WHEN ARE POSITIVE VIEWS OF MYSELF HARMFUL? AN EXPERIMENTAL TEST OF INTERACTIVE EFFECTS OF SELF-ENHANCEMENT, STRESS SEVERITY, AND CONTEXT CONTROLLABILITY ON MENTAL HEALTH

Thesis

Submitted to

The College of Arts and Sciences of the UNIVERSITY OF DAYTON

in Partial Fulfillment of the Requirements for the Degree

Master of Arts in Psychology

By

Hanna Marie Schultz

UNIVERSITY OF DAYTON

Dayton, Ohio

August, 2014
WHEN ARE POSITIVE VIEWS OF MYSELF HARMFUL? AN EXPERIMENTAL TEST OF INTERACTIVE EFFECTS OF SELF-ENHANCEMENT, STRESS SEVERITY, AND CONTEXT CONTROLLABILITY ON MENTAL HEALTH

Name: Schultz, Hanna Marie

APPROVED BY:

__________________________________
Erin M. O’Mara
Faculty Advisor

__________________________________
Jackson A. Goodnight
Committee Member

__________________________________
Lee J. Dixon
Committee Member

Concurrence:

__________________________________
Keri Brown Kirschman
Chair, Department of Psychology
ABSTRACT

WHEN ARE POSITIVE VIEWS OF MYSELF HARMFUL? AN EXPERIMENTAL TEST OF INTERACTIVE EFFECTS OF SELF-ENHANCEMENT, STRESS SEVERITY, AND CONTEXT CONTROLLABILITY ON MENTAL HEALTH

Name: Schultz, Hanna Marie
University of Dayton

Advisor: Dr. Erin M. O’Mara

A wide array of research has shown that people tend to view themselves in a positively biased manner, known as self-enhancement. Some findings show that self-enhancement promotes positive mental health, while others reveal that it can be harmful. Recent research suggests that self-enhancement’s impact on mental health during negative experiences depends on how stressful and controllable the experience is. It also suggests that one’s motivation to address the negative experience affects the mental outcomes that manifest from self-enhancement. The main objectives of the present study were to examine how self-enhancement affects mental health while experimentally manipulating stress severity and context controllability, and identify the role of motivation in determining mental health outcomes through self-enhancement. Eighty-four undergraduate students completed questionnaires pertaining to dispositional self-enhancement, mental health, and motivation. Physiological measures of heart rate and
blood pressure were collected before and after participants were told they would be presenting a speech in front of a panel of judges, in which stress severity and context controllability were manipulated through how the judges would behave and evaluate the speech. The results showed that self-enhancement, stress severity, and context controllability in the context of public speaking do not significantly interact to predict mental health or physiological reactivity, and motivation does not significantly mediate the association between these variables. The approach of examining the association under experimental conditions is unique from the previously conducted longitudinal methods and may contribute to the inconsistency in findings between studies. It may be that the controlled context of the experiment was too specific in order to observe the effects. Future research, however, is needed to further explore the possibility of testing the effects of self-enhancement, stress severity, and context controllability through natural and realistic contexts, yet with experimental control to see whether and how the effects occur.

*Keywords:* context controllability, mental health, motivation, self-enhancement, stress severity
ACKNOWLEDGEMENTS

My sincere thanks are in order to Dr. Erin O’Mara, my advisor, for her patience and expertise in directing this thesis and bringing it to its conclusion. I would also like to thank Dr. Jackson Goodnight and Dr. Lee Dixon for serving on my thesis committee and taking the time and effort to review this text. Finally, I deeply thank Dr. Roger Reeb for giving me the opportunity to be a part of the University of Dayton’s Clinical Psychology program, which provided me the chance to explore more areas of psychological research and expand my knowledge in and passion for clinical psychology.
TABLE OF CONTENTS

ABSTRACT ........................................................................................................iii

ACKNOWLEDGEMENTS ...................................................................................v

LIST OF TABLES ..............................................................................................viii

INTRODUCTION ...............................................................................................1

METHOD ...........................................................................................................21

RESULTS ..........................................................................................................29

DISCUSSION .....................................................................................................38

REFERENCES ...................................................................................................44

APPENDICES

A. CENTER OF EPIDEMIOLOGIC STUDIES - DEPRESSION SCALE ..........51

B. HOSPITAL ANXIETY AND DEPRESSION SCALE ..................................52

C. SUBJECTIVE WELL-BEING SCALE ...............................................................54

D. SATISFACTION WITH LIFE SCALE .............................................................55
E. ROSENBERG’S SELF-ESTEEM SCALE………………………………..56

F. PERCEIVED STRESS SCALE………………………………………….57

G. HOW I SEE MYSELF QUESTIONNAIRE…………………………….59

H. TACTICAL SELF-ENHANCEMENT SCALE – PART A……………….61

I. MEASURES OF STRESS………………………………………………..62

J. FOLLOW-UP QUESTIONS AND DEMOGRAPHICS…………………63
LIST OF TABLES

1. Descriptive Statistics of Mental Health Measures of the Overall Sample……………………………………………………………………....31

2. Descriptive Statistics of Self-Enhancement Measures of the Overall Sample………………………………………………………………..32

3. Descriptive Statistics of Motivation and Physiological Measures………………………………………………………………33

4. Percentile-Bootstrap Confidence Intervals of Motivation for Manipulated Predictors……………………………………………………...34
CHAPTER 1
INTRODUCTION

People have a tendency to view themselves and their lives in a positively biased manner. Positively biased cognitions, or self-enhancement, are perceptions and attitudes people have about themselves that are unrealistically positive and favorable (Taylor & Brown, 1988). People self-enhance in order to have and maintain a positive sense of self; they do so by either enhancing positive aspects of the self through favorable self-perceptions, or minimizing negative self-perceptions and attributions to maintain positive self-esteem (Agostinelli, Sherman, Presson, & Chain, 1992; Alicke & Sedikides, 2009).

Researchers who study self-enhancement are primarily interested in how self-enhancement affects mental health. Early research found that self-enhancement is associated with more positive mental health (Taylor & Brown, 1988). As a result of subsequent research, however, there is a debate as to whether self-enhancement is adaptive or maladaptive for mental health (Kwan, John, Robins, & Kuang, 2008; O’Mara, McNulty, & Karney, 2011). Past research has found conflicting results (e.g., Colvin, Block, & Funder, 1994; Robins & Beer, 2001), suggesting that the effects of self-enhancement depend on contextual factors (Paulhus, 1998) that may be found and understood by looking at more recent research (e.g., O’Mara et al., 2011). Given the conflicting evidence regarding the association between self-enhancement and mental
health, it is important to understand that investigating the association between self-enhancement and mental health is important, yet complex. The aim of the current research is to experimentally examine context controllability, stress severity, and motivation as factors that may influence the association between self-enhancement and mental health. For these purposes, the remaining introduction leading to the present research is divided into seven sections. The first section elaborates on the debate of whether self-enhancement is beneficial or detrimental to mental health. The second section highlights multiple attempts at reconciling the debate through the examination of various moderating factors. The third section focuses on models and frameworks proposed by researchers to explain how self-enhancement impacts mental health; this section particularly focuses on a framework proposed by O’Mara, McNulty, and Karney (2011) regarding context controllability and stress severity influencing the association. The fourth section highlights the significance of looking at context controllability as a factor that affects self-enhancement’s impact on mental health outcomes. The fifth section emphasizes the importance of also examining stress severity as an influence on the association between self-enhancement and mental health. This section also focuses on the physiological stress response and the effects of self-enhancement on physical and mental health when examining this response. The sixth section illustrates the association between self-enhancement and motivation, and the idea that motivation could explain why self-enhancement affects mental health outcomes differently. Finally, the last section revisits the previous research of O’Mara, McNulty, and Karney (2011); its findings and limitations are discussed, as well as the extension and unique contributions of the present study.
Is Self-Enhancement Good or Bad for Mental Health?

For years, researchers have debated whether self-enhancement is good or bad for mental health. Traditionally, positive mental health was hypothesized by accurate assessments of the self (Jahoda, 1953; Maslow, 1950), implying that a positively biased perception of the self is generally adaptive. Other empirical data, however, indicate otherwise; individuals who process both positive and negative self-perceptions in an unbiased fashion tend to have low self-esteem and/or be moderately depressed (Alloy & Abramson, 1979; Ruehlman, West, & Pasahow, 1985). This section focuses on the debate by reviewing the past research showing self-enhancement as being either adaptive or maladaptive for mental health.

In support of Taylor and Brown’s review (1988), researchers show that self-enhancement promotes positive mental health (Bonanno, Field, Kovacevic, & Kaltman, 2002; Needles & Abramson, 1990; Taylor, Kemeny, Reed, Bower, & Gruenewald, 2000). For example, Bonanno et al. (2002) demonstrated support of the association between self-enhancement and positive mental health and adjustment within two diverse, uncontrollable circumstances: after the civil war in Bosnia, and in the United States after bereavement over the unexpected loss of a spouse. They reported that self-enhancement over time by enhancing the Bosnian refugees’ and American widow(er)s’ perceived ability to cope reduced the likelihood of developing posttraumatic stress disorder (PTSD) symptoms and improved psychological adjustment from their traumatic experiences. Needles and Abramson (1990) suggest a recovery model such that, after experiencing more positive events and self-enhancement, individuals with depression experienced an increase in hopefulness and reduced depressive symptoms. Recent research (e.g.,
O’Mara, Gaertner, Sedikides, Zhou, & Liu, 2012) supports this model of self-enhancement being positively associated with positive mental health, and demonstrates that self-enhancement is associated with mental health in both Eastern and Western cultures.

