

THE RELATIONSHIP BETWEEN GLOBAL SELF-ESTEEM AND FEAR OF
FLYING IN ADULTS

by

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Abstract

This study was designed to measure the relationship between self-esteem and fear-of-flying, a situational type phobia. It was found that men with a lower self-esteem are more likely to have this type of phobia. No such relationship was found for women, suggesting strong gender differences in the interrelation between self-esteem and fear-of-flying. The constructs of self-esteem and phobia were measured by their respective standardized surveys, distributed online with a target population of adults, through a process of simple random sampling. The results and implications of this study upon both theory and applied phobia treatments are discussed.

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CHAPTER 1. INTRODUCTION

Introduction to the Problem

Phobias are specific forms of anxiety, which adversely affect one out of every nine Americans (McDonough & Marks, 2002). A fear-of-flying is a specific, situational type of phobia that is particularly intrusive, as it may limit the opportunities a person has for visiting loved ones, conducting distant business meetings, even attending to emergencies that require quick transportation. Such a debilitating and life-altering condition is considered the most common and widespread type of mental pathology in modern society (DSM-IV; American Psychiatric Association [APA], 2000).

Comparative research suggests that specific phobias share similar features of etiology, pathology, and treatment indications with generalized anxiety (APA, 2000). Research by Leary (1999) and Mitte (2005) have shown that cognitions relating to low self-esteem support and foster generalized anxiety. Both conclude that low self-esteem is a predictive element in generalized anxiety. A statistically significant inverse correlation between level of self-esteem and presence of phobia would suggest a similar phenomenon: that those with a lower self-esteem are more apt to have phobias compared to those with a higher level of self-esteem. This would lay the foundation for asserting that low self-esteem is a foundation for both the development and treatment of phobias, as it is for generalized anxiety. Such an analogous relationship can be assumed based upon both the similarities of anxiety and phobias (APA, 2000) and upon research demonstrating that low self-esteem will often generalize into disparate and seemingly unrelated areas of feelings and cognitions (Jones & Buckingham, 2005), which could

very well include phobias. Until now, however, the assumption of a statistically significant relationship linking self-esteem and phobias has not been tested in formal research.

As generalized anxiety and specific phobias both represent variant types of pathology in the same umbrella category of anxiety, as generalized anxiety is related to low self-esteem, and as low self-esteem tends to affect a variety of internal beliefs and positions, it was predicted that global negative cognitions operationalized as low self-esteem foster the development and propagation of specific phobias. Before this research, the cognitive models of anxiety espoused by Beck (1995) and Bieling, McCabe, & Antony (2006), of which negative cognitions characterized as low self-esteem negatively bias otherwise neutral stimuli, have been applied to only general and social forms of anxiety, not specific phobias.

In the model of both Beck (1995), Bieling, McCabe, and Antony (2006), and Mitte (2005), anxiety disorders are modes of vulnerability and of *catastrophism* that bias responses to rationally neutral stimuli as threatening. In other words, a person with an anxiety towards a given object is likely to interpret neutral attributes of that object as threatening. As an example, whereas a psychologically healthy person is likely to interpret rejection as an unfortunate but largely isolated, singular incident in a particular social domain, a highly anxious person may interpret rejection as highly threatening and overwhelming across a variety of domains.

Despite the rather extensive amount of research into the relationship among self-esteem and various psychological phenomenon (Wilbum & Smith, 2005) including general anxiety (Jones & Buckingham, 2005; Leary, 1999), there is little research into

how general self-esteem relates to specific phobias. The lack of research in this area represents a critical deficit, as an established relationship between self-esteem and phobias could validate treatments for phobias based upon direct treatment of low self-esteem, which would represent a new, more thorough phobia treatment program to help the millions of people suffering from specific phobias.

Self-esteem is a relatively stable personality trait that represents a level of global self-evaluation and self-worth (Sedikides, Rudich, Greeg, Kumashiro, & Rusbult, 2004). The consensus among researchers is that self-esteem is a universal phenomenon found in both genders and across cultures (Schmitt & Allik, 2005). A vast array of research attests to the role of high self-esteem in both physical health and mental well being (Lightsey, Burke, Ervin, Henderson, & Yee, 2006), including mental health, social connectedness, and greater occupational success (Trzesniewski et al., 2006). A moderate to high level of self-esteem seems to serve as a buffer against stress, failures, and personal setbacks (Wilbum & Smith, 2005). Those with a high level of self-esteem generally enjoy greater levels of success in both social and occupational fields (Trzesniewski et al.). Conversely, low levels of self-esteem directly relate to a broad array of psychopathology including depression and neurosis (Wilbum & Smith) and represent significant variance in predicting future criminal activity (Trzesniewski et al.). Understanding how self-esteem in general relates to specific phobias such as a fear-of-flying not only helps explain the etiology of phobias but further clarifies the role of self-esteem in human behavior as well as provides an adjunct focus for therapies designed to treat anxiety disorders in general and phobias in particular.

Chapter 1 focuses upon the need for phobia treatments, the relationship between self-esteem and general anxiety, how self-esteem may also relate to specific phobias, and how understanding the latter relationship may improve strategies for phobia treatments. The chapter highlights the importance of a correlation study of self-esteem level among participants with varying levels of specific and social phobias to determine the strength and orientation of such a relationship. The chapter defines and operationalizes features of self-esteem as well as level of fear-of-flying as the independent and dependant variables, respectively. The chapter also briefly discusses age and gender as mediating variables in the relationship between self-esteem and phobias.

Background of the Study

A fear-of-flying is a specific, situational type phobia that is a debilitating psychological intrusion, which affects millions of Americans. Researchers have found that a large percentage of the population has marked distress about flying; however, the fear may not reach clinical significance due to lack of intensity or because the inability to fly does not “[interfere] significantly with the person’s normal routine, occupation (or academic) functioning, or social activities or relationships, or [does not elicit] marked distress about having the phobia” (APA, p. 449). Surveys suggest that 10-20% of the U.S. population does have a clinically significant fear-of-flying due to marked intensity of the fear or intrusive interference based upon an inability to fly (APA).

Research indicates that 25% of the population that fly experience “intense distress” during the flight and that 20% of the population rely upon self-medication through alcohol or tranquilizers (Botella, Osma, Garcia-Palacios, Quero, & Baños, 2004).

The disparity between those who report anxiety about flying and those who actually avoid flying indicates there may be a significant portion of the population that has a sub-threshold level of fear-of-flying, that is, a very strong anxiety about and aversion towards flying, which is distressing but does not completely rule out flying and thus is not considered clinically significant. It should be noted that those with an intense fear-of-flying who take the self-medication option face impairment upon arrival due to the sedatives (Rothbaum, Hodges, Anderson, Price, & Smith, 2002). Millions of Americans are therefore either unable to fly, forgoing important business and social meetings, or arrive at such meetings under the influence of anti-anxiety medication or alcohol. With so many compromised business and social events, this unnecessary and irrational phobia translates into a substantial burden upon the individual.

Botella and others (2004) notes that, for many people with a fear-of-flying, they: report worry and fear from the moment they know they have to fly. This means days, weeks, and even months before flying... sometimes it is not necessary for the individual to fly to feel anxiety, that is, other situations like taking a friend or family member to the airport, listening to the plane engines, seeing a plane flying in the sky, or even watching a movie related to planes, provoke intense distress and suffering. (p. 311)

Low self-esteem may best describe the maladaptive mental cognitions that lead to the development and propagation of the fear-of-flying as it does with generalized anxiety. Research by Leary (1999) implicates low self-esteem as a contributing factor in generalized anxiety. If anxiety is considered to be a state of negative thoughts and feelings associated with a physical state of persistent tension and apprehension, it

becomes evident that a low sense of self-worth would produce anxiety, especially during periods of stress.

Those with low self-esteem are more apt to focus on and overgeneralization negative feedback, resulting in a feeling of general inadequacy (Jones & Buckingham, 2005), even if said feedback is specific to a particular domain and not rationally or even directly related to overall perceived worth. There may, therefore, be a very similar process of overgeneralization into specific phobias as there is with generalized inadequacy. After all, if low self-esteem adversely affects a wide range of particular domains, there is no reason to assume the effects would bypass fears and phobias. This is especially apparent given the close nature of specific phobias with generalized anxiety; both share very similar attributes in regards to symptoms of anxiety (McDonough & Marks, 2002), intervention strategies (Dugas et al., 2003), and co-morbidity (Craske, 2003).

McDonough and Marks (2002) suggests that specific phobias are comparable with generalized anxiety, with the former being a more focused target of fear and panic. Whereas a generalized anxiety may relate to several domains in a person's personal and professional life, a specific phobia relates to one particular aspect of the environment, which may range from animals, to environmental stimuli such as heights, to fear of blood and injections (Götestam, 2002).

If self-esteem has a strong, inverse relationship with the presence of specific phobias as it does with the presence of generalized anxiety, practitioners would be more inclined to include cognitive strategies designed to specifically target low self-esteem in a phobia treatment battery. In other words, instead of targeting phobias and anxiety issues

separately and individually, the therapist would instead start with self-esteem issues. This represents a potential benefit for the patient for three reasons: 1) it may alleviate underlying emotional states, which may then not only alleviate both phobias but co-morbid anxiety issues as well 2) it might better prevent future relapse and 3) it builds confidence in the patient's ability to handle the fear and mitigates the common concern patients have of "facing your fear" (Götestam, 2002). For the therapist, understanding the role self-esteem may have in phobia development would provide a means to choose a more optimal cognitive-behavioral technique, based upon an initial assessment of self-esteem, with said assessments being readily available (Griffiths, 1999).

Statement of the Problem

Cognitive interventions for low self-esteem may or may not be helpful for patients with a fear-of-flying. If there is no relationship among level of self-esteem and phobia, directly focusing on self-esteem would do little to mitigate phobia symptoms. Conversely, a strong, inverse relationship suggests a therapist can target multiple phobias and corresponding anxieties with cognitive modification strategies, which are both appealing and economical to the patient. Before this research, however, there was only speculation that self-esteem has an inverse relationship with specific phobias. Dr. Aidman, a researcher in the field of self-esteem notes that the relationship between global self-esteem and particular and specified anxiety focus points – specific and social phobias—is not well understood (personal communication, September 18, 2006). This assumption of a statistically significant relationship must be empirically tested in order to validate a more cognitive focus in a phobia treatment battery.

Phobias are very common in our society (McDonough & Marks, 2002) and are often the source of a variety of negative consequences. For example, specific and social phobias may prevent career advancement, as higher paying jobs often require routine airline travel (McDonough & Marks).

Currently, behavioral strategies are indicated for the treatment of phobias (Götestam, 2002). CBT is indicated in the treatment of generalized anxiety disorder as well as for the treatment of low self-esteem as it relates to anxiety and relating psychosomatic conditions, ranging from binge eating to gambling addiction (McDonough & Marks, 2002). Gumley and others (2006) conducted research into what extent CBT mitigates psychotic relapses and found that those with the treatment were not only less likely to relapse but were less likely to suffer self-esteem loss when such relapses did occur.

The consensus among psychologists from a conceptual, theoretical, and diagnostic viewpoint is that phobias are a subtype of anxiety disorder (APA, 2002). Researchers have shown that self-esteem is inversely relational to generalized and social anxiety disorders (Jones & Buckingham, 2005), such that low self-esteem is a predictive factor in anxiety disorders. Thus, it is reasonable to assert that there might be a strong, inverse relationship between self-esteem and phobias, whereby those with a lower level of self-esteem are more likely to develop and have specific and social phobias. As CBT can effectively mitigate low self-esteem (Gumley et al., 2006), CBT for the treatment of low self-esteem could be helpful for the treatment of phobias. This would be a reasonable conclusion only to the extent that there is, in fact, an inverse relationship between self-

esteem and presence of phobias in individuals. The presence and extent of such a relationship remained unknown and unexplored until now.

The existence of such a relationship could lay the foundation for future studies to assess how improving self-esteem with CBT or other therapies could mitigate incidence of fear-of-flying in particular or phobias in general. If such findings were applied to a phobia treatment program, such that treating general low self-esteem is sufficient to eliminate specific phobias, a self-esteem treatment could expedite overall phobia treatments, especially for patients with persistent phobias, many concurrent phobias, or phobias that are co-morbid with related anxiety or depression issues.

Purpose of the Study

The primary purpose of this survey was to determine if Beck's (1995) model of interrelation between general anxiety and self-esteem applies to specific phobias by measuring correlation between amount of self-esteem and amount of phobia, as suggested by McDonough and Marks (2002). The independent variable was defined generally as global self-esteem, an overall self-measure of a person's sense of worth, which subsumes specific domains of relationships, work, as well as particular strengths and weaknesses (McDonough & Marks), a relatively stable personality trait in a given population (Ninot, Fortés, & Delingnières, 2005; Robins & Trzesniewski, 2005). The dependant variable was defined generally as a specific phobia, which in the study was a fear-of-flying, a common situational type phobia (APA, 2000).

Knowing the correlation between low global self-esteem and presence and intensity of a particular phobia is necessary in order to understand how a phobia may

develop and to further highlight the role of self-esteem in everyday functioning. In terms of therapy, if self-esteem is shown to be highly correlated with a particular phobia, then practitioners may conceivably test for low self-esteem in the treatment process of such a phobia.

Understanding the relationship between self-esteem and phobias may allow the practitioner to better detect contraindications to choose a more optimal treatment plan based upon either a direct assessment of self-esteem or apparent symptomology. Once the correlation between self-esteem and phobia is known and a casual relationship expounded upon in future studies, a practitioner may focus upon a treatment plan that focuses upon improving self-esteem, which might not only improve the phobic condition directly but may provide indirect support and inoculate the patient from both future relapse and potential development of other phobias.

Research Questions

A review of the relationship between low global self-esteem and various pathologies, including general anxiety disorders raises the question: might a relationship or predictive elements exist between global self-esteem and a particular phobia, that of a fear-of-flying? Specific questions derived from this line of inquiry that were answered in this study include:

1. Is there a relationship between level of global self-esteem and the existence and degree of a specific phobia, that of a fear-of-flying? Does self-esteem serve as a predictor of a fear-of-flying?

2. What is the predictive utility of gender in the relationship between level of global self-esteem and fear-of-flying?

3. What is the predictive utility of age in the relationship between level of global self-esteem and fear-of-flying?

Significance of the Study

The significance of the study is that it adds to the growing body of research on the role of self-esteem. It may spur research by which practitioners deal directly with issues of low self-esteem in the treatment of both specific phobias and related anxiety issues. The implications of this direct treatment could place self-esteem as a causal element in both the etiology and propagation of phobias.

Research has demonstrated that cognitive behavioral techniques can help boost self-esteem (Gumley et al., 2006) and that such therapy has ameliorated common risk elements associated with low self-esteem (Mitte, 2005). Treatment for phobias often bypass techniques designed to boost self-esteem. Depending upon the type of phobia, exposure therapy may be utilized, which focuses solely on the behavioral aspects of the phobia in question. Exposure therapy is often utilized for specific phobias, while cognitive behavioral techniques are more often used with generalized anxiety disorders (Beck, 1995). Researching indicating low self-esteem as a correlative or causal factor in phobia development may spur practitioners towards focusing on self-esteem and CBT to a greater extent in the treatment of phobias.

Based upon the level of correlation between self-esteem and phobias, practitioners could survey phobic patients about their level of self-esteem. CBT may then be indicated

as part of the treatment battery in such cases where self-esteem is comparatively low. A practitioner who would normally employ exposure therapy for the treatment of a phobia may, upon detecting a low self-esteem, choose to add cognitive elements designed to boost self-esteem. Alternatively, in dealing with a patient who has a phobia but relatively high self-esteem, the practitioner may simply focus on the avoidant behavior itself through exposure therapy. Thus, as the role of self-esteem in phobia development is understood, practitioners can use level of self-esteem to differentiate among treatment options.

Self-esteem may be then seen as a core element of phobia development and maintenance. Perhaps then, techniques designed to boost self-esteem may have either an indirect or direct treatment effect in treating phobias. Although current treatments for phobias are relatively quick compared to treatment programs for other pathologies (Götestam, 2002), there is nonetheless opportunity to improve current treatment options. Understanding the role of self-esteem in phobia development can improve phobia treatment strategies in three distinct ways (a) by focusing on what propagates the phobia, practitioners can potentially treat more than one phobia at once or treat the phobia as part of an overall anxiety treatment program, (b) focusing on self-esteem may then prevent relapse or the development of new phobias and (c) therapists can target self-esteem issues to promote resiliency in difficult cases.

Nature of the Study

The methodology for this study was a quantitative analysis through a correlation design. The study was designed to test a theory: that there is a direct, positive relationship

between global self-esteem and a particular phobia. Leedy and Ormrod (2005) suggest that whereas a qualitative approach would be best to develop theory, a quantitative approach is warranted when the goal is to test already developed theories in either real world or laboratory conditions. As it is already known that anxiety relates to self-esteem (Bryne, 2000) and that phobias relate to general anxiety (Marrs, 2006), the objective was to determine how well self-esteem relates to phobias directly; thus a deductive process was warranted. In using a quantitative approach, a *mechanistic* type is employed through a deductive process to study how these two constructs relate (Breakwall, 2000). Furthermore, as the data was numerical based upon survey results rather than through words or concepts, quantitative measures were best suited to gather such data. In assessing the constructs of self-esteem and phobias, researchers have shown that structured data can be obtained through various tests and surveys (Furr, 2005; Ninot et al., 2005; Robins & Trzesniewski, 2005), such that the information is quantifiable and can be processed through statistical analysis (Howell, 2004).

In determining which type of design was to be employed, it was important to understand which variables are controlled in all constructs. Direct control over the variables of self-esteem and phobias was not possible because there were logistical, theoretical, and ethical barriers towards any attempt to manipulate such constructs for the study. To manipulate self-esteem for long term effects would require specific training in particular psychotherapeutic techniques (Dugas et al., 2003). Well-meaning attempts to temporarily boost self-esteem may actually produce the opposite effects (Wood, Heimpel, Newby-Clark, & Ross, 2005) and could breach standards of ethical behavior, depending upon the use of confederates and the vulnerability of the participants (Koocher & Keith-

Spiegel, 1998). Likewise, phobia treatments would have required specific training and could produce unexpected and traumatic results for the participants.

The lack of direct control over the constructs of phobias and self-esteem precluded the usage of experimental or ex post facto designs. As the objective of this study was to explore how one construct – in this study, self-esteem – relates to another construct – level and type of phobia – a correlational study was indicated (Leedy & Ormrod, 2005). A correlational study was the best methodology that is both descriptive in nature and accounts for the lack of control over the constructs. Thus, for this study, the goal was not to determine a direct casual relationship but rather to determine if one construct has a correlational or predictive relationship with the second (Davis & Rose, 2000).

