	.26	.07
Step 2						
Financial Support	.45	.09	.20	.00		
Social Support	.68	.60	.55	.00	.63	.39
Step 3						
Hope	.05	.01	.24	.00		
Optimism	.06	.01	.20	.00	.72	.51

a. Dependent Variable: Satisfaction with Life

Hierarchical regression analysis for predicting physical health was performed in three steps. Step 1 included gender as the demographic variable, due to the significant gender differences in physical health. The variable financial and social support was entered in Step 2. Lastly, hope and optimism were entered into the equation in Step 3. The results show that being female made a significant contribution to the prediction of physical health. $F(1, 356) = 18.040, p < .001$ and accounted for 5% of variance in physical health. The next step with financial and social support also significantly

predicted physical health, $F(3, 354) = 14.017, p < .001$. However, only social support ($\beta = -.22$) made a significant contribution to the prediction of physical health, whereas financial support did not significantly contribute after the effect of gender was controlled for. The last step (Step 3) was also significant, $F(5, 352) = 12.236, p < .001$. A closer look at the regression coefficients revealed that only optimism ($\beta = -.23$) made a significant contribution to the variance in predicting physical health (see Table 7). The negative regression coefficient reveals that greater optimism is associated with fewer physical health problems.

Table 7
Hierarchical Multiple Regression Analysis for Predicting Physical Health

Model	B	SE B	β	<i>p</i>	R	R Square
Step 1: Control Variables						
Female	.74	.17	.22	.00	.22	
Step 2						
Financial Support	-.22	.13	-.09	.09		
Social Support	-.32	.08	-.22	.00	.33	.11
Step 3						
Hope	.00	.01	.02	.75		
Optimism	-.08	.02	-.23	.00	.39	.16

a. Dependent Variable: Physical Health

Research Question 3

Do academic self-efficacy and goal orientation mediate the relation between hope and optimism on graduate students' academic performance?

The third research question aimed to examine possible mediators in the relation between hope and optimism in predicting academic performance measured in terms of

grade point average (GPA). Partial correlation coefficients among the variables of interest were computed by controlling for the effect of the demographic variables (Table 8). As seen in Table 8, GPA significantly correlated only with academic self-efficacy ($r = .23, p < .001$). Academic self-efficacy had a significant positive correlation with hope scale ($r = .56, p < .001$) and a significant positive correlation with optimism at the moderate level ($r = .31, p < .001$).

Table 8 presents results from the partial correlation between hope and optimism and each of the following subscales of the Achievement Goal Questionnaire: mastery-approach, mastery-avoidance, performance-approach and performance-avoidance. In addition to the four-dimensional conceptualization of goal orientation by Elliot and Murayama (2008), a two-dimensional conceptualization of the questionnaire based on (1) the mastery-performance model and (2) the approach-avoidance model were created and included in the correlation analysis. In the mastery-performance structured model, all mastery and performance items loaded separately on two distinct variables whereas approach and avoidance items loaded separately on two distinct variables in the approach-avoidance structured model.

Hope and optimism were related to mastery and approach goal orientations in the literature. In the current study, hope significantly correlated with the combination of the mastery-approach goal orientation ($r = .27, p < .001$) almost to a moderate degree. Positive significant correlations also manifested between hope and performance-approach ($r = .19, p < .001$) as well as between hope and mastery-avoidance goal orientations ($r = .10, p < .05$) in regard to the goal orientations on the 2x2 achievement

goal framework. On the other hand, optimism significantly correlated only with performance-approach goals ($r = .13, p < .05$). When the approach-avoidance model was adapted, hope and optimism were both significantly correlated with approach goals, whereas the correlations with avoidance goals were non-significant. Moreover, when the mastery-performance model was adapted, there was a significant positive correlation between hope and mastery goals, ($r = .20, p < .001$) whereas non-significant correlation existed between hope and performance goals.

With regard to academic performance assessed through self-reported GPAs, no significant correlations existed between GPA and goal orientation constructs. As previously stated, the only variable significantly associated with GPA was academic self-efficacy. Due to the non-significant relationship between GPA and goal orientation, the possible mediator effect of goal orientation in predicting the relationship between hope and optimism on academic achievement was not tested.