While several researchers provide support that self-enhancement is generally adaptive and promotes mental health, other researchers suggest that it is maladaptive. For example, Colvin et al. (1995) reported that peer ratings of self-enhancers were positively associated with possessing negative characteristics (e.g., being narcissistic, deceitful, and hostile) and negatively associated with possessing positive characteristics (e.g., being cheerful, sympathetic, and intelligent). Although the researchers refer to their study as a test of the mental health outcomes associated with self-enhancement, the outcomes assessed focus on social implications of self-enhancement rather than mental health. Nevertheless, the findings by Colvin and colleagues indicate that poor social interactions could indirectly lead to poor mental health. As another example of self-enhancement’s negative association with mental health, Robins and Beer (2001) reported in their second study that, over time, college students who self-enhanced regarding their academic performance showed decreases in self-esteem and well-being, leading to maladaptive mental health. This negative association can also be seen in children; Gresham, Lane, MacMillan, Bocian, and Ward (2000) found that third-grade children who were positively biased regarding their social and academic competence had poorer social skills, were not as accepted by peers, had more problem behaviors, had a greater risk for developing behavioral and emotional disorders, and had poorer academic performance in the classroom compared to children who were not positively biased.
Based on past and recent research in regards to the association between self-enhancement and mental health, the answer to whether self-enhancement is adaptive or maladaptive is inconclusive. Some researchers find that self-enhancement leads to better mental health while others find that it results in poorer mental health. Perhaps self-enhancement can be adaptive and maladaptive for mental health, as opposed to being only adaptive or maladaptive. For example, Paulhus (1998) reported that individuals positively rated individuals with high self-enhancement, but rated them negatively 7 weeks later. Furthermore, Baumeister (1989) proposed that there is an “optimal margin of illusion,” in which self-enhancement to a certain degree is adaptive, but too little or too much self-enhancement can be maladaptive to mental health. Given the conflicting findings, it is crucial to instead focus not on whether self-enhancement is good or bad for mental health, but when self-enhancement is good and bad for mental health.

Attempts at Reconciliation

Researchers have attempted to reconcile the conflicting findings of self-enhancement being both good and bad for mental health. This section will focus on moderating factors that influence how self-enhancement differentially affects mental health, specifically on the evaluation between the social comparison and self-insight perspectives, and the comparison between how self-enhancement impacts intrapsychic and interpersonal outcomes.

Social Comparison and Self-Insight Perspectives of Self-Enhancement. Self-enhancement is defined in various ways. According to Kwan, John, Kenny, Bond, and Robins (2004), self-enhancement is operationalized as either by social comparison (i.e., seeing the self as better than others) or by self-insight (i.e., seeing the self as better than
how the self is viewed by others). In general, research shows that self-enhancement by social comparison is positively associated with mental health while self-enhancement by self-insight is negatively associated with mental health (Kurt & Paulhus, 2008). In other words, when people view themselves as better than how they view others, they have better mental health perhaps because they feel good about themselves when they compare themselves and their accomplishments directly to others’. However, when self-evaluations are compared with how others evaluate the self, the introduction of assessment from others may be responsible for poorer mental health; perhaps such overly positive perceptions of themselves come across to others as conceited and narcissistic, thus leading to a poorer evaluation from others than the self would expect. To tie in how self-enhancement was operationalized in past research, Taylor and Brown’s (1988) findings of positive mental health were from examining self-enhancement by social comparison, but Colvin et al. (1995) found negative mental health outcomes when examining self-enhancement by self-insight through the means of comparing ratings from the self, their group peers, and the examiner and lab observers.

When an individual perceives to be better than other individuals, how can one discern if he or she really is better? A major limitation to examining self-enhancement primarily by social comparison and/or self-insight is the lack of an objective criterion to determine if a self-view is indeed a positively biased cognition (Kwan et al., 2004). Thus, Kurt and Paulhus (2008) suggest a criterion discrepancy perspective of self-enhancement, which shows the “overestimation of one’s positivity relative to an objective criterion” (p. 841). For example, researchers have compared self-perceived academic ability and achievement to actual SAT scores and GPA (e.g., Gramzow & Willard, 2006; Robins &
Beer, 2001). With an objective criterion to measure self-enhancement, researchers can differentiate an overly positive self-perception from an accurate self-perception.

The conflicting mental health outcomes from self-enhancement appear to be reconciled depending on whether self-enhancement is operationalized by social comparison or by self-insight. Although making this distinction seems to resolve the problem, there are still discrepancies: research in regards to self-enhancement being measured based on an objective criterion still shows mixed results related to how it affects mental health. For example, Robins and Beer (2001) and Gramzow, Willard, and Mendes (2008) evaluated self-enhancement and mental health related to academic performance, and compared perceived academic performance to actual GPA values. Robins and Beer found that positively biased academic ability led to decreased self-esteem and well-being, but Gramzow et al. found that positively biased academic ability led to decreased anxiety and better emotional outcomes. With these conflicting findings, there is more to identifying when self-enhancement is adaptive and maladaptive for mental health than simply examining how self-enhancement is operationalized.

**Intrapsychic and Interpersonal Outcomes from Self-Enhancement.** Related to the broader question of whether self-enhancement is a positive or negative process for functioning, researchers have examined the impact of self-enhancement on intrapsychic and interpersonal outcomes. Intrapsychic outcomes refer to the subjective internal psychological processes while interpersonal outcomes refer to the psychological processes that involve one’s relationship with others. Self-enhancement is consistently associated with poorer interpersonal outcomes (e.g., John & Robins, 1994; Kurt & Paulhus, 2008; Paulhus, 1998) such that people who self-enhance are generally disliked
by others. In contrast, most research suggests self-enhancement tends to be positively associated with intrapsychic outcomes (e.g., psychological adjustment and mental health; e.g., Taylor & Brown, 1998; Zuckerman & O’Loughlin, 2006). Church et al. (2006) conducted a cross-cultural study that compared personal (intrapsychic) adjustment and interpersonal adjustment as the outcomes when examining self-enhancement. They found positive personal adjustment based on self-reports in terms of self-esteem and emotional stability, but negative interpersonal adjustment based on peer reports in regards to friendliness and agreeableness.

Although this attempt at reconciliation for the association between self-enhancement and mental health is compelling, it does not completely account for the conflicting findings. Research in regards to the impact of self-enhancement on intrapsychic outcomes may generally be positively associated with mental health, but it is not always the case (e.g., Kim & Chiu, 2011; Robins & Beer, 2001). For example, Kim and Chiu (2011) reported that self-enhancement during a relative task performance (i.e., comparing one’s performance of completing verbal problems of the Scholastic Aptitude Test to other students in his/her school) led to a greater risk in developing depressive symptoms (e.g., feelings of worthlessness). Thus, how self-enhancement differentially impacts mental health is not simply explained by looking at how the outcomes are processed, whether they are intrapsychic or interpersonal in nature.

Various definitions and measurement approaches have been used to try to reconcile the discrepant findings regarding the association between self-enhancement and mental health. Each approach has its advantages and disadvantages, which leads to the need to be critical and wary when using them. Presently, these moderating factors
somewhat contribute to the differing effects of self-enhancement on mental health, but they do not completely answer the question of how self-enhancement influences mental health.

Proposed Frameworks to Explain the Effects of Self-Enhancement on Mental Health

Researchers have developed and proposed different frameworks and models to elaborately explain how self-enhancement affects mental health. Such frameworks that will be discussed include Kenny’s (1994) social relations model (SRM), an interpersonal extension to the SRM developed by Kwan and colleagues (2004; 2008), and a recently proposed framework by O’Mara and colleagues (2011) involving context controllability and stress severity.

Social Relations Model & Interpersonal Extension. The social relations model (SRM) is a general framework that involves the examination of the variance found in social perceptions. Kenny (1994) established four basic components of social perception: the perceiver, or the person developing perceptions of others; the target, or the person being perceived by the perceiver; the relationship, or the unique interaction between the perceiver and the target in which they both perceive each other; and the constant, or the average perception between all perceivers and targets. To provide a clear and basic illustration, imagine Tom and Jerry in the kitchen together, and Jerry thinks Tom is very slow. The perceiver is Jerry while the target is Tom. Suppose Tom thinks Jerry is puny; Tom is the perceiver while Jerry is the target. If, as another example, Tom thinks Jerry thinks he is mean, and Jerry thinks Tom thinks he is evil, there is a relationship effect. The role that the constant plays is what others in general think of Tom and/or Jerry.
relative to how they perceive each other (i.e., does everyone else think Tom is slow or
that Jerry is puny?). The SRM can also show how a group of people perceive each other,
and calculate the differences between the ratings. For example, the SRM can show
whether one person rates another more negatively or positively than how the others rated
the other person. These calculations also show how each individual is generally perceived
by others.