As the focus of the correlational study is quantitative in nature, the assessment instruments were standardized as well as shown to be valid and reliable (Leedy & Ormrod, 2005). This effort was undertaken to ensure the assessments used to measure self-esteem and phobia would accurately reflect such constructs and the results should be fairly stable. Research shows that self-esteem is a rather stable trait (Ninot et al., 2005; Robins & Trzesniewski, 2005; Schmitt & Allik, 2005) and that phobias are often long lasting (Craske, 2003). Survey results should therefore generate similar scores in multiple settings and across time.

The assessment used to measure the construct of phobia were oriented towards a fear-of-flying rather than a presence of any phobia or generalized phobia behavior for theoretical and logistical reasons. From a theoretical standpoint, there are natural variations among particular phobias to the extent that specific phobias and social phobias

have distinct DSM-IV codes (APA, 2000). Particular phobias often vary in their degree of co-morbid tendencies with anxiety disorders (Brown, Campbell, Lehman, Grisham, & Mancill, 2001) such that those with a generalized social phobia are often more likely to have a co-morbid anxiety disorder than those with a particular situational phobia (Beck, 1995). It is therefore important to study the relationship between self-esteem and particular phobias, rather than phobias as a general category. Furthermore, logistically, no assessments of generalized phobia behavior were available for this study. The phobia relating to flying appears to be a prototypical examples of a phobia (APA), is fairly common in society (Craske, 2003), highly debilitating (Powell, 2004; Taylor & Deane, 2002), and appears strongly co-morbid with other anxiety disorders, making this phobia an ideal candidate to test for a relationship with level of self-esteem.

Definition of Terms

Fear-of-flying: A situational subtype of specific phobia (APA, 2000) by which a person has a focus of fear or anxiety towards flying in an airplane, to the extent that the person avoids flying or is apprehensive about a flying experience.

Global Self-esteem: An overall self-measure of a person's sense of worth, which subsumes specific domains of relationships, work, as well as particular strengths and weaknesses (McDonough & Marks, 2002). This is a relatively stable personality trait in a given population (Ninot et al., 2005; Robins & Trzesniewski, 2005).

High Self-esteem: Persons with an above average level of self-esteem, as measured by the Rosenberg Self-Esteem Scale © (Rosenberg, 1965). High self-esteem is correlated with both high levels of self-efficacy (Judge & Bono, 2001) and neuroticism

(Sedikides et al., 2004) but it is not indicative of unhealthy behavior or pathological conditions (DuBois & Flay, 2004).

Low Self-esteem: Persons with a lower than average level of self-esteem, as measured by Rosenberg Self-Esteem Scale © (Rosenberg, 1965). Low self-esteem is correlated with both higher levels of stress (Wilbum & Smith, 2005) and a lower sense of psychological well being (Leary, 1999) as well as higher incidence of anxiety and depression (Bryne, 2000).

Specific Phobia: (formerly Simple Phobia). An Axis 1 disorder typified as 300.29 in the DSM-IV (APA, 2000), an exceptional and irrational fear a particular and specific object, behavior, or activity, accompanied by the fear that engaging or being exposed to the object of the fear will lead to personal injury or death. Specific phobias are divided into five types (adapted from APA):

1. Animal type: a fear of animals or insects.
2. Natural environment type: a fear of natural occurrences such as water, heights, or storms
3. Blood-Injection-Injury type: fear of a medically invasive procedure or of seeing or experiencing injury
4. Situational type: a fear of particular situations, such as being in a tunnel, flying, or driving.
5. Other Type: a miscellaneous category, which includes a fear of loud sounds, clowns, vomiting, or acquiring an illness (APA, 2000).

This study was based upon the assumption that all participants have a measurable level of self-esteem, that they are able to read and understand surveys, and that they are able to answer the surveys in an accurate and truthful manner. Further assumptions were that the participants taking the survey accurately reflect the broader population of which the study generalizes to and that the surveys are accurate and valid measures of the constructs to be studied. Lastly, there was an assumption that there was not a significant difference in relation to the constructs studied between those who completed the surveys and those who fail to complete any or all of the surveys.

Limitations of the study include:

1. Sampling was biased to people with internet access who had the ability to take a survey online and were able to understand the surveys. This may have created a bias towards those of a higher SES (Chakraborty & Bosman, 2005) as well as those with the necessary social skills to communicate online.

This type of bias may be unavoidable; the traditional survey format, that of a paper-and-pencil survey of college sophomores who are psychology majors would also suffer the same type of high SES bias. Although survey participants recruited from the Web are likely to be older and more educated than college students, they are also likely to have a greater variance in both education and age (Birnbaum, 2004)

Indeed, an online survey system may be better able to access diverse or hard-to-reach populations compared to an on-site survey study or surveys distributed through the postal service (Ahern, 2005). Due to the relatively low cost of survey distribution online, a greater number of participants can be found, affording greater power to derive meaningful conclusions (Birnbaum, 2004). Research has found that participants' being

able to complete surveys in the comfort of their home and at a time of their choosing generally affords a more “thoughtful response” (Daley, McDermott, Brown, & Kittleson, 2003) and the greater sense of anonymity and privacy may derive more truthful and accurate responses (Ahern, 2005).

The use of a survey firm to locate participants may represent a further threat towards generalizability, as those willing to take various surveys for financial gain may represent a different subset of the general population. This is a similar threat to any research conducted in a brick-and-mortar environment, where participants eager for a cash reward (or class credit) sign up for a large number of research studies. It should be noted, however, that participants on the Web may show a greater sense of interest in the study. Birnbaum (2004) notes:

Many Web experimenters have been pleasantly surprised (as I was) to receive many messages from Web participants expressing interest and encouragement in the research. It makes one think that Web participants are more motivated than college students and perhaps take the tasks more seriously. (p. 826)

A meta-analysis of web-based survey research projects across various disciplines have found no significant differences in the data obtained from web-based research compared to brick-and-mortar research (Ahern, 2005). Nevertheless, Birnbaum (2004) recommends that demographic and research data should be compared to what would be found in the general population to ensure approximate representation. In other words, if the incidence rates of low self-esteem and fear-of-flying in the sample are comparable to what is found in the general population, it is easier to assert that the results of the study can be generalized to the general population.

In order to assess and discuss any discrepancies between the Greenfield Online participant pool and the population at large, a demographic survey was included (see appendix B) in the study, by which the results will be compared to what is found in the generalized population, including the variables of location, age, gender, and socio-economic scale. Any differences between the participant pool and the generalized population, as well as the implications of any such discrepancies, was assessed and discussed in chapter 4 and 5, respectively.

2. The study may have been biased towards those willing to take surveys about phobias and self-esteem. It is plausible that those with a low sense of self-esteem did not want to take an assessment measuring this construct for fear of confronting such issues. Thus, those who took the assessment may only be those with a higher level of self-esteem. Those with a high self-esteem who also have somewhat narcissistic tendencies may have opted out of the surveys as a means of self-protection (Crocker & Park, 2004). There may also have been a gender bias, as males are generally less willing to describe their phobias, though this is truer with social phobias compared to situational phobias (Craske, 2003).

3. There could have been a self-response bias with those who take the assessment. Participants with low self-esteem or high narcissism may have been more apt to have a presentation bias, to “show the best face” (Kernis, 2003) and were thus less likely to be forthright and accurate. Self-reporting is generally more prone to bias than reports from the participants’ family and peers (Breakwall, 2000). Those with a variant level of self-esteem may have been less likely to admit both the presence and degree of a particular phobia, and this may have been varied across the particular phobia types studied.

4. It is possible that it is the having of phobias that lowers self-esteem or that particular anxiety causes both lower self-esteem and phobias. This limits the study to make only correlational assessments and limits any causal assumptions or conclusions.

Organization of the Remainder of the Study

This study has four additional chapters. The second chapter consists of a literature review that will explore both the nature of self-esteem and of phobias as well as how they may be interrelated. Chapter three will detail the methodology used to formally explore the relationship, including a description of the assessments, target population, and steps taken to execute the study. The data obtained from the study was then described and processed in the fourth chapter through a statistical analysis. Finally, chapter five explored the implications of the survey results as well as reported any limitations of the study and made recommendations for future research.

CHAPTER 2. LITERATURE REVIEW

The Phenomenon of Self-Esteem

In its most basic form, self-esteem relates to the subjective feeling of well being (Sedikides et al., 2004), a sense of self-worth and social comparison (Crocker & Park, 2004). Individuals with high self-esteem are more apt to consider themselves intelligent, important, worth-while, and socially desirable than those with low self-esteem. Those with high self-esteem are more likely to see their future as promising and have a greater sense of self-confidence, even after failures and setbacks (Crocker & Park). As this phenomenon occurs in the gamut of domains ranging from physical attributes to mental

competencies, self-esteem is considered a “core evaluation”: a fundamental self-assessment in its most general form (Judge & Bono, 2001).

A key attribute of this self-assessment is a social comparison based upon the particular domain in question. Research by Jones and Buckingham (2005) suggests that those with low self-esteem are more apt to have a greater arousal to negative feedback, less likely to attribute failures to outside circumstances, and more likely to over-generalize domain specific criticism to general feelings of inadequacy. In other words, whereas an employee with a high self-esteem may attribute negative feedback to a biased evaluator or simply a temporary lull in productivity, an employee with lower self-esteem would not only assume the feedback directly relates to his or her abilities as a worker but that it also relates to his or her worth as a person.

Mediating elements in this model would be comparing the negative feedback to the feedback given to the worker’s peers and the personal relevance of the work that has been assessed. Have other workers received similar assessments? How meaningful is the work to the person in question? If this worker was the only one to receive negative feedback and this work is personally meaningful or represents more than one specific domain of competency (i.e. social, mental abilities), such feedback is apt to have a greater effect upon the worker’s self-esteem (Arndt & Goldenberg, 2002).

Level of self-esteem appears to dictate response to such threats, with those with high self-esteem more likely to discount both the relevance of the assessment and the importance of the domain being threatened (Arndt & Goldenberg, 2002). Rather than “take it personally,” a person with a high self-esteem may simply (a) dismiss the findings outright, (b) downplay the assessment’s reflection of the employment domain, or (c)

downplay the entire employment domain itself in the overall generalized sense of self-worth.

Self-Esteem as a Stable Trait

Throughout this history, researchers and theorists have debated as to whether self-esteem should be considered a trait or a more stable and durable personality state (Ninot et al., 2005; Robins & Trzesniewski, 2005). Many researchers have adopted the former position, that self-esteem is essentially a product of the environment or situational cues. Indeed Seligman (1993) considered self-esteem merely an *empiphenomenon* of the environment such that positive feedback produces high self-esteem, negative feedback produces low self-esteem. This conclusion is by and large a product of the relatively strong fluctuating self-assessment of self-esteem, which as noted by Seligman (1993) is less stable than other personality traits. Indeed, there are more fluctuations with self-esteem than the “Big Five” personality traits of neuroticism, agreeableness, extraversion, conscientiousness, and openness to experience.

The conclusion by Seligman (1993) is hampered by its fixation on rather short term measurements, by which local variations appear more significant. It is analogous to measuring seasonal changes and failing to measure the stability of such changes and the stability of overall global forecast. A longitudinal assessment of self-esteem attributes predictive powers to this construct, which confounds the attempt to place self-esteem as merely the product of external factors. Research by Donnellan, Trzeniewski, and Robins, (2005) shows that self-esteem predicts changes in aggression as well as *future externalizing problems*. A meta-analysis by Judge and Bono (2001) of self-esteem

compared to other personality traits including the “Big Five” suggests that, although more variable than traits such as neuroticism and extroversion, it is nonetheless stable over time and follows a predictive pattern through human development.

To further shed light upon the trait/state debate, Ninot and others (2005) had adult participants measure their global self-esteem twice daily over a six month period. In terms of methodology, this is a good assessment to investigate this issue because a trait would exhibit considerably more stability both in daily variations and in the total six month period. Motivation, for example, would show variation both as a product of daily fluctuations and as a response to life circumstances, such as a new employment or change in interpersonal relationship.

The results showed that there existed a *dynamic adjustment* in self-esteem that has attributes of a trait but is most similar to a personality state. As previously mentioned, self-esteem in the participants did fluctuate based upon environmental stimuli but would then shortly thereafter rebound in a consistent and predictable fashion. Because this attribute is somewhat unique to self-esteem (Ninot et al., 2005), it is likely that short term studies of this construct would provide misleading data

In researching changes in self-esteem across the human lifespan, Robins and Trzesniewski (2005) found stability of self-esteem comparable to the “Big Five” dimensions of personality noting that “Self-esteem shows remarkable continuity given the vast array of experiences that impinge upon a lived life. At the same time, self-esteem also shows systematic changes that are meaningfully connected to age-related life experiences and contexts” (p. 161). A person with a given level of self-esteem in early adulthood is apt to have that same level of esteem in late adulthood. Milestones of human

development such as marriage, becoming a parent, and retirement are apt to affect self-esteem but in a manner analogous to Erikson's (1963/1993) theory of human development by which stages of life progression and their corresponding challenges result in negative or positive effect. Thus, a person with a high level of self-esteem may have his or her level change with a new life event but is more likely to recover quickly and have a more positive reflection than a person with a lower self-esteem.

Self-esteem is distinct from but associated with human happiness in that they are highly correlated, with high self-esteem predicting less depression, anxiety, and self-pity; however, self-esteem also predicts productivity, autonomy, and assertiveness (Furr, 2005). Thus, whereas both happiness and self-esteem are associated with high personal effect, the latter also corresponds with ability and success.

There has been some debate among personality theorists as to the differences – if any – between self-esteem and self-efficacy, with some suggesting that along with neuroticism, both self-esteem and self-efficacy can be related to a single core construct of self-worth. Self-efficacy relates less to self-worth, with a primary focus on interrelated beliefs about ability and competency. Still, it is argued that they remain functionally similar (Lightsey et al., 2006). This argument becomes especially apparent with the global self-efficacy construct, which relates to specific performance behaviors across a wide array of domains (Judge & Bono, 2001). A strong, global sense of self-efficacy would undoubtedly increase a sense of ability and success. Judge and Bono argue, however, that self-esteem and global self-efficacy remain distinct because, regardless of performance and ability, self-esteem mediates the self-appraisal of said results. In other words, a person apt at his career may have a high sense of self-efficacy but consider

others to be more apt or that the particular skills involved are of no importance or matter. Additionally, as seen in the distinction between self-esteem and happiness, a person can have a strong sense of ability and self-efficacy but lack the autonomy and assertiveness that are defining features of self-esteem.

Research by Lightsey and others (2006), who correlated both global self-efficacy and self-esteem in participants, found that the former accounted for significant variance in the latter, which is to be expected. However, self-esteem did not predict global self-efficacy. This strongly supports the hypothesis that the two are rather distinct concepts. Again, we see that a strong sense of ability and competency relates to overall sense of self-worth. It is not necessary to have a sense of ability or competency to have a strong sense of self-worth (Lightsey) and self-worth does not necessarily lead to the sense of ability and competency. Although the sample sizes in the study were somewhat small, the two separate tests were given twice after a significant period of delay with a strong test-retest ability.

There is also considerable debate about the relationship between narcissism and self-esteem. Some theorists postulate that the two are similar while others that they are actually opposite: that narcissism and low self-esteem are opposite ends of a similar spectrum (Sedikides et al., 2004). Research has shown that narcissism and self-esteem are not correlated to the degree that they could be considered the same construct. Research by Donnellan et al. (2005) on both narcissism and self-esteem on aggression show that narcissism is a poor predictor of aggression compared to self-esteem and in fact, when narcissism was controlled, the relationship became even stronger. The researchers conclude that whereas self-esteem relates to social comparison, the primary focus is on

personal adequacy; issues of superiority or extraordinary ability are reserved for the narcissistic construct (Donnellan et al.)

This relationship is further elucidated by the mitigating role of self-esteem in scales of narcissism. Sedikides et al. (2004) hypothesized that narcissism is not psychologically harmful per se: it is low self-esteem that bridges the gap between narcissism and anti-social behavior. In a meta-analysis of various studies narcissism and psychological health, normal and high narcissists typically have lower levels of anxiety and depression and greater feelings of subjective well being, especially when there are corresponding levels of self-esteem. Only when self-esteem is low and narcissism is high does the relationship between narcissism and neuroticism develop (Sedikides). The case can be made that the construct of self-esteem exists as a distinct element that is separate from happiness, self-efficacy, and narcissism while associating these human elements with psychological well being. A vast array of research attests to the role of high self-esteem in both physical health and mental well being (Lightsey et al., 2006), including mental health, social connectedness, and greater occupational success (Trzesniewski et al., 2006).

The Importance of Self-Esteem

In light of the apparent importance of self-esteem, this construct has been studied and theorized throughout almost the entire history of psychology, beginning with James' postulation, formulated 110 years ago, that feeling good about oneself underlies a basic need of humanity. Allport, considered a founding father of personality psychology,

placed the development and maintenance of self-esteem as a fundamental human drive (Leary, 1999).

Baumeister, Campbell, Krueger, and Vohs (2003) maintain that self-esteem is by and large a dynamic reflection upon life events. Research by Trzeniewski and others (2006) has found that self-esteem measured in adolescents predicted anti-social behavior, poor health, and limited economic mobility even when controlling for factors such as socio-economic status and depression. Low self-esteem seems to predispose adolescents and adults to depression, anxieties, and neurosis while positive self-esteem may serve as a buffer to stress (Wilbum & Smith, 2005) and to enhance the effects of social support upon health (Abe, 2004). Indeed, the basis for humanistic psychology is the fostering unconditional positive regard designed to enhance positive self-regard, which, according to Rogers is associated with psychological disorder (Donnellan et al., 2005).

The debate about the stability and importance of self-esteem may certainly relate to the effects of success and failures on self-esteem. Compared to other constructs, self-esteem certainly exhibits short-term fluctuations, especially after failures (Baumeister et al., 2003); research by Wood and others (2005) has shown, however, that those with low self-esteem are more affected by failure and do not exhibit as much optimism after a success compared to those with a higher self-esteem. Researchers gave participants with low self-esteem and high self-esteem cognitive tests and reported to both types of participants their high level of success. Those with lower self-esteem reported a lower likelihood of high performance in the future and were more apt to recall past failures in other tests. After a success, those with a low self-esteem seem to fear success, that it will bring higher standards, that the benefits won't last, and that the success will foster new

challenges that will result in failure (Wood et al.). Wood and others conclude, “Whereas success may nourish and sustain HSEs [high self-esteems] self-esteem, it appears to be less rewarding to LSEs [low self-esteems] and at times may be threatening” (p. 779).

General self-esteem seems to moderate the effects of social comparison on body esteem, with women who have lower self-esteem feeling worse after seeing a picture of an attractive woman and women with higher self-esteem ‘assimilating’ and associating themselves with the picture (Jones & Buckingham, 2005).

Both stress and self-esteem are predictive of suicidal ideation, with low self-esteem better predicting suicidal ideation compared to stressful life events (Wilbum & Smith, 2005). Low self-esteem in adolescents was able to predict criminal conviction in adulthood even when such factors as gender, depression and socio-economic scale were controlled. Trzesniewski and others (2006) states: “...our findings show that for every standard deviation increase in self-esteem, risk for a variety of negative outcomes decreases” (p. 387).