A hypothesized model was tested, but it was adapted based on the results from partial correlations, with paths from the independent variables (hope and optimism) to the outcome variable, academic performance through academic self-efficacy. Academic self-efficacy was significantly correlated with the independent (hope and optimism) and dependent variables (GPA) of the model. Thus, the indirect effects of academic self-efficacy in the paths from hope, and from optimism, to GPA were tested. The SEM model also included the other two dependent variables (physical health and well-being), in order to examine the direct effects of hope and optimism on those dependent variables and to include all of the study variables in the model analyses.

Table 8

Partial Correlation Results for GPA, Hope, Optimism, Academic Self-Efficacy and Goal Orientations

Control Variables		1	2	3	4	5	6	7	8	9	10	11	12	13
Demographic	1. GPA	--												
Variables	2. Hope	.05												
	3. Agency	.14*	.89***											
	4. Pathways	-.04	.89***	.59***										
	5. Optimism	.02	.45***	.47***	.32***									
	6. Academic Self-Efficacy	.23***	.56***	.61***	.38***	.31***								
	7. Mastery-Approach	.08	.27***	.29***	.18***	.04	.33***							
	8. Mastery-Avoidance	-.03	.10*	.15**	.04	.00	.11*	.37***						
	9. Performance-Approach	.01	.19***	.22***	.12*	.13*	.25***	.29***	.34***					
	10. Performance-Avoidance	-.06	-.03	.03	-.08	-.03	.06	.15**	.49***	.58***				
	11. Mastery	.03	.20***	.25***	.11*	.02	.25***	.76***	.88***	.39***	.41***			
	12. Performance	-.03	.09	.13*	.02	.06	.17**	.24***	.47***	.88***	.90***	.45***		
	13. Approach	.05	.27***	.31***	.18**	.11*	.35***	.72***	.44***	.87***	.50***	.67***	.76***	
	14. Avoidance	-.05	.04	.10	-.03	-.02	.10	.30***	.84***	.55***	.88***	.74***	.81***	.54***

Note: * $p < .05$ ** $p < .01$ *** $p < .001$ (2-tailed)

The proposed model also controlled for the effects of the two demographic variables (marital status and gender) that were theoretically meaningful and had significant effects on the outcome variables at the $p < .001$ levels. Two dummy coded variables were generated for marital status, a categorical variable with four levels (single, dating, married and others such as divorced, widowed, etc.). Participants who were married or had dated for more than six months were combined and compared against the group that consisted of single, divorced and widowed participants. The aim of this comparison was theoretically meaningful since previous research studies suggested that subjects who are married or in a socially acceptable intimate relationship experience several advantages including greater life satisfaction than subjects, who are unmarried, separated, or widowed (Diener, Gohm, Suh, & Oishi, 2000). Also, in the current study, participants who were married or had dated for more than six months had significantly greater levels of satisfaction with their lives than single participants.

Structural Equation Modeling (SEM) analysis was used to examine the proposed model using Mplus 7.2 with FIML estimation due to the existence of a small portion of missing data. Kline (2005) recommended using multiple fit indices in addition to chi-square statistics to evaluate whether or not a model fits the data. Since chi-square statistics are affected by sample size, statistics less influenced by samples size other fit indices such as root mean square error of approximation (RMSEA), The Bentler-Bonnett comparative fit index (CFI) and the standardized root mean square residual (SRMR) were also examined and reported (Fan, Thompson, & Wang, 1999). Based on the criteria, a non-significant chi-square indicates a good fit, which should be interpreted