Although researchers believe the SRM to be a compelling starting point as a
framework for understanding the outcomes associated with self-enhancement, Kwan et
al. (2004) proposed that the SRM needs to be extended to include interpersonal
perceptions that include self-perceptions (i.e., a person can be the perceiver and the
target). Three components are added into the equation: the perceiver effect, the target
effect, and the relationship effect. According to this extended model by Kwan et al.
(2004; 2008), people may view themselves positively because a) they perceive others
positively (i.e., high perceiver effect), b) they are perceived positively by others (i.e., high
target effect), or c) they have a positively biased view of themselves (i.e., a high
relationship effect). The key to measuring self-enhancement would be to examine the
relationship effect because it indicates one’s relationship with the self, regardless of how
one perceives others or is perceived by others. The researchers argue that the modified
interpersonal SRM framework provides a statistical measure of self-enhancement that
analyzes all possible interpersonal effects, and without confounding variables.

The proposal of the SRM and its interpersonal extension as a framework still does
not quite describe the varying effects of self-enhancement on mental health. For one
thing, this framework requires the evaluation of individuals with others, which is not
necessary for self-enhancement to take place. In other words, this particular framework
does not look at all of the contexts in which self-enhancement occurs. Based on the
previous attempts of reconciliation, the conflicting findings still exist even when
manipulating how self-enhancement is being defined and measured. Therefore, it would
be more fruitful to examine the context in which self-enhancement is occurring, and how
it influences mental health within the given conditions.

**Controllability of the Context and Stress Severity.** Recent research suggests
that self-enhancement’s association with mental health varies based on the context in
which self-enhancement occurs, particularly context controllability. O’Mara et al. (2011)
proposed that, in contexts that are uncontrollable, or in which outcomes cannot change
(e.g., coping with cancer or the death of a spouse), self-enhancement is associated with
positive mental health. In contrast, in situations that are controllable, or where one’s
perceptions and behavior can lead to change (e.g., everyday bumps in the road, or one’s
academic performance), self-enhancement is associated with both positive and negative
mental health. O’Mara et al. (2011) also reported that, in controllable contexts, self-
enhancement differentially influences the effect of stress on one’s well-being through
depression levels. Specifically, they found that, four years after the first assessment, self-
enhancement predicted lower depression levels when one experiences minor stressors,
yet was associated with higher levels of depression when one experiences severe stressors
over time. Although the researchers found support for this framework, their work is
limited by a non-experimental design. In order to be able to distinguish whether context
controllability and stress severity moderate the association between self-enhancement
and mental health, an experimental design in which both factors are manipulated is
necessary. Nevertheless, this framework is a promising and compelling start to discern how self-enhancement influences mental health because a) it is not contingent upon a certain type of self-enhancement (e.g., social comparison or self insight), and b) it evaluates the context in which self-enhancement is occurring instead of how it is measured, which was not successful at fully reconciling the conflicting findings of how self-enhancement and mental health are associated.

**Controllability of Circumstances**

Most research examining how self-enhancement impacts mental health focuses on its effects during negative circumstances. Accordingly, previous research (e.g., O’Mara, McNulty, & Karney, 2011) suggests that examining the controllability of these negative circumstances is important in explaining why self-enhancement can be both adaptive and maladaptive for mental health.

**Uncontrollable Circumstances.** Research in regards to self-enhancement during uncontrollable negative circumstances (e.g., the loss of a loved one, the development of an incurable cancer, etc.) consistently shows a positive association between self-enhancement and mental health. For example, individuals diagnosed with HIV/AIDS who unrealistically and optimistically perceive the self, future, and meaning of their illness show improved mental health and higher survival rate than those who confront their illness more realistically (Taylor et al., 2000). Similarly, Taylor, Lichtman, and Wood (1984) reported that individuals with incurable breast cancer had more positive mental health when they maintained unrealistically positive views of themselves than those who maintained accurate self-views. Together, these findings suggest that, when circumstances are uncontrollable, individuals who self-enhance have more positive
mental health. When the circumstances can neither be avoided nor controlled, self-enhancement would be beneficial to the extent of people finding a way to feel good about themselves; their energy would be expended on inducing positive self-perceptions, emotions, and self-efficacy as to enduring the unfavorable situation (e.g., Bonanno et al., 2002) instead of on worrying about trying to avoid and/or control the situation when it is not possible. Previous research (e.g., Lazarus & Folkman, 1984) supports the application of emotion-based coping as an adaptive coping strategy during uncontrollable circumstances, indicating that self-enhancement is promotive to positive mental health.

**Controllable Circumstances.** Previous research regarding the impact of self-enhancement on mental health during controllable circumstances (e.g., making first impressions, academic performance, etc.) shows a less consistent pattern of results. For example, Zuckerman and O’Loughlin (2006) found that people who believed to be better than similar peers in terms of various positive traits and skills later reported better mental health than those who did not self-enhance. Robins and Beer (2001), however, found that college students who self-enhanced in regards to their academic performance showed lower engagement in academics and poorer mental health throughout the four-year assessment. Yet, regarding academic performance, other research shows that self-enhancement may improve relative academic performance and promote positive mental health by reducing anxiety (Gramzow & Willard, 2006; Gramzow et al., 2008). As another example of conflicting findings of mental health outcomes during controllable circumstances, Colvin et al. (1995) reported that the coders who rated self-enhancers’ first impression rated them as narcissistic, hostile, and socially maladjusted, but Paulhus (1998) reported that the group members who rated the self-enhancers’ first impression
rated them as socially well-adjusted, competent, and agreeable. Mixed results such as these suggest that additional factors affect self-enhancement’s impact on mental health during controllable circumstances.

**Stress & Mental Health**

A common way that individuals self-enhance is to remember or construe events in a positively biased manner, such as perceiving stressful experiences as less stressful (Scheier, Weintraub, & Carver, 1986). Stress is defined as an internal or external demand that requires an individual to adapt in order to reestablish homeostasis (Holmes & Rahe, 1967). By construing stressful events as less stressful, self-enhancement suspends the need to adapt to the stressful experience. In other words, people are less motivated to improve their circumstances because they do not perceive there to be anything to improve. For example, Radcliffe and Klein (2002) reported that individuals who were unrealistically optimistic perceived a low comparative risk in getting a heart attack, and they learned less information about heart attacks than others. Accordingly, people often underreport the amount of stress experienced in order to increase or maintain positive self-esteem and self-perceptions.

Self-enhancement also affects mental health throughout stressful experiences by influencing physiological responses to stress. Stress, whether it is short-term or long-term, can be harmful to physical and mental health, including immune system function deficiencies (Segerstrom & Miller, 2004), memory impairment and/or loss (Sauro, Jorgensen, & Pedlow, 2003), and performance deficits (Baumeister & Showers, 1986; Liao & Masters, 2002). Research suggests that self-enhancement acts as a physiological buffer to the stress response (Gramzow et al., 2008; Taylor, Lerner, Sherman, Sage, &
McDowell, 2003). Gramzow and colleagues (2008) found that, although an academic interview increased arousal and anxiety levels, GPA exaggeration led to reduced anxiety and arousal compared to baseline measures. Likewise, Taylor et al. (2003) examined whether self-enhancement was associated with adaptive or maladaptive biological responses. Through a controlled stress-challenge paradigm, individuals with high self-enhancement revealed a reduced cardiovascular response, quicker cardiovascular recovery, and lower stress hormone levels than those with less self-enhancement.

The findings from Gramzow et al. (2008) and Taylor et al. (2003) collectively provide evidence that self-enhancement is physiologically beneficial such that the autonomic response to stress is reduced. Yet, research findings from Radcliffe and Klein (2002), among others (e.g., Klein & Kunda, 1994; Weinstein & Klein, 1996), suggest that self-enhancement can be detrimental due to an underestimation of risk evaluation, leading to poor decision-making and, indirectly, poorer physical and mental health. Although research provides evidence that self-enhancement reduces physiological reactions to stress, less is known about how self-enhancement and physiological stress responses impact mental health.

**Motivation & Mental Health**

Another variable to consider in regards to the association between self-enhancement and mental health is motivation. For example, Agostinelli et al. (1992) reported that non-depressed individuals expressed stronger evidence of self-enhancement when given positive feedback from a judgment task performance than depressed individuals. They also found that, although depressed individuals are not strongly motivated to enhance positive self-perceptions, they expressed motivation to protect
themselves from negative views of a judgment task performance after given failure feedback. Studies also suggest that the motivation to self-enhance by minimizing negative self-views (e.g., avoidant coping and wishful thinking) is associated with poor mental health, but self-enhancement strictly through inducing positive self-views (e.g., proactive coping, and confidence in the ability to confront problems) leads to positive mental health (Aspinwall & Taylor, 1997). Accordingly, the findings from Agostinelli and colleagues (1992) and Aspinwall and Taylor (1997) suggest that whereas motivation to protect the self from negative self-perceptions is maladaptive to mental health, motivation to enhance the self through overly positive self-perceptions is adaptive to mental health.