Across cultures, a moderate to high level of self-esteem seems to serve as a buffer against stress, failures, and personal setbacks (Wilbum & Smith, 2005). Those with a high level of self-esteem generally enjoy greater levels of success in both social and occupational fields (Trzesniewski et al., 2006). Conversely, low levels of self-esteem directly relate to a broad array of psychopathology including depression and neurosis (Wilbum & Smith) and represent significant variance in predicting future criminal activity (Trzesniewski et al.).

Studies have shown that global self-esteem has a moderating affect upon social compassion in both ability and coping domains, such that people with low self-esteem see

themselves as more uncertain compared to people with higher self-esteem. This produces a phenomenon whereby those in the former category are more apt to explicitly compare themselves when faced with a social comparison (Jones & Buckingham, 2005). In other words, while a person with a higher self-esteem will preserve his or her self-view and self-assessment when exposed to situations where a social contrast occurs, a person with a lower self-esteem is more apt to actively “size-up” other people in the social situation. That person will then likely take a more pessimistic, or perhaps fatalistic interpretation, highlighting the negative comparisons and downplaying the positive.

While a higher self-esteem seems ‘interdependent’ with what appears to be the gamut of positive mental health features, from a sense of autonomy, optimism, realistic perceptions of reality, and interpersonal relatedness, low-self-esteem seems intricately related to negative experiences, from eating disorders and anti-social behavior to substance abuse and teenage pregnancy (DuBois & Flay, 2004). This relationship between self-esteem and mental health becomes even more relevant, as studies have demonstrated that programs specifically designed to enhance self-esteem “do at least as well as other types of interventions in changing other domains of functioning such as behaviors, self-reported personality functioning, and academic performance” (Haney & Durlak, p. 429).

Self-Esteem Across Age, Gender, and Culture

Predictive variables of self-esteem itself appear to be the level of both parental acceptance and family support (Verkuyten, 2005). The relationship between family support and self-worth can be traced to very early childhood, in which Bowlby (1988)

associated attachment styles with self-esteem. That is, parents who are warm, nurturing, supportive, and stable during a child's early development produce an internalized feeling of self-worth in the child while an abusive or unresponsive parent-child relationship is apt to produce the opposite effect.

As the child ages, acceptance by parents becomes a predicting factor in the development of self-esteem. Berenson, Crawford, Cohen, and Brook (2005) conducted a longitudinal study to examine the relationship between parental acceptance or rejection and level of self-esteem in adolescents and early adulthood. The study found that parental acceptance of the adolescent predicted self-reports of global self-esteem both at the time of the study and five years later as the participants entered early adulthood.

The relationship between parental interaction and self-esteem is consistent across both gender and cultures. In determining how parental identification relates to self-esteem, Berenson and others (2005) found that self-esteem in males relates directly to parental identification: the more an adolescent identifies with either parent, the stronger the internal sense of self-worth and global self-esteem. Conversely, the female adolescent relates strongly to the parent's evaluation of her and is less dependant upon parental identification. Males appeared significantly less vulnerable to parental identification, being able to identify with a parental figure even if said parent was rejecting or unresponsive. The researchers speculated that this phenomenon may be based upon (a) an earlier emotional separation from the parents, (b) a stronger identification with their peer group or (c) a lesser ability to identify dissatisfaction or rejection from the parent (Berenson et al.).

Across human development, both males and females share a similar trajectory in the development and maintenance of self-esteem. With both genders, self-esteem starts high in childhood, drops in adolescents, rises during adulthood and then declines again during old age. A gender gap in self-esteem becomes apparent in adolescents, favoring males. This gap slowly disappears throughout adulthood and becomes insignificant in old age (Robins & Trzesniewski, 2005).

Researchers have espoused two distinct theories to explain this gender gap. One theory is that females may derive more of their self-esteem from interdependent relationships while men thrive with independence. Research into collective self-esteem, however, has shown little evidence to support this hypothesis (Foels & Tomcho, 2005). The consensus of opinion is that self-esteem is in part related to how well one fits into the role of societal norms for the respective gender (Furr, 2005). In other words, if a person identifies with a particular role (be it gender, cultural, or occupational) and fulfill what is expected of that role, that person will have a greater sense of self-worth and self-esteem. If the traditional role of a female is that of nurturer and of fostering interpersonal relationships, a woman's relative success in this field will then boost her self-esteem. A male, who is seen as independent, capable, and a supporter, will likewise base his self-esteem upon his self-perceived fulfillment of this role. According to Furr:

...a female's interpersonal relationships may make her happy, and may also increase her self-esteem, as derived from her fulfillment of the traditional role expectations of women in the culture. In contrast, his [a male's] self-esteem may be based more on achievement and ambition, as derived from his fulfillment of the traditional role expectations for men in the culture. (p. 121)

A meta-analysis of research comparing self-esteem levels in gender found a consistency of higher levels of self-esteem in males. Kling, Hyde, Showers, and Buswell (1999) found that 83% of the studies showed that men had higher levels of self-esteem and that this phenomenon persisted across cultures and age groups. More in-depth research in these findings as well as other studies qualifies this difference significantly.

First, there is a strong overlap in the degree and distribution of self-esteem between the genders, suggesting males and females are considerably more similar than different in level of self-esteem.

In comparing the differences in self-esteem with other psychological phenomenon between the genders, the authors note: “Relative to previous meta-analyses of gender differences in numerous psychological variables, the effect size from the current study falls in the small range” (Kling et al., p. 487). The authors also note that the average gender difference in level of self-esteem is smaller than the level of self-esteem change that is clinically significant. That is, the amount of self-esteem change necessary to make a clinical difference or an important effect in the laboratory is greater than the typical difference between men and women, such that the differences can be considered meaningfully insignificant.

Other studies comparing male and female levels of implicit self-esteem, measured by implicit association tests, found no statistically significant differences between genders (Aidman & Carroll, 2003). There may be an advantage of implicit association tests in that by providing an automatic, rapid response, there is a greater difficulty in maintaining impression formation or acquiesce bias (Aidman & Carroll, 2003). This

leads support that the inherent differences in gender relative to self-esteem may be prevalent but rather insignificant.

Research has found that what contributes to self-esteem, at least in American culture, is rather similar between genders. Burnett, Anderson, and Heppner (1995) has found that there appears to be a “masculine bias,” by which individuals of both genders with masculine characteristics typically have a higher level of self-esteem. These characteristics include independence, competitiveness, and decisiveness. The traits of femininity did not have the same correlation to self-esteem in either sex.

This does not mean, however, that the impact of life-stressors upon self-esteem are similar across genders. Kling and others (1999) relate the perception of one’s attractiveness as correlated with self-esteem in both genders; however, women report a higher level of appearance dissatisfaction compared to men. Therefore, the authors conclude, “Concerns about weight and appearance may be more damaging to girls’ self-esteem because perceptions of physical attractiveness are more strongly associated with self-esteem for girls than for boys” (p. 473). Jones and Buckingham (2005) exposed women with both high and low self-esteem levels to pictures of attractive or unattractive females and found that those with a higher self-esteem had a less negative effect and less internalization of the social comparison effect. In fact it was self-esteem rather than adherence towards socio-culture norms that moderated attractiveness comparisons on women’s self-esteem level.

In a focus upon both gender roles, Waters and Moore (2002) investigated the role of gender identity in level of self-esteem upon unemployment. The researchers

hypothesized that unemployment would have a greater affect upon men than women for three important reasons.

First, they argued that it is the loss of role identity that contributes to a lower level of self-esteem. And because employment is more essential for the self-perceived role identity of males compared to females, men would show a greater loss of self-esteem during unemployment. The authors note that while the female identity is associated with relationships and intimacy, the male identity remains associated with achievement, autonomy, and ability. Second, they found that men were less likely to utilize *alternate roles*, such as being the domestic caregiver. Third, they found that men are less likely to use social support during their time of unemployment and research shows that people (men and women) who have a strong social support typically view events as less stressful and are better able to maintain a sense of both control and self-confidence (Waters & Moore, 2002).

Across cultures, there appears to be a difference upon the basis – but not importance nor level of – self-esteem (Abe, 2004; Schmitt & Allik, 2005). In the more collectivist nations such as Japan and China, level of self-esteem is more correlated with existence and depth of interpersonal relationships as compared to the more individualistic nations of the United States and those found in Western Europe (Furr, 2005).

There has been some debate as to whether or not self-esteem is lower in the more collectivist societies or simply composed of a different form. Research by Twenge and Crocker (2002) seems to suggest that there is a quantitative difference in measures of global self-esteem between nations and among immigrant groups that have not assimilated into mainstream culture.

Research by Schmitt and Allik (2005) suggests that such conclusions must be qualified. In their measurement of self-esteem across nations, they have found that when global self-esteem was broken down into self-competence and self-liking, participants from collectivist societies scored higher on the latter, while participants in individualistic societies scored higher on the former. They also suggest that in the more collectivist cultures, participants exhibited a negative item bias such that they were more likely to respond strongly to negatively phrased items, which contradicts responses to the positively phrased items. The researchers note, however, that scores across virtually all nations polled show a reasonably high level of self-esteem that is above a theoretical midpoint. Schmitt and Allik espouses a trade-off hypothesis by which a particular culture reinforces either self-competence by virtue of competence and capability or self-liking by virtue of harmonious relationships and self-acceptance. These are somewhat mutually exclusive values in that the development of one value comes at the expense of the other in such a way that a particular society must choose one over the other. Individuals will exhibit both aspects of global self-esteem (Foels & Tomcho, 2005); as with the individualistic and collectivism phenomenon, these attributes lie upon a spectrum rather than a stark dichotomy. Even individuals from highly individualistic society will derive part of their self-esteem from self-liking while those individuals in a collectivist society will have a sense of self-competence.

Any distinction between the components of global self-esteem do not seem to translate into differences in the mediating effects of self-esteem. Abe (2004) found that in both Japanese and American college students, self-esteem was the greatest predictor of emotional distress and that the degree of association between the two did not exhibit

significant differences. The researchers did find that family cohesion, a value suggestive of self-liking, was a greater source of variance in predicting emotional distress in the more collectivist environment of the Japanese colleges and universities compared to the American counterparts.

Cultural studies in self-esteem found consistent evidence that low self-esteem predicts externalizing problems (Abe, 2004; Donnellan, et al., 2005) and that self-esteem itself is directly related to attachment styles, level of extraversion, and neuroticism (Schmitt & Allik, 2005). Such similarities across cultures provide evidence that self-esteem is a core psychological necessity, of which its fulfillment relates to optimal psychological and mental functioning (Kernis, 2003) and has led Ninot and others (2005) to conclude: “self-esteem can be viewed as a continuous flow that is beyond contextual, social, and cultural factors” (p. 327).

The Self-Esteem and Anxiety Connection: The Terror Management Theory

An important association with self-esteem is its relationship with anxiety. Studies have shown that self-esteem, as measured by the RSES, is highly correlated with the construct of neuroticism, as measured by the “Big Five” personality dimensions. This relationship is inverse, suggesting that higher self-esteem may function as a buffer to anxiety (Schmitt & Allik, 2005). Other research has demonstrated that self-esteem is inversely related to various other measures of anxiety both through out human lifespan, gender (Sedikides et al., 2004), and across cultures (Schmitt & Allik).

Research by Wood and others (2005) show that while failure is more apt to instill anxiety and depression in those with a low self-esteem, even success and progress can

produce its own level of anxiety. Whereas those with a high self-esteem experience a boost of self-efficacy and heightened effect after experiencing a success, those with a low self-esteem often do not experience the same boost and will often instead feel more self-doubt and anxiety.

Wood and others (2005) suggest that this coincides with self-verification theory in that people adjust their feelings and behavior to match their perceived self-conceptions in order to promote clarity and stability. This appears to lead to the role of self-esteem as an emotional regulator both as a self-fulfilling prophecy and through promoting a propensity for negative effect in the future (Lightsey et al., 2006). In either fashion, success or positive feedback may threaten the self-views of those with low self-esteem as it contradicts their long-held views about their competency and ability. In interviews with participants after completing a successful task, Wood and others found that those with a low self-esteem tended to be more anxious after a success, focused more upon the negative aspects of the success, and remained unchanged in their negative self-perceptions after the success. Furthermore, when the participants were asked to predict future performances on similar and less related tasks from academic performances to falling in love, those with a low self-esteem were more likely to be anxious and pessimistic. Thus, the situation becomes a cycle of appraising a given situation as negative, which leads to a more negative experience.

Research conducted through implicit association tests, whereby participants are more apt to make faster decisions based upon the strength of word associations, found that individuals with a lower self-esteem perceived a greater threat to various negative stimuli and had a stronger implicit association with the phrases of “ashamed,” “anxious,”

and “nervous” (Conner & Barrett, 2005). This suggests that low self-esteem may contribute towards anxiety in two fashions: an indirect route, by which there is a chronic feeling of nervousness and a direct route, by which a fatalistic appraisal of an event or a situation leads to negative feelings and heightened anxiety. The findings in this implicit test are especially relevant because in testing automatic and subconscious word associations of threat appraisal, a link between low self-esteem and spontaneous negative reactions can be established. It is especially important to note that both implicit and explicit measures of self-esteem (of which the RSES was used as the latter measure) strongly predict nervousness, fear and are inversely related to calmness and relaxation.

The link between self-esteem and anxiety is so strong and apparent that Greenberg, Solomon, Pyszczynski, and Rosenblatt (1992) espoused the theory that self-esteem evolved in the human psyche to protect against various types of anxiety. They argued that the paramount fear is the terror associated with perceived mortality and that in the terror management theory, individuals have a self-esteem to ameliorate this terror through the belief of being of a “primary value in a meaningful universe” (Greenberg et al., p. 913). Along with self-esteem, individuals develop a faith in their cultural worldview and in living up to the associated standards of value. Such beliefs and actions provide a protection mechanism from the feelings of vulnerability and mortality, thus explaining not only the universal nature of self-esteem but of its importance in psychological health. Harmon-Jones, Simon, and Greenberg (1997) argues that a, “combination of an instinctive drive for self-preservation [and] an awareness of the inevitability of death creates the potential for paralyzing terror... this potential for terror

is managed by a cultural anxiety buffer, consisting of the cultural worldview and self-esteem” (p. 24).

It is hypothesized that this connection between self-esteem and anxiety originate in infancy; as a newborn is completely helpless, love and protection is contingent upon the parent’s protection. Infants are born with a natural instinct to experience negative feelings upon exposure to circumstances that might threaten their health and survival (Pyszczynski, Greenberg, Arndt, & Schimel, 2004).

As the child develops through the lifespan, such love and protection become contingent upon meeting parental standards, which later become cultural standards. An association develops between an internal perception of meeting the aforementioned standards and a feeling of safety, propelled by the teachings and mythologies of the culture, of which those who adhere to its values are rewarded while those who do not are excised and punished (Greenberg et al., 1992; Pyszczynski et al., 2004). The developing child learns that threats towards safety and security, as well as the associated feelings of anxiety, are reduced when parental and cultural values are met and heightened when they are not.

In later stages of child development, the child learns that although he or she is no longer dependant upon his or her parents for safety & security, the threat of death becomes apparent and inexorable. The primary basis for security shifts to cultural values, of secular and religious constructs, and of having a meaningful place in the world (Pyszczynski et al., 2004)

These values established by both parents and culture, are interpreted as what is “good” by the child and internalized. Self-esteem is therefore both a product of the

individual and the culture; whereas the culture constructs contingencies of value, it is the individual that appraises the cultural worldview and decides whether he or she lives up to said cultural values (Pyszczynski et al., 2004).

In researching the relationship among self-esteem, anxiety, and various other self-disclosed attributes, Riketta (2004) found that social desirability strongly mediates part of the strong association between self-esteem and anxiety, increasing the strength of their correlation. This seems to support the terror-management theory as being socially desirable can easily be argued as a near-universal cultural value, of which its lacking may often lead to the threat of social rejection.

Pyszczynski and others (2004) found that threats to self-esteem produce elevated levels of anxiety and that structured defenses of self-esteem seem to reduce anxiety. In an experimental design, Greenberg and others (1992), in testing if and how self-esteem buffers anxiety, manipulated self-esteem as an independent value in participants, exposed them to a threat, and then measured the ensuing anxiety. Self-esteem was manipulated through either bogus personality feedback with a confederate or a bogus intelligence test. They found that boosting self-esteem reduces the experience of anxiety after viewing threatening images relating to death in such a way that those with a self-esteem boost did not experience a significant difference in anxiety between the neutral video and the images of death. Furthermore, this association generalized to stimuli not explicitly related to death: subsequent experiments showed that a self-esteem boost provided an anxiety buffer that produced less physiological arousal in response to threats of electric shocks, measured by skin conductance, an indicator of a sympathetic nervous system response.

Although it stretches the boundaries of what constitutes ethical research, these studies nevertheless demonstrate a casual relationship between self-esteem and level of anxiety.

Research has also demonstrated a cultural anxiety buffer through a defense of cultural and worldview; a comparable way of dealing with the threat of mortality is through the belief in the durability and perhaps even the superiority of one's culture. This function seems less necessary, however, as the level of one's self-esteem rises. Harmon-Jones and others (1997) found that participants with elevated self-esteem, either through disposition or through bogus test results, demonstrated a lower level of *worldview defense* in general and when exposed to reminders of mortality and death, compared to those with a comparatively lower level of self-esteem. That is, they were less inclined to argue or feel emotional toward critiques of their cultural views.

Although terror-management theory posits that self-esteem provides protection against the profound fear of death, the implications of a low self-esteem may go far beyond a heightened death anxiety. A weak or challenged self-esteem may produce an anxiety *leakage* that seeps into other areas of life and of functioning (Pyszczynski et al., 2004). Anxiety may relate to self-esteem in a direct and indirect fashion. The fear of death may generalize to any association of being vulnerable which, however objectively irrational, may relate to death, as in a fear of being attacked or trapped. There is also the indirect threat that with a low self-esteem and the associated feelings of not living up to the social role, the apprehension about the potential for rejection and ensuing loss of security may provide a second level of anxiety. Therefore, it is possible to relate the fear of rejection to a fear of death because in being rejected, the security and protection of the

social group is compromised, leading to a greater threat of injury and death should a threat arise.

A further threat may arise from a compromised view of the self in relation to fulfilling the cultural values. If a person with a given sense of where he or she places on the continuum of meeting cultural expectations is given new and contradictory evidence that calls into question that sense of placement, the person may feel threatened that his or her ability to perceive where he or she stands on the continuum is faulty. It is analogous to traveling in the arctic with a gun used for protection against polar bears. To believe the gun works only to find that it doesn't produces anxiety. But to believe that it doesn't and then to find that it does can also produce anxiety because (a) the gun might fail later and (b) if the person assumes the gun will work and it doesn't when there is a polar bear attack, the person may have wasted time that could have been spent planning an escape. It is, arguably, more important to have consistency in the social status model as cultural expectations can be considerably more fickle than a steady rifle. Pyszczynski and others (2004) assert that self-esteem is dependent upon social validation and that individuals will actively work to maintain a consistently high level of self-esteem but will regulate and moderate toward a lower level of self-esteem based upon childhood development and genetics.