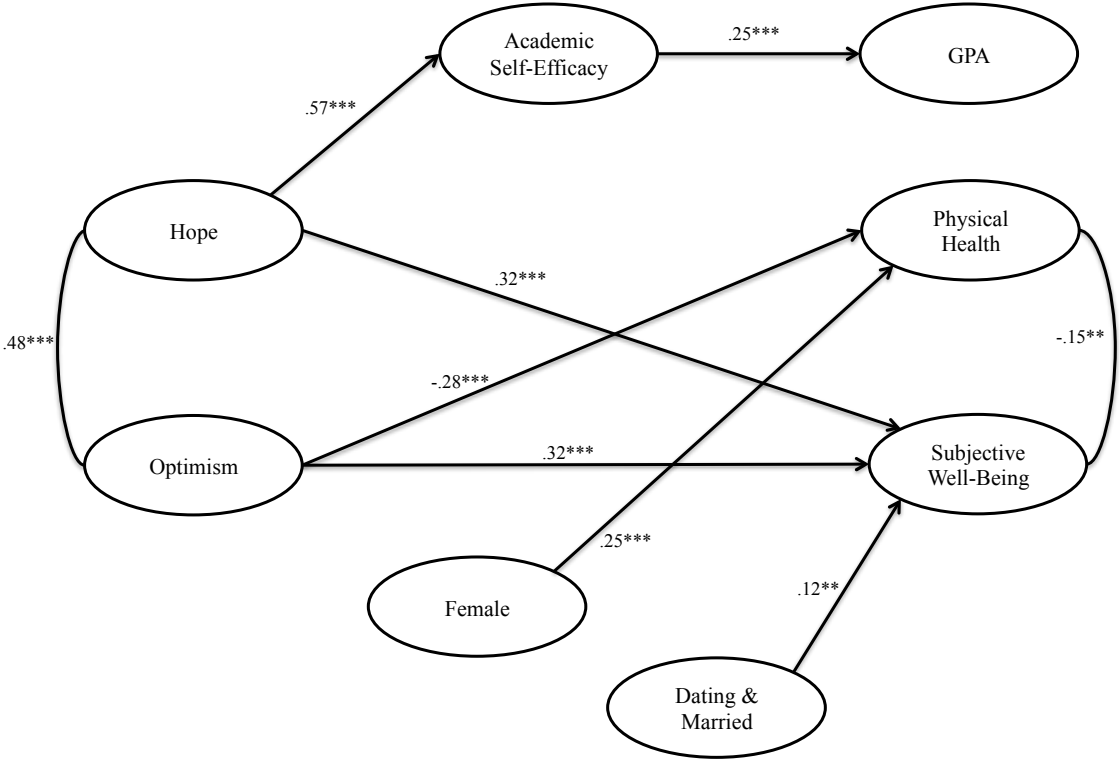
cautiously since chi-square values are inflated in samples with more than 200 participants. With regard to RMSEA, values below .05 indicate good fit and values between .05 and .08 indicate an acceptable fit of the model (Browne & Cudeck, 1993). Moreover, based on the CFI fit index, values above .95 are considered to be indicative of a good fit (Hu & Bentler, 1999) and for the SRMR, values below .08 are considered a good fit to the data (Hu & Bentler, 1999).

The results of the SEM analysis showed that the proposed model demonstrated a satisfactory fit to the data, $\chi^2(16) = 34.485$ ($p = .00$), CFI = .95, RMSEA = .06 and the SRMR = .06. An examination of the path coefficients among the study variables indicated that two paths in the proposed model were non-significant: the path between optimism and academic-self-efficacy and the path between hope and physical health. Thus, a final model that excluded these two non-significant paths was tested. The fit indices of the new model slightly improved, CFI = .95, RMSEA = .05 and SRMR = .06 but the chi-square was still significant, $\chi^2(18) = 35.684$ ($p = .00$), likely because of the large sample size. All of the paths in the final model were significant. However, a chi-square difference test was conducted to examine whether the new model fit the data significantly better than the initial model, but no significant difference was found between two models, $\chi^2(2) = 2.566$, $p = .28$. Since the χ^2 difference test suggested that the initial and final models did not differ significantly, the final model, which excluded the non-significant paths, was displayed and reported for ease of interpretation (see Figure 2).

As expected, hope indirectly predicted academic performance through academic self-efficacy, which was statistically significant at the $p < .001$ level. By contrast, optimism did not significantly predict academic self-efficacy, so, a non-significant indirect effect from optimism to GPA was found. Satisfaction with life was the only outcome variable that was directly predicted by both hope and optimism and the standardized path coefficients from hope ($\beta = .32$) and optimism ($\beta = .32$) to satisfaction with life were same, which suggests that a higher level of hope and optimism equally predicted greater subjective well-being assessed through life satisfaction. Consistent with previous research, a significant negative path coefficient was found from optimism to health, indicating that high level of optimism associated with less physical health problems. However, contrary to expectations, there was no direct path from hope to physical health.

With regard to gender as a covariate, there was a significant positive path coefficient from female to physical health ($\beta = .25, p < .001$), suggesting that females reported more physical health problems than males. The group with the dating and married participants, on the other hand, had a significant path coefficient to subjective well-being, measured on the Satisfaction with Life scale ($\beta = .12, p < .01$).

Figure 2 A Structural Equation Model of the Relationships among Hope, Optimism, GPA, Physical Health, Well-Being and Academic Self-Efficacy



Note: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

CHAPTER V

DISCUSSION AND CONCLUSION

This chapter provides interpretations of the study findings in the light of previous research. The conclusion follows the discussion. At the end of this chapter, limitations of the present study are acknowledged, and directions for future research are suggested.