Although research shows that one’s motivation affects how self-enhancement influences mental health outcomes, other research shows that self-enhancement affects whether motivation is present or absent. Studies have shown that self-enhancement may lower people’s motivations to address and resolve their negative experiences (McNulty, O’Mara, & Karney, 2008), and suggest that self-enhancement decreases motivation to engage in behaviors that could be beneficial over time (Gerrard, Gibbons, Reis-Bergan, & Russell, 2000; Radcliffe & Klein, 2002; Robins & Beer, 2001; Wiebe & Black, 1997). For example, Robins and Beer (2001) reported that self-enhancement regarding academic ability decreased the motivation to academically succeed over time. Additionally, Wiebe and Black (1997) found that people who self-enhanced regarding their likelihood of contracting a sexually transmitted disease were less motivated in learning about the risks of unprotected sex. Based on these findings, motivation is a very important factor in predicting mental health, and is clearly involved when people self-enhance.
Revisiting the Recent Research

A promising approach to understanding the association between self-enhancement and mental health is examining the contexts in which self-enhancement is occurring, as recently suggested and investigated by O’Mara and colleagues (2011). They conducted a longitudinal study in which newlyweds talked to interviewers about their ongoing stressful experiences, and both the newlyweds and interviewers separately rated the stress severity and mental health of the newlyweds. The newlyweds also rated their appraisals during the stressful circumstances (i.e., subjective stress), which were compared to the interviewers’ objective ratings to determine how much an individual self-enhanced. Self-enhancement was defined as reporting that events were perceived as less stressful to the self compared to how they were rated by the objective rater. The researchers predicted, and found, that the effects of self-enhancement on the newlyweds’ depression levels were different depending on the severity of their stressors. In other words, the findings suggest that stress severity and self-enhancement interact during controllable stressful circumstances to predict mental health. Specifically, self-enhancement was associated with less depressive symptoms at low levels of stress, but was associated with more depressive symptoms at high levels of stress. The interactive effects may explain the inconsistent findings of self-enhancement’s impact on mental health within controllable circumstances.

Although the study by O’Mara and colleagues provides practical implications to how self-enhancement affects mental health, two major limitations exist. First, although longitudinal, the study is not experimental, preventing researchers from determining the
direction of causation among the variables tested. Second, O’Mara et al. (2011) proposed contextual controllability to be a critical factor in the association between self-enhancement and mental health, but their research only examined a controllable context. The present research will address these limitations by conducting an experiment and examining self-enhancement in both a controllable and uncontrollable context. Additionally, the role of motivation, stress severity, and physiological responses to stress will be directly tested in order to confirm the evidence found from previous research. The present research will provide a clearer understanding of how mental health outcomes manifest from self-enhancement.

**Overview of the Present Study**

The purpose of the present study is to address the overarching question of when self-enhancement is and is not adaptive for mental health. Investigating how self-enhancement affects mental health through the present research has several empirical objectives. First, the present study would be the first to examine the association between self-enhancement and mental health under the experimental manipulation of context controllability and stress severity. Second, the present research seeks to examine the role of physiological responses associated with self-enhancement during stressful experiences. Third, it would directly and simultaneously compare differences in how self-enhancement interacts with stress severity during both uncontrollable and controllable circumstances. Finally, it would test whether self-enhancement affects mental health through changes in motivation.

Based on previous research findings, three hypotheses are established. Hypothesis 1 predicts that there would be a three-way interaction between self-enhancement, context
controllability, and stress severity in predicting mental health outcomes. To elaborate, self-enhancement would differently affect mental health based on context controllability and stress severity. When context controllability is low, it is expected that self-enhancement would promote positive mental health, regardless of stress severity. When context controllability is high, mental health should vary depending on the severity of the stress: Self-enhancement during low stress severity should promote positive mental health, while self-enhancement during high stress severity should lead to poorer mental health. Hypothesis 2 predicts that interactive effects of self-enhancement and stress in a controllable context predicting mental health are mediated by motivation. In particular, it is expected that people with high levels of self-enhancement in the high stress condition would show less motivation to reduce stress than those in the same condition with lower levels of self-enhancement, leading to poorer mental health. Finally, the third hypothesis is that the three-way interaction between self-enhancement, context controllability, and stress severity would also influence one’s physiological responses when exposed to a stress-induced experience. Specifically, individuals in the high stress condition should show higher increases in heart rate and blood pressure levels than individuals in the low stress condition. Based on the findings from Gramzow et al. (2008), however, individuals with high levels of self-enhancement should show less physiological change than individuals with low levels of self-enhancement, suggesting that self-enhancement buffers the negative effect of stress on physiological responses.

It is important to note that these hypotheses are expectations of short-term results, which were not found in the previous study by O’Mara et al. (2011). As they noted, the kinds of effects on mental health through self-enhancement tend to naturally occur over
an extended period of time. The present study, being experimental in nature, is an attempt to condense what would normally happen over a longer period of time into a shorter time-frame. Unlike the longitudinal studies previously conducted, the proposed experimental study introduces the stressor and context controllability in a controlled manner. Thus, it is justifiable to expect to find short-term effects on how self-enhancement affects well-being with the dependence of stress severity and context controllability.
CHAPTER 2

METHOD

Participants

Eighty-four undergraduate students (N = 38 males and N = 46 females) who ranged from ages 18-22 years (M = 19.14, SD = 1.19) participated in the study.

Participants were primarily Introduction to Psychology students earning course credit.

The present study was approved by the appropriate Institutional Review Board, and all participants were treated in accordance to the APA ethical guidelines.

Design and Procedure

The present study is a 2 (stress severity: low, high) x 2 (context controllability: low, high) between-subjects design. Participants were randomly assigned to one of the four conditions. Participants’ trait level self-enhancement was measured, not manipulated, and was expected to interact with context controllability and stress severity in order to determine one’s mental health. Motivation was examined as being a mediating effect for the relationship between self-enhancement and mental health. Mental health was measured, operationally defined as measurements in depression, anxiety, subjective well-being, self-esteem, perceived stress, and life satisfaction. Each participant read and signed an informed consent form before starting the experiment, and began by completing a set of self-report questionnaires to assess their self-enhancement tendencies.
The experimenter gathered the first set of physiological measurements to assess the participant’s baseline heart rate and blood pressure, and then gathered a baseline measure of the participant’s perceived stress level on a scale of 0 to 10 (higher score indicated higher stress level). The experimenter told each participant that he or she would be performing a speech about his or her view on marriage equality in front of a panel of judges who will evaluate the participant’s performance. The experimenter explained to the participant that due to recent and ongoing debates on the rights of same-sex couples (particularly whether they should be able to marry legally), researchers are more interested than ever in how the public views marriage equality and wish to develop subsequent studies that focus on the area. The speech presentation paradigm was modified from the Trier Social Stress Test (TSST; see Kirschbaum, Pirke, & Hellhammer, 1993) in order to induce stress. The stressor was not more than what any typical college student would experience when preparing and giving a presentation as a class project. The participant, however, did not actually present a speech.

Participants were randomly assigned to the stress condition by being told that their speech will be evaluated by a panel where a) the members of the panel are warm, kind, and very receptive individuals (low stress severity condition), or b) the members of the panel are cold, harsh, and very critical individuals who pressure presenters with questions (high stress severity condition). The experimenter also randomly assigned participants to the controllability condition by telling each participants that either a) the judges tend to evaluate the speech based on the quality of the speech, regardless of their own personal views (high context controllability condition), or b) the judges tend to
evaluate the speech based on their own personal views, regardless of the quality of the speech (low context controllability condition).

To behaviorally measure motivation, the experimenter asked the participant how many minutes he or she wanted to prepare for the speech, with the maximum amount of time at 10 minutes. Afterward, the experimenter collected another set of physiological measures of stress, followed by another collection of the subjective stress measure, to examine if the stressor adversely affected the participant. The experimenter then told the participant that the room in which he or she will present the speech needs to be prepared before they can enter the room, and gave the participant another set of questionnaires to complete while the experimenter “prepares the room.” This set of questionnaires included assessments of mental health (see Appendices A-F), follow-up questions regarding public speaking, and demographic information (i.e., sex and age; see Appendix J). The experimenter also told the participant that the preparation time for the speech will begin after he or she completes the questionnaires. After a few minutes, the experimenter checked on the participant to make sure the questionnaires were completed; when finished, the experimenter debriefed the participant.

Materials

**Measures of Mental Health.** In the present study, mental health was assessed through multiple measures that cover various indications of mental health, including anxiety, depression, life satisfaction, and perceived stress (see Appendices A-F).

Depression was measured via the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977), a 20-item self-report questionnaire in which participants reported whether they have experienced certain thoughts, feelings, or behaviors that
indicate depressive symptoms within the last seven days. The scale ranges from rarely or none of the time (less than 1 day) to most or all of the time (5-7 days). Examples of the items in the scale include “I thought my life had been a failure” and “I thought people disliked me.”

Both anxiety and depression were assessed through the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1982). This scale is a 14-item questionnaire that assesses both anxiety and depression. Examples of the items in this scale include “I feel tense or ‘wound up,’” ranging from most of the time to not at all, and “I have lost interest in my appearance,” ranging from definitely to I take just as much care as ever.

Regarding subjective well-being, participants completed the Subjective Well-being Scale (SWS; Sevastos, Smith, & Cordery, 1992). The 12-item questionnaire has a 6-point scale, from 1(strongly disagree) to 6(strongly agree) and participants marked the number that best corresponded to the extent of how they were feeling “right now.” The items are basic descriptive feelings such as “tense,” “miserable,” and “contented.”

The Satisfaction with Life Scale (SLS; Pavot & Diener, 1993) was used to assess how participants currently viewed their satisfaction with life. The 5-item questionnaire is measured by a 6-point scale, from 1(strongly disagree) to 6(strongly agree). Participants marked the number that best corresponded to what they believed was the case “right now.” Examples of the items of this scale include “in most ways, my life is close to my ideal” and “I could live my life over, I would change almost nothing.”