Self-Esteem and Phobias

As the relationship between self-esteem and anxiety is established, in both theory and experimentally, it is important to understand the relationship between anxiety and particular phobias. First, in differentiating between anxiety and fear, Bieling, McCabe,

and Antony (2006) describe anxiety as an emotional process, while fear is the cognitive counterpart. When a person is exposed to a given stimulus, there is a cognitive appraisal of the potential danger. Activation of this cognitive process leads to the subjective unpleasant reactions as the feeling of anxiety, which involves negative emotions as well as physiological symptoms of nausea, tension, and heart palpitations. This relates to the body's parasympathetic *fight or flight* adaptation response. Related cognitive features often include hyper-vigilance, an increased and perhaps unrealistic attention upon the likelihood of harm, as well as a sense of preparation for possible escape and disengagement (Lee, Vaughan, & Armstrong, 1999). The primary behavioral process becomes avoidance. Therefore, while anxiety is promoted by uncertainty and distal stimuli, fear is promoted by a more imminent perception of threat (Craske, 2003).

The "phobia" relates to the specific object of either the anxiety or fear as well as the consequences. Thus, the phobia not only relates to the airplane per-se but the crashing, falling, and drowning as a potential consequences. To be defined as a phobia, the cognitive appraisal of high risk for consequences for the associated object or situation must be deemed irrational (APA, 2000). This obviously leads to a subjective and perhaps cultural interpretation of what a phobia is. Beck and Emery (1985) provide perhaps the best definition of what a phobia is, as "a fear of an object or a situation that by social consensus and the person's own appraisal when detached from the situation is disproportionate to the probability and the degree of harm inherent in that situation" (p. 116).

Phobias are grouped by the DSM-IV according to similarities in stimulus feature (APA, 2000), although this can be misleading. Research by Beck and Emery (1985) has

demonstrated co-morbid phobias, of which a person has more than one phobia, as both relatively common but based upon feared consequences. That is, a person might fear both dogs and snakes not because they are both animals but due to the underlying fear of the consequence, that is, of being bitten. In this model, phobias can be categorized as based upon the fear of social rejection, fear of losing control (i.e. the agoraphobia content of crowds, heights, etc), and the fear of cuts and bleeding (Beck & Emery). This can be used to explain how a person with a fear of crowds is more likely to also fear embarrassment compared to heights.

A similar categorical feature also exists with anxiety, by which anxiety disorders are characterized by threat perception based upon distinct classes of stimuli. Social anxiety relates to chronic apprehension about negative social judgment and evaluation. Panic disorder relates to fear of threatening body sensations (APA, 2000).

Indeed, the distinction between phobias and anxiety can be murky. Whereas a person with a fear-of-flying subjectively believes flying is dangerous, anxiety does not occur until there is some exposure, either *in vivo* or imagined, towards airplanes or flying. With enough phobias, however, there could very well be a constant, chronic sense of anxiety that is indistinguishable from a generalized anxiety disorder or social anxiety disorder (Beck, 1995).

The interrelation between anxiety and phobias becomes even more apparent as they are often mutually co-morbid (APA, 2000) and self-perpetuating (Riketta, 2004). Subjective negative feelings relating to approximate stimuli (a phobia) may cause a conscious awareness and desire to avoid such stimuli in the future (anxiety), of which the avoidance promotes both the phobia and anxiety as the individual fails to habituate or

learn that a particular fear is irrational and the corresponding stimuli not objectively dangerous (Craske, 2003).

There are some noteworthy distinctions between phobias and generalized anxiety disorder. Cuthbert and others (2003) tested the idea of a *network coherence model*, by which reactions to threats vary among various anxiety disorders (of which situational and social phobias are included). When exposed to memory cues of fearful stimuli, participants self-described as fearful exhibited a greater physiological response compared to participants self-described as panic-prone. This physiological response was dependent upon particular cues which subsumed their given phobia. The latter group exhibited a much more affective and generalized response. That is, they were emotional and more anxious about overall situations and did not require particular cues as did the phobia group. The researchers also found that the panic participants had a greater co-morbid levels of social anxiety and depression (Cuthbert et al.,).

Interestingly enough, while phobia participants exhibited physiological and psychological reactions to both associated verbal and visual representations of fear & panic, the panic participants had less physiological reaction over all, but even less so for visual representations. Cuthbert and others (2003) hypothesized that individuals with phobias operate through a 'primary fear network,' while individuals with panic have a generalized state of worry and apprehension. While the fear network gears the body towards direct mobilization in response to a specific threat, those only with panic do not necessarily have such a fear network activated, and thus do not have the same physiological responses. Additionally, whereas stimulus imagery is more associated with specific cues, a verbal stimulus creates a more customized interpretation that might better

fit a particular state of apprehension (Cuthbert et al.). Therefore, phobias and panic differ in that phobias are oriented towards particular cues, derive a more direct physiological response, and may be based more upon the visual sense. Panic has less physiological intensity but a much more generalized cue-reaction, that can be based upon words and associative thoughts.

Lee et al. (1999) further dichotomized particular phobias and generalized anxiety as phobias promoting active, evasive action while both generalized anxiety and PTSD promoting a greater sense of helplessness, for as the fear reaction becomes generalized to more and more types of stimuli, escape becomes more difficult, and a sense of hopelessness ensues. Phobias may often tend to exist in only particular areas of a person's life (i.e. driving over a bridge, dealing with snakes). This may explain why generalized anxiety and panic are more closely associated with depression compared to phobias.

As demonstrated in both theory and prevalence, anxiety is closely related to phobias. Specific phobias often co-occur with anxiety disorders and mood disorders (APA, 2000). Research by Brown and others (2001) suggests that of the various types of phobias, social phobia is most related to social anxiety and situational phobias are most related to generalized anxiety disorders. Their research found a 34% cross-sectional prevalence between specific phobias and Axis I disorders, of which they attribute to a large proportion of situational phobias in the specific phobia group sample. Other research suggests co-occurrence rates of 50% to 80% among specific phobias and other disorders.

In tracking the lifetime co-morbidity of the DSM-IV anxiety and mood disorders in a clinical sample, Brown and others (2001) found that of 110 patients who were currently seeking help for specific phobia treatment, 34 (31%) also had an axis 1 mood disorder, 33 (30%) had an anxiety or mood disorder, and 27 (24%) had a different anxiety disorder than specific phobia. Interestingly enough, only 9 of the 110 with a specific phobia also had a social phobia (8%), though all of the aforementioned intercorrelations had statistical significance. In tracking the lifetime co-morbidity, the correlations became even more significant. Of the 110 patients who had a specific phobia, the number and percentages of those who would also have, at some point in their lives, an axis 1 mood disorder became 65 (59%), any anxiety or mood disorder, 56 (51%), any anxiety disorder, 45 (41%), and social phobia, 16 (14%) (Brown et al.).

The degree of relatedness among types anxiety disorders has led Watson (2005) to create a model by which two dimensions of emotional experience occur, of negative affect and positive affect with a specific factor of physiological hyper-arousal being specific to anxiety disorders. It is this broad factor that “produces strong correlations among different types of negative emotion, including sad/depressed affect and fearful/anxious affect” (Watson, p. 525). In this model, negative affect, characterized by feelings of fear, sadness, guilt, and anger are highly correlated, and perhaps may subsume, both anxious and depressive disorder, with hyper-arousal and somatic tension being unique to anxiety and anhedonia or low *positive affectivity* being unique to depression.

Research by Izgiç, Akyüz, Doğan, and Kuğu (2004) has shown that in a sample of college students, the highest prevalence of social phobia was found in the group with low

self-esteem and the lowest prevalence of in the high self-esteem group. Those who had a diagnosis of social phobia had a statistically significant difference in mean RSES level compared to those without such a phobia. This may be unique to a social phobia as those with a lower self-esteem level may act less confidently and be less willing to enter into social relationships. The researchers note that self-esteem appears to increase levels of confidence both in the self and in others.

In investigating the variance of social anxiety, research by Kocovski and Endler (2000) showed a strong relationship among levels of self-esteem and both expectancy in achieving goals and fear of negative evaluations. Those with a high social anxiety had lower levels of goal expectancy and self-esteem as well as an elevated public self-consciousness and fear of negative evaluation.

This relates to the idea that a low level of self-esteem increases both the tendency to manage emotions poorly and increase the impact of life stressors. When these symptoms decrease the adaptability of a person, they can become a *self-perpetuating cycle*; such that a person is less likely to achieve goals, which then leads to a sense of lack of accomplishment, which then leads to a greater negative effect (Craske, 2003). This may lead itself into perpetuating both an aversion to social situations and to flying. A person with low self-esteem and a tendency towards social anxiety may not have an expectancy of improvement in this area and may take setbacks as catastrophic and indicative of complete failure. Likewise, a person with an aversion toward flying may avoid flying altogether as the low self-esteem may both increase the negative feelings associated with a flight and decrease the sense that the anxiety may be mitigated in the future.

Fear-of-Flying

The fear-of-flying is a situational type phobia. That is, a specific phobia cued by either being in an airplane, thinking about an airplane, or specific elements of a flight (such as turbulence, the landing) (Van Gerwen, Spinhoven, Diekstra, & Van Dyck, 1997).

Phobias are the most common form of mental pathology, affecting one out of every nine Americans (McDonough & Marks, 2002). Phobias are defined and categorized as an anxiety disorder, by which the anxiety is fixated on a particular object or situation (APA, 2000).

As part of the diagnostic criteria, the phobia elicits a behavioral reaction, most likely sympathetic nervous activation followed by avoidance behavior. Furthermore, such behavioral reactions must be considered dysfunctional, maladaptive, and counterproductive and such disruptive elements, must be made aware by the person. Persistent phobia without awareness of the irrationality of such reactions may be indicative of a delusional disorder (APA, 2000).

Avoidance behavior relating to and following from a life-treating stressor would be better associated with post-traumatic stress disorder, while avoidance and anxious behavior relating to an obsession would be obsessive-compulsive disorder. Anxiety relating to separation from a particular person or of having a particular disease would be considered separation anxiety and hypochondrias, respectively (APA, 2000).

In general, as with other situational type phobias, women are more likely to have a fear-of-flying and this fear arises earlier in age (Craske, 2003). Age of onset appears to be bi-modally distributed, with occurrences first during childhood and in early adulthood.

Those who have specific phobias in family members are often more likely to develop similar types of fears (APA, 2000), a potential function of both heritability and observational learning.

Gender differences with social phobias are not as apparent as with specific phobias, with some samples suggesting equal distribution and others placing women as more likely to have the social phobia (Craske, 2003). There are also cultural differences, based upon collective and individualistic communities, by which the fear of offending others may be reinforced or downplayed. In the general population, up to 20% of those surveyed report extensive fear of public speaking, though only 2% would reach a criteria in the DSM-4 (APA, 2000). Such social phobias often originate in adolescence and are frequently a life-long condition. As with specific phobias, social phobias appear to be both a product of heritability and learned behavior (Chance, 2003).

Approximately 10-11% of the population has a clinically significant fear-of-flying. About 25% of the population that does fly will experience intense distress during the flight, and about 20% of those who do fly either take alcohol or tranquilizers in order to medicate their fear away, suggesting a large percentage of the population with a 'sub-threshold' fear-of-flying (Botella et al., 2004). Women are about twice as likely as men to have a specific phobia and are 75-90% of those who have a situational-type specific phobia (APA, 2000). Common coping mechanisms for those who have a fear-of-flying include avoidance of flying all together and taking anxiety-reducing substances, either though alcohol or medication (Rothbaum et al., 2002).

Botella and others (2004) divide those with a fear-of-flying into three groups: one group that does not fly at all, one group that keeps flying to a bare minimum, usually only

for emergencies, and a third group that has mild to moderate anxiety while flying but continues to do so, analogous to the aforementioned *sub-threshold* fear-of-flying.

Studies have found that there are effective treatment interventions to help those with a fear-of-flying (Kraaij, Garnefski, & Van Gerwen, 2003; Van Gerwen, 2003) found about 50 treatment facilities located in the western world that offer a treatment program for the fear-of-flying.

Despite this rather large population of those who prefer not to fly, flying is actually one of the safest modes of transportation, with approximately .0171 fatal accidents per 100,000 departures in the year 2006. In the year 2000, commercial airlines transported about 1.09 billion people through 18 million flights, with only 20 fatal accidents (Federal Aviation Administration [FAA], 2007a).

Though many people are aware of the relative safety of air travel, statistical analysis shows that even during a crash, there is a reasonable survival rate. Perry noted in 1993 that the odds for surviving an airplane crash are about 50-50. Recent advances in airline safety have improved these odds. Harrison (2006) reports:

most people believe that if they're in a plane crash their time is up. In fact the truth is surprisingly different. In the US alone, between 1983 and 2000, there were 568 plane crashes. Out of the collective 53,487 people onboard, 51,207 survived.
(p. 1)

She further reports that there are steps that can be taken to increase chances of survival and about how the airline industry has taken steps in recent years to increase survival rates during and after a plane crash. Airline safety is to the level that the survival rate of a plane crash is now better than 90%.

Data from the FAA (2007b) has shown that the common fear of losing control appears unrealistic and improbable. The government organization notes that from the years 1995 to 2007, there have been, on average, 227 *unruly passengers* per year. Given the vast number of people who fly each year and the likelihood that at least part of the unruly group consists of heavily intoxicated individuals, the fear of losing control on an airplane does not appear to be realistic for many people with a fear-of-flying.

Typography of Flying Phobias

The fear-of-flying often consists of fears of suffocation, fear of losing control, and most commonly, fear that the plane will crash (Van Gerwen, 2003). The terrorists attacks of September 11 have also added a new worry to this list, though reports suggest that fear-of-flying rates, which spiked shortly after the attacks, have returned to the pre-9/11 rates in subsequent years (Ekeberg, Faushe, Kinde, Hersoung, & Hansen, 2007; Mühlberger, Alpers, & Pauli, 2004)

Van Gerwen (2003) notes that those with a fear-of-flying are a “heterogeneous group” and that the phobia is often a composite of other related phobias such as claustrophobia or a social phobia as well as environmental phobias, including falling, storms, water, and heights.

Kahan, Tanzer, Darwin, & Borer (2000) divide flying phobias based upon such composites, using the DSM-IV diagnostic criteria research. He found that most people with a fear-of-flying have the greatest fear about the potential crash. They are especially sensitive to sounds and movements that they feel are associated with a crash and they

exhibit an exceptional emotional response to media coverage of crashes or investigations into airline safety.

Other people with a fear-of-flying have co-morbid fears of panic or being 'trapped,' with such fears becoming greater than that of actually crashing. These fears may include suffocation, losing control from the fear of panic, and generally being confined. Kahan and others (2000) reasons that perhaps a better diagnosis for this group would be a specific phobia of claustrophobia or panic disorder with agoraphobia. The latter group often experiences similar emotional and physiological reactions of panic in similar claustrophobic situations, such as in an elevator or in crowds. While the sense of fear while flying is exacerbated in this group when there are many others on board, the phobics who fear crashing the most are not nearly as bothered by others on board and in fact prefer having people nearby for comfort or distraction (Kahan et al.,)

Compared to other situational and specific phobias, the fear-of-flying is often more co-morbid with social phobias and generalized anxiety (Van Gerwen et al., 1997). It has been suggested by Botella and others (2004) that this may be due, in part, to an element of social fear that relates to flying. Many with a fear-of-flying fear potential humiliation associated with either fainting or vomiting in the airplane, or perhaps any sense of losing control in a social context. There is also an agoraphobic element, by which a person in an airplane is 'trapped' with no means of escape. These concerns often mirror the fears associated with social anxiety and panic, respectively (Kraaij et al., 2003).

This anxiety reaction associated with an airplane trip is not limited to the flight itself. Individuals with a fear-of-flying will often begin to experience anxiety starting the

moment they know they need to fly, be it days or weeks before flight. In more extreme cases, cues not directly relating to the person flying can nonetheless promote the fear response, from seeing a plane flying, hearing jet engines, or even taking a friend to the airport (Botella et al., 2004).

Fear-of-Flying Treatment

Treatment for fear-of-flying often consists of both behavioral and cognitive treatment programs. For many years, behaviorists focused on concepts such as classical and operant conditioning, shaping, and reinforcement to both explain how phobias develop and to establish treatment. The famous “Baby Albert” study showed that when researchers exposed a young infant to a white rat and then created a loud pop from a balloon, which caused distress and fear, the infant soon became distressed at the mere site of the rat, which then generalized to any small, white, furry object such as a rabbit or a stuffed animal (as cited in Maren, 2001).

Likewise, the fear-of-flying can sometimes be traced to a specific stressful or frightening flight may quickly generalize to any flight. By feeling anxious when a flight is taken and feeling better if the flight is canceled, the association between flying and feeling anxious is reinforced and shaped (Chance, 2003).

Many types of treatment programs for fear-of-flying use primarily behavioral strategies, including exposure therapy and systematic desensitization. Exposure therapy, whether *in vivo* or through virtual reality exposure therapy, expose the fearful flyer to increasingly fearful stimuli associated with flying. In a process of systematic desensitization, the patient learns to relax while being exposed to various aspects of

flying (Lundgren, Carlsson, & Berggren, 2006). The order of exposure is established beforehand and begins with only mildly arousing stimuli. For example, a person may first be exposed to the presence of an airport. By artificially creating a sense of relaxation, usually through muscle relaxation, the patient creates a new association of relaxation that is incompatible with the prior association of tension. Once this new association is established, the therapist moves up the phobia gradient, focusing on activity in the airport, pre-flight activities, and finally, the flight itself (Lundgren et al.). By conversely focusing on the anxiety until it diminishes and purposefully establishing a physiological relaxation sequence, the old pairing of anxiety to the flight activity becomes extinct.

Both practitioners and researchers soon found, however, that in cases of anxiety there was an underlying cognitive component. Lader, Gelder, and Marks (as cited in Beck & Emery, 1985) had participants be continually exposed to frightening stimuli, which, according to behavioral theory, should lead to a subsequent decrease in response and arousal. Although this did indeed occur with many participants, those participants who described themselves as highly anxious became more anxious and had an increase in skin perspiration. This study suggests that the internal state of the person may qualify the traditional behavioral pathways and perhaps impede treatment effects.

Cognitive theory places a person's thoughts and feelings as the internal state that shapes emotions and reactions. For the cognitive therapist, it is not simply a link between stimulus and response but internal beliefs, attitudes, emotions, and cognitions that mediate or aggravate the type of response. In cognitive therapy, the therapist works with the patient to question and eventually replace these unrealistic or irrational cognitive structures (Bieling, McCabe, & Antony, 2006).

In the particular instance of flying phobia, such cognitions range from *catastrophizing*: “the turbulence means we’re all going to crash” to rumination of particular sounds, to grossly overestimating the likelihood of a crash. Many treatment programs focus on first identifying these irrational cognitions then looking for either supportive or refuting evidence, and then finally replacing the irrational cognitions with more realistic statements (Van Gerwen, 2003). Many programs include a psychoeducational component where the patient learns both how flying works (and, by extension, that turbulence never caused a plane crash) and how thoughts themselves cause anxiety (Van Gerwen).