The Role of Hope and Optimism in Academic Performance

Based on the hope theory, hopeful thinking leads students to set clear academic goals, generate effective pathways to reach those goals, and maintain their motivation in the pursuit of those goals (Snyder et al., 2002; Snyder, 2002). Previous research studies revealed a significant positive correlation between hope and academic performance, as measured by overall or semester GPAs (e.g. Day et al., 2010; Rand, 2009; Chang, 1998; Curry et al., 1997; Snyder et al., 1991). In the current study, hope was not correlated with academic performance, which is inconsistent with previous research. Examining the subscales of hope, a small significant positive correlation was found between hope agency and academic performance; this appears to be consistent with previous research, which has found positive associations with dimensions of hope and achievement (Day et al., 2010). Thus, the findings of this study suggest some evidence that hope agency, defined as “the motivational component in hope theory,” may be critical for achievement (Snyder, 2002, p. 251).

Moreover, graduate students were classified into low and high-hope groups to examine whether there were differences in overall GPA between low and high-hope students. The results from one-way ANCOVA analysis showed no difference between

low and high-hope groups on GPA. This finding appears inconsistent with findings from a study by Snyder et al. (2002), who observed differences in students' academic performance among high, medium, and low-hope groups. However, the results between the two studies are not truly comparable, considering the fact that Snyder's study was conducted among undergraduate students, so that the findings might not be generalizable to a graduate student sample.

There are several possible explanations for these inconsistent findings. First, descriptive statistical analysis in this study revealed that GPA had a higher mean score ($M = 3.71$) and small variance ($SD = 0.31$), compared to previous research studies. For instance, the average of the GPA score was 2.67, with a 0.74 standard deviation, in Snyder's study (2002) among undergraduate students. The close distribution of GPA scores around the mean in this study might have hidden differences between high and low-hope groups. Second, Snyder et al. (2002) suggested GPAs as reliable measures of academic performance. Previous research that found a relationship between hope and academic performance, measured in terms of semester or overall GPAs was conducted predominantly with undergraduate or high school students (Rand et al., 2011). Since the experiences and requirements of graduate students differ from those of undergraduate students, GPAs might not be good or adequate indicators of assessing academic performance in graduate school. Instead of using a single measure to assess academic success, using multiple measures, such as the number of publications, completion of the degree within the designated time period, getting into a good position after graduation,

and so forth, might provide a more accurate indication of graduate students' academic performance.

Sowell et al. (2008) reported that nearly half of doctoral students did not attain their degree within ten years of starting their program. Based on this finding, the anticipated time it would take to graduate could be an indicator of self-perceived academic performance. Consistent with this rationale, unlike the GPA variable, a significant positive correlation existed between anticipated graduation and hope at the moderate level. Anticipated graduation was also significantly correlated with GPA. Further analysis revealed that hope significantly predicted anticipated graduation. This result suggested that students with higher GPAs expected to graduate within the designated time period of their program. This finding also gives credence to assessing multiple dimensions of academic performance, rather than utilizing only the GPA.

In prior research, dispositional optimism has been linked to a variety of adaptive outcomes, including motivation-related outcomes such as graduation from college and persistence in the attainment of academic goals (Carver & Scheier, 2014; Carver et al, 2010; Solberg Nes et al., 2009). However, dispositional optimism has not always been consistently linked to academic performance (Aspinwall & Taylor, 1992; Feldman & Kubota, 2015; Rand et al., 2011). In the current study, dispositional optimism was not expected to directly predict academic performance, but an indirect effect of optimism on GPA was expected through mediators. As expected, optimism did not directly predict GPA. Unlike hope, optimism also did not make a significant contribution to the prediction of anticipated graduation.

Academic self-efficacy and goal orientation were proposed as mediators in the relation between hope, or optimism, and academic performance. Prior research showed that academic self-efficacy was associated with academic performance (Suphi & Yaratan, 2011; Linnenbrink & Pintrich, 2002), as well as with hope and optimism (Feldman et al., 2015; Tan & Tan, 2013). Consistent with our expectations, GPA, hope, and optimism all significantly correlated with academic self-efficacy. However, similar to the findings of a research study conducted by Feldman and Kubota (2015), only hope was indirectly linked to academic performance through academic self-efficacy whereas optimism did not significantly predict academic-self-efficacy. The indirect effect of hope on GPA was statistically significant. Thus, academic self-efficacy was a mediating mechanism by which hope influences GPA. Students with a greater level of hope, but not optimism, have a strong sense of belief in their ability to handle academic tasks, which in turn supports their attainment of a higher overall GPA.