Rosenberg’s Self-Esteem Scale (Rosenberg, 1965) was also used to assess mental health. The 10-item questionnaire instructs respondents to rate in agreement as to how
they feel right now regarding each of the items (e.g., “I take on a positive attitude toward myself” and “I feel I do not have much to be proud of”). The items are rated by a 5-point scale, from 1(strongly disagree) to 5(strongly agree).

Finally, perceived stress was analyzed via the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983). There are ten items in this questionnaire, and each item is rated from 1(strongly disagree) to 5(strongly agree). Again, participants indicated the number that matched the extent to which they agreed with the statements presented in the questionnaire. Examples of items in this scale include “right now, I am upset because of something that happened unexpectedly” and “right now, I feel confident about my ability to handle my personal problems.” For the present study, seven items that directly relate to public speaking were added to the measure, which can be viewed in Appendix F. Examples of these particular items include “right now, I am upset because I have to present a speech to the panel of judges” and “right now, I feel nervous about public speaking.”

**Measures of Self-Enhancement.** Trait level self-enhancement was assessed at the beginning of the study through self-report questionnaires that the participants completed (see Appendices G and H).

The How I See Myself Questionnaire (HSM; Taylor & Gollwitzer, 1995) is a 22-item questionnaire that has respondents compare themselves to their peers. The questionnaire instructs each respondent to think about how the average college student of the same age and gender rates certain qualities and skills (e.g., “intellectually self-confident” and “desire to achieve”), and rate in comparison through a 7-point scale (i.e., 1 indicates much worse while 7 indicates much better). For the present study, the following
six items that directly relate to public speaking were added to this measure: “ability to attract an audience’s attention,” “persuasive,” “confidence in speaking in front of others,” “calm composure when speaking in front of others,” “credible among others,” and “ability to speak fluently and powerfully in front of others.

The first portion of the Tactical Self-Enhancement Scale (Sedikides, Gaertner, & Toguchi, 2003) was also used to assess general self-enhancement, even though the complete scale is typically used to assess self-enhancement in regards to things that individuals deem as important to them. The way the scale was used for the present study involves ratings of current views of traits of the self compared to peers of the same age and sex. Such traits include “self-reliant,” “compromising,” and “respectful.” The ratings are based on a 5-point scale from 1 (Definitely less than the average university study of my age and sex, or very unimportant) to 5 (definitely more than the average university study of my age and sex, or very important).

Measurement of Motivation. A behavioral measure of motivation was gathered by asking the participant how much time, in minutes, he or she would like to have to prepare for the speech, with the maximum amount of time at 10 minutes. The amount of minutes the participant requested to have indicated the amount of motivation the participant had to perform the speech well.

Measurements of Stress. The study also gathered both subjective and objective measurements of stress during the stress exposure (see Appendix I). The subjective measure of stress includes a self-report measure in which each participant rated their stress level on a scale of 0-10, with 0 indicating “absolutely no stress,” and 10 indicating “absolutely unbearable stress.” The self-report measure was used twice: before the stress
exposure as a baseline measure, and immediately after the participant was informed about presenting a speech and told the experimenter how much preparation time he or she needed.

The objective measure of stress involved physiological measures via a blood pressure wrist cuff (i.e. blood pressure and heart rate), which is commonly used as a valid measure of stress. The measures were gathered before (baseline), and right after the participant was informed about presenting a speech (post-exposure). The physiological measures may show one, or both, of two outcomes. First, they may reveal if the speech presentation paradigm induced a significant change in blood rate and heart rate that would indicate the presence of a physiological stress response. Stressors typically lead to increased heart rate and blood pressure, increased skin conductance to indicate perspiration, and elevated stress-hormone levels (Taylor et al., 2003). Second, the measures may indicate the presence of self-enhancement as a physiological buffer (Gramzow, Willard, & Mendes, 2008). Having basic physiological measures will provide a clearer understanding of how individuals react physiologically to the various combinations of perceived stress and self-enhancement.

**Methods of Analyses**

The present study analyzed the data using a multiple regression analysis to examine any main effects, and two- and three-way interaction effects between self-enhancement, context controllability, and stress severity in terms of predicting mental health. The hypothesis of motivation acting as a mediating factor was tested by using a moderation-mediation analysis to test the presence of mediation from motivation in the association between self-enhancement and mental health. Specifically, the moderation-
mediation analysis was used to test for an indirect effect of self-enhancement, context controllability, and stress severity on mental health through motivation as well as a direct effect of the predicting variables on mental health. This moderation-mediation analysis was completed with the bootstrapping procedure, which involved resampling the data to compute a percentile-bootstrap confidence interval without making distributional assumptions (Preacher & Hayes, 2008). Finally, the presence of a three-way interaction between self-enhancement, context controllability, and stress severity in predicting physiological changes was tested via a multiple regression analysis. This analysis shows if self-enhancement and stress severity influence physiological responses and changes, and whether the physiological responses are consistent or inconsistent across both levels of context controllability.
CHAPTER 3
RESULTS

Preliminary Analyses

The descriptive statistics of the mental health measures, including means, standard deviations, reliability coefficients, and inter-correlations can be viewed at Table 1. Each measure was standardized and, because the measures were strongly correlated with each other ($r = 0.50 - 0.82$), the average of all standardized scores for all mental health measures was calculated to create one overall mental health variable. Additionally, all items for each measure were coded such that higher scores of each measure indicated better mental health. The descriptive statistics of the self-enhancement measures are reported in Table 2, and the descriptive statistics of the motivation and physiological measures are reported in Table 3.

Primary Analyses

**Hypothesis 1.** The present study was designed to assess whether self-enhancement differentially influences mental health by interacting with context controllability and stress severity. Specifically, the purpose was to examine a) if self-enhancement was positively associated with mental health during uncontrollable circumstances regardless of stress severity, and b) if, during controllable circumstances, people with high levels of self-enhancement would have better mental health when
experiencing low stress, but would have poorer mental health when experiencing high stress. Mental health was regressed on the interactive effects of self-reported self-enhancement and the manipulated variables of context controllability and stress severity to which each participant was randomly assigned. In all analyses, self-enhancement was mean-centered. To examine this hypothesis, three different analyses were conducted using different assessments of self-enhancement (i.e., through the How I See Myself Questionnaire, the Tactical Self-Enhancement Scale, and the self-enhancement items that pertained to public speaking abilities).

**How I See Myself Questionnaire.** When using the How I See Myself measure as the self-enhancement variable, the analysis revealed that the Self-Enhancement x Control x Stress interaction was not significant in predicting mental health $t(76) = -0.25, p = 0.80$. Moreover, no significant main effects or interactions were observed (all $p$’s > 0.54).

**Tactical Self-Enhancement Scale.** The first 16 items of the scale were used to represent general self-enhancement. When these items were used as the self-enhancement variable, the analysis indicated that the Self-Enhancement x Control x Stress interaction was not significant in predicting mental health $t(76) = 0.37, p = 0.71$. Further, no significant main effects or interactions were observed (all $p$’s > 0.17).

**Public Speaking Self-Enhancement items.** A final regression was conducted using specifically the public speaking items that were added to the How I See Myself Questionnaire, with the intent of investigating if self-enhancement that is context-specific, which in this case means it is related to public speaking, would be associated with mental health as opposed to general trait levels of self-enhancement. The analysis revealed that the Self-Enhancement x Control x Stress interaction did not significantly
predict mental health $t(76) = 0.59, p = 0.56$. Additionally, in the analysis, no significant main effects or interactions were found (all $p$’s > 0.42).

Table 1
Descriptive Statistics of Mental Health Measures of the Overall Sample

<table>
<thead>
<tr>
<th>Measure</th>
<th>$M$</th>
<th>$SD$</th>
<th>Cronbach’s $\alpha$</th>
<th>Correlations$^b$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CESD</td>
</tr>
<tr>
<td>CESD</td>
<td>1.69</td>
<td>0.46</td>
<td>0.89</td>
<td>--</td>
</tr>
<tr>
<td>HAD</td>
<td>1.88</td>
<td>0.41</td>
<td>0.80</td>
<td>--</td>
</tr>
<tr>
<td>PSS</td>
<td>2.85</td>
<td>0.65</td>
<td>0.85</td>
<td>--</td>
</tr>
<tr>
<td>RSE</td>
<td>4.72</td>
<td>0.48</td>
<td>0.86</td>
<td>--</td>
</tr>
<tr>
<td>SLS</td>
<td>4.47</td>
<td>1.07</td>
<td>0.90</td>
<td>--</td>
</tr>
<tr>
<td>SWB</td>
<td>4.16</td>
<td>0.78</td>
<td>0.87</td>
<td>--</td>
</tr>
</tbody>
</table>

Note. CESD = Center of Epidemiologic Studies Depression Scale, HAD = Hospital of Anxiety and Depression Scale, PSS = Perceived Stress Scale with added public-speaking items, RSE = Rosenberg Self-Esteem Scale, SLS = Satisfaction with Life Scale, SWB = Subjective Well-Being Scale.

$^a$Data are reported in raw units (CESD, 0-4; HAD, 1-4; PSS, 1-5; RSE, 1-5; SLS, 1-6; SWB, 1-6), with higher scores indicating higher levels of each construct (i.e., depression, anxiety, perceived stress, self-esteem, life satisfaction, and subjective well-being).