Thus, the distinction between cognitive therapy and behavioral therapy is both small but significant. Both types of therapy focus upon creating new associations and extinguishing automatic negative responses. In behavioral therapy, the focus is on the automatic physiological response to stimuli. In cognitive therapy, the focus is on the automatic cognitive response to stimuli. As with other psychological treatment batteries, both therapies can be combined into what is commonly referred to as cognitive-behavioral therapy, by which both cognitive and behavioral techniques are used to help a fearful flyer. The movement in the field of psychology towards a more cognitive focus is justified in treating anxiety and depression (Mitte, 2005) as well as in fear-of-flying treatment programs.

Self-Esteem and Fear-of-Flying

Kraaij et al. (2003) dealt specifically with the cognitions of those with a fear-of-flying. They hypothesized that the cognitive coping strategies of self-blame, rumination,

and catastrophizing both in general and relating to fear-of-flying would be associated with increased anxiety during and about flight.

They found that those with the aforementioned sub-optimal cognitive coping strategies reported greater levels of both generalized anxiety and phobic anxiety, including anxiety relating to anticipatory airplane flights, in-flight situations, distressing cognitions about flying, and greater physical symptoms during flights (Kraaij et al., 2003). The researchers conclude:

...thoughts of blaming yourself for what you have experienced, thoughts of accepting what you have experienced, resigning yourself to what has happened, thinking about the feelings and thoughts associated with the flight, and thoughts of explicitly emphasizing the terror of the flight are not an effective way to handle flying experiences and might lead to higher anxiety levels. (p. 276)

The terror management theory appears to relate directly towards the fear-of-flying, and similar types of phobia. Harmon-Jones et al. (1997) have shown that high self-esteem, which occurred either naturally or artificially in laboratory participants, appears to suppress thoughts of death when primed by discussion or media. A strong component in the fear-of-flying is often the fear of crashing and/or death (Van Gerwen et al., 1997).

Therefore, it is reasonable to assert that those with a higher self-esteem are less likely to think of death and associate it with flying when primed to think of airplane accidents.

Conversely, those with a lower self-esteem may have a heightened anxiety and sense of terror when exposed to mortality salience in the construct of flying. This may create a more direct link between level of self-esteem and the fears associated with flying, as well as other fears relating to mortality.

Gender and Age in the Interrelation between Self-Esteem and Fear-of-Flying

The interaction between self-esteem and fear-of-flying may have variance based upon gender and age, through the interplay of the terror management theory and social role fulfillment. Males may view an inability or aversion to flying as more of a gender role violation compared to women. The ability to fly may be related to achievement, ability, and especially, autonomy. Though it is unlikely that the inability to fly would have an exceptionally detrimental effect in either gender, it would appear, based upon the research of Waters and Moore (2002) and Jones and Buckingham (2005) to have a greater effect with males. As the fear-of-flying is often correlated with other phobias (Van Gerwen et al., 1997), it is probable that other phobias may exist, which may further compromise the achievement, autonomy, and ability of both genders but being particularly detrimental to the self-esteem of males.

Alternatively, in generalizing the research by Jones and Buckingham (2005), it may be that in both genders, showing those with a low self-esteem threats towards their gender roles produces a stronger negative effect compared to those with a higher self-esteem. Thus, men who have a lower-self-esteem may become more anxious when exposed to stimuli, such as an up-coming flight that might compromise their gender role of being competent and independent. As men appear less emotionally vulnerable to body image dissatisfaction (Jones & Buckingham), women may be less emotionally vulnerable to an inability or reluctance to flying.

In the interrelationship among self-esteem, gender, and age, research by Kling and others (1999) as well as Robins and Trzesniewski (2005) suggest that a significant gap exists between the genders in self-esteem, favoring males, but this gap becomes less

through adulthood. In the meta-analysis, Kling and others found that between ages 13 and 32, self-esteem in both genders remains relatively stable, showing a small, gradual increase with age.

Trzeniewski, Donnellan, and Robins (2003) suggests that it is the reduction of maturational changes, increase in the sense of self and greater sense of individual control over environmental changes that contribute to the rise of self-esteem from adolescence and the stability of self-esteem in adulthood. Although level of self-esteem can and does change in response to certain life events, the authors find that there is a remarkable stability and consistency in individual self-esteem over time.

Research has shown, however, that self-esteem declines sharply as a person approaches age 70. Robins and Trzesniewski (2005) suggests that common threats to self-esteem that occur both in adolescence and in later adulthood, such as the aforementioned loss of individual control, may be at the root of this phenomenon.

Important life changes and shifting social or family circumstances that tend to occur during old age, include death of a spouse, retirement, and shifting social roles. More health problems may decrease the sense of independence or ability that often contributes to self-esteem, and a greater sense of reflection may contribute to a greater sense of self-criticism (Trzeniewski, Donnellan, & Robins, 2003). Alternatively, older individuals may simply be more humble or willing to accept their limitations and feel a lesser need to “show the best face” on a typical self-esteem assessment, thereby leading to the noted drop in the corresponding self-esteem score (Robins & Trzesniewski, 2005).

It is likely that given the changes that occur and the decrease of autonomy, that the drop in self-esteem that occurs in later years is not a methodological artifact and does

indeed occur. If self-esteem is related to phobias, specifically a fear-of-flying, the hypothesis is that the drop in self-esteem in the older population corresponds to an increased fear-of-flying. This hypothesis appears to be supported by the terror management theory, in such a way that as individuals age, the threat of death becomes more prominent. This fear of death is generally more pronounced in individuals without a well formed identity (Dunkel, 2002) and the latter years are typically the time by which the identity and sense of self is questioned (Robins & Trzesniewski, 2005), resulting in the drop of self-esteem. Therefore, older individuals, especially those with a compromised sense of self, are more likely to have a fear of death, which may subsume the fear-of-flying. This, in combination with a more direct, general link between level of self-esteem and level of fear-of-flying, suggests both an increased likelihood of fear-of-flying in older individuals and a greater predictive relationship between self-esteem and fear-of-flying compared to younger individuals.

CHAPTER 3. METHODOLOGY

Purpose of the Study

The purpose of the study was to compare the relationship among self-esteem and specific and social phobias in adults and to gain a fuller understanding of how these constructs interrelate. The predicted findings were that a lower self-esteem has a direct relationship with level of fear-of-flying. Therefore, self-esteem was designated as the predictor variable, with the specific phobia as the criterion variable. These findings can then form the basis for future causal studies as well as provide new insight into how phobias may develop across the human lifespan. Questionnaires were used to measure the

constructs of self-esteem and fear-of-flying as well as to collect demographic information, distributed via the internet through a survey company based upon random sampling criteria. Statistical analysis then analyzed the nature of the relationships through correlational analysis and multiple regression.

Research Design

This study was designed to examine the interaction between level of self-esteem and a fear-of-flying. The independent or predictive element is the level of self-esteem with the dependant variables consisting of the fear-of-flying phobia. This relationship is examined using a quantitative, non-experimental design and a correlational analysis and multiple regression. Data gathering consisted of standardized assessments measuring the constructs in question using participant self-administration through an online format.

Target Population

The target population was adults; those who are 18 years old or older and who currently live in the United States. Participants were required to have internet access and be able to take online surveys. It is assumed that this criterion does not preclude an approximate representation of adults in the general population and that the demographic characteristics of the survey takers are of a normal distribution.

Selection of Participants

Potential participants were identified through their membership to Greenfield Online and their membership information. All members of the Greenfield Online

participation pool provided basic demographic information upon joining the membership group. This occurred before the start of the particular study and is unrelated to the particular study. Selection for the study required a residency in the United States, an understanding of the English language, and an age of 18 or over. The selection process involved the computers at Greenfield Online locating membership profiles based upon the three aforementioned criteria. Potential participants that meet the aforementioned criteria were randomly selected by Greenfield Online and sent an e-mail with an invitation to participate in the research experiment. Research invitations were sent out on a random fashion until such time as 200 participants participated in the research. As this was a correlation study, there were no treatment or control groups. All members of Greenfield Online who met the aforementioned criteria had an equal chance of participating in the study.

Once the participants were selected, they were then briefed as to the details of the surveys and given the opportunity to take the surveys or decline. Once the participants opted to take the surveys, they then read a consent form (see appendix A), which provided contact information as well as their rights as research participants.

Variables

The independent variable in this study was the level of global self-esteem, as measured through a coded response by the Rosenberg Self-esteem Scale (RSES). Demographic information such as age, gender, and level of education were also considered independent variables in the process of identifying prevalent themes in the relationship between self-esteem and phobias. The dependant variable in this study was

the level of fear-of-flying, measured through a coded response, the Flight Anxiety Situations Questionnaire ® (FASQ). The FASQ consisted of three separate sub-scores: generalized flight anxiety, anticipatory flight anxiety, and in-flight anxiety.

Measures

Rosenberg Self-Esteem Scale.

The Rosenberg Self-Esteem Scale © (RSES) is one of the most commonly used standardized assessments of self-esteem (Rosenberg, 1965). Originally developed over forty years ago, Rosenberg (1965) developed this assessment to measure global self-esteem, a person's general self-evaluation about his or her worth as a human being. Many of the original question items are used, with 5 items positively worded and 5 items negatively worded, with responses in a Likert fashion (Tomás & Amparo, 1999). The scale uses a unidimensional measure and the Likert scale uses four response options from 1 (*strongly disagree*) to 4 (*strongly agree*), with no neutral response possible. With 10 items, scores can thus range from a minimum of 10 to a maximum of 40. The higher the score, the higher the level of self-esteem (Griffiths et al., 1999). The popularity of the assessment is due in part to both the ease of test administration, taking only 1 or 2 minutes to complete as well as the straightforward grading process and the simple language of the test items (Schmitt & Allik, 2005).

To assess the internal reliability of the RSES, Blascovich & Tomaka (1991) found Cronbach's alphas that range from a low of .77 to a high of .88, with a rest-retest correlation of .85 and .82 after a two and one week interval, respectively. In comparing

the RSES with other types of self-esteem assessments in their predictive ability for eating disorders in young adults, Griffiths and others (1999) found that the RSES had an equivalent predictive and diagnostic ability but had a superior convergence and construct validity in associating low self-esteem with eating disorders.

Methodological issues that pertain to the RSES include a psychometric debate as to the number of factors associated with the scale. Tomás & Amparo (1999) proposed that the Rosenberg scale may reflect two different factors of self-esteem, one relating to negative self-esteem, the other positive, rather than a single factor. In other words, the RSES might model self-esteem as a negative type and a positive type that has an uneven overlap, rather than as a smooth transition across a spectrum. In assessing the self-esteem of 640 high school students in Valencia, Spain, Tomás & Amparo found that there is, indeed, a single factor—a global self-esteem that is measured by the RSES. Method effects, by which particular wordings of certain items might skew results, would require a slight adjustment in item scoring in order to produce the most optimal fit in the single factor model. Schmitt & Allik (2005) argues that such method effects do not inhibit the methodological utility of the RSES, noting: “A tendency for positive and negative items to group into two factors does not necessarily reflect a substantively important distinction between positive and negative self-esteem” (p. 625); nor does it inhibit the predictive qualities or overall validity of the assessment in assessing the single, unidimensional factor (Tomás & Amparo).

Flight Anxiety Situations Questionnaire.

The Flight Anxiety Situations Questionnaire ® (FASQ) (Van Gerwen, Van Dyck, & Diekstra, 1999) consists of 32 items that are self-administrated to determine level of anxiety based upon specific situations relating to flying. These situations include anticipatory and in-flight conditions. The items are presented in a Likert fashion, with a scale of 1 to 5 of increasing feelings of anxiety based upon a particular situation, ranging from 1 (*no anxiety*) to 5 (*overwhelming anxiety*).

The questionnaire is composed of three subscales: anticipatory flight anxiety, in-flight anxiety, and generalized flight anxiety. The anticipatory flight anxiety scale consists of 14 items that relate to perceived anxiety before a flight. The responses from the scale range from a low of 0 corresponding to no anxiety up to a 56, corresponding to extreme anxiety. Cronbach's alpha for this scale is at a .96. The in-flight anxiety scale has 11 items that relate to potentially anxious situations during flight, with a range of 0 for no anxiety up to a 44 for extreme anxiety. The Cronbach's alpha is .93. The generalized flight anxiety scale represents 7 anxiety items that do not directly relate to a planned flight such as hearing or seeing an airplane independent of actually being on an airplane. The range of scores goes from a minimum score of 0 for no anxiety to a high of 28 for extreme anxiety. Cronbach's alpha is at .84 (Maltby, 2002).

After developing the final versions of the FASQ alongside the Flight Anxiety Modality Questionnaire (FAMQ), Van Gerwen et al. (1999) administered both tests to 746 patients who had a fear-of-flying. They found an excellent internal consistency as well as high test-retest reliability. There was a moderately strong correlation found both between the two tests and within the subscales, suggesting a strong convergent validity.

Specific Cronbach's alphas scores for internal consistency have been placed at .88 to .97 and test-retest reliability has a range of .90 to .92 (Maltby, 2002).

Due to the relatively high level of internal consistency among the scales and with shorter versions of the tests, Van Gerwen et al. (1999) deduced that the separate subscales of the FASQ can be seen as parallel tests and that administering all three of the subscales may not be essential. In speaking with both patients and experts, however, the authors decided to include all three subtests. They argued that to have a comprehensive assessment as to the level of the fear-of-flying the three measures are necessary to "[reflect] its complex structure" (p. 155). Research into the psychometric qualities of a short version of the FAMQ have not been conducted as of yet.

The researchers also argued that assessments of assumed feelings of anxiety based upon particular flying scenarios is superior to a test of behavioral avoidance as many people who have a fear-of-flying will nonetheless fly in certain situations (Van Gerwen et al., 1999). Compared to fears of snakes or spiders or giving presentations, the phobic stimulus of flying is often a ubiquitous and necessary part of life and many people who have a fear-of-flying may not be able to completely avoid flying. Many people who have this phobia will choose to self-medicate with drugs or alcohol. Therefore, simply assessing absolute flying activity is not an accurate measure of flying phobia.

Procedures

Greenfield Online, an online survey firm, was contacted to recruit their members, who have volunteered or are paid to take surveys, as participants for the study. A survey data collection firm hosted the surveys on a secure site, collected the data responses and

operationalized the responses for data processing. Participants took all three surveys (including the brief demographic survey) and the data from the surveys was grouped by participant ID number. Demographic information on age, gender, and state location was gathered to ensure the sample population adequately represented the generalized population and to describe the sample set.

The source of the records, the e-mail addresses, was from the Greenfield Online membership pool. Participants who opted to take surveys applied for membership and provided their e-mail address and basic demographic information. The researcher did not have access to this e-mail list. The person in charge of selecting participants for the study was an employee of Greenfield Online and he or she randomly e-mailed participants who matched the criteria for the study. All participants chosen were already members of Greenfield Online, who have opted to receive invitations to take and fill out surveys. All participants approved use of their records to receive such invitations. Greenfield Online, in providing the participants for the study, approved the use of the records.

The survey company searched member profiles for potential participants who have opted to take online surveys and matched the aforementioned criteria of fluency in the English language, residency in the United States, and being 18 years of age or older. The survey company then e-mailed the potential participants with an invitation to participate in the survey. This e-mail explained the nature of the study, the reward involved, and the expected time required to complete the study.

Participants first clicked on the invitation link, taking them directly to the informed consent form on the World Wide Web, hosted on a secure site, to then read and accept an informed consent form (see appendix A). Participants who agreed with the

consent form were then taken to a website where they filled out a demographical survey (see appendix B). They were then taken to a website that hosts the two questionnaires, which were standardized, close-ended measures. The questionnaires filled out in order were the RSES and then the FASQ. The total time necessary for these tasks was approximately 25 minutes. Participants were then taken to a page thanking them for their participation.

Participants received an inducement after the study. The inducement includes an entering into a bi-weekly sweepstakes drawing to receive a cash prize of \$4,000. All participants had equal access to the inducement, regardless of full participation in the study. Those who do not complete the survey were not disqualified from the sweepstakes.

To determine the cash prize, all participants were entered into a random drawing. The odds of winning depended upon the number of distinct surveys that are accepted in the survey project (see appendix C). Any winner in the cash drawing was notified by e-mail within 6-to-8 weeks from the close of the survey. The cash prize was placed into the winner's account. Employees and family members of Greenfield Online Inc as well as relating advertising, fulfillment, and promotion agencies are ineligible for payment (see appendix C). The cash prize was void where prohibited.

The online nature of the survey distribution may bias results to those with online access, over-representing a higher socio-economic status compared to the population at large; however recent studies have found that, in comparing the response rates of students given an online format vs. traditional methods of teacher evaluation, the response scores did not alter significantly. The response rate also did not vary significantly as a factor of gender (Dommeyer, Baum, Hanna, & Chapman, 2004).

As the population that will take the surveys was projected to be approximate to the generalized population, the appropriate sampling technique is a simple random sampling. This sampling technique is further indicated based upon the universal nature of the predictor criterion, that of self-esteem (Furr, 2005). Although a large population typically prohibits this type of sampling (Leedy & Ormrod, 2005), the usage of an online format facilitated an equal representation of the population in question.

In order to assess the generalizability of the survey participants, demographic information was collected as part of the survey battery. This information included questions about gender, age, and education level. The results of the demographic surveys will then be compared to U.S. Census data to help determine the extent by which the participants in the study match the generalized population.

Hypotheses

In a study of the relationships, the following hypotheses were studied:

Hypothesis 1: There is an inverse relationship between level of self-esteem, measured by the self-esteem scale, and level of fear-of-flying, measured by the three fear-of-flying subscales, to a statistically significant extent ($p \leq .05$).

Hypothesis 1 [alternate]: There is a positive relationship between level of self-esteem, measured by the self-esteem scale, and level of fear-of-flying, measured by the three fear-of-flying subscales, to a statistically significant extent ($p \leq .05$).

Hypothesis 1 [null]: Level of self-esteem, measured by the self-esteem scale, does not correlate with fear-of-flying, measured by the three fear-of-flying subscales, to a statistically significant extent ($p \leq .05$).

Hypothesis 2: Gender is a predictive variable in the relationship between self-esteem, measured by the self-esteem scale, and fear-of-flying, measured by the three fear-of-flying subscales, by which male gender has higher predictive ability of the relationship between level of fear-of-flying and level of self-esteem to a statistically significant extent ($p \leq .05$).

Hypothesis 2 [alternate]: Gender is a predictive variable in the relationship between self-esteem, measured by the self-esteem scale, and fear-of-flying, measured by the three fear-of-flying subscales, by which female gender has higher predictive ability of the relationship between level of fear-of-flying and level of self-esteem to a statistically significant extent ($p \leq .05$).

Hypothesis 2 [null]: Gender is not a predictive variable in the relationship between self-esteem, measured by the self-esteem scale, and fear-of-flying, measured by the three fear-of-flying subscales, to a statistically significant extent ($p \leq .05$).