Dweck and Leggett (1988) proposed that individuals' perceptions about their innate abilities lead them inherently to choose a specific types of goals. Moreover, in several previous research studies (e.g., Zweig & Webster, 2004), personality variables were found to be associated with goal orientation. As two positive personality characteristics, both hope and optimism were rested upon the principle that behaviors are goal-directed in nature. For instance, greater levels of hope and optimism were associated with the utilization of approach goals rather than avoidance goals (Carver & Scheier, 2001; Lench, 2011; Snyder, Lopez, Shorey, Rand, & Feldman, 2003; Snyder et al., 1991). Moreover, high-hope students were believed to choose mastery (learning)

goals while low-hope students were believed to choose performance goals (Snyder et al., 2002). Based on the theoretical framework of both constructs, hope and optimism were expected to be associated with approach goals, but negatively associated with avoidance goals. More specifically, hope was expected to correlate with a combination of mastery-approach goals, and optimism was expected to correlate with approach-based goal orientations (the mastery-approach and the performance-approach) within the 2 x 2 framework of the achievement goal orientation theory (Elliot & Murayama, 2008).

Consistent with expectations, hope was significantly associated with mastery performance goals whereas hope was unrelated to performance-avoidance goals. In addition, as expected, a significant correlation was found between optimism and approach goals, and a negative correlation was found between optimism and avoidance goals when the two-dimensional approach-avoidance model of the questionnaire was adapted. It appears that high-hope and high-optimist students set more approach-oriented goals, which involve striving to reach desirable outcomes, than avoidance-oriented goals, whose focus is to avoid undesired outcomes. Moreover, mastery-approach and performance-approach goals were significantly associated with academic self-efficacy, which supports prior research findings that these two goal orientations are positive predictors of self-efficacy (Radosevich, Allyn & Yun, 2007).

However, using the Cohen's (1988) criteria, the magnitude of the correlation was small or near moderate. Therefore, hope was modestly linked to the mastery and approach goals in goal achievement, with other factors likely moderating or mediating these links. Furthermore, contrary to expectations, little or no correlation was found

between GPA and goal orientation, more specifically with performance-approach goals, which might have been due to the use of an ill-suited utilization measure (GPA) for assessing the academic performance of graduate students. Thus, as stated previously, goal orientation was not tested as possible mediator of the relationship between hope and optimism in predicting GPA.

In summary, greater levels of hope were associated with high expectations to graduate within a given time frame. Also, high-hope students had higher levels of belief in their ability to successfully attain desired academic goals, which in turn was significantly predicted a higher GPA. On the other hand, optimism predicted neither anticipated graduation nor GPA through academic self-efficacy beliefs. Although both hope and optimism reflect the idea of expecting to attain positive outcomes in the future, the difference in the results between hope and optimism on academic outcomes might have been related to the strong association between hope and beliefs in the personal ability to reach goals emphasized with the agency component of hope construct (Gallagher & Lopez, 2009; Bryant & Cvengros, 2004).

Based on hope theory, *agency thinking* is the belief in one's capability to pursue *pathways* effective ways of reaching desired goals (Snyder et al, 1991). Thus, hope is more adaptive in highly controllable situations where the outcome depends on an individual's own behavior and efforts, such as performing well on an exam (Gallagher & Lopez, 2009). However, optimists may expect positive future outcomes without necessarily investing personal effort to attain goals (Bryant & Cvengros, 2004). For instance, an optimist might expect good outcomes (e.g., performing well on an exam)

due to external circumstances such as luck, ability, fate, and so forth (Alarcon, Bowling, & Khazon, 2013; Bryant & Cvengros, 2004; Rand, 2009). Thus, in future research on hope and optimism, it is important to consider mediating mechanisms such as motivation, efficacy, effort and persistence in goal achievement.

The Role of Hope and Optimism in Physical Health

The power of positive thinking on health has received greater attention in recent years (Lench, 2010; Snyder & McCullough, 2000). The rationale behind the relationship between positive thinking and better health outcomes stems from the utilization of proactive health promotion and prevention strategies, as well as more adaptive emotional responses and coping strategies, by people with favorable expectations toward life (Carver & Scheier, 2014; Carver et al., 2010; Snyder et al., 2000).