$^b$All correlations are significant at $p < .0001$. 
Table 2

Descriptive Statistics of Self-Enhancement Measures of the Overall Sample

<table>
<thead>
<tr>
<th>Measure(^a)</th>
<th>(M)</th>
<th>(SD)</th>
<th>Cronbach’s (\alpha)</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>HSM</td>
</tr>
<tr>
<td>HSM</td>
<td>4.37</td>
<td>0.42</td>
<td>0.58</td>
<td>--</td>
</tr>
<tr>
<td>TSE_A</td>
<td>4.54</td>
<td>0.53</td>
<td>0.80</td>
<td>--</td>
</tr>
<tr>
<td>HSM_P</td>
<td>4.50</td>
<td>1.02</td>
<td>0.87</td>
<td>--</td>
</tr>
</tbody>
</table>

Notes. HSM = How I See Myself Questionnaire (original form), TSE_A = Tactical Self-Enhancement Scale (part A), HSM_P = public speaking items for the How I See Myself Questionnaire.

\(^a\)Data are reported in raw units (HSM, 1-7; TSE_A, 1-6; HSM_P, 1-7), with higher scores indicating higher levels of each construct (i.e., self-enhancement).

\(* p < 0.05\)
Table 3

Descriptive Statistics of Motivation and Physiological Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>$M$</th>
<th>$SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOTIV$^a$</td>
<td>7.71</td>
<td>2.78</td>
</tr>
<tr>
<td>SYS_DIFF$^b$</td>
<td>3.46</td>
<td>9.82</td>
</tr>
<tr>
<td>DIA_DIFF$^b$</td>
<td>4.46</td>
<td>10.24</td>
</tr>
<tr>
<td>HR_DIFF$^b$</td>
<td>2.00</td>
<td>7.71</td>
</tr>
<tr>
<td>STR_DIFF$^b$</td>
<td>1.98</td>
<td>1.60</td>
</tr>
</tbody>
</table>

Note. MOTIV = Motivation (minutes); SYS_DIFF = Difference in systolic blood pressure (i.e., post-exposure – baseline); DIA_DIFF = Difference in diastolic blood pressure (i.e., post-exposure – baseline); HR_DIFF = Difference in heart rate (i.e., post-exposure – baseline); STR_DIFF = Difference in self-report subjective stress level (i.e., post-exposure – baseline).

$^a$Data were reported in raw units (MOTIV, 0-10 minutes), with higher numbers indicating higher levels of each construct (i.e., behavioral motivation).

$^b$Data were reported as the change in the measure between post-exposure collection and baseline collection, with higher numbers indicating larger differences in change of each construct (i.e., blood pressure, heart rate, and subjective stress level).

Hypothesis 2. The present study was also designed to assess if motivation mediated the association between self-enhancement and mental health. Specifically, does motivation play a role in how self-enhancement interacts with stress severity in predicting mental health in controllable situations? The mediation was tested through the use of
Model 11 of the SPSS PROCESS macro developed by Hayes (2013). The data were analyzed through a bootstrapping procedure in which percentile bootstrap intervals were calculated through resampling the data. The estimated percentile-bootstrapped confidence intervals for the indirect effect of self-enhancement on mental health outcomes via motivation between all four manipulated conditions do not provide evidence that is consistent with mediation (see Table 4). In fact, self-enhancement, context controllability, and stress severity did not interact to significantly predict motivation $F(7, 75) = 0.81, p = 0.58$, and neither self-enhancement nor motivation significantly predicted mental health outcomes $F(2, 80) = 1.22, p = 0.30$.

Table 4

Percentile-Bootstrap Confidence Intervals of Motivation for Manipulated Predictors

<table>
<thead>
<tr>
<th>Condition</th>
<th>Effect</th>
<th>SE</th>
<th>LLCI</th>
<th>ULCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Stress/High Control</td>
<td>0.02</td>
<td>0.07</td>
<td>-0.05</td>
<td>0.27</td>
</tr>
<tr>
<td>Low Stress/Low Control</td>
<td>-0.07</td>
<td>0.11</td>
<td>-0.40</td>
<td>0.05</td>
</tr>
<tr>
<td>High Stress/High Control</td>
<td>0.01</td>
<td>0.06</td>
<td>-0.07</td>
<td>0.22</td>
</tr>
<tr>
<td>High Stress/Low Control</td>
<td>0.02</td>
<td>0.06</td>
<td>-0.04</td>
<td>0.20</td>
</tr>
</tbody>
</table>

*Note.* The percentile-bootstrap confidence interval ranges from lowest level confidence interval to highest level confidence interval. Level of confidence for all confidence intervals in the output are 95%.

**Hypothesis 3.** To assess whether self-enhancement, context controllability, and stress severity interact to predict physiological reactivity—that is, whether self-
enhancement buffers the elevation of heart rate and blood pressure when one is exposed to a stressor, the physiological reactivity outcomes were regressed onto the interactive effects of self-enhancement, context controllability, and stress severity. Like the first hypothesis, self-enhancement was analyzed through the items of the How I See Myself Questionnaire, the first 16 items of the Tactical Self-Enhancement Scale, and the public-speaking items. The outcome variables used were the difference in a) systolic blood pressure, b) diastolic blood pressure, and c) heart rate between post-exposure and baseline measures. The difference in each variable is from the post-exposure measure to the baseline measure (i.e., post-exposure – baseline = difference). Means and standard deviations of the difference in blood pressure and heart rate readings from post-exposure to baseline can be found in Table 3.

The outcome variables were analyzed in two different ways. The first approach involved calculating the difference between the two readings of each variable from post-exposure (i.e., after the introduction to the speech task) to baseline measures, creating each variable as the change in that particular variable, and conducting a multiple regression analysis using that calculated change as the outcome variable. The second approach involved conducting multiple regression analyses with the outcome variable as the post-exposure reading of each variable, while controlling for the baseline reading of each variable.

**How I See Myself Questionnaire.** The regression models from the first approach showed that self-enhancement measured through the How I See Myself Questionnaire, context controllability, and stress severity does not significantly predict the difference in systolic blood pressure $F(6, 75) = 0.17, p = 0.99$, the difference in diastolic blood
pressure \( F(6, 75) = 0.83, p = 0.55 \), or the difference in heart rate \( F(6, 74) = 0.81, p = 0.57 \). No lower-level effects were observed (all \( p \)'s > 0.10). Through the second approach, the Self-Enhancement x Control x Stress interaction via the regression does not predict the post-exposure measures of systolic blood pressure \( t(75) = 0.50, p = 0.62 \), diastolic blood pressure \( t(75) = -0.04, p = 0.97 \), or heart rate \( t(74) = 0.40, p = 0.69 \). With the exception of the baseline readings being significantly different from their respective post-exposure readings (systolic \( t(75) = 9.37, p < 0.0001 \); diastolic \( t(75) = 5.85, p < 0.0001 \); heart rate \( t(74) = 12.69, p < 0.0001 \)), no significant main effects or interactions pertaining to self-enhancement, context controllability, and stress severity were observed in any of these analyses (all \( p \)'s > 0.21).

**Tactical Self Enhancement Scale.** When analyzing the data through the first approach, self-enhancement measured through the Tactical Self-Enhancement Scale also does not significantly interact with context controllability and stress severity to predict the difference in systolic blood pressure \( F(6, 76) = 0.72, p = 0.64 \), the difference in diastolic blood pressure \( F(6, 76) = 0.50, p = 0.80 \), of the difference in heart rate \( F(6, 76) = 1.48, p = 0.20 \). No lower-level effects were observed (all \( p \)'s > 0.10). Additionally, through the second approach of the data analysis, Self-Enhancement x Control x Stress interaction does not predict the post-exposure measures of systolic blood pressure \( t(75) = -0.32, p = 0.75 \), diastolic blood pressure \( t(75) = -0.51, p = 0.61 \), or heart rate \( t(74) = -0.45, p = 0.65 \). With the exception of the baseline readings being significantly different from their respective post-exposure readings (systolic \( t(75) = 9.51, p < 0.0001 \); diastolic \( t(75) = 6.10, p < 0.0001 \); heart rate \( t(74) = 12.36, p < 0.0001 \)), no significant main effects or
interactions pertaining to self-enhancement, context controllability, and stress severity were observed in any of these analyses (all p’s > 0.32).