Hypothesis 3: Age is a predictive variable in the relationship between self-esteem, measured by the self-esteem scale, and fear-of-flying, measured by the three fear-of-flying subscales, by which older participants demonstrate a higher predictive ability of the relationship between level of fear-of-flying and level of self-esteem to a statistically significant extent ($p \leq .05$).

Hypothesis 3 [alternate]: Age is a predictive variable in the relationship between self-esteem, measured by the self-esteem scale, and fear-of-flying, measured by the three fear-of-flying subscales, by which younger participants demonstrate a higher predictive ability of the relationship between level of fear-of-flying and level of self-esteem to a statistically significant extent ($p \leq .05$).

Hypothesis 3 [null]: Age is not a predictive variable in the relationship between self-esteem, measured by the self-esteem scale, and fear-of-flying, measured by the three fear-of-flying subscales, to a statistically significant extent ($p \leq .05$).

Data Collection

Anadyne Systems, Inc. (2002) hosted the surveys on a secure website. After the participants completed the surveys and click *submit*, the data was sent to the hosting company, which collected the data and operationalize the responses for data processing. The data was then hosted on a secure website that only the researcher could download with a special password (Anadyne Systems, Inc.).

Participants will take two surveys and the data from the surveys will be grouped by participant ID number. Demographic information on age, gender, and state location will be gathered to ensure the sample population adequately represented the generalized population and to describe the sample set. The results of the survey data were imported into a data analysis program, such that a correlation analysis could be conducted to determine the strength of the relationship between global self-esteem and fear-of-flying. Data collected was stored both in a computer hard drive and on a backup disk. Both data sets were encrypted and kept out of public access to preserve the confidentiality of the research participants.

Data Analysis

Data was entered into the SPSS program after collection from the web based tests concluded. A direct process of data importing was utilized in order to circumvent human error in the data placement process.

In the SPSS program, all data was organized into a spreadsheet, with columns given a name based upon the survey data. Thus, the Flying Anxiety Situations Questionnaire subscales were identified as anticipatory flight anxiety (pre-flight), in-flight anxiety (in-flight), and general flight anxiety (general). The Rosenberg Self-Esteem Scale was identified as RSES. All data was translated to raw score, including the conversion of negative to positive values and vice versa when appropriate. Descriptive statistics were then utilized in SPSS in order to describe both the data set and the distribution of each data set from the surveys. Out-of-range data was not expected due to the standardized nature of the survey questions.

In order to assess the reliability and validity of each scale, Cronbach's alpha was used for each survey measure (Howell, 2004). The results were then compared to those found in other research studies that have used the same scales in order to demonstrate psychometric quality. Finally, the results were computed to determine correlation coefficients between fear-of-flying and self-esteem as well as among age and gender.

Three hypotheses were tested based upon the data; the effect and null hypotheses as well as the associated statistical test and rejection level are presented in Table 1.

Table 1

Hypotheses and Statistical Tests

Hypotheses	Statistical Test	Rejection Level
<p>H1: There is a statistically significant inverse relationship between level of self-esteem, measured by the self-esteem scale and level of fear-of- flying, measured by the three fear-of-flying subscales.</p> <p>H1[a]: There is a statistically significant direct relationship between level of self-esteem and level of fear-of-flying.</p> <p>H1[o]: Level of self-esteem does not correlate presence or absence of fear-of-flying</p>	Correlation	$p \leq .05$
<p>H2: Gender is a predictive variable in the relationship between self-esteem, measured by the self-esteem scale, and level of fear-of-flying, measured by the three fear-of-flying subscales, by which male gender has higher predictive ability of the relationship between level of fear-of-flying and level of self-esteem.</p> <p>H2[a]: Gender is a predictive variable in the relationship between self-esteem and fear-of-flying, by which female gender has higher predictive ability of the relationship between level of fear-of-flying and level of self-esteem.</p> <p>H2[o]: Gender is not a predictive variable in the relationship between self-esteem and fear-of-flying.</p>	Multiple Regression; One Sample T-test	$p \leq .05$
<p>H3: Age is a predictive variable in the relationship between self-esteem, measured by the self-esteem scale and level of fear-of-flying, measured by the three fear-of-flying subscales, by which older participants demonstrate a higher predictive ability of the relationship between level of fear-of-flying and level of self-esteem.</p> <p>H3[a]: Age is a predictive variable in the relationship between self-esteem and fear-of-flying, by which younger participants demonstrate a higher predictive ability of the relationship between level of fear-of-flying and level of self-esteem.</p> <p>H3[o]: Age is not a predictive variable in the relationship between self-esteem and fear-of-flying.</p>	Multiple Regression	$p \leq .05$

Expected Findings

The predicted findings were that self-esteem has inverse relationship with the fear-of-flying as measured by the FASQ subscales. It was expected that level of global self-esteem has a strong, inverse relationship with the presence of fear-of-flying phobia in research participants. Thus, the predictor variable of global self-esteem was expected to have a significant association in predicting the criterion variable of fear-of-flying intensity. Gender differences were expected in this association. Specifically, it was predicted that males who have low self-esteem were more likely to have fear-of-flying compared to females of the same self-esteem level. Age was considered to also play a role in the relationship between self-esteem and fear-of-flying; it was expected that participants who are older were more likely to have a phobia compared to younger participants when level of self-esteem is controlled.

CHAPTER 4. RESULTS

For this study, a random sampling of the online membership pool was used to approximate the general population, which is analogous to randomly selecting participants at a particular school. Greenfield Online provided e-mail invitations to its members to complete and submit surveys, which provided the data for this study. The company established a randomization procedure through assigning each member a particular code based upon select criteria. Of the members that met the criteria of the study, their code was randomly selected through a computer program. This computer program randomly e-mails participants using a random number generator (H. Gelb, personal communication, July 20, 2007). To verify this occurred, the work order included a section confirming that the randomization procedure was selected for the study.

The demographics of the participant base and its comparison to what is in the general population are explored in this chapter, with potential implications to be discussed in the next chapter.

A total of 285 individuals received an e-mail invitation to participate in the survey, of which 203 participants responded. Such invitations were sent only to those who, from their membership profile, were over the age of 18, lived in the United States, and had an understanding of the written English language. Greenfield Online approximated that of the members in their membership pool who pass the aforementioned criteria (of which 94% do) and received an e-mail to participate in the survey, 79% would do so (H. Gelb, personal communication, May 15, 2007).

A random series of invitations were sent through e-mail over a 4 day period. Approximately 60 invitation e-mails were sent out on a daily basis, yielding approximately 50 responses a day. Slightly fewer e-mail invitations were sent out on day 4, leaving a total response number of 203; therefore, the actual response rate was 71%.

Participants in the study who took the surveys were asked to push “submit” after completion of the study, which then forwarded the information to a secure server for temporary storage. At the conclusion of the data collection period, the data was downloaded and processed. Of the 203 participants who took the survey, 32 respondents had a blank response in one or more test items in the total study and are considered missing data. The entire response from the subject, including all data, was eliminated from the study, due to the emphasis on the study of interactive affects among the test responses as well as the relatively few number of test items in each assessment. A missing test item in a 10-item assessment would produce too much variance to be

ignored. From the 285 original potential participants there was therefore 171 total survey responses. The total inclusion rate is thus 60.0%.

The data from the completed surveys was imported into a Microsoft Excel™ file. The data categories included age, gender, education, the Rosenberg Self-Esteem Scale (RSES) (Rosenberg, 1965) score, and the three FAS subscales: generalized flight anxiety (FASG), anticipatory flight anxiety (FASP), and in-flight anxiety (FASI) (Van Gerwen et al., 1999).

Participants

The sample size was 56.1% male and 43.9% female, compared to the 2000 U.S. Census results (U.S. Census Bureau [U.S. Census], 2000) that reported the greater U.S. population at 49.0% male, 50.9% female. This suggests that the results of the study might be skewed somewhat towards the male gender. The ages ranged from 18 years to 74 years. Table 2 shows the distribution of the study participants by age grouping, and the comparison with the 2000 U.S. Census results (U.S. Census, 2005b). The younger ages, from age 18 to 29, appear over-represented compared to what is found in the U.S. population, as does the age category 30-39 to a lesser extent. The age group 60-to-74 appears somewhat under-represented. The other age categories appear to reflect what is found in the U.S. population.

Table 2 displays the demographic distribution of the participant population. In this sample, there were 96 male participants (56.1%) and 75 female participants (43.9%). Each participant provided their age, which ranged from 18 to 74. When grouped into decades, 79 participants (46.2%) were between 18 and 29, 38 participants (22.2%) were

between 30 and 39, 26 participants (15.2%) were between 40 and 49, and 28 participants (16.3%), were between 50 and 74.

Table 2

Comparison of the Study Sample by Age to the 2000 U.S. Census Report.

Age	Sample Frequency	Sample Percent	2000 U.S. Census Percent
18-24	44	25.7%	9.6%
25-29	35	20.5%	6.8%
30-39	38	22.2%	15.4%
40-49	26	15.2%	15.3%
50-59	20	11.7%	11.0%
60-74	8	4.6%	10.4%
Total	171	100%	68.5%

Table 3 shows the distribution of the study participants by education level at age 25 or above and its respective U.S. Census results comparison (Bauman & Graf, 2003). Table 4 shows the distribution of the study participants by U.S. geographic area (U.S. Census, 1999) compared to the respective U.S. Census results comparison (U.S. Census, 2000). Table 5 shows income level distribution of the participants in the study compared to the 2000 U.S. Census reports for income levels (U.S. Census, 2005a). All four demographic figures show a diverse distribution of participants that is moderately comparable to the census results, providing evidence that the sample population is representative to the population as a whole in terms of age and education level.

Although education level is not being studied as a mediating or aggravating variable in the relationship between self-esteem and fear-of-flying, it was collected to

ensure the sample population matched the larger, generalized population in terms of a socio-economic scale. The distribution of the sample in terms of education attainment is 0 (0.0%) for some high school, 7 (5.2%) for completed high school, 43 (31.9%) for some college, 52 (38.5%) for college, and 33 (24.4%) for post-graduate or professional degree. See Table 3 for this demographic information.

Table 3

Comparison of the Study Sample Size by Educational Attainment at Age 25 or Older Compared to 2000 U.S. Census Report

Education Level	Sample Frequency	Sample Percent	2000 U.S. Census Percent
Some High School	0	0%	12%
High School	7	5.2%	28.6%
Some College	43	31.9%	21.1%
College Degree	52	38.5%	21.8%
Professional/Graduate	33	24.4%	5.9%
Total	135	100%	100%

Table 4

Comparison of the Study Sample Size by Geographic Location Compared to 2000 U.S. Census Report

Geographic Location	Sample Frequency	Sample Percent	2000 U.S. Census Percent
Pacific	23	13.5	15.97
Mountain	17	9.9	6.85
Midwest	51	29.8	21.79
South	51	29.8	35.92
Northeast	29	17.0	18.03
Total	171	100.0	98.56

Likewise, Table 5 describes the distribution of income for the participants. 2 participants (1.17%) had a household income of less than \$5,000. 6 participants (3.51%) had a household income of \$5,000 to \$9,999. 10 participants (5.85%) had a household income of \$10,000 to \$14,999. 22 participants (12.87%) had a household income of \$15,000 to \$24,999. 33 participants (19.30%) had a household income of \$25,000 to \$34,999. 35 participants (20.47%) had a household income of \$35,000 to \$49,999. 34 participants (19.88%) had a household income of \$50,000 to \$74,999. 13 participants (7.02%) had a household income of \$75,000 to \$99,999 and 16 participants (9.36%) had a household income of \$100,000 and over.

Table 5

Comparison of the Study Sample Size by Household Income Compared to 2000 U.S. Census Report

Income Level	Sample Frequency	Sample Percent	2000 U.S. Census Percent
Less than \$5,000	2	1.17%	3.48%
\$5,000 to \$9,999	6	3.51%	5.16%
\$10,000 to \$14,999	10	5.85%	6.67%
\$15,000 to \$24,999	22	12.87%	12.91%
\$25,000 to \$34,999	33	19.30%	11.90%
\$35,000 to \$49,999	35	20.47%	14.75%
\$50,000 to \$74,999	34	19.88%	18.27%
\$75,000 to \$99,999	13	7.02%	10.93%
\$100,000 and over	16	9.36%	15.73%
Total	171	100%	99.8%

Instrument Reliability

Both the RSES and the FAS subscales were assessed to determine internal reliability and for comparison purposes to other studies. For this study, the RSES had a Cronbach's alpha of .91 (n = 10), which is comparable to Blascovich & Tomaka (1991) findings of a Cronbach's alpha of .88 (n = 10). The FAS subscale's means, standard deviations, and total reliability are reported in Table 6.

Table 6

Total Norms for the FAS Subscales

Subscale	<u>Mean</u>		<u>Standard deviation</u>		<u>Alpha</u>	
	Current study	Comparison study	Current study	Comparison study	Current study	Comparison study
FASG	1.08	5.21	2.69	4.69	.86	.97
FASP	6.89	33.52	10.90	13.69	.97	.88
FASI	7.62	29.68	9.72	10.20	.97	.95

Note. Comparison study was Van Gerwin et al. (1999) with a sample size of N = 746.

The Cronbach's alpha for the FASG, FASP, and FASI are .86, .97, and .97, respectively. All of the Cronbach's coefficient alphas in the study for the FAS subscales are high and similar to those reported by Van Gerwin and others (1999). Although the standard deviations are comparable, the means are considerably higher in the comparison study, due to the study's focus on participants with a self-described fear of flying.

Data Analysis

This study is exploratory in nature, designed to shed light upon a given relationship for potential future diagnostic and predictive utility. Analysis for the study

has been performed using SPSS software for both descriptive and inferential statistical analysis of the data. A comparative analysis was also conducted to compare the sample demographics with the generalized population at large in order to determine any discrepancies, which might hinder external validity (Leedy & Ormrod, 2005).

Descriptive statistics were performed to analyze both mean scores and standard deviations for all relevant variables, including age, gender, education level, self-esteem level, as well as the fear-of-flying subscales. Inferential statistics were performed to determine the strength of the correlations among both the primary constructs of flying phobia with self-esteem and flying phobia and potentially mediating variables.

To determine the full nature of the aforementioned relationships, both a Pearson Product-Moment Correlation and a stepwise multiple regression were utilized to determine any statistically significant findings. In the former analysis, level of self-esteem was designated as the independent or predictor variable, while level of fear-of-flying, measured by the fear-of-flying subscales, was designated as the dependant or criterion variable. The stepwise multiple regression was used in order to control for the mediating or aggravating effects of the demographic variables of age and gender in assessing the aforementioned relationship.

In total, the multiple regression analysis can be divided into two steps: the first step consists of determining whether the demographic data of age and gender can serve as predictive variables of fear-of-flying level. The second step adds the self-esteem variable to determine predictive utility for the fear-of-flying level.

Findings

The study's purpose was to determine the relationship and predictive utility between level of self-esteem and level of fear-of-flying with a randomized sample population. The study also looks at other variables such as age and gender to determine how they might interact in this relationship. The study consisted of 171 participants, who provided data through filling out a demographic survey, a survey on self-esteem, and a survey on fear-of-flying. The fear-of-flying survey produces three separate scales: a fear-of-flying in general score, a score to measure anxiety associated with pre-flight activities, and a score to measure anxiety associated with in-flight stimulus. These scores are derived from separate questions integrated into a total questionnaire.

The participant sample scored a grand mean average of 20.49 on the self-esteem scale ($SD = 5.79$). The generalized fear-of-flying mean score [FASG] was 1.08 ($SD = 2.69$). The anticipatory flight anxiety mean score [FASP] was a 6.89 ($SD = 10.90$), the in-flight anxiety mean score [FASI] was a 7.62 ($SD = 9.72$). This data suggests that the average level of self-esteem is moderately high (Schmitt & Allik, 2005) and the average level of anxiety for the FAS subscales is low (Van Gerwen, et al., 1999). The high level of variance (measured by the standard deviation) relative to the mean score suggests there may be extreme scores that artificially inflate the mean score. In other words, a small percentage of the total population may have a higher score on the FAS subscales, which is similar to other studies of the general population (Van Gerwen & Diekstra, 2000); however, scores from this study reflect a more disperse level of flight anxiety subscale score; rather than extreme scores, there is a fairly normal distribution with representative samples in moderate, elevated, and high levels of flight anxiety. This is a product of both

the relatively large sample population and the more common instances of moderate fear compared to excessive fear.

Table 7 displays the intercorrelations for self-esteem [RSES] and the various scales of the fear-of-flying assessment: generalized fear-of-flying score [FASG], anticipatory flight anxiety score [FASP], and the in-flight anxiety score [FASI]. Also included are the demographic variables of gender [sex], and age [age]. The degree and orientation of each correlation is shown as well as the significance level. Variables that are correlated to a statistically significant level are marked with one asterisk (*) for significance at the .05 level and two asterisks (**) for significance at the .01 level. The stronger the correlation, the higher the value, in either a positive or negative orientation. Variables that have a statistically significant positive correlation value correspond to a direct, positive correlation while variables with a statistically significant negative correlation value correspond to an inverse correlation. Variables that are correlated with themselves will show perfect correlation, a value of 1.00. Table 8 shows a hierarchical regression model, by which age was placed as a variable to determine its value in predicting level of self-esteem. The beta weight value (β) as well as the standard error (*SE*) value are displayed along with the multiple (*R*) and squared (R^2) correlation coefficient values. The latter variable can be used to determine the variance of the age variable in predicting level of self-esteem.

Table 7

Intercorrelations for Given Study Variables (N = 171)

Variable	Age	Sex	RSES	FASG	FASP	FASI
Age	1.00	-.033	.162*	-.029	-.008	-.009
Sex	-.033	1.00	.030	-.241**	-.273**	-.269**
RSES	.162*	.030	1.00	.026	-.037	-.162*
FASG	-.029	-.241**	.026	1.00	.744**	.649**
FASP	-.008	-.273**	-.037	.744**	1.00	.891**
FASI	-.009	-.269**	-.162*	.649**	.891**	1.00

** Significant at the 0.01 level (1-tailed) * Significant at the 0.05 level (1-tailed)

Table 8

Prediction of Self-Esteem Based Upon Demographic Factors (N = 171)

	B	SE	β	R	R ²
Age	.007	.034	.163*	.166	.027

Full Model: $F(2, 168) = 2.37, p = .096, R^2 = .027$

** Significant at the 0.01 level * Significant at the 0.05 level

a Dummy Variable: 1 = female; 2 = male

Hypothesis One

The first hypothesis of this study stated that there is a significant inverse relationship between level of self-esteem and level of fear-of-flying. To test this hypothesis, a Pearson Product-Moment Correlation is determined among level of self-esteem and the three fear-of-flying subscales. The results of this test, which can be found in Table 7, shows that the correlation between self-esteem ($M = 20.49, SD = 5.79$) and the in-flight fear-of-flying anxiety scale ($M = 7.62, SD = 9.72$) is significant, $r(171) = -.162, p \leq .05$. Two subscales, the generalized fear-of-flying scale ($M = 1.08, SD = 2.69$)

and the anticipatory flight anxiety scale ($M = 6.89$, $SD = 10.90$) did not show statistically significant correlation with the self-esteem scale ($M = 20.49$, $SD = 5.79$), $r(171) = .026$, $p > .05$ and $r(171) = -.037$, $p > .05$, respectively.