Past research has suggested that individuals with high hope and optimism levels experience less distress, more positive feelings, and better health. This is because better affective responses (feeling less stressed) are associated with effective coping with health problems and fewer physiological constraints (Carver et al., 2010). Consistent with prior empirical work, self-reported physical health was negatively associated with both hope and optimism. Moreover, there was a significant positive correlation between perceived stress and physical health problems at the large level whereas both hope and optimism were negatively and significantly associated with distress at the $p < .001$ level, suggesting that high-hope and high-optimist students report feeling less distressed and have fewer health problems. This finding supports the idea that individuals with a positive outlook about their future experience more adaptive emotional responses (more

positive feelings and less distressed), which in turn lowers damage to physical health (Carver & Scheier, 2010). However, it is also possible that individuals who are healthy and suffer from fewer health problems hold a positive outlook and have less distress and more positive feelings. Thus, the directionality of influences between positive outlook, emotions, and health require longitudinal or experimental designs that allow for the direction of influences.

Nevertheless, holding positive life expectations rather than negative also directly predicts less physical health complaints. As seen in the SEM model, there was a direct negative significant path from optimism to perceived physical health problems experienced within the past two weeks. This finding echoes the results of Scheier and Carver (1985) with undergraduate students, where highly optimistic students indicated less distress with physical health problems even their initial health levels was controlled for. Taking into account the ethnically diverse nature of the sample, this finding also provides support for a study conducted by Gallagher, Lopez and Pressman (2012), in which higher optimism was linked to better-perceived health worldwide. Moreover, unique to the present study, the effect of optimism on physical health was examined after controlling for financial and social support received by the student since financial and social support play a protective role in health outcomes (Choi, 2014; Reblin & Unchino, 2008; Segerstrom, 2007). Based on the results of the hierarchical regression analysis, optimism significantly predicted being less bothered by physical health problems, above and beyond financial and social support as well as demographics.

Contradicting past research, a high level of hope did not predict reporting less physical health problems, after the effect of the financial and social support variables were controlled for. Hope also did not have a significant direct path to symptoms, as reported in the SEM model. This finding suggests that the relation between hope and physical health was mediated through the influence of third variables. To summarize, taking into consideration the control variables in the analysis, higher optimism (but not hope) predicted reports of less physical health problems. There are several possible reasons why hope was unrelated to physical health. First of all, while the study of optimism stemmed from research in health psychology (Carver & Scheier, 2010; Carver & Scheier, 2014), initial studies with the hope construct were largely developed in relation to motivation-relevant outcomes such as academic performance. Following the initial studies of these two constructs, hope was largely examined within the academic context, while the majority of research on optimism was conducted in the health domain (Carver & Scheier, 2014). However, since these two constructs both emphasize positive thinking toward the future (Gallagher et al., 2012), they were studied by researchers in both health and academic context. In a recent meta-analysis, both constructs were proposed to be adaptive within health relevant outcomes, but the role of dispositional optimism rather than dispositional hope in promoting better physical health outcomes emerged as more prominent (Alarcon et al., 2013).

As indicated previously, while optimistic individuals believe the future will be bright for several reasons, including both internal factors, such as personal effort, and external factors, such as luck and the help of God, hopeful individuals think that a

positive future rests upon their own efforts (Alarcon et al., 2013; Gallagher & Lopez, 2009; Rand, 2009). Thus, optimism may be more adaptive than hope, regardless of personal control and effort. For instance, academic stressors can be considered more controllable, whereas health-related stressors and traumas are less or not controllable (Solberg Nes & Segerstrom, 2006). Since health-related stressors are somewhat controllable, optimism may be more relevant than hope in assessing the power of positive thinking on health outcomes. Lastly, as stated earlier, the effect of hopeful thinking on physical health might be indirect, mediated by factors such as coping with stress and mental health and so forth.

The Role of Hope and Optimism in Subjective Well-Being

Previous research has shown that hopeful and optimistic thinking confer several advantages, including experiencing greater well-being (Carver & Scheier, 2010; Magaletta & Oliver, 1999; Snyder, 2002; Solberg Nes & Segerstrom, 2006). Subjective well-being refers to the cognitive and emotional judgments of one's life. The construct subjective well-being consists of three components: positive affect, negative affect and life satisfaction (Diener, Lucas, & Oishi, 2002). As one of the outcome variables of the current research, only the satisfaction with life component was utilized as an indicator of subjective well-being. This study extended previous research on the relation of hope and optimism with satisfaction with life by investigating in a student sample the role of hope and optimism, simultaneously and jointly, in predicting well-being, above and beyond financial and social support, as well as demographics.