Public Speaking Self-Enhancement items. Through the first approach of the data analysis, self-enhancement specifically pertaining to the public speaking items does not significantly interact with context controllability and stress severity to predict differences in physiological reactivity through systolic blood pressure $F(6, 76) = 0.86, p = 0.53$, diastolic blood pressure $F(6, 76) = 1.20, p = 0.32$, or heart rate $F(6, 76) = 1.17, p = 0.33$. No lower-level effects were observed (all p’s > 0.10). Further, when measuring self-enhancement through the specific public-speaking items using the second approach, the Self-Enhancement x Control x Stress interaction via the regression does not predict the post-exposure measures of systolic blood pressure $t(75) = -0.90, p = 0.37$, diastolic blood pressure $t(75) = -0.84, p = 0.40$, or heart rate $t(74) = 0.91, p = 0.37$. With the exception of the baseline readings being significantly different from their respective post-exposure readings (systolic $t(75) = 11.01, p < 0.0001$; diastolic $t(75) = 6.24, p < 0.0001$; heart rate $t(74) = 12.33, p < 0.0001$), no significant main effects or interactions pertaining to self-enhancement, context controllability, and stress severity were observed in any of these analyses (all p’s > 0.18). Overall, these findings indicate that self-reported self-enhancement levels and stress severity in the context of public speaking do not differentially influence blood pressure and heart rate, and these specific differences in physiological reactivity are consistent between the two manipulated levels of context controllability through the present study.
CHAPTER 4

DISCUSSION

Investigating when self-enhancement is adaptive and maladaptive to one’s well-being has been an ongoing investigation. The present study aimed to contribute to this research by illustrating through an experimental procedure of manipulating context controllability and stress severity when self-enhancement is adaptive or maladaptive to one’s mental health. Although longitudinal assessments found otherwise (e.g. O’Mara et al., 2011), the results of the present study failed to find support that self-reported levels of self-enhancement, and context controllability and stress severity within the context of public speaking interact to predict mental health, motivation to perform the task well, or physiological reactivity (i.e., changes in blood pressure and heart rate). The results from the present study also failed to provide support for the idea that motivation plays a role in how self-enhancement and stress severity differentially influence one’s mental health when the situation was controllable (i.e., when the judges evaluated one’s performance based on the quality of the speech and not on their own personal views).

Ideally, any researcher wants to have a large sample of data in order to test an idea or phenomenon. Observing a three-way interaction typically requires a large enough sample size to observe the three way interaction and any lower-order effects. The sample size obtained for the present study may have been too small, which limits the power of
the effect, possibly contributing to not finding support for any of the hypotheses. It may be possible to observe a three-way interaction with a larger sample size; replicating the study with a large sample could rule out whether power is an issue in the findings.

Another explanation as to why an effect was not observed involves the mental health measures. One of the measures (i.e., the CES-D) asks respondents to answer each item based on how they felt in the past week, while the remaining measures ask them to answer based on how they felt at the present moment. Because the CES-D is a 7-day measure, it is likely that the scores are based on a) how participants felt before they participated in the present study, and b) a consistency in thoughts and feelings within the 7-day interval. Thus, the acute experimental manipulations that took place within several minutes may not have been sensitive enough to change scores such that it would indicate that the stressor made an impact on depressive symptoms. It may have been beneficial to have participants complete the CES-D before the introduction of the experimental manipulations, then complete a different measure for depressive symptoms that focus on how respondents feel at the moment.

The approach of experimentally examining the association is unique from the previously conducted longitudinal methods and may contribute to the inconsistency in findings between studies. The objective of the present study was to manipulate the process through controlling stress severity and context controllability within the context of public speaking, and examining how self-reported trait levels of self-enhancement are associated with mental health. Sedikides and Gregg (2008) proposed that self-enhancement displays itself in four different ways: as an observed effect, an ongoing process, a personality trait, or an underlying motive. Although self-enhancement was
measured as a personality trait in the present study, the procedure used was a way to show the effects of self-enhancement on mental health as an observed effect. Longitudinal research, however, focuses on the effects of self-enhancement on mental health as an ongoing process. The expectation for the present study was to find short-term effects on how self-enhancement differentially influences one’s psychological well-being depending on the degree of stress experienced and one’s ability to control his or her circumstances. The current findings, however, may reflect that these effects are best analyzed when occurring over an extended period of time. Specifically, it is possible that this manifestation of self-enhancement in the case of the present study is still an expression of an ongoing process, and not a directly observed effect. Future research should be directed to examining how self-enhancement may be expressed in terms of predicting mental health outcomes, for it would direct researchers to understanding what methods best demonstrate how to answer the question of when self-enhancement is adaptive and maladaptive to one’s well-being.

The methodology of the present study included a modified version of the speech presentation portion of the TSST (for the original TSST paradigm, see Kirschbaum, Pirke, & Hellhammer, 1993). The participants were deceptively told that they would be presenting a five-minute speech in front of a panel of judges who will evaluate their performance, with the intended purpose of inducing stress without the participants actually performing the speech. Public speaking has been established as an anxiety- and stress-inducing task for many individuals (Leitenberg, 1990), particularly as forms of evaluative and social threats (Kirschbaum, Pirke, & Hellhammer, 1993). Even the anticipation of presenting a speech in front of an audience elevates blood pressure and
heart rate, known as anticipatory stress (Feldman, Cohen, Hamrick, & Lepore, 2004). As participants were signing up to participate in research studies, they were provided the description that they “will be asked to prepare a speech on marriage equality, specifically whether you believe that same-sex marriages should be legal.” This specific description (i.e., explicitly stating they will be asked to present a speech, and stating the speech is about a sensitive and emotionally charging topic) may have deterred participants from signing up because they believed the task to already be too stressful for them to perform, which could have elicited selection bias in the particular sample (i.e., undergraduate college students).

In the case of the present study, selection bias could contribute to explaining the lack of support for the third hypothesis. It would be difficult to observe changes in cardiovascular activity such that self-enhancement would buffer the stress response (see Gramzow et al., 2008) if the people who willingly signed up to participate did not initially deem the idea of public speaking about a controversial topic to be a stressful task compared to what is normally done in college (e.g., speaking in front of a class). It is uncertain whether rephrasing the description such that it would be less direct (e.g., “you will be asked about your views on marriage equality…”) would affect the sample. A possible direction for future research could be to examine if the diversity of the sample pool would change the degree to which it provides a more representative picture of how self-enhancement in the presence of an effective stressor predicts mental health and changes in cardiovascular activity. Another option for future research is to consider using a more naturally salient stressor as a way to induce physiological stress (i.e., increased blood pressure and heart rate, perspiration) that would effectively impact any individual.
For example, having someone provide negative feedback on one’s academic performance and threatening the person with negative consequences could evoke a clear physiological stress response for more individuals compared to public speaking. Additionally, researchers should consider examining whether actually performing the speech as conducted in the original TSST paradigm makes a greater impact on physiological reactivity compared to the anticipation of preparing and presenting the speech, and if the effects of self-enhancement on one’s performance and ratings of their speech would be observed after performing the TSST.

In relation to the second hypothesis, most participants asked for the maximum amount of time to prepare for the speech, regardless of whether the stress was mild or severe, and regardless of whether the speech performance was evaluated by quality or personal opinion. It may be that participants chose to have the maximum amount of time to prepare out of convention as opposed to truly being motivated to perform well in front of the judges. Additionally, it could be that dispositional self-enhancement that is self-reported may not be associated with one’s motivation as opposed to self-enhancement that specifically reflects within domains that are most important and relevant to the individual. Future research should consider investigating the association between different representations of self-enhancement and how they may associate with different kinds of motivation (e.g., to engage in performance and achievement, to solving a problem, etc.), and examining levels of motivation in general vs. specific situations to see if either of these would play a significant role in how self-enhancement predicts one’s mental health.
The lack of support from the present study should not discourage the application of experimental manipulation of context controllability and stress severity when investigating the effects of self-enhancement on mental health. Instead, future research should continue to pursue investigating the effects of self-enhancement on mental health when accounting for context controllability and stress severity. Future research should consider examining other ways to manipulate context controllability and stress severity to which the context is more realistic to the participant. It is possible that the procedure used in the present study may have been too context-specific such that self-reported self-enhancement did not influence mental health outcomes when evaluated in a relatively artificial context (i.e., performing a speech in front of a panel of judges about marriage equality). Having face validity in which the situation is more realistic and naturalistic to the participant would most likely reflect how self-enhancement, one’s ability to control his or her situation, and the severity of the stress experienced impact mental health in real life. Although no support for the previous findings was found through the present study, it introduced the exploration of analyzing self-enhancement and its effects on mental health while applying experimental conditions on potential moderating variables, which is important for research progress.
REFERENCES


APPENDIX A

CENTER FOR EPIDEMIOLOGIC STUDIES – DEPRESSION SCALE

INSTRUCTIONS FOR QUESTIONS: Below is a list of the ways you might have felt or behaved. Please circle the number from the scale below that corresponds to how often you have felt this way during the past week.

1 = Rarely of none of the time (less than 1 day)
2 = Some or a little of the time (1-2 days)
3 = Occasionally or a moderate amount of time (3-4 days)
4 = Most or all of the time (5-7 days)

1. I was bothered by things that usually don’t bother me.
2. I did not feel like eating; my appetite was poor.
3. I felt that I could not shake off the blues even with help from my family and friends.
4. I felt that I was just as good as other people.
5. I had trouble keeping my mind on what I was doing.
6. I felt depressed.
7. I thought everything I did was an effort.
8. I felt hopeful about the future.
9. I thought my life had been a failure.
10. I felt fearful.
11. My sleep was restless.
12. I was happy.
13. I talked less than usual.
15. People were unfriendly.
16. I enjoyed life.
17. I had crying spells.
18. I felt sad.
19. I felt that people dislike me.
20. I could not get going.
APPENDIX B

HOSPITAL ANXIETY AND DEPRESSION SCALE

Read each item and circle the response that comes closest to how you feel right now.

Don’t take too long to reply: your immediate reaction is more accurate than a long thought-out response.