As lower scores on the self-esteem scale suggest a lower level of global self-esteem and higher scores suggest higher self-esteem (Abe, 2004), and as higher scores on any of the fear-of-flying scales represent a heightened level of anxiety associated with a fear-of-flying (Maltby, 2002), a statistically significant inverse relationship suggests that lower self-esteem correlates with higher levels of in-flight anxiety. A similar relationship among self-esteem and other aspects of flying, such as generalized fear-of-flying and anticipatory flight anxiety could not be found. Therefore, H_0 can be conditionally rejected in favor of H_1 , depending upon the measure, or rather, the type of fear-of-flying.

Hypothesis Two

Hypothesis Two relates to the interaction of gender in the relationship between self-esteem and fear-of-flying, demonstrating a statistically significant effect. Specifically, that the male gender has a higher predictive ability of the relationship between level of self-esteem and level of fear-of-flying compared to the female gender. First, an independent samples t-test was conducted to determine if males and females differ in their level of self-esteem. There were no significant differences found between gender groups, $t(169) = -.394$, $p > .05$. This finding suggests that there are no significant differences in self-esteem between the gender groups. To determine if males and females differ in their level of fear-of-flying, separate independent samples t-tests were conducted for each fear-of-flying subscale. Table 9 displays the various t-tests among gender and

the fear-of-flying subscales. For each subscale, there was a significant difference between the groups. For the FASG, female ($M = 1.81, SD = 3.66$) and male ($M = .510, SD = 1.34$) scores were statistically different, $t(89.671) = 2.932, p \leq .05$. For the FASP, female ($M = 10.25, SD = 13.14$) and male ($M = 4.27, SD = 7.88$) scores were statistically different, $t(114.419) = 3.482, p \leq .05$. Finally for the FASI, female ($M = 10.57, SD = 11.35$) and male ($M = 5.31, SD = 7.52$) scores were statistically different, $t(112.189) = 3.463, p \leq .05$. In all three subscales the female gender had a higher mean score of flight anxiety.

Table 7 shows the Pearson Product-Moment Correlations that demonstrate that gender is correlated with all three sub-scales of the fear-of-flying measures. Table 10 shows the results of the Regression, in which it was found that gender is a statistically significant predictive variable in the fear-of-flying subscales, ($p \leq .05$), accounting for anywhere between 5.8% and 7.5% of the variance in the subscale. Specifically, female gender is highly predictive of the level of fear-of-flying, as measured by the Fear-of-flying scales, including the generalized fear-of-flying scale ($\beta = -.241$), anticipatory flight anxiety scale ($\beta = -.273$), and in-flight anxiety scale ($\beta = -.269$)

The Pearson Product-Moment Correlations between self-esteem and fear-of-flying subscales for both the male population ($n = 96$) and female population ($n = 75$) are shown in Table 10. Males had a statistically significant correlation between self-esteem and in-flight anxiety sub-scale ($r = -.272$). Females, conversely, exhibited no statistically significant correlations among self-esteem and fear-of-flying. Figure 1 shows a scatterplot distribution for scores on the in-flight anxiety score based upon RSES scores for males. Figure 2 shows a scatterplot distribution for scores on the in-flight anxiety score based upon RSES scores for females. Figure 3 displays both correlations for

comparative purposes. Although females were found to be more likely to score higher on the fear-of-flying subscales, with gender being a significant predictive variable, males have a higher and statistically significant interactive effect between level of self-esteem and level of fear-of-flying, as measured by the respective scales, leading to a rejection of H0 in favor of H1 for the second hypothesis.

Table 9

Independent Samples T-tests for Gender and the Fear-of-Flying Subscales

Subscale	T Value	Degree of Freedom	Significance
FASG	2.932	89.671	.004**
FASP	3.482	114.419	.001**
FASI	3.463	112.189	.001**

FASG Full Model: $t(89.671) = 2.932, p = .004$.

FASP Full Model: $t(114.419) = 3.482, p = .001$

FASI Full Model: $t(112.189) = 3.463, p = .001$.

** Significant at the 0.01 level * Significant at the 0.05 level

Table 10

Correlations Among Self-Esteem and Fear-of-Flying Subscales Mediating for Gender

Gender	FASG	FASP	FASI
RSES (Males Only; N = 96)	-.154	-.156	-.272**
RSES (Females Only; N= 75)	.139	.075	-.064

** Significant at the 0.01 level * Significant at the 0.05 level

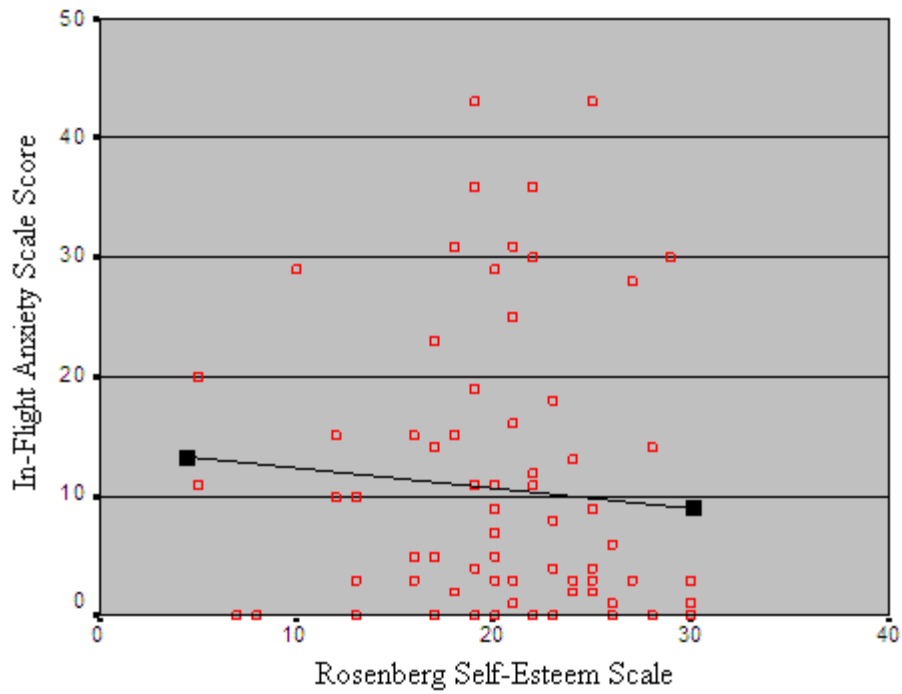
Figure 1



Scatterplots of Male Scores of In-Flight Anxiety Scale by Rosenberg Self-Esteem Scale Score

Figure 1 displays the distribution of in-flight anxiety scale score by RSES scale score for each male participant. Each point represents the data from one participant. The line represents the line of best fit for the correlation coefficient.

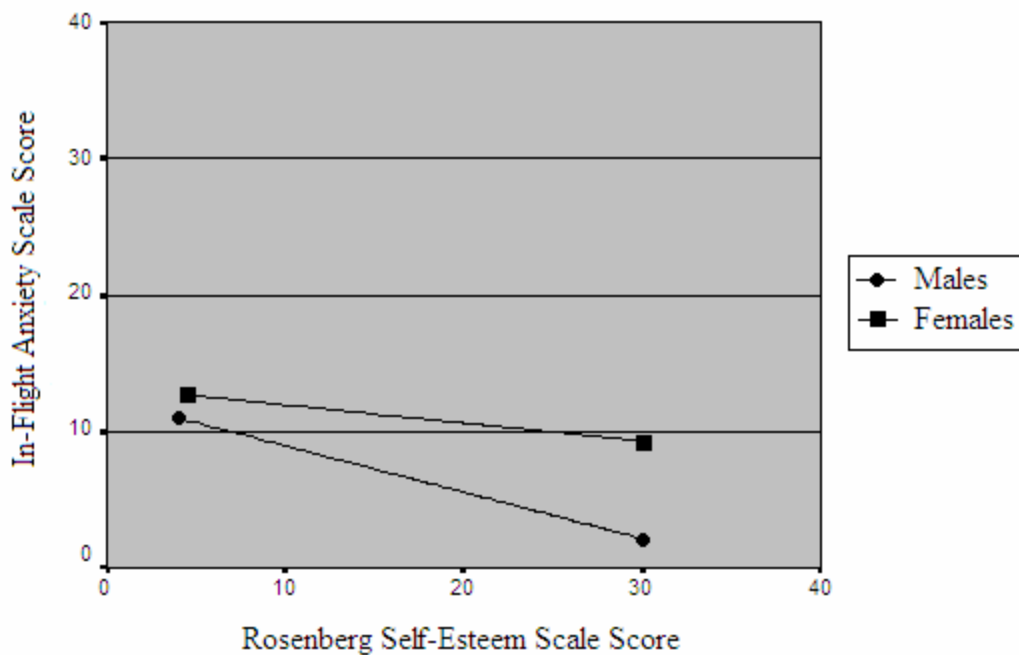
Figure 2



Scatterplots of Female Scores of In-Flight Anxiety Scale by Rosenberg Self-Esteem Scale Score

Figure 2 displays the distribution of in-flight anxiety scale score by RSES scale score for female participants. Each point represents the data from one participant. The line represents the line of best fit for the correlation coefficient.

Figure 3



Compared Correlation Coefficient Line between the Genders for Correlation between In-Flight anxiety and the Self-Esteem Scale Score.

Figure 3 displays the relationship between RSES score and the in-flight anxiety scale score for both genders. As the average RSES score increases on the X axis (representing an increase in self-esteem), the average corresponding level of in-flight anxiety on the Y axis (measured by the in-flight anxiety scale score) decreases significantly for men but remains relatively unchanged for women. A visual comparison juxtaposes the strong, negative correlation between self-esteem level and in-flight anxiety level for men compared to the relative stability of in-flight anxiety level in women regardless of self-esteem level.

Table 11

Prediction of Fear-of-Flying Scales Based Upon Gender (N = 168)

	<i>B</i>	<i>SE</i>	β	<i>R</i>	R^2
FASG	-1.303	.404	-.241**	.241	.058**
FASP	-5.983	1.621	-.273**	.273	.075**
FASI	-5.261	1.448	-.269**	.269	.072**

FASG Full Model: $F(1, 170) = 10.383, p = .002, R^2 = .058$

FASP Full Model: $F(1, 170) = 13.626, p = .000, R^2 = .075$

FASI Full Model: $F(1, 170) = 13.208, p = .000, R^2 = .072$

** Significant at the 0.01 level * Significant at the 0.05 level

Hypothesis Three

Hypothesis Three relates to the interaction of age in the relationship between level of self-esteem and level of fear-of-flying. The hypothesis states that age is a predictive variable in the relationship between level of self-esteem and level of fear-of-flying, by which older participants demonstrate a higher predictive ability towards level of fear-of-flying based upon level of self-esteem to a statistically significant extent. To determine if a regression analysis is indicated, correlation analysis was first conducted for the data. Table 7 shows a Pearson Product-Moment Correlation between level of self-esteem and age. There appears to be a correlation between age and self-esteem, $r(171) = .162, p < .05$. The statistically significant direct relationship between level of self-esteem and age suggests that as age increases, so does level of self-esteem, as measured by the self-esteem scale.

A second analysis was conducted removing the data from participants at or above age 60 to determine the extent of a potential curvilinear relationship, based upon a meta-analysis conducted by (Robins & Trzeniewski, 2005) that suggested that there is a slight

decrease in level of self-esteem in this age group. Although the removal of this age group did strengthen the relationship, $r(163) = .171, p < .05$, there was not a significant change to warrant removal of the age group from the study.

Table 7 also shows the Pearson Product-Moment Correlations among age level and the fear-of-flying subscales that demonstrate that no significant relationships were found in these correlations, with generalized fear-of-flying ($r = -.029$), anticipatory flight anxiety ($r = .008$), and in-flight anxiety ($r = -.009$). As no correlation has been found, a regression analysis is not indicated in this analysis. These findings therefore provide support for the null hypothesis, that age is not a significant variable in the relationship between level of self-esteem and level of fear-of-flying.

Summary

In summary, this study was designed to determine the correlation between level of self-esteem and level of fear-of-flying, as measured by their respective scales. Age and gender were also assessed as potentially predictive variables in this relationship. Participants in the study took a demographic survey, a self-esteem survey, and a flight-anxiety survey. Of the 285 people who received an invitation to participate in the research, a total of 171 participants took the surveys and had complete responses.

Hypothesis One stated that there would be a statistically significant inverse relationship among level of self-esteem and the three levels of anxiety related to flying. Study results found that self-esteem scores were a predictive variable in fear-of-flying sub-scale scores only for the in-flight anxiety scale. Therefore, Hypothesis One receives partial support from the data.

Hypothesis Two stated that, in the relationship between level of self-esteem and level of fear-of-flying, gender would be a predictive variable, with the male gender having a stronger ability to predict flight anxiety based upon self-esteem level. Data from the surveys supported the second hypothesis and the null hypothesis can be rejected.

Hypothesis Three stated that age would also be a predictive variable, with older participants having a stronger ability to predictive flight anxiety based upon self-esteem level. Results from the surveys did not support this hypothesis and it was rejected in support of the null hypothesis.

CHAPTER 5. DISCUSSION

Review

This study assessed the relationship between level of self-esteem and level of fear-of-flying in adults to determine if such a relationship exists as well as its strength and orientation. Gender and age were also examined to determine their effect in the relationship between self-esteem and fear-of-flying. In this study, self-esteem, as measured by the RSES, was designated the independent or predictor variable while fear-of-flying, as measured by the FAS sub-scales, was designated as the dependant or criterion variable. A fear of flying is a specific, situational type phobia that is both common and debilitating in the U.S. population (APA, 2000).

A correlational analysis was used to determine the relationship between self-esteem and fear-of-flying in the target population. To determine gender differences in both self-esteem and fear-of-flying, one sample independent t-tests were used. To determine if gender is a predictive variable in the relationship between self-esteem and

fear-of-flying and to determine interactive effects, a multiple regression analysis was used. Similarly, a multiple regression analysis was also used to determine the possible effects of age in the relationship between self-esteem and fear-of-flying and if there are interactive effects.

A literature review explored the constructs in question, including the trait characteristics of self-esteem, the incidence and prevalence of the fear-of-flying, how level of self-esteem may predict and even cause anxiety, and how level of self-esteem may predict fear-of-flying. How a person's age and gender may play a role in this interaction was also examined.

Previous research has linked lower self-esteem with increased anxiety (Byrne, 2000), higher self-esteem with decreased negative cognitive biases (Kocovski & Endler, 2000), and anxiety and negative cognitive biases with both specific and social phobias (Kraaij et al., 2003; Marrs, 2006). This suggests that a link may exist between level of self-esteem and level of fear-of-flying, with the former variable having a statistically significant, inverse relationship with the latter variable; however, although cognitive biases have been studied in their relationship with the fear-of-flying (Kraaij et al.), no other studies have examined the relationship between fear-of-flying and global self-esteem.

Although gender differences in amount of self-esteem have been often overstated and actually exhibit considerable overlap (Foels & Tomcho, 2005; Kling et al., 1999), research suggests that the way self-esteem is derived may exhibit gender differences based upon gender identity (Waters & Moore, 2002). As having a fear-of-flying may affect one particular gender identity over another and as there are gender differences in

the incidence of fear-of-flying (Van Gerwen et al., 1997), there are potential interactive effects of gender and self-esteem as they affect fear-of-flying. Similarly, although self-esteem is rather stable across the lifespan, there are characteristic peaks and valleys (Trzesniewski, Donnellan, & Robins, 2003), which may interact and create differences in the interaction between self-esteem and fear-of-flying based upon age.

Approximately 11% of the U.S. population has a clinically significant fear-of-flying, which often interferes with business and social functions that require air travel (Botella et al., 2004). Various approaches exist to treat this phobia; however, their treatment strategies vary in behavioral and cognitive strategies (Van Gerwen & Diekstra, 2000). Understanding how a global sense of self-esteem may correlate with a particular phobia may warrant a more cognitive approach towards a fear-of-flying treatment strategy, and may spur a similar assessment for other phobias, both specific and social in nature. Thus, the correlational nature of self-esteem to fear-of-flying was assessed as well as interactive effects of age and gender.

Findings

The first objective of the study was to determine if a relationship exists between level of self-esteem and level of fear-of-flying. In this study, level of self-esteem was measured by the RSES while the fear-of-flying was measured by three sub-scales of the FAS. The sub-scales were designed to measure three different aspects of the fear-of-flying construct: anxiety associated with flying in general (i.e. thoughts about flying), anxiety associated with pre-flight activities (i.e. arriving at the airport; getting ready for take-off), and anxiety associated with the actual flight (i.e. experiencing turbulence). Of

the total scale, generalized fear-of-flying represents items 1 through 5, 12 and 13. Anticipatory flight anxiety represents items 6 through 11 and 14 through 21. In-flight anxiety represents items 22 to 32.

The Relationship between Self-Esteem and Fear-of Flying

With 171 participants completing the entire RSES and FAS sub-scale surveys, a significant inverse correlation was found between level of self-esteem and the FAS subscale of in-flight anxiety. No significant correlations were found between level of self-esteem and the anticipatory flight anxiety or generalized fear-of-flying sub-scales, even though the in-flight anxiety score was highly correlated with the other two subscales. This may suggest that both anxiety before take-off and low self-esteem contribute to in-flight anxiety through separate means. Future studies to explore this potential relationship are encouraged.

These findings strongly suggest that as self-esteem relates to general and social anxiety (Abe, 2004; Byrne, 2000; Pyszczynski et al., 2004), so might it relate to a particular phobia, that of a fear-of-flying. What is particularly interesting is that although the self-esteem measure was designed to only assess global self-esteem, it was found to relate to a rather specific form of anxiety. This supports the research of (Donnellan et al., 2005), who asserts that low self-esteem has far reaching implications to a variety of specific domains, though it should be cautioned that this study only purports to assess correlation and not causation.

The significant, inverse relationship between level of self-esteem and level of anxiety about flying appears to support the terror management theory (Harmon-Jones et

al., 1997), by which self-esteem functions to appease terror and anxiety associated with mortality. As people tend to over-estimate the likelihood of an airplane crash and often misinterpret non-threatening airplane stimuli (i.e. turbulence) as being indicative of a crash (Van Gerwen, 2003), the theory and associated experiments of the terror management theory would suggest that those with a lower self-esteem would experience a greater level of anxiety relating to the event.