Past research revealed dispositional hope and optimism as two essential predictors of well-being (Gallagher & Lopez, 2009; Rand, 2009). Supporting the literature, the current study found that both hope and optimism had a significant positive correlation with life satisfaction. As a psychological construct with two dimensions, hope agency subscale ($r = .52$) was more strongly correlated to satisfaction with life than the hope pathways subscale ($r = .34$), which was not a surprising finding in the light of the fact that hope agency (personal beliefs about the capability to achieve goals) rather than pathways (generating possible strategies to reach goals) is more relevant to an individual's functioning (Gallagher & Lopez, 2009). This finding also echoes the finding of Chang (1998) that hope agency was a significant predictor of academic and interpersonal life satisfaction.

Socioeconomic resources and social network size are positively related to the higher levels of positive outlook for life (Carver & Scheier, 2010). Higher socioeconomic status and a large social network have also been linked to greater well-being (Carver & Scheier, 2010; 2014; Segerstrom, 2007). Consistently, financial and social support were significantly correlated with satisfaction with life, as well as the two future oriented personality constructs of hope and optimism. Thus, hierarchical regression analysis was used to test whether the effect of hope and optimism on predicting subjective well-being (life satisfaction) was still significant even after controlling for graduate students' financial and social resources. As seen in Table 6, the analysis revealed that hope and optimism uniquely predicted life satisfaction above and beyond perceived financial and social support. This finding suggests that regardless of

the financial and social resources they received, high-hope and high-optimist students experienced greater satisfaction with their lives than those with low hope and low optimism.

Furthermore, the SEM model in the present study (Figure 2) showed that hope and optimism made comparable, or equal, contributions to life satisfaction. This result supports a previous study that revealed the equal contribution of hope and optimism to predicting life satisfaction among a sample of law school students (Rand et al., 2011). However, there are mixed findings in the literature about this, including a finding from a study by Gallagher and Lopez (2009) that optimism was a stronger predictor of indicators of subjective well-being (life satisfaction) than hope. The SEM model also included a significant direct path from the covariate marital status to satisfaction with life. This path is theoretically meaningful and provides support to previous research studies showing that married individuals experience significantly higher satisfaction with their lives, for several reasons, including the emotional and social support they receive from their partners (Diener, Gohm, Suh, & Oishi, 2000).

Due to its cross-sectional nature, the current study did not provide any insights about a mediating mechanism that could explain how hope and optimism contribute equally to greater life satisfaction. Based on previous research, however, Hobfoll's Conservation of Resources Theory (1989) can be evoked to explain the roles of hope and optimism in predicting well-being (Alarcon et al., 2013). According to this theory, hope and optimism serve as two personality resources that aid in dealing with stress. For instance, in the face of adversity, possessing hope and optimism as personality resources

helps to reduce the stress and overcome threats. Moreover, according to the theory, individuals accumulate other resources (e.g., money, knowledge, home, marriage, status, friends) and gain a vast quantity of further resources based on existing resources, which in turn benefit individuals during stressful situations and lead better health outcomes (Alarcon et al., 2013; Hobfoll, 1989; Segerstrom, 2007).

Conclusion

The decision to obtain a graduate degree relies upon to the hope of attaining any of the following: gaining deeper knowledge and professional skills across a variety of disciplines; fulfilling intellectual curiosity; gratifying personal interests and sparking passion, advancing one's professional career and et cetera. However, prior research among graduate students reveals the sad reality that only 50 percent of those graduate students, more specifically doctoral students, complete their graduate program. This quite high attrition rate among graduate students draws attention to factors that might protect them from dropping out of school and keep them engaged in the pursuit of their degree.

The current investigation sought to consolidate the findings of previous research with regard to the roles of hope and optimism might play in producing promising student outcomes in a sample of graduate students, in order to identify factors that can lower the quite high attrition rate. The findings suggest that hope and optimism support better academic and healthy functioning to some extent. Hope was a more adaptive personality variable than optimism with regard to students' academic functioning. High hope was associated with a higher belief in personal ability to accomplish academic tasks, which

in turn predicted a higher overall GPA. High hope was also accounted for significant variance in predicting students' self-perceived graduation time. In contrast, optimism was found to be more a relevant variable for accounting individual differences in predicting self-perceived physical health. Students high in optimism but not hope, reported significantly less concerns with their health. With regard to subjective well-being, hopeful and optimistic students were found to be equally satisfied with their lives.

Limitations and Future Directions

Several limitations to the present study need to be addressed in future research.

First, the findings of this study were based on cross-sectional data. Therefore, it is not valid to infer cause and effect relationships between the study variables. For instance, claiming that optimism promotes physical health is equally as valid as asserting that better health leads to thinking more positively. Therefore, future studies with longitudinal designs need to be conducted to determine the cause and effect relationships between the variables. Also, longitudinal data may help to clarify the nature of the mechanism between positive thinking and desirable outcomes. For instance, a previous study examining the role of optimism in undergraduate students' health suggested that simply thinking in a positive way did not lead to better health. Instead, being less concerned about the possible negative outcomes and setting fewer avoidance goals in attempts to prevent those negative outcomes resulted in better health (Lench, 2011). Thus, future studies with longitudinal designs are needed to clarify whether the benefits associated with hope and optimism are necessarily due to positive thinking or stem from other factors.

Second, several concerns should be acknowledged with regard to the instruments utilized in the study. All of the study instruments involved self-reporting, which may produce biased responses. A recent meta-analysis revealed that people tend to report more health problems on self-reporting health measures than their actual state of health warranted (Rasmussen et al., 2009). Therefore, future research should rely on objective reports in assessing psychological and health-related variables. For example, collaborative studies with student health centers located on campus might yield more accurate and insightful findings when examining the relationship between personality variables and students' psychological and physical health outcomes. Also, the majority of previous research reveals a consistent pattern when examining hope in relation to academic performance, suggesting that higher hope is linked to greater academic performance. However, no significant association has been reported between hope and self-reported GPAs in the present study. Since performance standards are distinct for graduate students, compared to those for undergraduates, future studies should incorporate multiple and more reliable markers and measures for accurately quantifying the academic performance of graduate students.

Third, shortcomings with regard to data collection also need to be addressed. The study survey was distributed through the Internet, and to increase the participation rate incentives (five \$20 gift cards) were used. Due to the online nature of the survey, participants took part in this study on computers or mobile devices in locations they preferred. Therefore, environmental factors that might have biased or otherwise affected the accuracy of their responses could not be controlled. Also, although offering

incentives may help with recruiting a large sample size with adequate power, it also has the disadvantage of increasing the careless responses rate. Future research, therefore, needs to reduce the potential risks of inaccuracy and bias associated with responses.

Lastly, the current study defined hope and optimism as two strength-based personality variables and examined the benefits and positive outcomes associated with these traits. Although possessing hope and optimism traits was considered in an extensive amount of previous work (e.g. Alarcon et al., 2013; Carver & Scheier, 2014; Snyder, 2002) to be desirable, promoting human functioning, cautions have also been raised about positive thinking under certain circumstances (Peterson, 2000). For instance, a patient with a serious illness may accuse himself for not thinking positively enough to prevent the worsening of his or her symptoms (Bjerklie in Lench, 2011). An unrealistic belief in overcoming every obstacle through constant striving and effort, without being equipped with the necessary resources, may also be counterproductive (Peterson, 2000). Thus, Seligman (1991) suggested that “people should be optimistic when the future can be changed by positive thinking but not otherwise” (Peterson, 2000 p. 51).

Besides the shortcomings of excessive positive thinking, possessing hope and optimistic thinking at low levels may not necessarily be less worthy than having high levels of hope and optimism. Moreover, low levels of hope and optimism, in other words pessimism, may more constructive in certain contexts (Kwon, 2002; McNulty & Fincham, 2012; Norem & Chang, 2002). For instance, low optimism might benefit individuals by allowing them to foresee possible risks and work hard to avoid negative

outcomes (Norem & Chang, 2002). Future research, therefore, should aim to draw a holistic understanding of the personality variables of hope and optimism by not failing to acknowledge the drawbacks of positive thinking and by examining the potential advantages of holding a negative outlook. However, it should be noted that dispositional hope (Snyder et al., 1991) and optimism (Scheier & Carver, 1985) are not the same as positive fantasies and wishful thinking. Thus, caution is called for when addressing the potential negative side of hope and optimism. Notwithstanding the potential drawbacks of positive thinking just emphasized, hope and optimism still deserve further scientific investigations since abundance of evidence supports their beneficial roles in promoting human functioning and a more self-fulfilling life.

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