1. I feel tense or ‘wound up’:
   - Most of the time
   - Occasionally
   - A lot of the time
   - Not at all

2. I still enjoy the things I used to enjoy:
   - Definitely as much
   - Only a little
   - Not quite as much
   - Hardly at all

3. I get a sort of frightened feeling as if something awful is about to happen:
   - Very definitely/quite badly
   - A little, but it doesn’t worry me
   - Yes, but not too badly
   - Not at all

4. I can laugh and see the sunny side of things:
   - As much as I always could
   - Definitely not as much now
   - Not quite as much now
   - Not at all

5. Worrying thoughts go through my mind:
   - A great deal of the time
   - From time to time, but not too often
   - A lot of the time
   - Only occasionally

6. I feel cheerful:
   - Not at all
   - Sometimes
   - Not often
   - Most of the time

7. I can sit at ease and feel relaxed:
   - Definitely
   - Not often
   - Usually
   - Not at all
8. I feel as if I am slowed down:
   - Nearly all the time
   - Sometimes
   - Very often
   - Not at all

9. I get a sort of frightened feeling like “butterflies” in the stomach:
   - Not at all
   - Quite often
   - Occasionally
   - Very often

10. I have lost interest in my appearance:
    - Definitely
    - I may not take as much care
    - I don’t take much care as I should
    - I take just as much care as ever

11. I feel restless as if I have to be on the move:
    - Very much indeed
    - Quite a lot
    - Not very much
    - Not at all

12. I look forward with enjoyment to things:
    - As much as I ever did
    - Rather less than I used to
    - Definitely less than I used to
    - Hardly at all

13. I get sudden feelings of panic:
    - Very often indeed
    - Quite often
    - Not very often
    - Not at all

14. I can enjoy a good book or radio or TV program:
    - Often
    - Sometimes
    - Not often
    - Very seldom
APPENDIX C
SUBJECTIVE WELL-BEING SCALE

Using the following scale, indicate the extent that you, **right now**, feel each of the following:

1 = strongly disagree
2 = disagree
3 = slightly disagree
4 = slightly agree
5 = agree
6 = strongly agree

(Please **CIRCLE** the appropriate number.)

<table>
<thead>
<tr>
<th></th>
<th>1 2 3 4 5 6</th>
<th>uneasy</th>
<th>1 2 3 4 5 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tense</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>worried</td>
<td>1 2 3 4 5 6</td>
<td>calm</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>contented</td>
<td>1 2 3 4 5 6</td>
<td>relax</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>depressed</td>
<td>1 2 3 4 5 6</td>
<td>gloomy</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>miserable</td>
<td>1 2 3 4 5 6</td>
<td>cheerful</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>enthusiastic</td>
<td>1 2 3 4 5 6</td>
<td>optimistic</td>
<td>1 2 3 4 5 6</td>
</tr>
</tbody>
</table>
APPENDIX D
SATISFACTION WITH LIFE SCALE

Below are five statements with which you may agree or disagree. Please indicate the extent to which you agree with each item right now using the following scale:

1 = strongly disagree
2 = disagree
3 = slightly disagree
4 = slightly agree
5 = agree
6 = strongly agree

(Please CIRCLE the appropriate number.)

1. In most ways, my life is close to my ideal. 1 2 3 4 5 6

2. The conditions of my life are excellent. 1 2 3 4 5 6

3. I am satisfied with my life. 1 2 3 4 5 6

4. So far, I have gotten the important things I want in life. 1 2 3 4 5 6

5. If I could live my life over, I would change almost nothing. 1 2 3 4 5 6
APPENDIX E

ROSENBERG SELF-ESTEEM SCALE

Please respond to the following statements in terms of how you feel about yourself **RIGHT NOW**. Indicate your agreement with each statement by responding with a number (1-7) from the following scale:

1  2  3  4  5

**Strongly Disagree**          **Strongly Agree**

Right now…

___ 1. I feel I am a person of worth, at least on an equal basis with others
___ 2. I feel that I have a number of good qualities
___ 3. I am inclined to feel that I am a failure
___ 4. I am able to do things as well as most other people
___ 5. I feel I do not have much to be proud of
___ 6. I take on a positive attitude toward myself
___ 7. I am satisfied with myself
___ 8. I wish I could have more respect for myself
___ 9. I certainly feel useless
___ 10. I think I am no good at all
APPENDIX F

PERCEIVED STRESS SCALE

Using the scale below, indicate the extent to which you agree with the following items, right now.

1 = strongly disagree
2 = disagree
3 = neither disagree or agree
4 = agree
5 = strongly agree

(Please CIRCLE the appropriate number.)

Right now, I...

1. am upset because of something that happened unexpectedly? 1 2 3 4 5
2. feel that I was unable to control the important things in my life? 1 2 3 4 5
3. feel nervous and stressed? 1 2 3 4 5
4. successfully dealt with irritating life hassles? 1 2 3 4 5
5. feel that I’m effectively coping with important changes that are occurring in my life? 1 2 3 4 5
*6. am upset because I have to present a speech to the panel of judges? 1 2 3 4 5
*7. feel nervous about public speaking? 1 2 3 4 5
*8. feel stressed about needing to perform well in front of the judges? 1 2 3 4 5
9. feel confident about my ability to handle my personal problems? 1 2 3 4 5
10. feel that things are going my way? 1 2 3 4 5
11. feel that I could not cope with all the things that I have to do? 1 2 3 4 5
12. am able to control irritations in my life? 1 2 3 4 5
13. feel that I am on top of things? 1 2 3 4 5
*14. feel confident about presenting my speech effectively? 1 2 3 4 5
*15. am worried about presenting my views on marriage equality? 1 2 3 4 5
*16. am stressed about giving the speech? 1 2 3 4 5
*17. find it stressful to think of enough content for a good speech? 1 2 3 4 5

Note. Items marked with an * are the added items that specifically pertain to public speaking.
APPENDIX G

HOW I SEE MYSELF QUESTIONNAIRE

For each of the qualities or skills below, we would like you to rate yourself in comparison to your peers. Specifically, we want you to think about how the average UD college students of your age and gender rates on each of these qualities or skills, and then rate yourself in comparison. Please use the following scale to rate yourself:

1 = Much worse than the average college student of my age and gender
2 = Somewhat worse than the average college student of my age and gender
3 = Slightly worse than the average college student of my age and gender
4 = About the same than the average college student of my age and gender
5 = Slightly better than the average college student of my age and gender
6 = Somewhat better than the average college student of my age and gender
7 = Much better than the average college student of my age and gender

Please read each item and fill in with the number that corresponds to your self-perception.

_____ Cheerful
_____ Socially self-confident

_____ Intellectually self-confident
_____ Moody

_____ Calm composure when speaking in front of others
_____ Selfish

_____ Impatient
_____ Credible among others

_____ Self-respecting
_____ Academically able

_____ Difficulty making friends
_____ Lacking motivation

_____ Attracting an audience’s attention
_____ Self-defeating

_____ Confident in ability to obtain personal goals
_____ Cranky

_____ Understanding of others
_____ Manipulative
_____ Shy
_____ Desire to achieve
_____ Original
_____ Confident in speaking in front of others
_____ Speak fluently/powerfully in front of others

_____ Sensitive to others
_____ Lazy
_____ Persuasive
_____ Anxious
_____ Creative
APPENDIX H

TACTICAL SELF-ENHANCEMENT SCALE – PART A

Using the following scale, please rate how you view yourself on the following traits right now, relative to the average college student of similar age and sex.

1 – Definitely less than the average university study of my age and sex
2 – Somewhat less than the average university study of my age and sex
3 – Slightly less than the average university study of my age and sex
4 – Slightly more than the average university study of my age and sex
5 – Somewhat more than the average university study of my age and sex
6 – Definitely more than the average university study of my age and sex

____ Free  ____ Agreeable
____ Independent  ____ Compromising
____ Leader  ____ Cooperative
____ Original  ____ Good Listener
____ Self-reliant  ____ Loyal
____ Separate  ____ Patient
____ Unconstrained  ____ Respectful
____ Unique  ____ Self-sacrificing
APPENDIX I

MEASURES OF STRESS

**Subjective Stress**

I will be asking you from time to time to rate your stress level on a scale of 0 to 10, with 0 indicating “absolutely no stress” and 10 indicating “absolutely unbearable stress.”

1. **Baseline**

   0  1  2  3  4  5  6  7  8  9  10
   Absolutely no stress  Absolutely unbearable stress

2. **Post-Exposure**

   0  1  2  3  4  5  6  7  8  9  10
   Absolutely no stress  Absolutely unbearable stress

**Objective Stress**

1. **Baseline**

   Blood Pressure _____/_____
   Heart Rate/Pulse __________

2. **Post-Exposure**

   Blood Pressure _____/_____
   Heart Rate/Pulse __________
APPENDIX J

FOLLOW-UP QUESTIONS AND DEMOGRAPHICS

1. Prior to completing today’s study, were you given information about today’s study from other students who have previously participated?

   _____ Yes
   _____ No

2. If you answered yes, please briefly describe what information you were given about today’s study.

3. Prior to today, when was the last time you spoke in public, or gave a speech to an audience? What was that speech about?

4. Please provide when you last:
   - Ate a meal: _____ mins / hrs ago (circle one)
   - Drank a caffeinated beverage (e.g., coffee, tea, soda, energy drink): _____ mins / hrs / days ago (circle one)
   - Exercised: _____ mins / hrs / days ago (circle one)

5. Sex:       _____ Male       _____ Female

6. Age:       _____ 18       _____ 19       _____ 20       _____ 21       _____ 22+