The Impact of Gender on the Relationship between Self Esteem and Fear of Flying

The second objective of the study is to determine how gender might interrelate within the relationship between level of self-esteem and level of fear-of-flying. Although no significant differences were found in level of self-esteem between the sexes, there were significant differences between gender and level of fear-of-flying for all three subscales. In all three subscales of the fear-of-flying inventory, women were significantly more likely to have a higher score, indicating a greater level of anxiety. Thus, women were found to be much more likely to have a fear-of-flying, as measured by the subscales. In the regression analysis, gender was found to account for anywhere between 5.8% to 7.5% of the variance in the subscales.

When the variable of gender was controlled, a significant difference was found between the variables of level of self-esteem and level of fear-of-flying. In females, there was no significant correlation between level of self-esteem and any of the fear-of-flying subscales. This means that women with low self-esteem were no more likely to exhibit anxiety about flying (as measured by the subscales) than women with high self-esteem. Conversely, a significant inverse correlation was found for men between level of self-

esteem and the level of in-flight anxiety ($r = -.272$), which was significant, $p < .01$. This means that men with a lower level of self-esteem were much more likely to show anxiety during the flight compared with men of a higher level of self-esteem.

This suggests that, although women are much more likely to show anxiety relating to flying there does not appear to be a relationship between their level of self-esteem and anxiety relating to flying. For men, self-esteem is a predictive variable for anxiety relating to in-flight stimuli.

The differences in gender for relating self-esteem to fear-of-flying contradicts, to some degree, the terror management theory as 1) the TMT does not find much difference between genders in the relationship between esteem and terror/anxiety feelings (Harmon-Jones et al., 1997) and 2) research by Van Gerwen and others (1997) suggests that the primary fear in women for flying is of being involved in an accident while for men, the primary fear is not having control. If being involved in a crash is more associated with mortality compared to not having control, we would expect to find the opposite results: that women would be more vulnerable to heightened anxiety based upon self-esteem level.

Findings from this study combined with the findings from Van Gerwen and others (1997) strongly support the theory of an interactive effect between gender role and self-esteem, as found by previous research studies (Jones & Buckingham, 2005; Waters & Moore, 2002). In this model, although men and women share similar levels of self-esteem on average, there are important differences in how self-esteem is derived. These differences reflect cultural gender role identities, by which men and women have different concepts of what it takes to fulfill their respective 'primary role obligations'

(Waters & Moore). Gender roles for women are traditionally of sensitivity, nurturance, interdependence, and emotionality (Sue & Sue, 2003) and for men, achievement, autonomy, and ability (Waters & Moore). It is fulfilling these gender roles by which self-esteem may be derived and, conversely, a failure to do so may promote lower self-esteem and its related negative affect (Baumeister et al., 2003).

Waters and Moore (2002) found that unemployment had a much more negative effect upon men than women and suggested that for men, unemployment may represent a much greater gender role violation compared with women. It is likely that feeling anxious about flying may also be a greater role violation with men than with women. A male who has a fear-of-flying may feel that such a fear inhibits his ability to have autonomy and an important ability. Women, on the other hand, would not necessarily feel that such a fear would inhibit their gender role, that of being sensitive and interdependent. It is possible that for men with a low level of self-esteem, they may also have a heightened sense that they are failing to fulfill their gender role. There could be an interactive effect; life events may fuel this feeling of failure, which may decrease their self-esteem, or an already lowered level of self-esteem may lead them to take certain actions, by which they may perceive such actions as failing their gender roles. Thus, a negative flying experience may generate a greater feeling of failure in men, promoting a lower sense of self-esteem. Alternatively, other, perhaps unrelated indicators of failing to fulfill their gender role (such as unemployment) may sensitize the male to be fearful or anxious of other potential threats to their self-perceived sense of masculinity, of which a fear-of-flying may be a part.

This gender role theory aptly explains the findings of Van Gerwen and others (1997) that women were more concerned about a crash compared with men who were more concerned with losing control. Dying in a crash appears to be irrelevant to gender role. Losing control, on the other hand, may certainly relate to a loss of function and independence, which more closely relates to the male gender identity.

In terms of why the relationship between self-esteem and anxiety was very significant in in-flight anxiety and not significant for anticipatory flight anxiety or thoughts of flying in general, it may be that the fears of failing the gender roles become the most acute during the actual flying process. This may relate to a protective mechanism or a deliberate attempt to subvert the anxiety, which becomes compromised when the actual flight occurs.

The TMT may interrelate with the gender role identity theory, by which stimulus associated with flying may be subjectively interpreted as fearful by both genders. Greenberg and others (1992) found that participants with a higher level of self-esteem were less likely to be negatively affected by threats to their mortality. The authors proposed that the function of the self-esteem is to have the belief of being a “primary value in a meaningful universe” (Greenberg et al., p. 913). Taken into the context of gender roles, both males and females may experience irrational threats to their mortality during a flight. Males, however, perceive their anxiety as being a violation of their gender role and, thus, of not being of a primary value. This would then compromise their ability to handle the fear.

Thus, although women are more likely to have an irrational fear-of-flying, men who have a lower level of self-esteem may be more anxious about a flight due to a

possible threat to their gender identity and would be more fearful of threatening flying stimulus because their beliefs of being a primary value have been compromised.

The Impact of Age on the Relationship between Self Esteem and Fear of Flying

Finally, the third objective of the study was to assess the nature of age as a predictive variable in the relationship between level of self-esteem and level of fear-of-flying, analogous to the aforementioned gender variable. There was a significant correlation between age and self-esteem, with self-esteem increasing in a directly proportional manner to age. There was not, however, any correlation among age and any of the three fear-of-flying scales. Thus, there was no data to support a rejection of the null hypothesis for hypothesis 3.

A possible reason no significant results were found may be due to the under-representation of ages that may be related to lower self-esteem. Lower self-esteem is commonly associated with two life stages: adolescence and late adulthood. The participant population was limited to 18 years or older and the sample population had only 8 participants that were 60 or over (4.6%). The research may thus be limited to the age groups by which self-esteem is relatively stable. Indeed, the positive, significant correlation between age and self-esteem may be described as a process of young adults gaining self-esteem with age and the accompanying increase in autonomy and relationship quality that is associated with the aging process. Because the age groups commonly associated with low-self-esteem were under-represented in this study, there would not necessarily be a relationship between age/self-esteem connection and incidence of flying phobia. In other words, the correlation between age and self-esteem

may best be described as a moderate level of self-esteem that rises with age; the lower level of self-esteem at early adult hood is not necessarily low enough to be associated with a pathology such as anxiety or a phobia.

Implications

These findings may help in understanding the role of behavioral and cognitive strategies in treating fear-of-flying as well as further highlight the role self-esteem has in perhaps the gamut of psychological maladies.

The fear-of-flying can be treated through behavioral context and through cognitive therapies and is often treated through a combinational approach (Van Gerwen & Diekstra, 2000). Research by Kraaij and others (2003) relates irrational cognitive coping mechanisms to both general anxiety and fear-of-flying and suggests that intervention programs consider this association and attempt to challenge such dysfunctional cognitions. These findings suggest that perhaps global cognitions about general self-worth may be associated with this particular phobia. A therapist who targets negative cognitions associated with fear-of-flying might consider also targeting more global negative cognitions or perhaps include a cognitive restructuring program especially tailored for self-esteem enhancement.

Haney and Durlak (1998) found that programs specifically made to enhance self-esteem: “do at least as well as other types of interventions in changing other domains of functioning such as behaviors, self-reported personality functioning, and academic performance” (p. 419). These findings suggest that such programs might help in the treatment of fear-of-flying. As previous research associated self-esteem with general and

social anxiety (Kocovski & Endler, 2000) and this research associates self-esteem with a fear-of-flying, perhaps treating self-esteem in a person with a composite of such anxieties in a more comprehensive manner would be beneficial. It could be, that in treating a person with a variety of phobias and anxieties, treating global self-esteem issues could alleviate a good portion of the phobias or anxieties and theoretically reduce the time needed to deal with each phobia or anxiety specifically.

The results of this study place an important qualifier in the usage of self-esteem enhancement programs: the practitioner should consider how self-esteem may relate to gender roles. The rather significant difference in the relationship between self-esteem and in-flight anxiety in males vs. females suggest that if the low self-esteem has a causal relationship with the phobia, that it would be men who would benefit more from a self-esteem enhancement program. A practitioner treating fear-of-flying might consider cognitive modification strategies that specifically address gender issues associated with flying anxiety in men. Such issues might include the perception of anxiety as indicative of a failure to live up to the gender role of being achieving, able, and autonomous, or perhaps the placement of such anxiety as a reaction towards the perception of failing to sustain such qualities.

In the most general sense, these findings suggest that particular fears and anxieties may be due to cognitions that relate to gender roles, such that a practitioner who seeks to treat such a condition should consider the patient's assessment of his or her condition in relation to his or her gender role.

Future Research

Future research could focus upon the nature of the relationship between self-esteem and phobias, especially as they relate to gender differences. For example, as the fear-of-flying is associated with low self-esteem in males and if this is due to the nature of the phobia as it relates to a male gender role violation, might a phobia associated with the female gender role violation cause a similar relationship in women? For example, might there be gender differences in the relationship between self-esteem and, perhaps a social phobia or a fear of rejection? The results found may be due to fear-of-flying being a violation of male gender roles. A similar study may be warranted for phobias that violate the female gender role, neither gender role, or both gender roles.

Research experiments have often focused on artificially manipulating self-esteem, either on a temporary basis – as in the research by Harmon-Jones et al. (1997) -- or for long-term therapeutic outcomes – as in the research by Haney & Durlak (1998). The next step in the current research may be to expose those with a fear-of-flying to self-esteem enhancement programs to determine if merely treating global self-esteem is enough to treat, or at least ameliorate, anxiety associated with flying. Of particular interest would be a self-esteem enhancement program that specifically relates to gender roles.

Research relating specifically to exploring the interplay of gender roles in the maintenance of self-esteem is encouraged. Self-esteem enhancement programs tailored to a particular gender-identity should be explored. Finally, it may be important to replicate the study with a more representative age group, including teenagers and the elderly.

Limitations

A major limitation in these findings is that the participants were all found online and were paid for their participation. This may skew the response to that of a particular population, those who have computer access and those who are willing to take surveys for financial remuneration. To assess differences in the demographics of the sample population and the general U.S. population, the age, education level, geographic location, and income level of both populations are presented in tables 2, 3, 4, and 5, respectively.

Although the location breakdown of the sample population appeared to match the general U.S. population, the former group differed in gender, age, income and SES levels. In this study, there were more men than women and the population was more educated and younger than the general U.S. population. This became a specific problem in drawing conclusions based upon the variable of age. Due to the under-representation of older participants and those younger than 18, any conclusions about age and its potential relationship with self-esteem or fear-of-flying must be qualified. This is especially true because the specific age brackets of under 18 and over 60 appear to exhibit unique features of self-esteem (Robins & Trzesniewski, 2005).

It should be noted that there was a rather disperse distribution of age, education level, and geographic location. Additionally, the demographic data derived from an online assessment should be compared with what would be found at a brick-and-mortar institution such as a college or university, in which the age, SES level and geographic distribution would be considerably variant from the typical U.S. population. Although survey participants recruited from the Web are likely to be older and more educated than college students, they are also likely to have a greater variance in both education and age (Birnbaum, 2004).

In terms of the self-reporting methodology, it is likely social desirability may produce an error variance that limits the validity of the results, though research suggests that taking the surveys online may reduce the likelihood of influence by social desirability as there is a greater sense of privacy and anonymity in online activities (Ahern, 2005). Still, this type of bias may be unavoidable, as it would be difficult for others to rate a participant's own internal thoughts on either self-esteem or a particular phobia response.

Although it is possible that the events on 9/11 may have an effect on the type and degree of fear-of-flying, various studies in different countries have found that the rates of flight anxiety have returned to pre-9/11 levels after an initial spike. Research by Ekeberg and others (2007) found that although 37% of the population had flight anxiety immediately after 9/11, the rates of flight anxiety in 1986 closely match what was found in 2003.

Finally, the research is limited to a correlation; causation or an implied direction of the variable interaction cannot be derived from this study. Although there is a statistically significant, inverse relationship between level of self-esteem and fear-of-flying, it is beyond the scope of this study to determine if self-esteem somehow causes or contributes to the fear or if the fear causes or contributes to the lowered self-esteem. To further assess this relationship would require an experimental design, and given the nature of these variables, would not be ethically possible.

Summary

This study was designed in order to assess the relationship between level of self-esteem and level of fear-of-flying as well as how age and gender may play a role in this interaction. The results strongly suggest that gender may play an important role in this relationship. Although there was a rather strong, inverse relationship between level of global self-esteem and level of in-flight anxiety in men, there was no such significant relationship in women.

This has some potentially significant implications for both future research and future therapeutic interventions, both in the area of self-esteem and in phobias. It is well known that women and men differ in their likelihood of having a fear-of-flying (APA, 2000) and that there are gender differences in the particular aspects of flying that are seen as aversive (Van Gerwen et al., 1997). It is also relatively common knowledge that there is a strong relationship between global self-esteem and general anxieties. This research suggests that the extent of low self-esteem, even the most global type as measured by the RSES, is correlated with a unique, particular phobia. This may enhance the importance of self-esteem: if self-esteem is able to predict one particular phobia, might it also predict a wider variety of psychological conditions than previously expected?

In the unexpected disparity of self-esteem/phobia relationship between the sexes as well as the theories relating self-esteem to identity fulfillment (Waters & Moore, 2002), the interplay of gender identity, self-esteem, and in-flight anxiety was revealed. The model that appears to best fit the resulting data from the study is that of in-flight anxiety serving as a threat to the traditional masculine gender role. In this model, the gender role threat may serve as an impetus to lower self-esteem or may be the result of an original condition of low self-esteem, or perhaps most likely a combination of the two.

Whichever the direction of the interplay between self-esteem and in-flight anxiety with males, further research exploring gender roles and self-esteem is warranted, as is replicating this study with perhaps different phobias and focused upon specific measures designed to assess gender role identity. Therapeutic programs to boost general self-esteem that perhaps relate to gender role identity may reveal directional tendencies between self-esteem and in-flight anxiety. In addition, they may further highlight the role of cognitions associated with the fear-of-flying, from the most general global self-esteem issues to particular thoughts of gender role violations associated with this phobia.

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APPENDIX A. INFORMED CONSENT LETTER

Adapted from *Research with Human Participants* (2006)

Invitation to Participation in Research

Capella University

225 South 6th St., 9th Floor

Minneapolis, MN 55402

Title of Project: THE RELATIONSHIP BETWEEN GLOBAL SELF-ESTEEM AND
FEAR-OF-FLYING IN ADULTS

Research Study Details

This study is being conducted by John J. Murphy as part of his doctoral dissertation project under the supervision of Elizabeth Harper, Ph.D. of Capella University. We are conducting a research study about the effects of global self-esteem on the presence and level fear-of-flying, a situational phobia.

In response to these observations, we are inviting your participation in the study. To participate in this study, you should be 18-years-old or older, live in the United States, and be fluent in the English language. In providing participants for the study, Greenfield Online matched your membership information with the research participant requirement and concluded a match was likely. They then sent you an e-mail inviting your participation. If you feel you received an e-mail with an invitation to participate in error, please either the researcher or the Greenfield Online representative (see contact information below).

If you decide to participate, you will be asked to complete a brief demographic questionnaire, a survey of self-esteem level, and a survey of fear-of-flying. The

demographic questionnaire will ask general questions about your age, sex, and state residence. The self-esteem questionnaire will ask you to rate your agreement with various questions designed to measure self-esteem. The fear-of-flying questionnaire will ask you to rate your level of fear of anxiety upon exposure to various situations relating to flying.

Research Participant Rights

The questionnaires are designed to be completed through the Web. Your participation in the study should take no longer than twenty-five minutes. There are no known or anticipated risks from participating in this study. Participation in this study is voluntary. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled, and you may discontinue participation at any time without penalty or loss of benefits to which you are otherwise entitled. Additionally, you may decline to answer any questions that you do not wish to answer and you can withdraw your participation at any time. Withdrawing from participation will not disqualify you from entry into the reward sweepstakes. The current reward sweepstakes is a \$4,000 biweekly cash price.

Any significant new findings developed during the course of the research that may relate to your willingness to continue participation will be provided to you. There will be approximately 200 other participants in this research study.

It is important for you to know that any information that you provide will be confidential. All of the data will be summarized and no individual could be identified from these summarized results. Furthermore, the web site is programmed to collect responses on the questionnaires alone. That is, the site will not collect any information that could potentially identify you. To ensure your privacy and anonymity, Greenfield

Online adheres to the Safe Harbor framework as set forth by the U.S. Department of Commerce and is in compliance with the “TRUSTe” privacy principles, as set forth by an objective organization to promote online privacy. To ensure anonymity, personal information, beyond that of age, sex, and state of residence for each participant will not be submitted to the survey data collection company.

Participation and Contact Information

If you wish to participate, please click on the link below marked “I agree to participate in this study.” From the main page follow the instructions provided.

The data collected from this study will be accessed only by the two researchers named above and will be maintained on a password-protected computer database in a restricted access computer. As well, the data will be electronically archived after completion of the study and maintained for seven years after the research study has been completed and any submissions to journals have been completed.

I would like to assure you that this study has been reviewed and received ethics clearance through the Capella University Institutional Review Board. However, the final decision about participation is yours. If you have any questions about the research, please contact the researcher or the research supervisor (see the contact information below). If you have any questions about research participants’ rights or whom to contact in the event of a research-related injury to the participant, please contact the institutional review board representative (see the contact information below).

If you would like to receive a copy of the results of this study, please contact the researcher (see the contact information below).

Thank you for considering participating in this study.

Clicking below indicates that I have read and understood the description of the study and I agree to participate.

[I consent to participation in this study]

To receive a copy of this form, simply print this form from your printer in full.

Researcher:

Name, Degree:

John J. Murphy, M.S.

Mail Address:

E-mail address:

Telephone number:

Research Supervisor:

Dr. Elizabeth A. Harper

Mail Address:

E-mail address:

Telephone number:

Institutional Review Board Representative:

Name, Degree:

William H. Percy, PhD, LP, LMFT

Mail Address:

E-mail address:

Telephone number:

Greenfield Online Representative:

Name:

Correspondance:

APPENDIX B. DEMOGRAPHIC SURVEY

Adapted from *Research with Human Participants* (2006)

Demographic Survey:

Please type in your current age:

Please enter in your sex Male Female

Please select your current state of residence (scroll down to select state)

Please click here to begin questionnaires

APPENDIX C. END STATEMENT

Adapted from *Research with Human Participants* (2006)

Thank you

For participating in our questionnaire! Your feedback is extremely valuable.

If you have any general comments or questions related to this study, please contact:

Researcher:

Name, Degree:

John J. Murphy, M.S.

Mail Address:

E-mail address:

Telephone number:

Research Supervisor:

Mail Address:

E-mail address:

Telephone number:

We would like to assure you that this study has been reviewed by, and received ethics clearance through, the Capella University Institute Review Board. If you have any concerns regarding your participation in this study, please contact

Institutional Review Board Representative:

Name, Degree:

Mail Address:

E-mail address:

Telephone number: