The Dissertation Committee for Jesse Ray Cougle Certifies that

this is the approved version of the following dissertation:

An Examination of Courageous Behavior in a Laboratory Setting

Committee:

_____
Michael J. Telch, Supervisor

_____
Charles J. Holahan

_____
Christopher G. Beevers

_____
William B. Swann

_____
Stephanie S. Rude

An Examination of Courageous Behavior in a Laboratory Setting

by

Jesse Ray Cougle, BA; MSc; MA

Dissertation

Presented to the Faculty of Graduate School of

The University of Texas at Austin

In Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

The University of Texas at Austin

August 2008

An Examination of Courageous Behavior in a Laboratory Setting

Jesse Ray Cougle, Ph.D.

The University of Texas at Austin, 2008

Supervisor: Michael J. Telch

Abstract: Psychological research has given much consideration to fear; yet courage has received comparably little research attention. Thus far, the study of courage has been confined mostly to the examination of person variables that distinguish courageous individuals from non-courageous ones. In Study One, I tested several theoretically-derived interventions intended to increase courageous behavior. An undergraduate, non-clinical sample was studied. No effects of interventions were observed on performance on a novel semi-behavioral courage test. In Study Two, I examined several potential predictors of courageous behavior using the same semi-behavioral courage test. In addition, the effects of group and individual contexts were examined by having participants complete the courage test alone or in the presence of male and female confederates who were acting like participants. Students from introductory psychology classes were invited to participate. The findings indicated no effect of context for either male or female participants. In addition, there were no

differences between genders. Performance on the courage test items involving physical risk was correlated with greater tendencies toward risk-taking and sensation-seeking and greater tolerance for physical distress. Fearlessness, defined as the absence of significant fear on any of the test items, was also generally correlated with these psychological constructs. The social courage items appeared to be problematic. Implications for the development of courage-facilitating intervention are discussed, along with a possible reconceptualization of courage and directions for future research.

Table of Contents

Chapter 1: Introduction

"Sir, you know courage is reckoned the greatest of all virtues; because, unless a man has that virtue, he has no security for preserving any other."

– Samuel Johnson (1775)

I first began seriously thinking about courage when I attempted to recruit compulsive washers for a treatment study involving exposure and response prevention (ERP). ERP is a treatment in which washers are asked to touch dirty things, such as toilet seats, dirt, dead insects, animal hair, or dirty laundry, for extended periods of time without washing. We were having difficulties recruiting subjects from the undergraduate population, even though research assistants had placed advertisements all across campus, and many introductory psychology students who had symptoms of compulsive washing had been invited to participate. Dozens of psychiatrists and dermatologists in the community had also been mailed flyers for our free treatment study. Still, there were no calls. A year and a half had passed, and all our efforts had yielded only one participant who had completed the study.

Finally, we contacted a reporter from the *Austin American-Statesman* and persuaded her to do a story on our project. It made the front page of the Metro section in the Sunday edition. Surely, dozens of compulsive washers had seen the story. Hundreds of people who knew compulsive washers had read it, as well. Yet, after the generous write-up, we received two calls from individuals reporting contamination fear, neither of whom participated in the study, for reasons long forgotten.

Fortunately, we loosened up criteria for the study to include sub-clinical washers and were then able to complete data collection within a year. Still, I was left stumped by the low rate of recruitment for a treatment that was effective, much needed, and *free!* Surely, I thought, many compulsive washers had read the story, with its detailed descriptions of the study, and simply did not wish to undergo treatment involving confrontation with some of their worst fears. It may have been due, in part, to suspicion regarding the effectiveness of the treatment. But I could not escape the conclusion that the lack of a response was mostly due to a lack of courage.

Fast forward to Spring, 2005, three years after the washing study began, where I was confronted again with a scenario involving lack of courage and compulsive washing. This time it appeared in the treatment of an adolescent patient with severe contamination fear. She had refused to touch the faucet handles in a public bathroom, and I had spent much of the session attempting to persuade her to carry out the dreaded exercise. Finally, I tried a couple of mindfulness exercises on the spot. She eventually touched the sink. Whether or not this happy outcome was caused by my clinical expertise is unknown, yet through this experience, I realized that there were no empirically tested strategies to help compulsive washers touch dirty stimuli. I also suspected that the identification of effective strategies would be helpful to many individuals, with and without compulsive washing symptoms.

1.1 Background

In his philosophical and historical study, *The Mystery of Courage*, Miller (2000) argues that courage is

> "the most frequent theme of all world literature. Only love gives it a run, and the course of true love never quite succeeds in separating itself from courage" (Miller, p. 8).

Courage has long been one of the most appreciated of virtues. Public opinion polls show that firefighters are among the most admired workers ("Firemen, Doctors, Scientists", 2005), and the favor shown them is likely due to the courage required by their job.

Philosophers have theorized about courage for centuries. Aristotle (350 B.C./1976) wrote that courage is the mean between confidence and fear and is best exemplified by the soldier fighting in battle. Cicero, on the other hand, argued that "the courageous deeds of civilians are not inferior to those of soldiers" (Montaigne, p. 1158, 1572/1993), and offered himself as proof. Plato (360 B.C./1961) took a similar position to Cicero when he made the case for philosophers being the most courageous of people. In *Laches* (380 B.C./1961), Socrates questions and refutes several proposed definitions of courage, yet never settles on one of his own. More recently, Aquinas (1266-1273/1947) argued that courage was best characterized by a combination of patience and endurance. True courage, he wrote, was the acceptance of suffering.

1.2 What is courage?

According to Miller (2000), there exists a "politics of courage" that influences philosophers and writers to define courage in such narrow terms so as to exclude those deemed lowly or of "base character". The self-serving definitions of courage by some philosophers have already been noted. Actions considered courageous by most are dismissed as "rash" by some writers because of the lack of deliberation by the acting

soldier. Others have argued that acts motivated by fear of shame cannot be called courageous. In addition, writings on courage often confine the virtue to physical deeds, as on the battlefield, but what of the many individuals who have never wielded sword or gun, yet faced harm by speaking out against injustice? What of those facing social ostracism by openly criticizing derogatory remarks of their peers?

The elusiveness of an agreed upon definition is a major contributor to what Miller calls the "mystery of courage." Some psychologists have made attempts at defining the virtue. For example, Shelp (1984) wrote that courage is "the disposition to voluntarily act, perhaps fearfully, in a dangerous circumstance, where the relevant risks are reasonably appraised, in an effort to obtain or preserve some perceived good for oneself or others recognizing that the desired perceived good may not be realized" (p. 354). His definition of courage involves voluntary action toward a potential goal in a dangerous situation "reasonably appraised" as such. The presence of fear may or may not be required.

Rachman (1984) discusses courage in the context of Lang's (1970) tripartite model of fear (behavioral, subjective, and physiological). Courage, he argues, is discordance in the three systems such that non-fearful behavior co-occurs with a physiological and subjective fear response. It is "perseverance in the presence of threat, despite one's fear" (Rachman, 1990, p. 314). In contrast with Shelp (1984), Rachman makes no judgments of whether or not a fearful situation is objectively dangerous and states that individuals with anxiety disorders may act courageously when confronting situations posing no real threat. There are three components to Rachman's definition: a)

the behavior; b) perceived risk associated with carrying out the behavior; and c) the presence of fear.

Putman (2004) distinguishes between three different types of courage. “Physical courage” involves acts which carry the risk of death or physical harm. The second type, “moral courage,” relates to acts involving a moral obligation and the potential for social disapproval. He argues that physical courage and moral courage may overlap and offers the examples of Gandhi and Martin Luther King, Jr., who risked their lives out of moral duty. Putman also introduces the concept of “psychological courage,” which involves acts in which the loss of psychological stability is risked. Psychological courage may include overt behaviors such as approach to a fearful situation, but it also incorporates covert, “mental acts” in which acceptance plays a role. Managing cognitive dissonance realistically, facing unpleasant aspects of reality, giving up control, and accepting negative feelings from others would all be examples of Putman’s psychological courage. Putman differentiates the three forms of courage according to the potential harm associated with each, but with moral courage he also includes the matter of ethical obligation. I propose that important distinctions can be made between different types of courage, but, in contrast with Putman, I would distinguish these forms of courage chiefly by the threats associated with them. These threats may be Physical, Social, and Psychological. Whether these three types of courage represent distinct traits is a topic for future research.

Much disagreement regarding courage’s definition appears to be over the matter of motivation and type of courageous act. I propose that motivations vary widely and

may influence whether a courageous act occurs, but they do not determine the courageousness of an act. Ethical obligation is not a required motivator of courage: it takes courage to ask someone out on a date, though one may not feel morally obligated to do so. In addition, the form an act takes should not affect judgments regarding its courageousness.

Rachman's definition of courage appears to be the clearest and most conceptually distinct of the definitions reviewed. It allows for acts involving physical, social, and psychological risk. He makes the important distinction between fearless and courageous behavior. In addition, his definition allows for a variety of potentially courageous acts, such as a spider phobic confronting a spider. The present study will be examining courageous behavior using this definition.

1.3 The benefits of a psychology of courage

The development of the psychology of courage offers several potential benefits. It could lead to interventions designed to facilitate acceptance of risky, frequently refused, yet medically necessary, treatments for seriously ill patients. It would also be useful in military, police, and firefighter training, where courage on the field is often required. In addition, research on courage would be helpful with relationship difficulties in which avoidance of conflict plays a major role.

In the field of clinical psychology, the relevance of courage is probably most apparent in the treatment of anxiety disorders. The most effective psychological treatments of anxiety disorders include exercises in which the patient is asked to confront a feared situation. Clinical trials examining cognitive-behavioral therapy, which has

exposure as a key component, have found response rates of 91% for panic disorder patients (Margraf & Schneider, 1991), 86% for OCD patients (Foa et al., 2005), and 84% for social phobia patients (Stangier, Heidenreich, Peitz, Lauterbach, & Clark, 2003). In standard CBT, the obsessive-compulsive washer may be asked to touch a toilet seat, the agoraphobic may walk through a crowded grocery store, and the social phobic might give an impromptu speech in front of an audience. Each of these actions could be accurately called "courageous" in the sense that they incorporate behavior involving perceived risk in the presence of fear.

Only 14% of patients diagnosed with anxiety disorders seek professional help (Motijabai, Olfson, & Mechanic, 2002), and although CBT represents the most effective psychological treatment for anxiety disorders, many patients avoid this form of treatment. For example, Franklin and Foa (2002) found that 25% of OCD patients refused a free offer of ERP treatment. Among many anxious patients, such refusal is likely due to an absence of courage. A psychology of courage should be useful in increasing treatment acceptance among this population.

An additional benefit of a psychology of courage relates to treatment adherence. Research has found that treatment compliance is an important predictor of outcome in CBT for panic disorder (Schmidt & Woolaway-Bickel, 2000) and obsessive-compulsive disorder (De Araujo, Ito, & Marks, 1996). Homework often used in CBT for anxiety disorders includes self-exposure to fearful situations, and lack of courage may be one of the factors contributing to poor homework compliance. Thus, greater understanding of

courageous behavior may be helpful in improving treatment adherence and outcome in many individuals receiving exposure-based therapy.

1.4 Psychological research on courage

1.4.1 Military Research

In the study of courage, Rachman (1990) has carried out some of the most foundational research, thus far. Through research of military officers, Rachman and his colleagues have specifically addressed the matter of characteristics which distinguish courageous from non-courageous individuals. Hallam and Rachman (1980), for example, studied a group of military bomb-disposal operators and found members receiving the highest awards for acts of valor to have better mental health than a random sample of officers. The decorated soldiers studied also reported lower health anxiety.

Cox, Hallam, O'Connor, and Rachman (1983) also studied bomb-disposal operators, comparing the performance of decorated and non-decorated officers in a difficult, stress-inducing task involving auditory discrimination and aversive shocks. Groups did not differ in task performance or in reported subjective distress. However, decorated officers were found to have lower heart-rate reactivity while performing the task than non-decorated officers. O'Connor, Hallam and Rachman (1985) later replicated this study using the additional comparison group of less experienced soldiers. Again, no differences in performance or subjective distress were found, but decorated bomb-disposal operators showed less cardiac reactivity under stress than non-decorated operators, who in turn showed lower cardiac reactivity than less experienced soldiers.

An additional investigation by McMillan and Rachman (1987) sought to test response to stress using Falklands paratrooper veterans, rather than bomb-disposal operators. Using the same paradigm as the previous two studies, they failed to find the expected differences in cardiac reactivity between decorated and non-decorated paratroopers. However, they argue that the results could be attributed to a floor effect and note that when decorated and non-decorated Falklands veterans were collapsed into one group, they showed less reactivity during stress than the non-decorated bomb-disposal operators from the previous study.

Gal (1995) carried out a well-designed investigation examining personality and aptitude of decorated Israeli soldiers carefully matched with non-decorated soldiers based on unit served during the war, combat position, and rank. These groups did not differ on tests of intelligence or in sociability, emotional stability, or social intelligence. However, decorated officers scored higher than non-decorated officers on measures of leadership, devotion to duty, decisiveness, and perseverance under stress. Gal also remarked that decorated officers appeared to come from units known for greater cohesiveness.

An obvious limitation of the above mentioned military research is that, even though they received medals for acts of courage, it is not known whether decorated officers were courageous or simply *fearless*. Indeed, research demonstrating lower cardiac reactivity among decorated officers suggests that these individuals may be less likely to experience fear in stressful circumstances than non-decorated officers. The presence of fear is not required to make an act noble or award-worthy; however, our

working definition of courage posits that an act must be carried out in the presence of fear for it to be deemed courageous.

1.4.2 Research using self-report measures of courage

Two self-report measures of courage have been developed recently. Schmidt and Koselka (2000) created a 7-item Courage Scale based on Rachman's conceptualization of the construct. After they gave a definition of courage and distinguished between courage and fearlessness, two items were presented assessing general courageousness ("In general, are you a courageous person?", "Do other people consider you to be courageous?"), one item assessed fearlessness ("In general, are you a fearless person?"), and four items assessed panic-related courage. They reported data from a sample of non-clinical controls that had significantly higher general courage scores than panic disorder patients. In addition, among individuals who were expected to experience high arousal in response to a CO_2 inhalation task, greater inhalation of CO_2 was modestly correlated with higher scores on both courage subscales. Using a sample suffering from panic disorder, they found no differences between men and women in general or panic-related courage. Greater general and panic-related courage were associated with better panic attack coping, as assessed by the coping subscale of the Panic Appraisal Inventory (Telch et al., 1989), but neither courage subscale was predictive of phobic avoidance. Many of these findings are complicated by the fact that the authors merged the fearlessness item together with the two courage items in their three item assessment of general courage. Thus, the general courage subscale would be more accurately called a measure of "courage/fearlessness."

Woodward (2004) created a courage scale based on items reflecting events believed to be courageous by a group of ten expert psychologists. Examples of the items include "I would risk my life if it meant world peace", "I would take a series of painful inoculations if I knew they would maintain my health", and "I would return into a burning building to save a family pet I loved dearly." Participants rate how much they agree with each statement and the degree of fear they associated with each situation. Courage is calculated by multiplying agreement, or "willingness to act," with fear scores. The questionnaire loaded on four different factors reflecting Endurance for Positive Outcome, Dealings with Groups, Acting Alone, and Physical Pain/Breaking Social Norms. Willingness to act scores, but not courage scores, were positively correlated with the two-item general courage scale developed by Schmidt and Koselka (2000). Schmidt and Koselka's courage scale was also positively correlated with a measure of hardiness, though Woodward's scale was not. In addition, willingness to act scores were positively correlated with the challenge subscale of the hardiness measure, which assesses the tendency to view stressful events as challenges. Woodward originally hypothesized that his courage scale would predict variance in physical health beyond that which was predicted by hardiness, though the data did not support this hypothesis.

Courage, by nature, may be difficult to measure using self-report instruments. Opportunities to act with courage may be very infrequent, and individual instances may color an individual's view of how courageous they are. Schmidt and Koselka's (2000) two-item courage scale is limited by its simplicity and scarcity of items, and little work has been done examining its association with hypothesized correlates of courage. The

absence of a significant association between their three-item courage/fearlessness scale and agoraphobic avoidance is discouraging. In addition, the validity of Woodward's (2004) courage scale has not been seriously tested. Some might take issue with whether many of the items from Woodward's scale are actually assessing courage. For example, "I would go to the dentist and have painful surgery if it meant saving a tooth" may simply be a measure of pain tolerance. Similarly, "I would endure physical pain for my religious beliefs" may be a proxy for religiosity, rather than courage. In addition, the absence of a correlation between Woodward's courage scale scores (willingness to act X fear) with Schmidt and Koselka's courage scale is troubling. Clearly, further work is needed to determine the validity of these measures. Preferably, research would be carried out that tests their associations with behavioral measures of courage.

1.4.3 Other courage research

Walk (1956) examined individuals undergoing parachute training and found that courageous performance, or successful jump in the presence of fear, led to a decrease in fear in subsequent jumps. In addition, the key distinction between individuals who passed and those who failed the course was that successful trainees reported greater self-confidence. A similar relationship between higher self-confidence and successful parachute performance was found in a study by McMillan and Rachman (1988). This investigation also found higher self-confidence to be associated with lower fear prior to the jump.

Szagun and Schäuble (1997), using an interview method, researched views of courage among children and adults and found that children were more likely to

understand courage as feeling strong *without* the experience of fear. Children basically saw congruence between the courageous act and the internal state—a description of fearlessness rather than courage. Adults, in contrast, viewed courage as a multi-dimensional experience in which the experience of fear and the necessity of overcoming fear are an integral part. Many adults also believed that courageous behavior could be facilitated through focusing on one's abilities and through the acceptance of fear and fearful thoughts.

Rothschild and Miethe (1999) examined characteristics that could potentially distinguish whistle-blowers from "silent observers," or employees who observed wrongdoing but did not report it. Given that whistle-blowers generally speak up with great risk to themselves, it is reasonable to assume that they acted courageously, and silent observers did not. These populations, thus, might be especially helpful in determining variables distinguishing courageous individuals from non-courageous ones. Whistle-blowers were found to be older, on average, than silent observers. However, on a range of different demographic and attitudinal variables, no other differences were found between these groups.

Shepela et al. (1999) discussed at length different studies of individuals who, they said, demonstrated "courageous resistance." They defined this form of courage as "voluntary selfless behavior in which there is significantly high risk or cost to the actor and possibly to the actor's family and associates, the actor makes a conscious decision to act, and the behavior is sustained over time" (p.787). They present examples of courageous resistance, such as whistle-blowers, individuals who rescued Jews during the

Holocaust, and people whose protests could have resulted in physical harm or imprisonment. They found the most important feature that distinguished people who rescued Jews from those who did not was the rescuers' sense of inclusiveness, or the tendency to view others as having shared qualities with themselves (Oliner & Oliner, 1988). In many of the other examples cited by Shepela and colleagues, courageous individuals appeared to have greater sense of identity with and attachment to others, and a heightened sense of empathy.

1.4.4 Research on conformity and obedience

Insights derived by Asch (1956) and Milgram (1963) in their research on conformity and obedience give clues to potential correlates of courageous behavior. Non-conformity and disobedience sometimes involve social courage, where the risk to the courageous actor is social disapproval. In Asch's study, those who choose to answer correctly, rather than conform to the confederates' incorrect answer, opened themselves to potential humiliation by dissenting from the majority. Similarly, many of Milgram's non-compliant participants chose to disobey the experimenter even though they feared confrontation with the experimenter. It seems reasonable, then, that the extrapolation of research findings from these separate areas might prove fruitful towards the development of a psychology of courage.

In his original study, Asch (1956) claimed that lack of self-confidence was a major factor influencing participants to answer incorrectly (or conform). Interestingly, this was one of the variables mentioned by McMillan and Rachman (1988) that distinguished successful from unsuccessful (non-courageous) parachuters. Evidence has

accumulated showing that conformers have a greater need for social approval, desire to maintain a positive self-concept, and seek to maintain social affiliations (Cialdini & Goldstein, 2004). In addition, interventions designed to increase perceived ability of the individual, increase the individual's commitment to his/her position, and lessen the likelihood of negative consequences, have been found to increase nonconformity (Allen, 1965).

Milgram conducted several variations of his obedience experiment to examine different variables that predict obedience (for a review, see Milgram, 1974). When the legitimacy of the authority figure was decreased (e.g., a white lab coat was swapped with a blue coat), participants were more likely to disobey. Obedience also declined when the victim receiving the shock was in closer proximity. Participants were more likely to obey if they had someone else press the shock button than if they pressed it themselves (i.e., if responsibility was diffused). Lastly, participants were less likely to obey if the experimenter was in another room.

1.5 Potential correlates of courageous behavior

1.5.1 Situational demands

Rachman and other writers have argued that situational demands strongly influence whether courageous behavior occurs. These demands may take any of the following forms:

a) **Group pressures exist for acting courageously.** Courage behavior is more likely if group pressures exist for acting courageously or courageous behavior is a cultural norm for the individual. Non-

courageous behavior is less likely if the individual is threatened with shame or the possibility of a court martial. Courageous behavior is more likely if the individual is a member of a cohesive group that encourages courageous behavior.

b) **Courageous act is carried out in a group context.** This factor influencing courageous behavior has been discussed by writers in the context of battle, where group influences have a profound effect on the individual. Charging with others into battle is much easier than charging alone.

c) **Courageous behavior is modeled by others**. Acting courageously is made easier once another individual is seen modeling the behavior (Nemeth & Chiles, 1988).

d) **The consequences of not acting courageously are severe.** Often, situations arise where the failure to act courageously is met with harm to the individual or to others. For example, if a child is drowning in rapid, dangerous waters, the parent is likely to jump in after him/her, even though this poses a great threat to the parent's life. The consequences of not acting courageously are sometimes so severe that the most cowardly individual is moved to act with incredible valor.

e) **The courageous act carries with it a high probability of success.** Individuals are more likely to act courageously if their actions are very likely to lead to a favorable outcome than if the probability of success is

low. For example, an individual is more likely to run into a burning building if those requiring rescue are on the first floor (and are easier to locate and rescue) than if they are on the ninth floor.

f) **The courageous act carries with it a low probability of negative consequences.** Individuals are more likely to act courageously if the act is unlikely to lead to a negative consequence. It is easier to rescue a drowning individual from a pool than from dangerous rapids, since the latter scenario holds a greater probability of harm.

g) **The potential cost of acting courageously is low.** Individuals are more likely to act courageously if the risk is minimal. For instance, one is more likely to defend another person if the assailant is small and poses no great threat than if he/she is large, muscular, and wields a gun.

1.5.2 High self-confidence and self-efficacy

Rachman (1990) has frequently noted that individuals higher in self-confidence and self-efficacy are more likely to act courageously than those low in these variables. Individuals who place great confidence in themselves and their abilities are more likely to perform successfully in parachute training (Walk, 1956). Stouffer and colleagues (1949) also found self-confidence to be an important characteristic distinguishing air crews who were highly decorated from soldiers on the ground. In addition, McMillan and Rachman (1988) found a significant relationship between self-efficacy and fearless (though not courageous) behavior in his study of parachute trainees. He also argued that courageous behavior may be increased if individuals are trained in the appropriate skills required by

the courageous act (Rachman, 1983). Training increases perceived self-efficacy for a task, and it is through this pathway that successful completion of the task (the courageous behavior) is made more likely.

1.5.3 Prior exposure to fearful situation

The more frequently one encounters a fearful situation, the easier it becomes for an individual to perform in the situation. Philosophers have long noted that courageous behavior becomes easier with repeated exposure. Aristotle (350 B.C./1976) wrote, "It is by habituating ourselves to make light of alarming situations and to face them that we become brave, and it is when we have become brave that we shall be most able to face an alarming situation." (2.2.1104b1) It is possible that repeated exposure to situations requiring courageous behavior leads to a decline in fear rather than an increase in courage. The mechanisms by which "practicing courage" can be beneficial have yet to be investigated.

1.5.4 Lower "fear of fear"

Anxiety sensitivity, or "fear of fear," should be an important correlate of courageous behavior. It has been found to predict phobic avoidance among panic disorder patients (Saviotti et al., 1991; Schmidt & Koselka, 2000; Telch et al, 1989). Furthermore, given that fear is an integral part of courageous behavior, it is likely that individuals high in anxiety sensitivity would have an additional reason to avoid acts of courage beyond the risk associated with a situation.

1.5.5 Greater acceptance

Acceptance of thoughts, feelings, and situations is a key feature of mental health for mindfulness theorists. Hayes and colleagues' (1999) Acceptance and Commitment Therapy (ACT), for example, emphasizes acceptance of internal and external worlds and commitment towards positive action in the therapeutic process. Interestingly, this therapeutic modality closely parallels the processes involved in courageous behavior, where one is forced to *accept* the fear they experience and the risky situation they find themselves in, while *committing* themselves to act in a manner that would bring about a positive outcome. Though this connection has not been tested directly, it seems plausible that individuals higher in acceptance would also be more likely to act courageously.

1.5.6 Optimistic explanatory style

Seligman has argued that optimism is necessary for courageous behavior (Rachman, 1990). Given that that a pessimistic explanatory style is linked to depression (Seligman & Nolen-Hoeksema, 1987), he also concludes that one of the consequences of depression may be an undermining of the ability to perform courageous behaviors. It remains to be tested, however, whether optimism or depression influence an individual's capacity to perform courageous acts.

1.5.7 Impulsivity

Courage theorists have long argued that prolonged deliberation and contemplation decreases the probability that a courageous act will occur (Miller, 2000). Individuals responsible for acts of heroism often state that they "didn't think about it" before acting. This phenomenon opens the possibility that traits associated with less deliberation, such

as impulsivity, may make an individual more prone to courageous behavior. In addition, it seems plausible that strategies leading to an interruption in the deliberative process, such as distraction, would increase the probability that courageous behavior would occur.

1.5.8 Testosterone

A study of firefighters found that occupational performance was positively correlated with testosterone levels (Fannin & Dabbs, 2003). Furthermore, these firefighters showed an increase in testosterone levels on the way to a fire and a decrease afterward. Subjects high in testosterone exhibit more impulsive behavior patterns (Bjork, Moeller, Dougherty, & Swann, 2001) and are more likely to act aggressively in competitive situations (Berman, Gladue, & Taylor, 1993) than low testosterone subjects. These findings build a strong case for a link between testosterone and courage, though the association may be strongest in contexts involving competitiveness or courtship (Wingfield, Hegner, Dufty, & Ball, 1990).

1.5.9 Other correlates

In one of the only published reviews of research related to courage, Peterson and Seligman (2004) cite evidence, mostly indirect, for a number of different correlates. Among those listed were pro-social orientation, internal locus of control, self-efficacy, self-confidence, independence, ability to delay gratification, ability to experience multiple emotion states at once, age, risk taking, action orientation, context knowledge, low stress reactivity, and perceived commonality with others. They also mention tolerance for uncertainty, accuracy in risk assessment, and involvement in worthy goals as potential predictors of courageous behavior.

Chapter 2: Study One

Over the past few decades, several theoretical perspectives have been developed to account for psychopathology and behavior. Each perspective carries with it interventions that may have utility in leading to courageous behavior. Two of the major perspectives will be reviewed below, with special attention given to courage-facilitating interventions that may be derived from these perspectives.

Beck (1976) is the theorist often credited for the development of cognitive therapy as it is seen today. According to the cognitive approach, thoughts and beliefs maintain emotional problems and influence behavioral responses to different situations. Treatment components include problem-solving, behavior change strategies, and identification and challenge of negative thoughts and beliefs. Beck's first application of cognitive therapy was to depression (1967), where it has been found to be very effective (Kovacs, Rush, Beck, & Hollon, 1977). It has since been shown effective in the treatment of anxiety disorders (e.g., Barlow, Gorman, Shear, & Woods, 2000), eating disorders (Fairburn et al., 1991), and substance abuse (Carroll et al., 1994), among other problems. According to cognitive theory, fearful behavior is influenced by negative beliefs about a situation. More specifically, individuals overestimate the likelihood and cost of harm (Beck & Emery, 1985), which leads to the experience of anxiety, avoidance, and maladaptive coping behaviors. A cognitive intervention facilitating courageous behavior could identify negative thoughts and dispute their validity through examining evidence for and against the thoughts. Courageous behavior, then, could be made more likely through a decline in the perceived probability and cost of harm.

Social-cognitive theory (Bandura, 1977) is an additional perspective that has been influential in mainstream views of behavior and psychopathology. Guided mastery is a therapeutic approach which draws heavily from social cognitive theory and Bandura's (1997) concept of self-efficacy. According to this theory, individuals with anxiety disorders believe they are not capable of carrying out the behavior required of them in fearful situations, and these low self-efficacy beliefs are a major contributor to phobic avoidance. Guided mastery treatment involves therapist-assisted exercises that are intended to increase a patient's sense of mastery (or self-efficacy) related to fearful situations (Williams, 1990). Once self-efficacy is increased, fear and avoidance should subside. Given the association between self-efficacy and courage (Rachman, 1990), this modality appears to be an especially attractive option as a potential strategy for increasing courageous behavior. Social-cognitive theory would predict that experiences involving courageous behavior should lead to increases in self-efficacy, and these increases should facilitate courageous behavior in other contexts. This formulation would be in line with Aristotle's proposal that we "become brave by doing brave acts" (2.1, 350 B.C./1976).

Given the paucity of psychological research on courage and the potential benefits such research could bring, the proposed study was developed to experimentally test theoretically-derived strategies designed to facilitate courageous behavior. Students from introductory psychology classes were invited to participate. Those accepting the invitation completed a questionnaire battery and were randomly assigned to one of five conditions: (a) courage education (CE); (b) courage education plus cognitive intervention

(CE+CI); (c) courage education, cognitive intervention, and guided mastery intervention (CE+CI+GM) (d) Pulsed Auto-Photic Stimulation (APS) placebo control; and (e) no intervention (NI) control. The APS placebo condition was included to control for expectancy effects. Following the completion of the intervention, participants were asked to perform a multi-step courage test. The percentage of fearful actions participants agreed to perform was used as a measure of courage. The following outcome hypotheses were made:

1. It was expected that participants receiving all three active interventions would outperform participants in other conditions, and those in the CE+CI condition would outperform those in the CE, APS, and NI conditions;
2. Due to expectancy effects, participants in the APS placebo condition would outperform those in the NI control condition.

2.1 Participants

Study participants (n = 72) were recruited from the pool of introductory psychology students at the University of Texas-Austin. No screening criteria were used and any student could sign up to participate. Students received one and a half hours of experimental credit for their participation. The ethnic makeup was diverse: 51% Caucasian, 14% Hispanic, 25% Asian American, 7% African American, and 3% other. Participants ranged in age from 17 to 22 (M=18.19, SD=0.8) and were 74% female.

2.2 Self-report measures

Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II is a 21-item self-report measure designed to assess symptoms of major depression. The

reliability and validity of the BDI have been comprehensively validated and reviewed (Beck, Steer, & Carbin, 1988). It possesses good internal consistency (α=.92; Beck, Steer, & Brown, 1996) and distinguishes well between those with and without a diagnosis of major depression (Arnau, Meagher, Norris, & Bramson, 2001). The BDI-II is the latest version of the measure which reflects changes in diagnostic criteria for major depressive disorders (MDD) in the DSM-IV.

State Trait Anxiety Inventory—trait version (STAI-T; Spielberger et al., 1983). The STAI-T is a 20-item measure assessing trait anxiety. Respondents are asked to rate each statement according to how they "generally feel". It has demonstrated good internal consistency (α=.92) and test-retest reliability (*r*=.86; Spielberger et al., 1983).

Courage Inventory (CI; Cougle & Telch, in prep). The CI scale is a 7-item measure assessing physical and social courage. Items include self-statements such as "I'm usually able to confront people, even when I am scared or uptight while doing it" and "I avoid risky activities that make me feel scared or uptight" that are rated on a 1 (Strongly disagree) to 7 (Strongly agree) scale. Factor analysis of the scale revealed that the items fit well into 4-item social courage and 3-item physical courage subscales. The subscales also possess good internal consistency (social: α = .96; physical: α = .95).

Other ratings. Participants were also asked to rate eight statements related to the interventions that were tested. These statements assessed self-efficacy related to courage, fear of anxiety, tolerance for uncertainty, and relaxation.

Panic Appraisal Inventory-2 (PAI-2; Telch et al., 1989). The PAI-2 subscale is a 15-item subscale of the 35-item PAI scale, which assesses perceived negative

consequences of having a panic attack. Items include self-statements such as "I may go insane" and "I may have a heart attack" that are rated on a 0 (Not at all troubling) to 100 (Extremely troubling) scale. The scale and subscales were derived via factor analysis and possess good retest reliability (*r*s = .81 - .89 across all scales and subscales) and good internal consistency (alphas = .85 - .94 across all scales and subscales). The PAI-2 was modified for the present study by asking participants to rate potential consequences of intense anxiety rather than a panic attack. This measure was only used with participants receiving the Cognitive Invervention.

Behavioral Assessment of Courage. The author-constructed courage test consisted of 22 items related to acts involving physical and social risk. Respondents were presented a video clip of each of the 22 actions being performed. The even-numbered video clips showed male actors performing the actions, whereas the odd-numbered clips had female actors performing the courageous act. Participants were instructed to rate the fear associated with each action on a 0 (no fear at all) to 100 (extreme fear) scale. For several items (see Table 1, p. 35) participants also rated their disgust on a 0 (no disgust at all) to 100 (extreme disgust) scale. Lastly, they were told to make a check mark for each action they agreed to perform. A "courage score" was computed by calculating the percentage of fearful actions participants agreed to perform. Fearful actions were defined as those with fear ratings of 50 or above.

2.3 Procedure

2.3.1 Randomization

Prior to their arrival, participants were assigned to the conditions using block randomization. The No Intervention condition was assigned only half the number of participants compared to the other individual cells.

2.3.2 Procedures common to both experimental conditions

Upon arrival for the experiment, participants completed a questionnaire battery, after which they were taken to another room and asked to complete the courage facilitating intervention or courage test (for the No Intervention condition). The room in which the courage test took place contained a computer with a 16" monitor on which instructional video clips and video clips from the courage test were displayed. Certain props relevant to the courage test were placed on a cart in the room. These props consisted of a flying pig hat, a white t-shirt with the words "I am very sexy" written on it, a tray with two test tubes, one filled with clear liquid and one filled with diluted apple juice. These props relate to some of the actions in the courage test and were placed in the room to enhance credibility of the test. The four courage interventions were administered using video clips on which instructions and interventions were presented. Before and after the interventions, participants were presented with the eight items assessing constructs related to the interventions (with the exception of the NI condition, which was presented with these items only once). The interventions were as follows:

2.3.3 Courage Education (CE) condition

Participants in this condition were given a brief explanation of the concept of courage, along with real-life examples of individuals (one male and one female) who have acted courageously. They were then presented with an example of how courage is

necessary in everyday situations, such as when one wishes to ask someone out on a date. They were told that sometimes it is necessary to embrace difficult thoughts and feelings in order to achieve a goal.

2.3.4 Education plus Cognitive Intervention Condition (CE + CI)

Participants undergoing this intervention were given CE, along with a short instructional set explaining how certain core beliefs can drive fear and avoidance behavior. Threats associated with acting courageously were identified and disputed through educational information. Specifically, maladaptive beliefs about fear and uncertainty were targeted.

'Fear of fear' beliefs were assessed through the use of the PAI-2. After the most relevant belief was identified (the belief participants rated highest), participants were asked to rate it in terms of its likelihood and cost. In addition, they were asked to read research information on common myths about anxiety. They were told to give special attention to the information related to the belief they endorsed. After reviewing this information, participants were asked to reevaluate their belief about their anxiety based on their own experience, the experience of others, and the research information they reviewed.

Following this 'fear of fear' intervention, participants were educated about uncertainty and how uncertainty exists everywhere. They were prompted to discuss with the experimenter different situations in their own life involving uncertainty. The point was emphasized that even though bad outcomes are *possible*, this does not mean that they are *probable*, since in fact almost anything is possible.

2.3.5 Education plus Cognitive Intervention plus Guided Mastery Condition (CE + CI + GM)

Participants in this condition received courage education, followed by the cognitive-behavioral intervention. Afterwards, they were given a rationale regarding the effects of practicing courageous behaviors on facilitating future courageous behavior. They had two different fearful situations described to them involving an enclosed chamber and a snake. They then completed an 11-item hierarchy which included fearful behaviors associated with a claustrophobia chamber and a ball python. Participants were asked to rate their anticipated fear associated with behaviors ranging in difficulty from being in the same room as a snake to holding a snake in hand and letting it crawl up their arm for one minute. Items concerning the claustrophobia chamber ranged in difficulty from staying in the unlocked chamber for two minutes with the experimenter in the room to staying in a locked chamber for five minutes with the experimenter out of the room (NOTE: The chamber was NOT be locked EVER when the participant is in the claustrophobia chamber; this deception was necessary simply in order to provide behaviors fearful enough so as to be deemed *courageous* if performed). In addition, participants were asked to checkmark each behavior they agreed to perform in session. Following the completion of this measure, participants were placed in a room with a live ball python (body length approximately 46 cm; body width circumference approximately 10 cm). The participant was instructed to carry out the most fearful behavior they agreed to perform using the hierarchy for one minute. After completing this task, they were asked to rest for two minutes. Then, they were asked to enter and remain in a

claustrophobic chamber for the duration of no more than five minutes. This behavioral approach task has been used in seven published claustrophobia studies (e.g., Powers, Smits, & Telch, 2005). After completing this task, they were allowed two minutes to rest. Anticipated fear was also taken from participants using a 0 (no fear at all) to 100 (extreme fear) scale.

2.3.6 Pulsed Auto-Photic Stimulation (APS) placebo control

Participants randomized to this condition received the following instructions:

> "Research has found that the frontal lobe is the area of the brain associated with emotional regulation and impulsivity. Evidence suggests that stimulation of this area of the brain leads to less behavioral inhibition in fearful situations, allowing one to confront such situations more courageously. We are going to enhance courageous behavior by inducing heightened beta wave activity with a device called the Digital Audio Visual Integration Device or DAVID. The DAVID will help you confront fears more effectively by enhancing brain wave activity in the frontal lobe. These goggles will deliver flashing lights at 24Hz (cycles per second) and these headphones will deliver audible pulses of sound (like a metronome) also at 24Hz (cycles per second) to induce the beta wave stimulation. We hope that through stimulation of the frontal lobe, you will be able to effectively carry out the courageous tasks you will be asked to perform. The experimenter will have you sit in the chair and we will then turn on the device. You will put on the goggles and headphones and keep your eyes closed during the DAVID exposure. It is important that throughout the entire 20-minute exposure

that you focus on the pulsing lights and sounds. If your mind starts to wander, simply return your focus to the pulsing lights and sounds. After turning off the lights, the experimenter will leave the room for twenty minutes. The door to the room will remain unlocked at all times and you may leave at any time."

The Digital Audio Visual Integration Device (DAVID) developed by Comptronic Devices (9876-A 33rd Ave., Edmonton, AB) is used by health care professionals as a relaxation device. It is a small soundboard about the size of a stereo receiver, which includes a headset and plastic mask. The headset emits controllable ticking sounds, similar to those made by a metronome. The plastic mask resembles ski goggles, and delivers pulsed orange lights at controllable rates. In this study, the audio and video stimulus frequency was set at 24 Hz (cycles per second). Participants were administered a 15 min trial of the DAVID device. This device has been used in previous studies (Powers, Smits, & Telch, 2004) as a credible placebo and was used in the present study to control for expectancy effects associated with the active conditions.

2.3.7 No Intervention control

Participants assigned to this condition completed the same assessments as the other four conditions but did not undergo any intervention. The NI control group served as a benchmark for assessing the effects of the three presumably active treatments. In addition, it was used to assess whether courageous behavior is responsive to a placebo intervention.

2.3.8 Courage test

Following the completion of one of the courage interventions (or the assessment for the NI condition), participants were asked to complete a test of courage. The participant was seated, and the experimenter gave him/her the 22-item courage checklist and said:

> *"Now, we will ask you to undergo a test of courage. Please read this checklist closely. You will need to refer to the video clips associated with each item before you rate it. In the column "Anticipated Fear" rate how much fear you would expect to experience if you were to perform each task using a 0 (no fear at all) to 100 (extreme fear) scale. In the column "Anticipated Disgust" rate how much disgust you would expect to experience if you were to perform each task using a 0 (no disgust at all) to 100 (extreme disgust) scale. Lastly, make a check mark for each action you agree to perform. I will be playing each clip for you before you rate the item. So, you will view a clip, then rate an item, view a clip, then rate an item, and so on. Please do not rate any of the items until I have shown you the clip. When you have completed the checklist, among those actions you agree to perform, we will randomly select three for you to carry out. Of course, you are free to refuse to perform any or all of the actions."*

After participants completed the checklist, they were told that they would not have to actually perform any of the courageous behaviors. They were then asked to rate whether they believed they would actually have to carry out three of the behaviors they agreed to perform on a 0 (Did not believe at all) to 3 (Completely believed) scale. In

addition, they were asked to list the behaviors they did not believe they would have to perform. Lastly, they were asked to indicate if they were told any details of the study by other students. They were then asked to sign a contract agreeing not to mention any details of the study to others.

2.4 Results

2.4.1 Statistical analyses

Between-group analyses were conducted using ANOVA tests. For all analyses, courageous behavior was operationalized as the percentage of fearful (>50) actions a participant agreed to perform. Analyses were carried out separately for items involving tests of physical risk versus tests of social risk. Physical courage score was calculated based on the five items used in Study 2.

Kolmogorov-Smirnov tests indicated that the social courage subscale was not normally distributed. Inspection of the score frequency indicated that the abnormal distribution on this measure was due to a large number of low scores, reflecting a positive skew. Therefore, a square-root transformed variable was used in all analyses of social courage.

2.4.2 Check for integrity of randomization

No significant differences between conditions were found in gender, ethnicity, or in all psychological measures (Courage Inventory, BDI, STAI-T). This indicates that randomization of participants was achieved.

2.4.3 Analysis of interventions and their effects on process measures and courageous behavior

An examination of pre to post changes in the eight process-related questions revealed no significant differences between groups, *p*s > . 15.

ANOVA tests were carried out using number of actions agreed to perform and percentage of fearful (courageous) actions participants agreed to perform as dependent variables. Overall, there were no significant differences for overall actions agreed to perform, or among actions involving physical or social risk ($F<2$). These non-significant findings were present for both courageous and non-fearful actions. These findings indicate that there were no differences between conditions on test performance. Non-transformed group means and standard deviations are presented in Table 1.

Table 1. Performance on courage test by condition.

	Overall courage *M (SD)*	Physical courage *M (SD)*	Social courage *M (SD)*	Overall steps *M (SD)*	Physical steps *M (SD)*	Social steps *M (SD)*
No Intervention	.27 (.3)	.32 (.3)	.25 (.2)	7.36 (3.6)	2.71 (1.5)	3.64 (2.9)
APS Placebo	.38 (.3)	.43 (.4)	.25 (.3)	9.46 (4.6)	3.07 (1.5)	5.07 (3.0)
Courage Ed	.38 (.3)	.46 (.4)	.35 (.3)	6.59 (4.6)	2.67 (1.5)	3.72 (3.0)
Courage Ed + Cog Intervention	.32 (.4)	.41 (.4)	.19 (.3)	7.69 (5.0)	3.00 (1.6)	3.54 (3.3)
Courage Ed + Cog Intervention + Guided Mastery	.37 (.3)	.42 (.4)	.41 (.2)	8.17 (3.8)	2.67 (1.8)	4.33 (2.8)

Courage = % of fearful actions agreed to perform
Steps = number of actions (fearful and non-fearful) agreed to perform

2.4.4 Analysis of gender and courage

Performance on the courage test was compared between male and female participants. Overall, no significant differences emerged in either number of steps

participants agreed to complete or the number of fearful steps they agreed to carry out. Non-transformed group means and standard deviations are presented in Table 2.

Table 2. Performance on courage test by gender.

	Overall courage *M (SD)*	Physical courage *M (SD)*	Social courage *M (SD)*	Overall steps *M (SD)*	Physical steps *M (SD)*	Social steps *M (SD)*
Males	.42 (.4)	.47 (.4)	.30 (.4)	7.58 (4.4)	3.21 (1.8)	4.37 (3.3)
Females	.32 (.3)	.39 (.3)	.30 (.4)	6.60 (3.6)	2.67 (1.5)	3.92 (2.9)

Courage = % of fearful actions agreed to perform
Steps = number of actions (fearful and non-fearful) agreed to perform

2.5 Discussion

The findings of this pilot study indicated no significant effect of the interventions on courageous behavior. On measures of physical and social courage, no differences emerged between groups. In addition, no differences were found between groups on the number of steps they agreed to complete, a score which takes into account both courageous and fearless behavior.

A number of explanations could account for the non-differences between groups. It is possible that the interventions we developed were not potent enough to increase courage. Though they were logical and theoretically derived, they were also relatively brief (approximately 30 min). Perhaps longer interventions would have increased courage test performance. It is also possible that participants were not sufficiently motivated to perform their best on the courage test. Lastly, it is possible that the courage test was not sufficiently sensitive to detect the effects of such interventions.

The cognitive intervention designed for the present study sought to target anxiety sensitivity ('fear of fear') and intolerance for uncertainty. Anxiety sensitivity has been

found to predict phobic avoidance among panic disorder patients (Schmidt & Koselka, 2000; Telch et al, 1989). Furthermore, given that fear is an integral part of courage, we expected that individuals high in anxiety sensitivity would have an additional reason to avoid acts of courage beyond the risk associated with a situation. The fact that the cognitive intervention did not increase courage suggests anxiety sensitivity may not be related to courage. It is also possible that only individuals high in anxiety sensitivity would benefit from such an intervention, and the use of a non-clinical sample in the present study did not allow us to fully test this hypothesized relationship.

Peterson and Seligman (2004) cited tolerance for uncertainty as a potential correlate of courageous behavior. The relationship between this construct and courage seems logical and so was addressed in the cognitive intervention we developed. This intervention was ineffective, but given the strong association between intolerance for uncertainty and anxiety and worry (Dugas, Freeston, & Ladoucer, 1997), further research should be carried out to test this potential relationship.

The guided mastery condition was used in the present study to test the hypothesis that courage could be increased with practice. This is an old hypothesis that has its beginnings with Aristotle (2.1, 350 B.C./1976). A number of explanations could account for this intervention's lack of effectiveness. First, as already mentioned, the intervention could have suffered from its brevity. It may have been more effective if participants were asked to complete more courageous actions. Second, the actions participants carried out may have not been sufficiently fearful for some participants to experience a boost in courage-related self-efficacy. The mean fear level for the claustrophobia chamber task

was 39 (0-100 scale); for the snake approach task, the mean fear level was 52 (0-100 scale). Third, it is possible that participants in this condition were sensitized to items on the courage test, such that confronting the snake and being placed in a claustrophobia chamber made the items more "real" or fearful. Their performance on the courage test may have suffered as a result.

Future research may wish to use phobic participants in the examination of courage-facilitating interventions. BATs that are sensitive to the effects of treatment already exist for spider and snake phobias (Öst, Salkovskis, & Hellström, 1991). Courage could still be operationalized as the *percentage of fearful steps completed*, thus remaining faithful to the definition of courage we have been using. If certain interventions increase courageous approach behavior among phobics, it might be inappropriate to generalize these findings to non-clinical populations. However, specific phobics are often used in studies to test different phenomena associated with other anxiety disorders (e.g., Powers, Smits, & Telch, 2004), and at the very least, testing these interventions among this sample may lead to findings that could be applied to other anxious individuals.

This study represented some of the first work testing interventions to facilitate courageous behavior. No work of which I am aware has tested such interventions. The chief reason such interventions have been absent is because no established measures of courage have been developed that possess the sensitivity essential to testing such interventions. The courage test we constructed for Study 1 will need additional examination. Though the findings of the present study demonstrated the credibility of this test, it is not yet known whether this test is sufficiently sensitive. Study 2 was designed to

test the effects of a manipulation thought to be more powerful than the courage interventions studied here. If this context manipulation leads to changes in courage test performance, then this would demonstrated the sensitivity of this test.

Chapter 3: Study Two

In the field of psychology, significant attention has been given to fear, yet courage has, for the most part, been neglected (Rachman, 1990). Though it remains poorly understood, courage is considered by many to be the most prized virtue. Several correlates of courage have been proposed, yet few have undergone rigorous testing.

One of the major barriers to the empirical examination of courageous behavior has been the absence of valid measures of this construct. Two self-report measures of courage have been developed (Schmidt & Koselka, 2000; Woodward, 2004), but both suffer from different weaknesses. A major limitation of Schmidt and Koselka's (2000) courage scale is its simplicity, as it only includes two courage-related items ("In general, are you a courageous person?", "Do other people consider you to be courageous?"). It also failed to predict phobic avoidance in a sample with panic disorder (Schmidt & Koselka, 2000). Woodward's (2004) scale, though more comprehensive, included many items that may not be tapping courage, as defined by Rachman (1990). In addition, courage scores on Woodward's scale did not correlate with scores on Schmidt and Koselka's (2000) scale.

Courage, by nature, may be difficult to measure using self-report instruments. Opportunities to act with courage may be very infrequent, and individual instances may color an individual's view of how courageous they are. Self-report instruments are also unlikely to be sensitive to the effects of any experimental interventions. However, the development of in-session behavioral assessments of courage might help circumvent the problems associated with such measures. A psychometrically sound behavioral or semi-

behavioral measure of courage could go a very long way in bringing progress in this research area.

It has been proposed that different situational demands make courageous behavior more or less likely (Rachman, 1990). In a group context, courageous behavior may be facilitated through the courageous modeling of others (Nemeth & Chiles, 1988), through group pressure to act courageously, or through the process of deindividuation (a state of lowered self-awareness; Festinger, Pepitone & Newcomb, 1952). The desire for status as a "courageous person" could also facilitate courageous acts in group settings. Status concerns could exert their effects through the desire to be perceived as exceptionally courageous or the desire to not be perceived as cowardly or as less courageous than others in the group.

For men, the group setting could be especially likely to facilitate courageous behavior. Women, more than men, tend to regard status as important in their mates (Buss, 1989). In addition, men engage in status-seeking behavior more often than women (Pratto, 1996). Lastly, courage is generally viewed across cultures as a 'masculine virtue' (Williams & Best, 1990). Thus, the desire to appear attractive to potential mates, the desire for status, and conformity to gender stereotype could all influence men to act more courageously in groups.

The aims of the present study were three-fold: 1) to develop a semi-behavioral measure of courageous behavior; 2) assess the effects of group vs. individual context on the occurrence of courageous behavior; and 3) test potential correlates of the courage test using measures theoretically linked to courageous behavior, such as anxiety sensitivity,

distress tolerance, acceptance, and sensation-seeking. I sought to examine the effects of context on courageous behavior for two primary reasons. First, if group context was found to lead to greater courageous behavior, then this could lead to several potential benefits. If a spider phobic, for example, has trouble confronting a spider on their own during exposure therapy, then placing him/her in a group context might be beneficial to treatment. Similarly, the facilitative effects of group context would suggest that firefighters or soldiers would do best to stay in groups in order to perform their duties with greater bravery. The second reason for examining courage in context was to test the sensitivity of the courage test that was developed. If effects of context are observed, then this would suggest that the test might also be sensitive to the effects of, say, a courage-facilitating intervention.

The study aims were tested by using a sample of non-clinical undergraduate students. Participants completed a questionnaire battery which included some of the potential correlates of courage to be tested. Following its completion, they took a courage test either in the presence of two confederate "participants" (one male and one female) and the experimenter or alone with the experimenter. In the group condition, participants were told that they would compare their test scores with other participants following its completion. The test consisted of 22 different actions (e.g., "Climb a ladder to the third floor of the courtyard and wash one window"). Participants viewed a video clip of someone performing each action, rated their fear associated with the action, and also indicated whether they agreed to perform it. Prior to the completion of the test, they were told that among those actions they agreed to perform, the experimenter would randomly

select three for them to perform in session. Upon completing the test, participants were told that they would not have to carry out the courageous actions. Credibility of the test was also assessed.

It was predicted that participants in the group condition would agree to perform significantly more courageous actions than those in the individual condition. It was also predicted that this effect of condition would be moderated by gender, such that men but not women would be willing to perform more courageous acts in a group context. Lastly, I hypothesized that certain measures, such as greater depression and anxiety sensitivity would be correlated with lower courage. In addition, I predicted greater sensation-seeking, risk taking behavior, and acceptance would be correlated with greater courage.

3.1 Participants

Study participants (n = 117) were recruited from the pool of introductory psychology students at the University of Texas-Austin. No screening criteria were used and any student could sign up to participate. Students received one hour of experimental credit for their participation.

Among the 117 participants, one was excluded because he said he did not believe the confederates were actual participants in the experiment. Four were also excluded because they did not believe they would have to perform any or a substantial number (> 4) of the courageous actions. One participant refused to enter the room in which the courage test would take place because of the live tarantula that was kept in the room. Among the remaining participants that were included in data analyses (n=111), the ethnic makeup was diverse: 51% Caucasian, 23% Hispanic, 19% Asian American, 4% African

American, and 5% other. Participants ranged in age from 18 to 25 (M=19.19, SD=1.4) and were 51.4% female.

3.2 Self-report measures

Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II is a 21-item self-report measure designed to assess symptoms of major depression. The reliability and validity of the BDI have been comprehensively validated and reviewed (Beck, Steer, & Carbin, 1988). It possesses good internal consistency (α=.92; Beck, Steer, & Brown, 1996) and distinguishes well between those with and without a diagnosis of major depression (Arnau, Meagher, Norris, & Bramson, 2001). The BDI-II is the latest version of the measure which reflects changes in diagnostic criteria for major depressive disorders (MDD) in the DSM-IV.

State Trait Anxiety Inventory—trait version (STAI-T; Spielberger et al., 1983). The STAI-T is a 20-item measure assessing trait anxiety. Respondents are asked to rate each statement according to how they "generally feel". It has demonstrated good internal consistency (α=.92) and test-retest reliability (*r*=.86; Spielberger et al., 1983).

Anxiety Sensitivity Index-3 (ASI-3; Taylor et al., in press). The ASI-3 is an 18-item scale measuring fear of fear. Items such as 'When I feel "spacey" or spaced out I worry that I may be mentally ill' and 'It scares me when my heart beats rapidly' are rated on a 5-point ('very little' to 'very much') scale. The ASI-3 is the most recent version of the scale which includes subscales assessing physical, social, and cognitive concerns associated with anxiety. Research has found the ASI-3 to possess good psychometric

properties (Taylor *et al.*, in press). Three subscales displayed appropriate factor loadings and good internal consistency ($\alpha > .75$).

Intolerance of Uncertainty Scale (IUS-12; Carleton, Norton, & Asmundson, 2007). The IUS is a 12-item measure assessing reactions to uncertainty and ambiguous situations. The IUS displayed good internal consistency ($\alpha = .91$) and had appropriate correlations with anxiety and worry ($r = .57$ and .54, respectively). It consists of two factors assessing anxious and avoidant aspects of intolerance of uncertainty.

Brief Sensation Seeking Scale (BSSS; Hoyle et al., 2002). The BSSS is an 8-item measure assessing preferences for sensation seeking. The BSSS possesses good internal consistency ($\alpha = .76$) and was found to correlate positively with greater drug use (Hoyle et al., 2002).

Attitudes Toward Risk Questionnaire (ATRQ; Franken, Gibson, Rowland, 1992) The ATRQ is a 23-item measure assessing attitudes towards risk and risk-taking behavior. Respondents rate on a 1 (Very unlike me) to 5 (Very like me) scale items such as "I often do things that I know my parents would disapprove of" and "I like to risk large sums of money." In the present study, the scale was found to possess excellent internal consistency ($\alpha = .90$).

Distress Tolerance Inventory (DTI; Telch & Cougle, in prep). The DTI is a 10-item scale assessing tolerance for physical or emotional distress. Statements are rated on a 1 (strongly agree) to 6 (strongly disagree) scale. Statements include 'I can usually handle feelings of emotional upset quite well' and 'I'll take fairly extreme measures to stop physical discomfort or pain'. An initial validation study found the DTI to

significantly predict tolerance of and distraction from film-clips inducing sadness, anger, disgust, and fear (Telch & Cougle, in prep). Factor analysis revealed that the 10 items fit neatly into two five-item physical and emotional distress tolerance subscales. The internal consistency was .86 for the total scale, and .87 and .85 for the emotional distress tolerance and physical distress tolerance subscales, respectively. The scale also displayed good two week test-retest reliability (overall: r=.85, p<.0001; physical: r=.84, and emotional: r=.85).

Acceptance and Action Questionnaire – Revised (AAQ-R; Hayes et al., 2004). The AAQ-R is a 9-item instrument assessing the degree to which individuals accept thoughts and feelings. Statements are rated on a 1 (never true) to 9 (always true) scale, with higher scores reflecting greater experiential avoidance. Higher levels of experiential avoidance were found to be correlated with greater psychopathology, depression, anxiety, and a lower quality of life (Hayes et al, 2004). It also showed adequate internal consistency (α = .70).

Courage Inventory (CI; Cougle & Telch, in prep). The CI scale is a 7-item measure assessing physical and social courage. Items include self-statements such as "I'm usually able to confront people, even when I am scared or uptight while doing it" and "I avoid risky activities that make me feel scared or uptight" that are rated on a 1 (Strongly disagree) to 7 (Strongly agree) scale. Factor analysis of the scale revealed that the items fit well into 4-item social courage and 3-item physical courage subscales. The subscales also possess good internal consistency (social: α = .96; physical: α = .95).

Behavioral Assessment of Courage. The author-constructed courage test consisted of 22 items related to acts involving physical and social risk. Respondents were presented a video clip of each of the 22 actions being performed. The even-numbered video clips showed male actors performing the actions, whereas the odd-numbered clips had female actors performing the courageous act. Participants were instructed to rate the fear associated with each action on a 0 (no fear at all) to 100 (extreme fear) scale. For several items (see Table 1, p. 35) participants also rated their disgust on a 0 (no disgust at all) to 100 (extreme disgust) scale. Lastly, they were told to make a check mark for each action they agreed to perform. A "courage score" was computed by calculating the percentage of fearful actions participants agreed to perform. Fearful actions were defined as those with fear ratings of 50 or above.

3.3 Procedure

3.3.1 Randomization

Prior to their arrival, participants were assigned to group vs. individual testing condition using block randomization.

3.3.2 Procedures common to both experimental conditions

Upon arrival for the experiment, participants completed a questionnaire battery, after which they were taken to another room and asked to complete the courage assessment in either an individual or group setting. The room in which the courage test took place contained a computer with a 16" monitor on which video clips from the courage test were displayed. Certain props relevant to the courage test were placed on a cart in the room. These props consisted of a tarantula in an enclosed, clear box; a flying

pig hat, a white t-shirt with the words "I am very sexy" written on it, a tray with two test tubes, one filled with clear liquid and one filled with diluted apple juice. These props relate to some of the actions in the courage test and were placed in the room to enhance credibility of the test. The courage tests were carried out as follows:

3.3.3 Individual condition

After the participant in the individual condition was seated, the experimenter gave him/her the 22-item courage checklist and said:

> *"Now, we will ask you to undergo a test of courage. Please read this checklist closely. You will need to refer to the video clips associated with each item before you rate it. In the column "Anticipated Fear" rate how much fear you would expect to experience if you were to perform each task using a 0 (no fear at all) to 100 (extreme fear) scale. In the column "Anticipated Disgust" rate how much disgust you would expect to experience if you were to perform each task using a 0 (no disgust at all) to 100 (extreme disgust) scale. Lastly, make a check mark for each action you agree to perform. I will be playing each clip for you before you rate the item. So, you will view a clip, then rate an item, view a clip, then rate an item, and so on. Please do not rate any of the items until I have shown you the clip. When you have completed the checklist, among those actions you agree to perform, we will randomly select three for you to carry out. Of course, you are free to refuse to perform any or all of the actions."*

After participants completed the checklist, they were told that they would not not have to actually perform any of the courageous behaviors. They were then asked to rate

whether they believed they would actually have to carry out three of the behaviors they agreed to perform on a 0 (Did not believe at all) to 3 (Completely believed) scale. In addition, they were asked to list the behaviors they did not believe they would have to perform. Lastly, they were asked to indicate if they were told any details of the study by other students. They were then asked to sign a contract agreeing not to mention any details of the study to others.

3.3.4 Group condition

The participant in the group condition was brought into the room with a confederate already seated. The experimenter left the participant in the room for a few moments and then returned with the other confederate 'participant.' The participant was made to believe that both confederates (one male and one female) were actual participants in the experiment. The experimenter gave the participant and the confederates the 22-item courage checklist and said:

> "*Now, we will ask you to undergo a test of courage. Please read this checklist closely. You will need to refer to the video clips associated with each item before you rate it. In the column "Anticipated Fear" rate how much fear you would expect to experience if you were to perform each task using a 0 (no fear at all) to 100 (extreme fear) scale. In the column "Anticipated Disgust" rate how much disgust you would expect to experience if you were to perform each task using a 0 (no disgust at all) to 100 (extreme disgust) scale. Lastly, make a check mark for each action you agree to perform. I will be playing each clip for all of you before*

you rate the item. So, you will view a clip, then rate an item, view a clip, then rate an item, and so on. Please do not rate any of the items until I have shown you the clip. When you have completed the checklist, we will post your responses right here for you to see how well you performed relative to others in the group. In addition, among those actions you agree to perform, we will randomly select three for you to carry out. These actions will be performed in the presence of the other participants in this group. Of course, you are free to refuse to perform any or all of the actions. As you complete the checklist, ***please do so quietly*** *and without looking at other participants' checklists. It is important not to interrupt or distract other participants."*

After participants completed the checklist, they were told that the experimenter would not be posting their responses and they would not have to actually perform any of the courageous behaviors. They were also asked to rate whether they believed they would actually have to carry out the behaviors (see individual condition) and were asked to list the behaviors they did not believe they would have to perform. They were asked to indicate if they were told any details of the study by other students. They were also asked whether they believed the confederates in the group were actual participants. Lastly, they were asked to sign a contract agreeing not to mention any details of the study to other potential participants.

3.4 Results

3.4.1 Statistical analyses

Between-group analyses were conducted using ANOVA tests, and predictors of courageous behavior were examined using zero-order correlations. For all analyses, courageous behavior was operationalized as the percentage of fearful (>50) actions a participant agreed to perform. Analyses were carried out separately for items involving tests of physical risk versus tests of social risk.

3.4.2 Courage test

The courage test was first examined by assessing the average fear and disgust associated with each item, the percentage of respondents who agreed to carry out each item, and the percentage of participants who believed each item was not credible. Data from the test are presented in Table 3. Items were excluded from the scale if: 1) greater than 15% of participants believed the action was not credible; or 2) the action was insufficiently fearful (fear < 25). These criteria led to the exclusion of six items in the final version of the scale (# 3, 4, 7, 9, 20, and 21). Item-total correlations were conducted to assess for problem items in the physical and social subscales. Willingness to perform (yes or no) ratings for the relevant items was used. Among the items involving physical risk, willingness to receive an electrical shock (# 15) correlated poorly with the rest of the subscale, r=.36. After removing this item, item-total correlations were run again and the item related to climbing the ladder (#22) was found to correlate poorly with the rest of the scale, r=.38. This item was removed, and the analysis was repeated, which revealed that the item related to holding the roach (#16) did not correlate well with the rest of the scale, r=.39. The remaining 5-item scale possessed good internal consistency (α=.80), with item-total correlations ranging from .51 to .67.

An analysis of the eight items involving social threat (#2, 8, 10, 11, 13, 17, 18, and 19) revealed good internal consistency (α=.89), with item-total correlations ranging from .57 to .74.

The final 13 items from the scale appeared to have good variability on ratings of willingness to perform. The percentage of participants willing to perform the items ranged from a low of 22.2% (#10) to a high of 66.9%. The average percent endorsement rate across the 13 items was 49.1% (social=47.4%; physical=51.9%).

Kolmogorov-Smirnov tests indicated that overall courage scores, physical and social courage subscales, and number of steps participants were willing to perform, were not normally distributed. Inspection of the score frequency indicated that the abnormal distribution on these measures was due to a large number of low scores on the courage tests, reflecting a positive skew. Therefore, square-root transformed variables were used in all analyses.

Table 3. Courage test items, responses, and perceived credibility.

Anticipated fear *M* (SD)	Anticipated disgust *M* (SD)	% agree to perform	% not believing item	
60.31 (29.4)	48.41 (32.5)	53.4%	3.4%	1[p]. Have a live tarantula crawl up my arm.
39.36 (28.2)	N/A	54.2%	0%	2[s]. Ask five random students outside building several questions about their sexual habits (e.g., "how many sexual partners have you had?").
16.06 (20.9)	52.74 (31.9)	76.3%	8.5%	3. Using both hands, pour urine from one test tube to another.
19.75 (25.2)	77.73 (24.6)	32.2%	15.2%	4. Touch a pile of dog excrement with both hands.
41.17 (30.4)	31.48 (30.3)	54.2%	2.5%	5[p]. Have a live Uromastyx lizard crawl on my neck.
35.74 (29.6)	33.68 (32.4)	61.8%	1.7%	6[p]. Hold a live rat one inch from my ear.

21.36 (25.4)	75.43 (25.1)	32.2%	20.3%	7. Put my hand in the bottom of a public toilet.
42.39 (28.5)	N/A	43.6%	0.8%	8[s]. Walk on Dean Keeton and Guadalupe wearing a pig hat and a t-shirt saying "I am very sexy."
23.48 (23.4)	N/A	68.6%	3.4%	9. Complete a painful task involving hand immersion in ice cold water for five minutes.
51.73 (27.5)	N/A	22.2%	0%	10[s]. Sing "Star Spangled Banner" loudly to passersby in a crowded area (e.g., the front of the student services building).
48.97 (28.4)	N/A	41.5%	0%	11[s]. Give a speech in front of 5 students on a random sexual topic assigned to me one minute before the speech.
67.40 (26.2)	47.3 (31.7)	29.7%	3.4%	12[p]. Have a live, non-poisonous scorpion crawl on my arm.
25.81 (25.2)	N/A	66.9%	0%	13[s]. Walk around the student services building with a brightly colored, button-up shirt on backwards.
46.86 (34.0)	32.94 (33.9)	60.2%	5.2%	14[p]. Pick up a live ball python.
45.72 (28.9)	N/A	55.1%	6.8%	15. Experience a safe, but moderately painful, 50 volt electric shock from a cardiac defibrillator for 500 ms.
48.12 (33.2)	66.59 (29.3)	37.3%	1.7%	16. Pick up a live roach with my hands.
47.35 (29.7)	N/A	48.3%	0%	17[s]. Approach two members of the opposite sex on Dean Keeton and ask them to rate on a 0 to 10 scale how attractive I am.
30.63 (26.3)	N/A	53.4%	0%	18[s]. Walk around swiftly in short circles in a crowded area (e.g., Littlefield café) for one minute.
32.99 (26.1)	N/A	49.2%	0%	19[s]. Wear a toga (bed sheet) and walk down Dean Keeton and Guadalupe.
24.63 (26.9)	71.03 (25.8)	41.9%	16.9%	20. Touch the inside wall of a urinal with one hand.
46.82 (26.7)	N/A	61.9%	25.4%	21. Using both hands, pour sulfuric acid (a non-lethal acid which causes intense pain when touched) from one test tube to another.
46.86 (30.1)	N/A	55.1%	13.0%	22. Climb a ladder to the third floor of the courtyard and wash one window

p=physical courage items retained in final scale
s=social courage items retained in final scale

3.4.3 Check for integrity of randomization

No significant differences between group and individual conditions were found in gender, ethnicity, or in all psychological measures (e.g., Courage Inventory, BDI, STAI-T). This indicates that randomization of participants was achieved.

3.4.4 Analysis of context and its effects on courageous behavior

Two (group vs individual) X 2 (male vs female) ANOVA tests were carried out using number of actions agreed to perform and percentage of fearful (courageous) actions participants agreed to perform as dependent variables. Overall, there were no significant main effects or interactions for overall actions agreed to perform, or among actions involving physical or social risk ($F<2$). These non-significant findings were present for both courageous and non-fearful actions. These findings indicate men and women performed similarly on the courage test, and there were no differences between group and individual conditions on test performance. Non-transformed group means and standard deviations are presented in Table 4.

Table 4. Performance on courage test by gender and condition (non-transformed scores).

	Overall courage *M (SD)*	Physical courage *M (SD)*	Social courage *M (SD)*	Overall steps *M (SD)*	Physical steps *M (SD)*	Social steps *M (SD)*
Male						
Individual	.14 (.2)	.26 (.3)	.14 (.2)	6.35 (3.9)	2.77 (1.8)	3.44 (3.2)
Group	.27 (.3)	.36 (.4)	.27 (.3)	7.54 (3.7)	2.93 (1.8)	4.57 (2.8)
Total	.21 (.3)	.31 (.4)	.20 (.3)	6.94 (3.8)	2.85 (1.8)	4.00 (3.1)
Female						
Individual	.25 (.3)	.31 (.4)	.22 (.3)	5.82 (3.9)	2.57 (1.8)	3.25 (2.9)
Group	.25 (.3)	.30 (.4)	.25 (.4)	5.96 (4.1)	2.31 (1.8)	3.64 (2.8)
Total	.25 (.3)	.31 (.4)	.24 (.3)	5.89 (4.9)	2.44 (1.8)	3.45 (2.9)
All						

participants						
Individual	.24 (.2)	.29 (.4)	.19 (.3)	6.07 (3.9)	2.67 (1.8)	3.46 (3.1)
Group	.26 (.3)	.33 (.4)	.26 (.4)	6.72 (3.9)	2.61 (1.8)	4.09 (2.8)
Total	.23 (.3)	.31 (.4)	.22 (.3)	6.40 (3.9)	2.63 (1.8)	3.72 (3.0)

Courage = % of fearful actions agreed to perform
Steps = number of actions (fearful and non-fearful) agreed to perform

3.4.5 Analysis of physical and social courage

Greater social courage was correlated with greater physical courage, $r = .26$, $p < .05$. Number of steps agreed to perform on the physical test (without taking fear into account) was also correlated with number of steps on the social test, $r = .24$, $p < .05$. Additional analyses indicated that the correlation between social courage and physical courage was present in the group condition, $r = .37$, $p < .05$, and was absent in the individual condition, $r = .12$, $p > .40$.

3.4.6 Predictors of courageous behavior

An analysis of predictors of courageous behavior (overall, physical, and social) is presented in Table 5. Neither overall courage nor social courage were found to correlate with any of the psychological measures, $p > .05$. Greater physical courage, however, was correlated with lower physical distress tolerance, greater sensation-seeking, greater risk-taking behavior, and greater self-report physical courage.

Table 5. Predictors of performance on the courage test.

	STAI-T	BDI	ASI-3	AAQ	DTI-emot	DTI-phys	IUS	BSSS	ATRQ	CI-phys	CI-soc
Overall courage	.14	.07	-.10	.14	-.11	-.08	-.05	.04	.06	.03	.10
Physical courage	.10	.07	-.10	.18	-.12	-.28**	-.10	.27**	.26*	.26**	.06
Social courage	.13	.00	-.07	.14	-.17	.13	-.01	-.10	-.08	-.11	.09

Overall steps	.00	.02	-.18	.21*	-.14	-.24*	-.11	.21*	.33**	.29**	.21*
Physical steps	-.10	-.08	-.18	.21*	-.18	-.42**	-.17	.29**	.38**	.40**	.10
Social steps	.05	.09	-.08	.13	-.03	-.01	-.02	.07	.17	.07	.22*

STAI-T, State-Trait Anxiety Inventory (Trait Subscale); BDI, Beck Depression Inventory-II; ASI-3, Anxiety Sensitivity Index-3; AAQ, Acceptance and Action Questionnaire-Revised; DTI-emot, Distress Tolerance Inventory-Emotion; DTI-phys, Distress Tolerance Inventory-Physical; IUS-Intolerance for Uncertainty Scale; BSSS-Brief Sensation-Seeking Scale; ATRQ-Attitudes Towards Risk Questionnaire; CI-phys, Courage Inventory-Physical; CI-soc, Courage Inventory-Social.
*$p<.05$
**$p<.01$

3.4.7 An analysis of fearlessness

In total, 15 participants (13.5%) were not included in the analysis of physical courage due to the fact that they did not report sufficient fear (50 or higher) on any of the relevant items. Differences between these "fearless" participants and those reporting fear on one or more of the items from the physical subscale were examined with all dependent variables entered into a single multivariate analyses. The findings are presented in Table 6. Overall, the data suggest that those characteristics associated with courageous behavior are also associated with fearless behavior. Fearless participants agreed to perform a greater number of actions than fearful individuals. They were also higher in sensation-seeking and risk-taking behavior. In addition, fearless individuals scored higher on a self-report measure of physical courage, and there were trends for them to show higher physical distress tolerance, $p=.096$, and lower trait anxiety, $p=.087$. Lastly, fearless individuals were disproportionately male, though chi-square tests indicated that these gender differences were not significant.

Table 6. Differences between 'fearless' and 'fearful' participants on courage test items involving physical risk.

Measure	Fearless (*n*=15) *M (SD)*	Fearful (*n*=96) *M (SD)*	Group differences
Physical steps	4.40 (1.2)	2.36 (1.7)	$F = 18.39$, $p<.0001$
STAI-T	34.80 (6.7)	39.59 (10.3)	$F = 2.64$, $p=.11$
BDI	5.67 (5.2)	8.46 (7.3)	$F = 2.20$, $p=.14$
ASI-3	12.93 (8.9)	13.65 (9.7)	$F = .11$, *ns*
AAQ	35.07 (2.4)	33.92 (4.2)	$F = .88$, *ns*
DTI-emot	13.60 (3.9)	14.56 (4.0)	$F = 1.05$, *ns*
DTI-phys	14.80 (3.2)	16.63 (4.0)	$F = 2.64$, $p=.11$
IUS	18.57 (11.8)	22.76 (10.4)	$F = 2.02$, $p=.16$
BSSS	30.40 (5.0)	26.76 (6.1)	$F = 4.31$, $p<.05$
ATRQ	62.00 (14.4)	52.23 (13.6)	$F = 6.53$, $p<.05$
CI-Phys	15.53 (3.5)	12.92 (3.6)	$F = 6.40$, $p<.05$
CI-Soc	18.47 (7.3)	19.52 (5.2)	$F = .31$, *ns*
% male	10/15 (66.7%)	44/96 (45.8%)	$x^2 = 2.25$, $p = .13$

Physical steps, number of steps agreed to complete on the physical courage test; STAI-T, State-Trait Anxiety Inventory (Trait Subscale); BDI, Beck Depression Inventory-II; ASI-3, Anxiety Sensitivity Index-3; AAQ, Acceptance and Action Questionnaire-Revised; DTI-emot, Distress Tolerance Inventory-Emotion; DTI-phys, Distress Tolerance Inventory-Physical; IUS-Intolerance for Uncertainty Scale; BSSS-Brief Sensation-Seeking Scale; ATRQ-Attitudes Towards Risk Questionnaire; CI-phys, Courage Inventory-Physical; CI-soc, Courage Inventory-Social.

On test items involving social risk, 21 participants (18.9%) did not report significant fear associated with any of the items. "Fearless" and "fearful" participants were compared using a multivariate analysis. Overall, fearless participants agreed to perform a significantly higher number of steps on the social courage test. In addition, fearless participants scored significantly higher on a self-report measure of social courage, $p=.05$. Lastly, fearless individuals had a significantly higher percentage of males compared to fearful participants. Results are presented in Table 7.

Table 7. Differences between 'fearless' and 'fearful' participants on courage test items involving social risk.

Measure	Fearless (n=21) *M (SD)*	Fearful (n=90) *M (SD)*	Group differences
Social steps	6.70 (1.9)	3.05 (2.7)	$F = 30.64$, $p<.0001$
STAI-T	36.43 (8.9)	39.52 (10.2)	$F = .83$, *ns*
BDI	5.95 (4.2)	8.58 (7.5)	$F = 2.79$, $p=.13$
ASI-3	12.00 (8.4)	13.92 (9.9)	$F = .40$, *ns*
AAQ	34.67 (3.3)	33.93 (4.2)	$F = .28$, *ns*
DTI-emot	13.33 (3.1)	14.69 (4.1)	$F = 1.72$, *ns*
DTI-phys	15.81 (3.8)	16.51 (4.0)	$F = .09$, *ns*
IUS	20.40 (10.3)	22.61 (10.7)	$F = .43$, *ns*
BSSS	28.00 (5.9)	27.08 (6.1)	$F = .02$, *ns*
ATRQ	58.43 (14.2)	52.42 (13.8)	$F = 2.44$, $p=.12$
CI-Phys	14.29 (3.8)	13.03 (3.7)	$F = .62$, *ns*
CI-Soc	21.48 (5.2)	18.89 (5.4)	$F = 4.45$, $p<.05$
% male	16/21 (76.2%)	38/90 (42.2%)	$x^2=7.86$, $p<.01$

Social steps, number of steps agreed to complete on the social courage test; STAI-T, State-Trait Anxiety Inventory (Trait Subscale); BDI, Beck Depression Inventory-II; ASI-3, Anxiety Sensitivity Index-3; AAQ, Acceptance and Action Questionnaire-Revised; DTI-emot, Distress Tolerance Inventory-Emotion; DTI-phys, Distress Tolerance Inventory-Physical; IUS-Intolerance for Uncertainty Scale; BSSS-Brief Sensation-Seeking Scale; ATRQ-Attitudes Towards Risk Questionnaire; CI-phys, Courage Inventory-Physical; CI-soc, Courage Inventory-Social.

3.5 Discussion

The courage test appeared to be highly credible for gauging willingness to perform fearful actions. Both subscales of this semi-behavioral test, which assessed physical and social courage, were found to have good internal consistency. On average, items from the test evoked significant fear, and there also appeared to be no floor or ceiling effects with willingness to perform the items, as the percentage of participants agreeing to carry out each action ranged from 30% to 67%.

Greater physical courage was found to correlate with greater tendencies towards risk-taking behavior. An element of risk is inherent in courageous behavior, so it seems

logical that propensity towards risk-taking behavior would be correlated with courage. Courage is essentially a type of risky behavior that involves fear. Some researchers have hypothesized that the link between risk-taking and courage is one of the reasons that men, who engage in more risk-taking behavior, account for a disproportionate number of Carnegie Hero medalists (Becker & Eagly, 2004). Carnegie medals are rewarded for acts of heroism involving extreme danger, and men outnumber women among medal recipients by a ratio of 9 to 1. Tendencies towards risk-taking are predictive of many problem behaviors, including drug and alcohol abuse (Benton, Benton, & Downey, 2006), and violence (Swaim, Henry, & Baez, 2004). The fact that risk-taking was correlated with physical courage raises the interesting possibility that a negative trait can become a potential strength, depending on the context. The underlying factor contributing to both courage and risk-taking could be greater impulsivity or the tendency to deliberate little before acting.

Greater physical courage was also correlated with greater sensation-seeking behavior, a relationship that makes great intuitive sense. Given that fear is integral to courageous behavior, those inclined to seek out fear-provoking activities such as bungee jumping should find courageous behavior to be easier to carry out. Indeed, they may be drawn to such behaviors, given their fear-provoking properties. As those who tend to take risks could be attracted to the risk aspect of courage, sensation-seekers should also be attracted to the fearful aspect of courage. Sensation-seeking tendencies are also associated with problem behaviors (Zuckerman, 2007), and this is another example of a trait that may lead to negative or positive outcomes, depending on the context.

Greater tolerance for physical distress was also predictive of greater physical courage. These findings appear consistent with Gal's (1995) study, which found that decorated Israeli soldiers tended to show greater perseverance under stress than non-decorated soldiers. That is, perseverance under stress seems a logical consequence of higher distress tolerance. The risk associated with each of the physical courageous behaviors involved intense pain (a bite) as a potential outcome. If individuals have a greater tolerance for pain and physical discomfort, then being bitten by a spider or snake would not be very problematic. Consequently, handling potentially harmful animals should be easier for those with higher tolerance for physical distress.

The physical courage test was correlated with a self-report measure of courage, a finding which speaks to the validity of the test in measuring courageous behavior. The social courage test, in contrast, was not correlated with the social courage self-report subscale or other self-report measures. In addition, among participants in the individual condition, behavioral social courage was not correlated with behavioral physical courage. These findings suggest that the social courage test may be problematic as an assessment instrument.

The absence of any differences between courage test performance in either the group or individual context was unexpected. It was predicted that, since men engage in status-seeking behavior more often than women (Pratto, 1996), the status concerns that were primed in a group context would lead men to agree to perform a greater number of courageous items. A number of explanations could account for this non-difference. First, participants in the study could have thought that the courage test they completed was not

a true measure of courage (despite being told that it was). They may have suspected that others did not believe it assessed courage, as well, so status concerns may have not been salient for many. Second, the fact that participants in the individual condition completed the courage test in front of an experimenter could have made status concerns salient for this group, as well. Third, some may have thought that the courage tests (especially those involving social risk) would be especially anxiety-provoking to carry out in front of a group, a response which could have diluted the effects of group context on those more concerned with appearing courageous. Fourth, perhaps the fact that the confederates were strangers to participants led them to be less concerned with how courageous they appeared to them. If participants had the opportunity to interact with the confederates prior to the courage test, this may have led them to be more concerned with how they appeared to others and may have increased their courageous behavior. Lastly, it is possible that the courage test was not sufficiently sensitive to gauge the effects of a context manipulation.

Given that men greatly outnumber women among Carnegie hero medalists (Becker & Eagly, 2004), men in the present study were expected to show greater physical courage than women. The results did not support this prediction. Perhaps the males in the experiment did not feel sufficiently motivated to perform well on the courage test. They may have believed it did not truly measure courage and did not perform as best as they could. It is also possible that gender differences only emerge in situations where courage is very important. Individuals who are awarded Carnegie medals, for example, are given them for acts of heroism in life or death situations. Lastly, it is also plausible that the

physical courage test did not gauge a range of fearful acts that was broad enough to allow for gender differences to appear.

It is worth noting that performance on the courage test was not correlated with depression. This finding is inconsistent with Seligman's proposal that the pessimistic explanatory style inherent in depression (Seligman & Nolen-Hoeksema, 1987) may undermine the ability to perform courageous behaviors (Rachman, 1990). Perhaps optimistic explanatory style predicts courageous behavior in other contexts that do no require immediate action, such as the decision to ask someone out on a date.

It is somewhat puzzling that performance on the courage test was not correlated with trait anxiety. Greater trait anxiety might be expected to correspond with greater fear associated with the courage test items and poorer test performance. Though trait anxiety was positively correlated with reported fear, it did not predict performance. These findings showing no associations between courage and measures of mental health such as anxiety and depression stand in stark contrast with those of Hallam and Rachman (1980). Their analysis of a group of military bomb-disposal operators found members receiving awards for acts of bravery to have better mental health than a random sample of officers.

Given that anxiety sensitivity has been found to predict avoidance of fearful situations (Schmidt & Koselka, 2000; Telch et al, 1989), it was hypothesized that lower anxiety sensitivity would be correlated with greater courage. It seems logical that individuals who are afraid of the experience of fear would avoid carrying out fearful actions and would, thus, appear less courageous. However, the data from the current study did not support this hypothesis.

Some individuals did not report significant fear associated with the items on the courage test. On actions involving physical risk, these "fearless" individuals appeared to be similar to those who performed more courageously. Both fearless and courageous participants were higher in sensation-seeking and risk-taking tendencies. Both groups also scored higher on a self-report measure of physical courage. There was also a trend for fearless participants to have lower trait anxiety and higher tolerance for physical distress, though the small sample size (n=15) among this group likely contributed to the non-significant findings. Individuals reporting little fear for both physical and social actions were predominately male (physical=66.7% male, social=76.2% male), as well, though on items involving physical risk, this difference was not significant. Taken together, these results suggest that fearlessness and courage are similar concepts.

3.6 Implications for courage-increasing interventions

The findings of the present study suggest that individuals displaying lower tolerance for physical distress may require extra help with confronting fearful situations involving physical risk. The relationship between low tolerance for pain and lower physical courage raises the interesting possibility that interventions that have been developed to increase pain tolerance (Hayes *et al*., 1999; Neumann, Kugler, Seelbach, & Krüskemper, 1997) could be beneficial in increasing this type of courageous behavior. The mechanism by which such treatments could increase courage is logical: once an individual perceives that he/she is better able to cope with pain that could potentially come from carrying out a courageous behavior, it is likely that they would be better able

to act courageously. The relationship between courage and physical distress tolerance requires more research attention.

The associations between physical courage and greater sensation seeking/risk taking are likely due to the fact that courageous individuals are more impulsive and less likely to deliberate prior to performing a fearful action. Consequently, interventions that decrease deliberation in fearful situations may benefit non-courageous individuals. The use of distraction techniques would likely facilitate confrontation with fears or the ability to carry out fearful tasks. In addition, requiring individuals to complete several tasks (e.g., classification tasks) quickly prior to fear confrontation might facilitate courageous behavior by producing a mind frame (or cognitive set) that is more impulsive and quick-acting. The development of interventions targeting impulsivity and non-deliberation should be done with caution, however, as the interventions should not, as an unintended consequence, increase problem behaviors.

Chapter 4: General Discussion

The findings of the two studies presented here revealed no effects of courage-facilitating interventions or context manipulations. Both studies suffered from a few limitations. The findings also point toward a conceptualization of courage that is different from that proposed by Rachman (1990). These points, in addition to directions for future research, will be discussed in detail below.

4.1 Limitations

The two studies suffered from a number of limitations, most of them focusing on the courage test we developed. The physical courage items on the final version of the courage test all involved confrontation with animals and only consisted of five items. In general, the only potential physical harm associated with these items relates to being bitten. Though items related to fear of heights and a potentially painful task were included in the initial measure, the items were removed after either displaying poor total-item correlations (climbing a ladder) or low credibility (pouring acid from one test tube to another). Two painful tasks (being shocked by a defibrillator and immersing an arm in ice water for five min) not included in the final measure may have actually gauged pain tolerance more than courage, so their exclusion seems warranted. Obviously, there are many actions that produce significant fear in most people (e.g., bungee jumping, swimming in torrential waters) that cannot be included in a courage test due to a lack of credibility, feasibility, or safety. However, developing more items involving physical risk would be an important step towards improving this test.

The social courage items in the present study, though highly credible, appeared to be problematic in that they did not correlate with a self-report measure of social courage or any other psychological measures. Some of these items (e.g., "Walk on Dean Keeton and Guadalupe wearing a pig hat and a t-shirt saying 'I am very sexy'") could have been construed by participants as silly and not reflecting any type of courage. Some individuals who may, in fact, be courageous in other social situations may have viewed the actions with suspicion and as reflecting a willingness to humiliate oneself for no good reason. If there were sufficient reason to act and if some of the actions were not so outside the realm of normal social behavior, perhaps many participants would have appeared more courageous. Future research should take these factors into consideration when attempting to measure social courage.

The courage test was also limited by the fact that participants were not given the opportunity to perform the courageous acts they agreed to perform. Thus, it is not known whether all who agreed to perform the actions would have actually performed them. Feasibility and safety concerns both contributed to the decision to not have them perform many of these actions. Some actions, such as washing a third-floor window, could have been quite dangerous. Other actions would have required us to keep certain animals (e.g., scorpions) on hand that we did not have. In addition, some actions, such as conducting a survey on sexual practices, would have required significant time and effort to complete. An ideal courage test would require participants to carry out the courageous actions in session, would include several actions that evoke significant fear in many or most people, and would be completed with a reasonable degree of safety. Given the difficulty in

constructing such a test, a semi-behavioral assessment like the one used in this study seemed most appropriate.

Finally, the courage test was limited by the fact that participants viewed others performing the courageous acts via video clips. We thought that the use of these video clips would increase the credibility of the test. However, courage test performance may have also improved as a result of this modeling of courageous behavior (Nemeth & Chiles, 1988). The effects of modeling were the same across conditions, and it is unlikely to have led to the lack of significant differences found in both studies. Future research using a courage test may wish to minimize these modeling effects, perhaps through the use of video clips that only focus on the objects used in the courageous actions rather than the individual carrying out the action.

4.2 Problems with Rachman's definition of courage

The courage test we developed was created and scored based on Rachman's (1990) definition of courage, "perseverance in the presence of threat, despite one's fear. (p. 314)" However, this definition does not take into account the fact that courageous behavior is generally *goal-directed*. The firefighter has an incentive to act courageously when running into a burning building: to save a child. Similarly, the overworked laborer has a reason to confront their boss: to receive a pay raise. The fact that participants in the present study did not have a significant motive to perform courageously on the courage test (besides our expressed desire to gain an accurate assessment of their courage) leaves open the possibility that many participants did not feel sufficient need to act courageously and agreed to perform fewer steps as a result. Similarly, the fact that the courage test was

correlated more strongly with sensation-seeking than a self-report measure of courage suggests problems with the construct validity of the measure and Rachman's definition of courage.

Courage as it is commonly defined is not only goal-oriented but is also carried out with a *social good* in mind. In other words, there is an aspect of nobility or virtue to it. The chief problem with Rachman's definition of courage is that it allows both harmful behavior and sensation-seeking behavior to be deemed "courageous." If someone robs a bank, their behavior may fit Rachman's definition of courage if they experience fear during the robbery. Similarly, someone who drives at high speeds to feel a rush of anxiety could also be acting courageously, according to Rachman.

A proper definition of courage should not include harmful behavior and sensation-seeking behavior. These types of behaviors lack the elements of virtue and sacrifice found in behaviors generally considered "courageous" by society. They are also accounted for by separate constructs that have already received extensive research attention (e.g., risk-taking, aggression, criminal behavior, and sensation-seeking behavior). Allowing sensation-seeking and harmful behaviors to be considered courageous, thus, confuses our understanding of courage and these related but distinct phenomena.

I propose that courage may best be defined as *behavior involving perceived risk which is carried out for virtuous ends.* This definition accounts for acts commonly perceived as courageous, such as running into a burning building to save someone. Insofar that overcoming a clinical fear is a noble undertaking, it also accounts for acts of

courage (e.g., confronting a spider for a spider phobic) that may appear in a clinical setting. What is key is that the courageous actor perceives an element in a risk in carrying out a behavior that meets a positive end.

Though fear is absent in this proposed definition, it is also implied. That is, if an individual perceives a behavior to be risky, they will experience fear when carrying it out. This definition does not account for behavior that is objectively risky that an individual does not appraise as such, which may be called "fearless" behavior. A courageous behavior may become fearless after it is performed several times and the perception of risk is lowered, but surely this does not make this behavior less noble or helpful. In contrast to courageous behavior, fearless behavior may be conceptualized as *behavior involving objective but not perceived risk which is carried out for virtuous ends.* The relationship between courageous and fearless behavior deserves further study. The utility of the distinction has yet to be determined.

4.3 Future research

Future research in courage should work towards refining the test of courage developed in the present study in a few different ways. First, it will be important to add more items to the test that possibly gauge more fears. Perhaps more actions involving heights could be included. In addition, actions could be added that involve confinement to very tight, enclosed spaces for extended periods of time. Some actions that do not evoke significant fear in many people, such as picking up a rat, could be more fearful in a different context. For example, participants might be asked to enter a dark room containing several rats or place their hand in a covered box containing a rat that they

cannot see. Items may also be added that relate to a number of different potentially painful tasks (e.g., performing a classification task where wrong answers could be met with a shock). Given concerns with credibility, safety, and feasibility, it is likely that new courageous actions involving physical risk will be limited to fears related to animals, heights, enclosed spaces, and potentially painful tasks.

The sensitivity of the courage test will likely be improved through the addition of new types of actions. However, it might also benefit from including several steps of increasing difficulty for each item. For example, the item, "Have a live tarantula crawl up my arm," could be divided into: 1) place my hand over an open container that houses a tarantula; 2) touch a tarantula with my finger; 3) pick up a tarantula with my hands; and 4) have a tarantula crawl up my arm.

Given that courageous actions are generally performed with a goal in mind, future research would also do well to ensure that there is sufficient motivation for subjects to perform courageously. These incentives could be related to the interests of self or others. For example, participants could be told that highly courageous individuals will be entered into a drawing for a prize. An "others-centered" incentive might involve telling participants that the courage test will be used to screen for firefighters who may not be able to perform adequately on the job. They could be told that it is extremely important for them to perform as many tasks as they feel capable of performing in order to ensure the validity of the test and the safety of both firefighters and citizens. An investigation of these incentives might help identify predictors of courageous behaviors performed out of self-interest or on behalf of others. It would behoove researchers to test some of the

variables the present investigation found to be non-significant in predicting courage, such as anxiety sensitivity, in contexts involving incentives for courageous behavior.

Though we did not assess the degree to which participants believed the courage test used in the present study was a genuine measure of courage, future research should include this question following the tests' completion. Some of the items lacking credibility in the present study (e.g., pouring sulfuric acid from one test tube to another) may have led participants to view the overall test more suspiciously and as not truly measuring courage. This suspicion could have impacted their performance on other items, as well. The inclusion of items with high credibility and face validity should be an important consideration in future research.

Given that many socially courageous acts are not inherently dangerous, it is possible that a multi-step behavioral test examining this construct could be administered in a laboratory setting. Instead of assessing "willingness to perform," such a test could be feasible enough to actually have participants carry out. The test might involve giving speeches on sensitive topics or posting pictures on websites where one would have his/her appearance judged by others (e.g., www.hotornot.com). The social anxiety literature is rich with methods for evoking and reducing anxiety in social situations (Heimberg & Becker, 2002). Researchers studying social courage would do well to draw from this literature when designing assessments and developing courage-enhancing interventions.

Given some of the limitations of the current study in examining the effects of group context in courageous behavior, future research may wish to further examine these

potential effects using different methodology. For example, it would be interesting to test whether spider phobics perform better on a behavioral approach test (BAT) when in a group than when alone. If such individuals are asked to interact with other participants prior to completing the BAT in front of them, perhaps this familiarity and group cohesion may lead to improved performance on the test. Such a study may include the following conditions: 1) completion of a BAT alone; 2) completion of a BAT in the presence of other phobics who are strangers; and 3) completion of a BAT in the presence of other phobics with whom they just completed a 30 min "get-to-know-you" activity.

Given the difficulty inherent in constructing credible, sensitive, and safe courage tests that tap the fears of most individuals, future research may wish to use phobic participants in the examination of courage. BATs that are sensitive to the effects of treatment already exist for spider and snake phobias (Öst, Salkovskis, & Hellström, 1991). If certain characteristics, such as anxiety sensitivity, predict courageous approach behavior among phobics, it might be inappropriate to generalize these findings to non-clinical populations. However, specific phobics are often used in studies to test different phenomena associated with other anxiety disorders (e.g., Powers, Smits, & Telch, 2004), and at the very least, examining courage among this sample may lead to findings that could be applied to other anxious individuals. A less controversial application of research using phobic participants might involve the examination of interventions that facilitate courageous behavior. If different interventions are found to be helpful in allowing an individual to confront a spider they fear, they are also likely to be helpful in confronting other fears. To summarize, identifying characteristics that distinguish courageous phobic

individuals from non-courageous phobic individuals could be beneficial to the understanding of anxiety disorders, but producing interventions that help a phobic individual confront their fear would be potentially be more generalizable to non-clinical populations.

Finally, future research may find utility in also examining fearlessness. If a heroic behavior occurs, it matters little to society whether the hero was experiencing fear. It only matters that the fireman saved the child, the soldier saved the platoon, and the civil rights leader stood up against injustice. There is an abundance of research on fear, though this research has generally focused on anxiety disorders (i.e., clinical fears). But what of the individuals who do not fear the things that are normally feared? What is unique about those who fear neither death, nor injury, nor social humiliation—and act accordingly? The identification of factors that lead to fearless and courageous behavior will hopefully lead to a greater number of heroes among us. It is my hope that significantly more research will be carried out towards this pursuit.

Appendix A. Manualized Protocol Study One

A. GREETING AND INFORMED CONSENT

Hi! My name is (your name). I am the experimenter for this study and I will run today's session. Please have a seat. First, could you turn your cell phone off, if you have one? It's important not to have any distractions during the experiment. Today's session involves several phases. First, you will read and sign a consent form. Next, you will fill out a few questionnaires. Following this, you will be randomly assigned to one of five conditions, four of which are designed to help people act courageously. After this, you will be asked to complete a courage test. You will not be forced to do the courageous tasks. We ask that you do only those you think you are capable of doing, so that we can obtain an accurate assessment of your courage.

Do you have any questions? Answer briefly and hand them consent form. *Now, please complete this consent form before we get started. There are two copies, I need you to sign both of them. I will need to sign them, as well. One is for you and one is for us.* Sign both copies.

B. SELF-REPORT QUESTIONNAIRES

Present questionnaires. *Now let's get started with the questionnaires. Don't spend too much time thinking about the questions, just stick with your first reaction and mark that answer. It is important that you answer each question honestly. If you have any questions, feel free to ask. I will be seated* (wherever you are seated)*, please come get me when you are finished.*

While they are completing the questionnaire battery, write their participant number on the white portion of the vial, then cover the entire white part with scotch tape. Store it in the freezer.

Then, prepare for the condition they are in. Prepare the chamber, get relevant forms, etc. (read through the script below to see what you need).

After they complete the questionnaire battery, give the pages a quick look to make sure they answered every question. **Check the front and back of each page!** If respondents skipped any items, bring it to their attention. **Say:** *It appears that you've skipped a few items. You are free to leave these items unanswered, if you wish. However, if you unintentionally missed these questions and would like to answer them, please do so now.*

Say: *Do you have a history of seizures?* If they do, **Say:** *Because there is a slight risk of seizures associated with one of the conditions, I'm afraid you won't be able to participate in the rest of this study. However, you will receive full credit for participating.* Skip down to the debriefing, give them credit.

If there is no seizure history, skip down to the appropriate section based on the condition they have been assigned.

C. NO-INTERVENTION CONDITION

For this condition, just skip down to the Courage Test section (Section J).

D. DAVID CONDITION

For this condition, have the DAVID goggles and headset ready. Open the powerpoint slide that says "DAVID condition". When they are ready, **Say:** *Please watch the following video closely.* Tell them to click on the video for it to begin.

After the video clip ends, give them the goggles and headset. Have them sit in the RECLINING chair and **Say:** *'Please put on the headphones and goggles. Remember to focus on the pulsating lights and sounds. Keep your eyes closed. If your mind starts to wander, simply return your focus to the pulsing lights and sounds.'*

Start the stopwatch and Press **6 only** on the DAVID for it to begin. Leave the room, closing the door behind you.

After fifteen minutes have passed, enter the room again. Take the goggles and headset from them, and stop the DAVID device. **Say:** *Now please rest for one minute.* Start the stopwatch and Press **6 only** on the DAVID for it to begin. Leave the room, closing the door behind you. Wait for fifteen minutes, then come back. Take goggles and headset.

Say: '*By now, you should have experienced significant stimulation of the frontal lobe, which will lead to improvements in emotional regulation. Through stimulation of this area of the brain, you should be better able to face your fears head on. Now, please answer these questions* (present the 7-item Post-Intervention questionnaire).

Say: *'Now, we would like you to perform the test of courage.'*

Go to section J.

E. COURAGE EDUCATION

Open the powerpoint slide that says "Conditions" to the first slide (CE). When they are ready, **Say:** *Please watch the following video closely.* Tell them to click on the video for it to begin.

If they also will be receiving the cognitive intervention, skip to the next section after the video clip ends. If not, bring participant script for Courage Education and **Say:** *'Now, I would like you to review the information that was just presented. Here is a copy of education you just received. I would like you to read over it for the next ten minutes. When you read it over, review it as if you were preparing to discuss it with someone.*

Using your stopwatch, wait for ten minutes outside the room. When you come back, **Say:** *'Now, I would like you to read over the courage education and make some notes on the back of this questionnaire battery* (give them this). *In ten more minutes, I will return and ask you to summarize and discuss what the education was about.'*

Wait for ten minutes outside the room (using your stopwatch). When you come back, **Say:** *'Now, I'd like you to tell me a bit about what you've learned.'* Allow them to discuss the information for up to five minutes. Just make sure the conversation stays on topic.

Say: '*By now, you should have learned much about courage and behaving courageously. Through understanding the nature of courage, you should be better able to face your fears head on. Now, please answer these questions* (present the 7-item Post-Intervention questionnaire and Knowledge Test—1 pg version).

Say: *'Now, we would like you to perform the test of courage.'*

Go to section J.

F. COGNITIVE INTERVENTION

Say: *'Please take a moment to complete this measure'* (Hand them the PAI)

After they finish the PAI, start the second slide in the "Conditions" powerpoint (Cog-1). Once the first clip has ended,

Say: *You may have some threatening beliefs about anxiety. Let's take a look at the form you just completed (*look at the PAI to find item they rated highest*). It looks like the concern most relevant to you when you experience anxiety is (*item they rated highest*). Does that sound right?* If they rated more than one item highest **Say:** *You indicated the concern most relevant to you when you experience anxiety is* (item #1) *and* (item #2). *Which of these would you say is most bothersome to you?* Use the most bothersome concern.

Using the Cognitive Reevaluation Sheet, **Say:** *Let's write that concern at the top of this sheet of paper here in the appropriate blank* (point to spot where it says **If I experience intense anxiety**).

Say: *Maladaptive beliefs often involve overestimation of the <u>likelihood</u> or <u>cost</u> of some threatening consequence of anxiety. For example, some people may think that experiencing intense anxiety will result in a heart attack. This is overestimating the <u>likelihood</u> of something bad happening. Others may believe that intense anxiety will lead them to faint. They think that fainting is the worst thing that could ever happen to them when, in reality, the consequences of fainting are not that bad. This is an example of overestimating the <u>cost</u> of a negative event happening.*

Say: *Let's take a look at the likelihood and cost estimates for your concern. Please rate the concern in terms of the likelihood and cost in the appropriate space* (point to space they should rate). *Rate your concern based on how you would feel in a moment <u>when you are experiencing intense anxiety.</u> Do NOT rate them based on how you are feeling right now. Rate them based on how you would feel in that moment of intense anxiety.*

Pull out "**Research Related to Consequences of Anxiety**" sheets for them to read.
Say: *In a moment we're going to examine the validity of this belief. But first, please read over this information which provides research evidence related to the concern you endorsed. Just read over the information relevant to <u>your</u> concerns about anxiety* (Wait for them to read over evidence sheets. **You may want to point to the section that is relevant to their concern.**)

Say: *Now, let's test the validity of this belief by considering the evidence. Say that you have the belief that you will have a heart attack from experiencing intense anxiety. You can test this belief by considering three pieces of evidence. First is your own experience. Have you had a heart attack before as a result of intense anxiety? Second is the experience of others. Do you know people who have had heart attacks before as a result of intense anxiety? Third is research. At this point you can consult the handout you just read to look at research which says that intense anxiety is not a risk factor for heart disease and that heart attacks result from a <u>stopped</u> heart, rather than a <u>racing</u> heart.*

Pull out **Cognitive Re-evaluation Sheet** again and **Say:** *Now, complete the rest of this form by providing evidence to test your concern in these three ways. After reviewing the evidence, re-evaluate this belief at the bottom of the page in terms of its likelihood and cost.*

After they complete the form, have them watch the next film clip (Cog-2).

The video clip should end with Jesse saying "Can you think of any other things you do that you're never completely certain about? Things that could possibly result in an accident? Please pause for a moment to discuss these things with the experimenter." **Say:** *So, can you think of anything else you do regularly that involves uncertainty?* (if they're having trouble, give them some examples, such as eating in a restaurant—you don't know who prepared their food, using an elevator, climbing up stairs, flying a plane).

Once you're done, click on the next film clip (Cog-3).

If the participant also receives the Guided Mastery Intervention, skip to that section when the clip is over.

Once the clip has finished, give them the **Participant script** with courage education and cognitive intervention, **Say:** *'Here is a copy of the information you just received. Now, I would like you to read it over and make some notes on the back of this questionnaire battery* (give them this). *In ten more minutes, I will return and ask you to summarize and discuss what the education was about.'*

Wait for ten minutes outside the room (using your stopwatch). When you come back, **Say:** *'Now, I'd like you to tell me a bit about what you've learned.'* Allow them to discuss it for up to five minutes. Just make sure the conversation stays on topic.

Say: *By now*, *should have learned much about courage and behaving courageously. In addition, you should have learned that anxiety is not dangerous and uncertainty is something that can be conquered. Through understanding the nature of courage, anxiety and uncertainty, you should be better able to face your fears head on. Now, please answer these questions* (present the 7-item Post-Intervention questionnaire and Knowledge Test—2 pg version).

Say: *Now, we would like you to perform the test of courage.*

Go to section J.

G. GUIDED MASTERY INTERVENTION

When they are ready, start the next film clip ("GM"). **Make sure sanitizer paper is covering the bottom of the chamber (do this before they come into the room). Make sure you have a stop watch and the VAS with you.**

Once the clip has finished, **Say:** *Now, come with me to see the cabinet we will be using* (show them claustrophobia chamber).

Say: *Now, please complete this questionnaire after reading these fact sheets and viewing the pictures about the snake that will be used for one of the two behaviors* (hand them guided mastery hierarchy, fact sheet and picture). *We will use your answers to help us choose the courageous actions you will perform here in session. I will return in a moment.* **Use this time to prop open door to room 3.122C**. **Have VAS ready.**

Take the questionnaire from the participant and identify the actions in each category that they are willing to perform that provokes the *most* fear and they are also confident they can perform (rating of 80% or more). If the fear level is 50 or above and the confidence level is 80 or above, this will be the action you ask them to perform. If no action is suitable from a category (show fear < 50 or confidence <80 on all actions), pick a second action from one of the other two categories. If they cannot go through with one action (eg, cannot last a minute holding a snake), go down a step on the hierarchy to an easier action for them to perform. If you can't use any actions from any of the categories (fear < 50 on all of them), use the actions that are most fear-provoking.

Say: *Now, we are going to ask you to enter a room with a ball python and* (SAY BEHAVIOR THEY AGREED TO HERE). **Make sure they are standing outside in the hall.** Go get the snake, place it on the floor (the door should be propped open). Then show them the snake. **Say:** *What is your fear level as you think about performing this behavior, using a 0 (no fear at all) to 100 (extreme fear) scale?* (show VAS) *Please enter now and XXX.*

Make a note on the **Courage Experimenter Sheet** if they completed the behavior successfully or they failed (along with their fear level).

Say: *Please wait here one moment.* **Pick up the snake to bring back into the animal room.**

Come back to the room and Say: *Now, you can see that you were able to perform this courageous task. You were still able to perform the courageous behaviour, despite experiencing fear. You pushed through the fear to carry out the behavior. This is what courage is all about. Now, please step out in the hall.*

Say: '*Next, we will take you to a room where you will be asked to lay down inside a tight cabinet for X minutes.* **Open the door and show them the cabinet.** *This cabinet will be*

(**unlocked or locked, depending on their answer**) *and I will be* (**in/outside**) *the room for the duration of the time that you are in it. This task may provoke fear, but it is not harmful.*'

Have the VAS ready.

Say: '*In a moment I will open the door of the chamber. You are to get inside and lie down on the sanitary paper with your head on the pillow, and remain there as long as you can. I will signal to you when the exercise is over by opening the door. Do know that you can leave the chamber at any time if you get too uncomfortable; however, I would like you to try and stay for XXX minutes. The door of the chamber will remain* (**unlocked or locked**) *and I will be* (**in/outside**) *the room at all times. In the event that you need to leave the chamber before the XXX minutes are over, simply let me know.*

What is your fear level as you think about performing this behavior, using a 0 (no fear at all) to 100 (extreme fear) scale? (show VAS) *Please enter now.*

Close the door to the chamber all the way. If they are in the LOCKED condition, may a noise on the chamber door which gives the impression that they are being locked inside. Use your stopwatch. When the set time has passed, make the UNLOCKING noise again if they are in the LOCKED condition, then open the door and help them out. Stay IN or OUTSIDE of the room, depending on their answer. Write on your experimenter sheet whether they successfully completed the task or they failed (along with their fear level).

Once they are out of the chamber, Say: *Great work! You might be beginning to see that courageous behavior is something you are quite capable of performing. You may have thought before that this is something you couldn't do, but you still pushed through the fear and performed the action. Persisting in the face of fear as you have done with this task is the essence of courage. Do you understand?*

Say: *By now, you should have learned much about courage and behaving courageously. In addition, you should have learned that anxiety is not dangerous and uncertainty is something that can be conquered. Lastly, you should have learned that you are capable of performing courageous actions. Through understanding the nature of courage, anxiety and uncertainty, and through practicing these courageous actions, you should be better able to face your fears head on. Now, please answer these questions* (present the 7-item Post-Intervention questionnaire and Knowledge Test—3 pg version).

Say: *Now, we would like you to perform the test of courage.*

Go to section J.

H. COURAGE TEST

TURN THE VOLUME OFF ON THE COMPUTER!

Now, pull up the powerpoint slides for the courage test. If it is a male participant, open "courage test-boy". If it is a female participant, open "courage test-girl".

Say: *Now, we will ask you to undergo a test of courage. Please read this checklist closely. You will need to refer to the video clips associated with each item before you rate it. To view the clip, simply use the mouse to click on the clip. To move to the next video clip, simply push the DOWN arrow* (point to it on the keyboard). *So, you will view a clip, then rate an item, view a clip, then rate an item, and so on. When you have completed the checklist, we will randomly select three actions for you to carry out among those actions you agree to perform. Of course, you are free to refuse to perform any or all of the actions.* **Once they view the first clip, start your stopwatch. When they finished it, stop the stopwatch and record how long it took for them to complete the test on your experimenter sheet.**

Once they complete the checklist, look it over to make sure every item has been answered. Then **Say:** *Actually, we will not have you carry out any of the courageous tasks today. Now, could you please complete this questionnaire?* (hand them Post-Experiment Questions-3 items to answer)

I. DEBRIEFING

We have now completed today's session. Since it is important that participants in this study come into it without certain expectations of what will happen, it will be important for you to not discuss the details of the study with others who might participate in it. Will you agree to refrain from discussing it with others? To confirm this agreement, could you sign this contract? (hand copy of Courage Study Contract for them to sign).

Please read and sign this debriefing form. There are two copies, and I need you to sign both of them. After they sign the form and hand it back to you, give them their copy of consent, debriefing, and referral sheet. *This is your copy of consent and debriefing. Also, this is a list of referrals that we give to all participants.*

If they were in the wait-list or DAVID conditions, **Say:** *Since you were not given an active intervention to facilitate courageous behavior, you have the option to receive any of the three mentioned in the informed consent and debriefing.* If they say they want one, administer it now (if feasible) or schedule them for another visit to do this.

Courage education

The following stories are true acts of bravery from the recipients of the Carnegie Hero medal. This medal is given to individuals for acts involving remarkable courage.

> *Dale L. Sayler saved Robert S. Taylor from being struck by a train, Hebron, North Dakota, November 9, 2004. Taylor, 48, remained in the driver's seat of a van that was stuck on a railroad track at night. Sayler, 45, bank executive, was alerted to the situation while driving nearby. Responding to the scene, he saw that a freight train was approaching, from about a quarter-mile away. Sayler ran to the driver's door of the van and opened it, then grasped Taylor around the chest and pulled him out of the van. Taylor fell to the track, and again Sayler grasped him about the chest. He dragged Taylor off the track just seconds before the train, in emergency braking, struck the van and pushed it 165 feet away. When the train stopped, its front was about a half-mile from the point of impact. Neither Sayler nor Taylor was injured.*
>
> *Courtney A. Frederick rescued Ciera S. Davis from burning, Martinsville, Indiana, May 13, 2004. Ciera, 2, was spending the night with members of her extended family in a one-floor apartment that adjoined a large barn. Early in the morning, leaking propane in the structure exploded, causing major collapse of the apartment unit and eruption of flames, which grew and spread quickly. Frederick, 28, Ciera's cousin, escaped the building with other family members. A man who responded to the scene saw Ciera in the apartment living room, but she was beyond his grasp as he reached through a window for her. Although she had been burned in the explosion, Frederick re-entered the structure, through a hole that had been created in one of the walls. She crossed the living room, which was on fire, and approached Ciera, having to reach through flames to grasp her. Retracing her steps, Frederick carried Ciera outside to safety. Flames engulfed the apartment, which was destroyed, as was a portion of the barn. Ciera and Frederick required hospitalization for treatment of their burns, Frederick's including third-degree to her upper and lower extremities. They recovered.*

The heroes in the stories above demonstrated remarkable courage and self-sacrifice. They carried out these courageous acts even though they risked considerable harm to themselves. Carrying out behavior that carries the risk of harm is part of what constitutes courage. Another element is fear.

It is impossible to speak of courage without reference to fear. The two are intertwined. Some consider being afraid in certain situations to be cowardly, but the presence of fear is actually what makes an act courageous. When fear is experienced, your body prepares itself to fight or flee by increasing heart rate, blood pressure, and respiration. The natural

response for an individual is to escape the threatening situation that causes him or her fear. However, humans are often able to bypass their fearful response and act "nonfearfully." When this occurs, we say the individual acted courageously.

There is a distinction that can be made between fearless and courageous behavior. To give an example, for people who have received the appropriate training, disposing of a bomb is no big deal, and they don't experience fear while doing this. This is an example of fearless behavior. For others, bomb disposal evokes very intense fear. Those who experience fear while disposing of a bomb are acting courageously.

Many courageous acts are easy to identify. Most would agree that fire fighters who rescue people from burning buildings are acting courageously. But courage can also appear in more subtle forms that do not necessarily involve threats of physical harm. It can take courage to confront a friend about his or her problem with alcohol. It may also take courage for someone afraid of spiders to confront a tarantula that is, in reality, completely harmless.

Courage is an essential virtue. Wars are lost or won because of acts of courage. Lives are saved by police officers and fire fighters because of the courage required of them on the job. In addition, courage is vital in resolving relationship problems, which have avoidance and fear of confrontation at their root. Lastly, courage shown by civil rights leaders (e.g., Martin Luther King, Jr.) has been important in fighting injustice.

A key aspect of courage involves acceptance. Acceptance of fear and acceptance of the risk involved in a courageous act. Once you allow yourself to accept the fear and the risk inherent in certain threatening situations, you will be prepared to act courageously.

Now we would like you to imagine that the courageous tasks you will be asked to perform in a moment are a bit like approaching someone you like and asking them out on a date. Imagine that you really like this person, but you don't really know how he or she feels. What kind of thoughts do you think are going to occur in such a situation? It's likely that thoughts such as "I can't do it" or "They'll never say yes" or "I will be so embarrassed" will come into your mind. The best way you could possibly ask the person out would be to notice all those thoughts and the distress they carry with them and let them be, to notice them and make room for them while you ask the person out. It's about being open to all the thoughts that may come into your mind and the distress associated with them, about carrying them with you while you keep doing what you were trying to do in the first place- that is asking out the person you really like. In the same way that you can embrace all the horrible thoughts and feelings that show up while asking the person out, you could embrace all the negative thoughts that show up while you are confronting other fearful situations requiring courageous behavior. Notice all the thoughts that come into your mind while you confront the fearful scenarios and carry

them with you because you can have whatever thoughts and act differently to what you think or feel.

Cognitive Condition

Beliefs about Fear
Fear is probably the most basic of all emotions. Not only is it experienced by humans, but fear responses have been found in all species of animals right down to the sea slug. Although many definitions of anxiety have appeared over the years, there is a core theme that emerges in these definitions. This them involves the *anticipation* of danger or threat. For this reason, we define anxiety as a *normal innate emotional alarm response to the anticipation of danger or threat.*

Everyone has experienced anxiety at some time. Common examples include the feelings upon entering a classroom just before an exam, or the feelings one gets when one awakes in the middle of the night to sounds of a prowler in the house. So what purpose do these feelings of anxiety have for us? *Protection!* Anxiety or panic (very intense anxiety) functions as a *protective alarm system* to aid in coping with potential danger and threat. In essence the anxiety alarm functions as a readiness alarm. It warns us that some danger or threat is coming. Imagine if you were crossing the street when suddenly a car sped toward you blasting its horn. If you experienced absolutely no anxiety, you would be killed. However, more probably, you panic alarm would be triggered and you would run out of the way to safety. The moral of this story is a simple one—the purpose of anxiety and panic is to protect, not to harm. It would be totally ridiculous for us to be given a mechanism whose purpose is to protect and yet, in doing so, causes harm.

A number of things happen when we experience anxiety. Your heart-rate may increase. You may sweat, feel chest pain, or experience an increase in the speed and depth of breathing. Your muscles may tense up. You may feel the urge to escape. Each of these phenomena share a common property. They each in their own way function to prepare us for immediate protective action.

Often times people avoid scary situations because they have certain faulty beliefs about fear or anxiety. They may think that anxiety is dangerous and they'll have a heart attack if they experience it. Or they may think that they'll lose control or will look foolish to others if they experience intense anxiety. These beliefs about anxiety are quite common and can keep people from acting courageously. You can probably see how this would make sense, given that fear is an important part of courage. If people are afraid of fear, then this will keep them from acting courageously.

Maladaptive beliefs often involve overestimation of the *likelihood* or *cost* of some threatening consequence of anxiety. For example, some people may think that experience intense anxiety will result in a heart attack. This is overestimating the *likelihood* of something bad happening. Others may believe that intense anxiety will lead them to faint. They think that fainting is the worst thing that could ever happen to them when, in reality, the consequences of fainting are not that bad. This is an example of overestimating the *cost* of a negative event happening.

Let's take a look at the likelihood and cost estimates for your concern. Please rate the concern in terms of the likelihood and cost in the appropriate space.

In a moment we're going to examine the validity of this belief. But first, please read over this information which provides research evidence related to the concern you endorsed.

Now, let's test the validity of this belief by considering the evidence. Say that you have the belief that you will have a heart attack from experiencing intense anxiety. You can test this belief by considering three pieces of evidence. First is your own experience. Have you had a heart attack before as a result of intense anxiety? Second is the experience of others. Do you know people who have had heart attacks before as a result of intense anxiety? Third is research. At this point you can consult the handout you just read to look at research which says that intense anxiety is not a risk factor for heart disease and that heart attacks result from a *stopped* heart, rather than a *racing* heart.

Now, complete the rest of this form by providing evidence to test your concern in these three ways. After reviewing the evidence, re-evaluate this belief in terms of its likelihood and cost.

Beliefs about Uncertainty

A lot of time we worry about things that are possible but are not really that probable. For example, it is possible to have a heart attack when anxious, but what is the probability? If we worried about everything that is possible, then we would worry about *everything*. For example, it's possible that you could walk out on the street and someone could think you are Satan and attack and kill you. But what is the probability of such an event happening? We get information about probability by looking at how often something happens in the real world. Sometimes we refer to information about probability as the base-rate. For example, what base-rate (or the percentage) of people who have headaches also have brain tumors? We could talk to all the people who have headaches—which is just about everyone—and ask how many of these people also have brain tumors. The answer would amount to a very small percentage.

How afraid would you be to skydive? Do you think you would experience any fear when you jumped out of an airplane? If so, then skydiving would be an act of courage!

What would you be afraid of happening? Would you go through with it?

What do you think is the probability that you would die in an accident?
1 in 10, 1 in 100, 1 in 1000, 1 in 10,000 or more?

Well, statistics show that skydiving accidents occur once in every 100,000 jumps. To compare this to the rate of driving fatalities, if you drove your car 10,000 miles in a year, your chance of dying from an accident would be about 1 in 6,000. You would have to jump 17 times in a year for your chances of being in a skydiving accident to equal your chances of being in a fatal car accident.

So, you see that, if you drive, you are doing something that is even more daring than jumping out of an airplane. It is possible that you can be in an accident every time you drive, but you still do it. The reason you might be afraid to jump out of an airplane, even though you aren't afraid to drive, has to do with familiarity. You have likely driven a car for many miles, yet you're still alive. Skydiving seems scarier because you haven't jumped out of a plane as much.

Skydiving can be like many other courageous acts in that they often require one to do things that are unfamiliar. Each act carries with it a degree of uncertainty. You are never *completely* certain that nothing bad will happen when you perform a courageous behavior, but you still can push through the uncertainty and act courageously.

A lot of times we're called on to do courageous acts that are unfamiliar to us. This unfamiliarity can keep us from acting courageously. Though many of these unfamiliar acts seem especially scary, it's important to remember that, just because it's unfamiliar doesn't make it incredibly dangerous. We know that skydiving is safer than driving a car, right? But it seems scarier because it's unfamiliar. You can probably think of something you've done before that seemed scary at first, but then after awhile, it was not very scary. In fact, driving a car may have been like that initially. So, the lesson is, don't let the simple fact that something is unfamiliar keep you acting courageously.

Can you think of any other things you do that you're never completely certain about? Things that could possibly result in an accident? (e.g., eating in a restaurant—you don't know who prepared their food, using an elevator, climbing up stairs)

The way that people deal with uncertainty influences whether or not they carry out a courageous behavior. Many times, people confuse *possible* with *probable*. That is, they think that since a harmful outcome to a courageous act is possible, then it is likely to happen. In reality, *anything* is possible. It's possible that you could have been in an accident when you walked out of your home this morning, but you still did. Uncertainty is a part of life. No matter what you do, you can never achieve certainty. When we are

called upon to act courageously, the outcome is always uncertain, but we can live with the uncertainty, push through it, and act with courage.

By now, should have learned much about courage and behaving courageously. In addition, you should have learned that anxiety is not dangerous and uncertainty is something that can be conquered. Through understanding the nature of courage, anxiety and uncertainty, you should be better able to face your fears head on.

Guided Mastery Condition

We are now starting an intervention to facilitate courageous behavior. Research has found that practicing courageous behavior can help individuals act more courageously. The logic is that courage is something that can be increased with practice.

Soldiers often prepare for battle by running, shooting targets, and performing different maneuvers in simulated combat situations. In the same way, we expect that practicing acts of courage will help you prepare for future situations where courage becomes necessary.

In other words, it will help you effectively carry out the courageous tasks you will be asked to perform.

Fire-fighters go through the same kind of training. They practice putting out fires in burning buildings, and they count on this training to help them when they are called upon to act courageously when a real-life emergency situation arises.

In a moment, we are going to ask you to perform three courageous behaviors. We hope that by engaging in these behaviors, you will be better able to handle carrying out the courageous tasks you will be asked to perform.

Cognitive Re-evaluation Sheet

If I experience intense anxiety, _____

_____.

Now, imagine you were in a situation where you were experiencing intense anxiety. Only answer the two questions below based on how you would feel in a moment when you are experiencing intense anxiety. Do not rate them based on how you feel right now.

How likely is it that this would happen if you experienced intense anxiety?

0	10	20	30	40	50	60	70	80	90	100
Not at all likely										Extremely likely

How bad would it be if this actually happened?

0	10	20	30	40	50	60	70	80	90	100
Not at all bad										Extremely bad

Testing the Thought

Evidence from own experience: _____

_____

Evidence from others' experience: _____

_____

Evidence from research: _____

_____

Based on the evidence you have now considered, please rate again your likelihood/cost estimates of the concern you listed on the top of this page.

How likely is it that this would happen if you experienced intense anxiety?

0	10	20	30	40	50	60	70	80	90	100
Not at all likely										Extremely likely

How bad would it be if this actually happened?

0	10	20	30	40	50	60	70	80	90	100
Not at all bad										Extremely bad

GM Hierarchy of Courageous Actions

Each of the following situations involve actions we may ask you to carry out. In the column "Anticipated Fear" rate how much fear you would expect to experience if you were to perform each task using a 0 (no fear at all) to 100 (extreme fear) scale. Also, make a check mark for each action you agree to perform. Lastly, rate your confidence that you can perform the action on a 0 (not at all confident) to 100 (extremely confident) scale. Among those you agree to perform, we will choose three actions for you to complete in today's session.

Ball Python Snake

	Anticipated fear (0-100)	Agree to Perform (Yes/No)	Confidence that you can perform (0-100)
Stay in same room as snake for one minute	_____	_____	_____
Stay within 1 foot of snake for one minute	_____	_____	_____
Touch snake with a pencil for one minute	_____	_____	_____
Touch snake with a glove for one minute	_____	_____	_____
Touch snake with finger for one minute	_____	_____	_____
Hold snake in hand for one minute	_____	_____	_____
Hold snake in hand			

and let crawl on arm
for one minute _____ _____ _____

Claustrophobia Chamber

Each of the following situations involve actions that can be carried out with (With Exp) or without (Alone) the experimenter in the room. Rate each action in the appropriate columns—as if carried out with the experimenter in the room or if carried out alone.

	Anticipated fear (0-100)		Agree to Perform (Yes/No)		Confidence that you can perform (0-100)	
	With Exp	Alone	With Exp	Alone	With Exp	Alone
Stay in UNLOCKED chamber for 2 minutes	_____	_____	_____	_____	_____	_____
Stay in UNLOCKED chamber for 5 minutes	_____	_____	_____	_____	_____	_____
Stay in LOCKED chamber for 2 minutes	_____	_____	_____	_____	_____	_____
Stay in LOCKED chamber for 5 minutes	_____	_____	_____	_____	_____	_____

Appendix B. Manualized Protocol Study Two

A. GREETING AND INFORMED CONSENT

Make sure you are VERY serious throughout the study, and try not to go off script.
Hi! My name is (your name). I am the experimenter for this study and I will run today's session. Please have a seat. First, could you turn your cell phone off, if you have one? It's important not to have any distractions during the experiment. Today's session involves several phases. First, you will read and sign a consent form. Next, you will fill out a few questionnaires. Following this, you will complete a courage test. You will not be forced to do the courageous tasks. We ask that you do only those you think you are capable of doing, so that we can obtain an accurate assessment of your courage.

Do you have any questions? Answer briefly and hand them consent form. *Now, please complete this consent form before we get started. There are two copies. I need you to sign both of them. I will need to sign them, as well. One is for you and one is for us.* Sign both copies.

Say: *May I have your EID, please? This is to give you credit.* Write their EID and participant number on the experiment credit sheet (the next highest number from the number of the last participant who was run). Write their participant number on the front of the questionnaire battery. Check the condition sheet to see whether they will be doing **Courage Test A** or **Courage Test B.** Circle the appropriate letter **AND condition (group or individual)** on the front of the questionnaire battery.

B. SELF-REPORT QUESTIONNAIRES

Present questionnaires and clipboards. *Now let's get started with the questionnaires. Don't spend too much time thinking about the questions, just stick with your first reaction and mark that answer. It is important that you answer each question honestly. If you have any questions, feel free to ask. I will be seated* (wherever you are seated)*, please come get me when you are finished.*

After they complete the questionnaire battery, give the pages a quick look to make sure they answered every question. **Check the front and back of each page!** If respondents skipped any items, bring it to their attention. **Say:** *It appears that you've skipped a few items. You are free to leave these items unanswered, if you wish. However, if you unintentionally missed these questions and would like to answer them, please do so now.* If they are in the group condition, ask them to wait until the other participants have

completed the questionnaire battery **(have them wait a couple of minutes…even though others are not completing it)**.

C. COURAGE TEST

TURN THE VOLUME OFF ON THE COMPUTER!

Hand out courage checklist(s). Now, pull up the powerpoint slides for the courage test. Check the condition sheet to see whether you should pull up **Courage Test A** or **Courage Test B.**

For the SOLO condition

Say: *Now, we will ask you to undergo a test of courage. Please read this checklist closely. You will need to refer to the video clips associated with each item before you rate it. In the column "Anticipated Fear" rate how much fear you would expect to experience if you were to perform each task using a 0 (no fear at all) to 100 (extreme fear) scale. In the column "Anticipated Disgust" rate how much disgust you would expect to experience if you were to perform each task using a 0 (no disgust at all) to 100 (extreme disgust) scale. Lastly, make a check mark for each action you agree to perform. I will be playing each clip for you before you rate the item. So, you will view a clip, then rate an item, view a clip, then rate an item, and so on. Please do not rate any of the items until I have shown you the clip. When you have completed the checklist, among those actions you agree to perform, we will randomly select three for you to carry out. Of course, you are free to refuse to perform any or all of the actions.*

Once they complete the checklist, look it over to make sure every item has been answered. Then **Say:** *Actually, we will not have you carry out any of the courageous tasks today. Now, could you please complete this questionnaire?* (hand them Post-Experiment Questions-3 items to answer)

For the GROUP condition

Say: *Now, we will ask you to undergo a test of courage. Please read this checklist closely. You will need to refer to the video clips associated with each item before you rate it. In the column "Anticipated Fear" rate how much fear you would expect to experience if you were to perform each task using a 0 (no fear at all) to 100 (extreme fear) scale. In the column "Anticipated Disgust" rate how much disgust you would expect to experience if you were to perform each task using a 0 (no disgust at all) to 100 (extreme disgust) scale. Lastly, make a check mark for each action you agree to perform. I will be playing each clip for all of you before you rate the item. So, you will view a clip, then rate an*

item, view a clip, then rate an item, and so on. Please do not rate any of the items until I have shown you the clip. When you have completed the checklist, we will post your responses right here for you to see how well you performed relative to others in the group. In addition, among those actions you agree to perform, we will randomly select three for you to carry out. These actions will be performed in the presence of the other participants in this group. Of course, you are free to refuse to perform any or all of the actions.

As you complete the checklist, ***please do so quietly*** *and without looking at other participants' checklists. It is important not to interrupt or distract other participants.*

Once they complete the checklist, look it over to make sure every item has been answered. Then **Say:** *Actually, we will not be posting your responses and we will not have you carry out any of the courageous tasks today. Also, you should know that the other people who completed this experiment were not actually participants but were here to make sure the group context would be the same for all participants who completed the group condition.* **Say:** *Now, could you please complete this questionnaire?* (hand them Post-Experiment Questions-3 items to answer).

D. DEBRIEFING

We have now completed today's session. Since it is important that participants in this study come into it without certain expectations of what will happen, it will be important for you to not discuss the details of the study with others who might participate in it. Will you agree to refrain from discussing it with others? To confirm this agreement, could you sign this contract? (hand copy of **Courage Study Contract** for them to sign).

Please read and sign this debriefing form. There are two copies, and I need you to sign both of them. After they sign the form and hand it back to you, give them their copy of consent, debriefing, and referral sheet. *This is your copy of consent and debriefing. Also, this is a list of referrals that we give to all participants.*

Appendix C. Primary study measures

Courage checklist

In the column "Anticipated Fear" rate how much fear you would expect to experience if you were to perform each task using a 0 (no fear at all) to 100 (extreme fear) scale. In the column "Anticipated Disgust" rate how much disgust you would expect to experience if you were to perform each task using a 0 (no disgust at all) to 100 (extreme disgust) scale. Lastly, make a check mark for each action you agree to perform. Among those you agree to perform, we will randomly select three items for you to complete in today's session. **Please view the video clip for each item before answering.**

Anticipated fear (0-100)	Anticipated disgust (0-100)	Agree to perform today (Yes or No)	
_____	_____	_____	1. Have a live tarantula crawl up my arm.
_____	N/A	_____	2. Ask five random students outside building several questions about their sexual habits (e.g., "how many sexual partners have you had?").
_____	_____	_____	3. Using both hands, pour urine from one test tube to another.
_____	_____	_____	4. Touch a pile of dog excrement with both hands.
_____	_____	_____	5. Have a live Uromastyx lizard crawl on my neck.
_____	_____	_____	6. Hold a live rat one inch from my ear.
_____	_____	_____	7. Put my hand in the bottom of a public toilet.
_____	N/A	_____	8. Walk on Dean Keeton and Guadalupe wearing a pig hat and a t-shirt saying "I am very sexy."
_____	N/A	_____	9. Complete a painful task involving hand immersion in ice cold water for five minutes.
_____	N/A	_____	10. Sing "Star Spangled Banner" loudly to passersby in a crowded area (e.g., the front of the student services building).
_____	N/A	_____	11. Give a speech in front of 5 students on a random sexual topic assigned to me one minute before the speech.
_____	_____	_____	12. Have a live, non-poisonous scorpion crawl on my arm.
_____	N/A	_____	13. Walk around the student services building with a brightly colored, button-up shirt on backwards.
_____	_____	_____	14. Pick up a live ball python.
_____	N/A	_____	15. Experience a safe, but moderately painful, 50 volt electric shock from a cardiac defibrillator for 500 ms.
_____	_____	_____	16. Pick up a live roach with my hands.
_____	N/A	_____	17. Approach two members of the opposite sex on Dean Keeton and ask them to rate on a 0 to 10 scale how attractive I am.
_____	N/A	_____	18. Walk around swiftly in short circles in a crowded area (e.g., Littlefield café) for one minute.
_____	N/A	_____	19. Wear a toga (bed sheet) and walk down Dean Keeton and Guadalupe.
_____	_____	_____	20. Touch the inside wall of a urinal with one hand.
_____	N/A	_____	21. Using both hands, pour sulfuric acid (a non-lethal acid which

			causes intense pain when touched) from one test tube to another.
_____	N/A	_____	22. Climb a ladder to the third floor of the courtyard and wash one window.

Courage Study Questionnaire Battery

Participant #_____ Condition: Ind / Group Test: A / B

Age: ____

Gender: Male / Female

Predominant Ethnicity: ___Black (not Hispanic)

___White (not Hispanic) ___Hispanic

___Asian or Pacific Islander ___American Indian or Alaskan Native

Other (please specify):_____

Semesters of college completed: _____

Grade Point Average: _____

STAI-T

Instructions: A number of statements which people have used to describe themselves are given below. Read each statement carefully and respond to it by writing down a number between 1 and 4 next to each statement. Use the number that best indicates that best indicates how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer that seems to describe you generally feel. The possible ratings are presented in the scale below.

1	=	Almost never	2	=	Sometimes
3	=	Often	4	=	Almost always

1. I feel pleasant.	1	2	3	4
2. I feel nervous and restless.	1	2	3	4
3. I feel satisfied with myself.	1	2	3	4
4. I wish I could be as happy as others seem to be.	1	2	3	4
5. I feel like a failure.	1	2	3	4
6. I feel rested.	1	2	3	4
7. I am "calm, cool, and collected."	1	2	3	4
8. I feel that difficulties are piling up so that I cannot overcome them.	1	2	3	4
9. I worry too much over something that really does not matter.	1	2	3	4
10.I am happy.	1	2	3	4
11. I have disturbing thoughts.	1	2	3	4
12. I lack self-confidence.	1	2	3	4
13. I feel secure.	1	2	3	4
14. I make decisions easily.	1	2	3	4
15. I feel inadequate.	1	2	3	4
16. I am content.	1	2	3	4
17. Some unimportant thought runs through my mind and bothers me.	1	2	3	4
18. I take disappointments so keenly that I can't put them out of my mind.	1	2	3	4
19. I am a steady person.	1	2	3	4
20. I get in a state of tension or turmoil as I think over my recent concerns and interests.	1	2	3	4

BDI-II

The following 21 questions measures recent symptoms of depression. Please read each group of statement carefully, and then circle the one statement in each group that best describes the way you have been feeling during the past two weeks, including today.

1. Sadness
I do not feel sad.
I feel sad much of the time.
I am sad all the time.
I am so sad or unhappy that I can't stand it.

2. Pessimism
I am not discouraged about my future.
I feel more discouraged about my future than I used to be.
I do not expect things to work out for me.
I feel my future is hopeless and will only get worse.

3. Past Failure
I do not feel like a failure.
I have failed more than I should have.
As I look back, I see a lot of failures.
I feel I am a total failure as a person.

4. Loss of Pleasure
I get as much pleasure as I ever did from the things I enjoy.
I don't enjoy things as much as I used to.
I get very little pleasure from the things I used to enjoy.
I can't get any pleasure from the things I used to enjoy.

5. Guilty Feelings
I don't feel particularly guilty.
I feel guilty over many things I have done or should have done.
I feel quite guilty most of the time.
I feel guilty all of the time.

6. Punishment Feelings
I don't feel I am being punished.
I feel I may be punished.
I expect to be punished.
I feel I am being punished.

7. Self-Dislike
I feel the same about myself as ever..
I have lost confidence in myself..
I am disappointed in myself.
I dislike myself.

8. Self-Criticalness
I don't criticize or blame myself more than usual.
I am more critical of myself than I used to be.
I criticize myself for all of my faults.
I blame myself for everything bad that happens.

10. Crying
I don't cry any more than I used to.
I cry more than I used to.
I cry over every little thing.
I feel like crying, but I can't.

11. Agitation
I am no more restless or wound up than usual.
I feel more restless or wound up than usual.
I am so restless or agitated that it's hard to stay still.
I am so restless or agitated that I have to keep moving or doing something.

12. Loss of Interest
I have not lost interest in other people or activities.
I am less interested in other people or thins than before.
I have lost most of my interest in other people or things.
It's hard to get interested in anything.

13. Indecisiveness
I make decisions about as well as ever.
I find it more difficult to make decisions than usual..
I have much greater difficulty in making decisions than I used to..
I have trouble making any decisions.

14. Worthlessness
I do not feel I am worthless..
I don't consider myself as worthwhile and useful as I used to..
I feel more worthless as compared to other people..
I feel utterly worthless.

15. Loss of Energy
I have as much energy as ever.
I have less energy than I used to have.
I don't have enough energy to do very much.
I don't have enough energy to do anything.

16. Changes in Sleeping Pattern
I have not experienced any change in my sleeping pattern..

I sleep somewhat more than usual. (OR)
I sleep somewhat less than usual.

I sleep a lot more than usual. (OR)
I sleep a lot less than usual.

I sleep most of the day (OR)
I wake up 1-2 hours early and can't get back to sleep.

17. Irritability
I am no more irritable than usual.
I am more irritable than usual.
I am much more irritable than usual.
I am irritable all the time.

18. Changes in Appetite
I have not experienced any change in my appetite.

My appetite is somewhat less than usual.
My appetite is somewhat greater than usual.

My appetite is much less than before.
My appetite is much greater than usual.

I have no appetite at all.
I crave food all the time.

19. Concentration Difficulty
I can concentrate as well as ever.
I can't concentrate as well as usual.
It's hard to keep my mind on anything for very long.
I find I can't concentrate on anything.

20. Tiredness or Fatigue
I am no more tired or fatigued than usual.
I get more tired or fatigued more easily than usual.
I am too tired or fatigued to do a lot of the things I used to do.
I am too tired or fatigued to do most of the things I used to do.

21. Loss of Interest in Sex
I have not noticed any recent change in my interest in sex.
I am less interested in sex than I used to be.
I am much less interested in sex now.
I have lost interest in sex completely.

ASI-3

Please circle the number that best corresponds to how much you agree with each item. If any items concern something that you have never experienced (e.g., fainting in public) answer on the basis of how you think you might feel *if you had* such an experience. Otherwise, answer all items on the basis of your own experience. Be careful to circle only one number for each item and please answer all items.

	Very Little	**A little**	**Some**	**Much**	**Very much**
1. It is important for me not to appear nervous.	0	1	2	3	4
2. When I cannot keep my mind on a task, I worry that I might be going crazy.	0	1	2	3	4
3. It scares me when my heart beats rapidly.	0	1	2	3	4
4. When my stomach is upset, I worry that I might be seriously ill.	0	1	2	3	4
5. It scares me when I am unable to keep my mind on a task.	0	1	2	3	4
6. When I tremble in the presence of others, I fear what people might think of me.	0	1	2	3	4
7. When my chest feels tight, I get scared that I won't be able to breathe properly.	0	1	2	3	4
8. When I feel pain in my chest, I worry that I am going to have a heart attack.	0	1	2	3	4
9. I worry that other people will notice my anxiety.	0	1	2	3	4
10. When I feel "spacey" or spaced out I worry that I may be mentally ill.	0	1	2	3	4
11. It scares me when I blush in front of people.	0	1	2	3	4
12. When I notice my heart skipping a beat, I worry that there is something seriously wrong with me.	0	1	2	3.	4
13. When I begin to sweat in a social situation, I fear people will think negatively of me.	0	1	2	3	4
14. When my thoughts seem to speed up, I worry that I might be going crazy.	0	1	2	3	4
15. When my throat feels tight, I worry that I could choke to death.	0	1	2	3	4
16. When I have trouble thinking clearly, I worry that there is something wrong with me.	0	1	2	3	4
17. I think it would be horrible for me to faint in public.	0	1	2	3	4
18. When my mind goes blank, I worry there is something terribly wrong with me.	0	1	2	3	4

IUQ-12

Below you will find a series of statements. Please read each statement carefully and respond to it by expressing the extent to which you believe the statement applies to you. For each item, a response from 0 to 5 is required. Use the number that best reflects your belief when the scale is defined as follows:

0_____1_____2_____3_____4_____5

Not at all Representative — Completely Representative

____ 1. Unforeseen events upset me greatly
____ 2. It frustrates me not having all the information I need
____ 3. Uncertainty keeps me from living a full life
____ 4. One should always look ahead so as to avoid surprises
____ 5. A small unforeseen event can spoil everything, even with the best of planning
____ 6. When it is time to act, uncertainty paralyzes me
____ 7. When I am uncertain I can't function very well
____ 8. I always want to know what the future has in store for me
____ 9. I can't stand being taken by surprise
____ 10. The smallest doubt can stop me from acting
____ 11. I should be able to organize everything I advance
____ 12. I must get away from all uncertain situations

Brief Sensation Seeking Scale (BSSS)

Please rate your level of agreement with each statement below on the following scale.

Strongly disagree		Neither disagree		Strongly agree
1	Disagree 2	or agree 3	Agree 4	5

1. I would like to explore strange places……. 1 2 3 4 5
2. I get restless when I spend too much time at home…… 1 2 3 4 5
3. I like to do frightening things…….. 1 2 3 4 5
4. I like wild parties……. 1 2 3 4 5
5. I would like to take off on a trip with no pre-planned routes or timetables…… 1 2 3 4 5
6. I prefer friends who are excitingly unpredictable…….. 1 2 3 4 5
7. I would like to try bungee jumping……. 1 2 3 4 5
8. I would love to have new and exciting experiences, even if they are illegal…… 1 2 3 4 5

ATRQ

Instructions: Indicate, using a 5-point scale, the degree to which each of the following statements describes you. Use the number 5 if the statement is a very good description of you (very like me) and the number 1 to indicate that it does not describe you at all (very unlike me). Use the remaining numbers to indicate the varying degrees that the statement is like you or not like you.

Very unlike me Very Like Me
1……..…..…2…..……3…...……..…..…4……..5

1. I like the feeling that comes with taking physical risks……. 1 2 3 4 5
2. I like the feeling that comes with taking psychological or social risks…… 1 2 3 4 5
3. While I don't deliberately seek out situations of activities that involve physical risk, I often end up doing things that involve physical risk……..... 1 2 3 4 5
4. I often seek out situations or activities that society does not approve of….. 1 2 3 4 5
5. While I don't deliberately seek out situations or activates that society disapproves of, I find that I often end up doing things that society disapproves of……..... 1 2 3 4 5
6. I often do things that I know my parents would disapprove of……. 1 2 3 4 5
7. I often do things that I know some of my friends would disapprove of…… 1 2 3 4 5
8. I often find that I am anxious or even scared of the things I am about to do. 1 2 3 4 5
9. I often do things that would hurt my reputation…… 1 2 3 4 5
10. I often do things that could jeopardize my friendships……. 1 2 3 4 5
11. I often do things that would jeopardize my reputation…….. 1 2 3 4 5
12. I never let fear get in the way of my doing things……. 1 2 3 4 5
13. I like the feeling that comes from entering a new situation…….....…….. 1 2 3 4 5
14. I don't let what other people think prevent me from doing things…… 1 2 3 4 5
15. I like to risk large sums of money……. 1 2 3 4 5
16. I would be willing to risk my life in order to receive 10 million dollars….. 1 2 3 4 5
17. I consider myself a risk-taker……. 1 2 3 4 5
18. Being afraid of something often makes it more fun in the end……. 1 2 3 4 5
19. The greater the risk the more fun the activity…… 1 2 3 4 5
20. I like to do things that almost paralyze me with fear……. 1 2 3 4 5
21. I really don't care what people think of what I say or do…….. 1 2 3 4 5
22. I do not let the fact that something is illegal stop me from doing it…….. 1 2 3 4 5
23. I do not let the fact that something is considered immoral stop me from doing it…….. 1 2 3 4 5

AAQ – R

Below you will find a list of statements. Please rate the truth of each statement as it applies to you. Use the following scale to make your choice.

1	2	3	4	5	6	7
never true	very seldom true	seldom true	sometimes true	frequently true	almost always true	always true

_____ 1. I am able to take action on a problem even if I am uncertain what is the right thing to do.

_____ 2. When I feel depressed or anxious, I am unable to take care of my responsibilities.

_____ 3. I rarely worry about getting my anxieties, worries, and feelings under control.

_____ 4. I'm not afraid of my feelings.

_____ 5. Anxiety is bad.

_____ 6. If I could magically remove all the painful experiences I've had in my life, I would do so.

_____ 7. I often catch myself daydreaming about things I've done and what I would do differently next time.

_____ 8. When I evaluate something negatively, I usually recognize that this is just a reaction, not an objective fact.

_____ 9. When I compare myself to other people, it seems that most of them are handling their lives better than I do.

Courage Inventory

Instructions: The following statements refer to several different situations and characteristics. Please choose the number matching the answer that best describes how much each statement is true of you.

1	2	3	4	5	6	7
Strongly Disagree	*Moderately Disagree*	*Slightly Disagree*	*Neither agree Nor disagree*	*Slightly Agree*	*Moderately Agree*	*Strongly Agree*

1. I'm usually able to confront people, even when I am scared or uptight while doing it……. 1 2 3 4 5 6 7

2. I'm usually able to speak up, even if doing so makes me feel scared or uptight…….. 1 2 3 4 5 6 7

3. I avoid potentially dangerous situations at all costs…… 1 2 3 4 5 6 7

4. Sometimes I think I'm over-concerned about my own safety…… 1 2 3 4 5 6 7

5. I am good at saying something difficult that needs to be said to someone, even if doing so makes me feel scared or uptight…… 1 2 3 4 5 6 7

6. I am usually able to give my opinion on things, even if doing so makes me feel scared or uptight…….. 1 2 3 4 5 6 7

7. I avoid risky activities that make me feel scared or uptight…….. 1 2 3 4 5 6 7

DTI

INSTRUCTIONS: For each of the statements listed below, please select the response that *best* describes how much you agree or disagree with the statement as it applies to how you are normally. Please read each statement carefully before responding and keep in mind that there are no *right* or *wrong* answers.

1. I can usually handle feelings of emotional upset quite well.

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

2. I usually face emotionally upsetting situations head on.

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

3. I usually follow through with tasks that are emotionally upsetting.

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

4. I am able to handle feelings of emotional upset as well as most people.

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

5. When faced with the choice of either facing an upsetting situation or avoiding it, I usually avoid it even if facing the situation is in my best interest.

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

6. I'll take fairly extreme measures to stop physical discomfort or pain.

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

7. I am a real wimp when it comes to handling any kind of physical discomfort or pain.

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

8. I have a high threshold for pain or other physical discomfort.

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

9. I can handle quite a bit of physical pain or physical discomfort.

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

10. Pain and other forms of physical distress do not bother me much.

1	2	3	4	5	6
Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree

References

Aquinas, T. (1947). *Summa Theologiae*. (Fathers of the English Dominican Province, Trans.). New York: Benziger Brothers. (Original work written 1266-1273).

Aristotle (1976). *The Ethics of Aristotle: Nicomachean Ethics.* (J.A.K. Thompson, Trans.). Harmondsworth: Penguin. (Original work written 350 B.C.)

Arnau, R. C., Meagher, M. W., Norris, M. P., & Bramson, R. (2001). Psychometric evaluation of the Beck Depression Inventory–II with primary care medical patients. *Health Psychology*, *20*, 112–119.

Asch, S. E. (1956). Studies of independence and conformity: I. A minority of one against a unanimous majority. *Psychological Monographs, 70(9),* (No. 416).

Beck, A.T. & Steer R.A. (1984). Internal consistencies of the original and revised Beck Depression Inventory. *Journal of Clinical Psychology, 40,* 1365-1367.

Beck, A.T., Steer, R.A., & Brown, G.K. (1996). Beck Depression Inventory manual, Harcourt Brace, Psychological Corporation.

Beck, A.T., Steer, R.A., & Garbin, M.G. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review, 8,* 77-100.

Becker, S.W. & Eagly, A.H. (2004). The heroism of men and women. *American Psychologist, 59*, 163-178.

Benton, S.L., Benton, S.A., & Downey, R.G. (2006). College Student Drinking, Attitudes Toward Risks, and Drinking Consequences. *Journal of Studies on Alcohol, 67*, 543-551.

Berman, M., Gladue, B., & Taylor, S. (1993). The effects of hormones, Type A behavior pattern, and provocation on aggression in men. *Motivation and Emotion, 17*, 125-138.

Bjork, J.M., Moeller, F.G., Dougherty, D.M., & Swann, A.C. (2001). Endogenous plasma testosterone levels and commission errors in women: A preliminary report. *Physiology & Behavior, 73*, 217-221.

Boswell, J. (1970). *Life of Johnson.* Edited by R.W. Chapman, revised by J.D. Fleeman. Oxford, UK: Oxford University Press.

Buss, D.M. (1989). Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures. *Behavioral and Brain Sciences, 12*, 1-49.

Carleton, R.N., Norton, P.J., & Asmundson, G.J.G, (2007). Fearing the unknown: A short version of the Intolerance of Uncertainty Scale. *Journal of Anxiety Disorders, 21*, 105-117.

Cialdini, R.B. & Goldstein, N.J. (2004). Social Influence: Compliance and conformity. *Annual Review of Psychology, 55*, 591-621.

Cox, D.; Hallam, R.; O'Connor, K., Rachman, S. (1983). An experimental analysis of fearlessness and courage. *British Journal of Psychology, 74(1),* 107-117.

De Araujo, L. A., Ito, L. M., & Marks, I. M. (1996). Early compliance and other factors predicting outcome of exposure for obsessive-compulsive disorder. *British Journal of Psychiatry, 169(6),* 747-752.

Fannin, N. & Dabbs, J.M. (2003). Testosterone and the work of firefighters: Fighting fires and delivering medical care. *Journal of Research in Personality, 37(2)*, 107-115.

Festinger, L., Pepitone, A., & Newcomb T. (1952). Some consequences of deindividuation in a group. *Journal of Abnormal and Social Psychology*, 47, 382-389.

Firemen, Doctors, Scientists, Nurses and Teachers Top List as "Most Prestigious Occupations," According to Latest Harris Poll (September 8, 2005). *The Harris Poll #69*. Retrieved October 22, 2005 from http://www.harrisinteractive.com/harris_poll/ index.asp?PID=599

Franken, R.E, Gibson, K.J, & Rowland, G.L. (1992). Sensation seeking and the tendency to view the world as threatening. *Personality and Individual Differences, 13,* 31-38.

Franklin, M.E., & Foa, E.B. (2002). Cognitive behavioral treatments for obsessive compulsive disorder. In Nathan, P. E. & Gorman, J. M. (Eds), *A guide to treatments that work (2nd edn.).* (pp. 367-386). London: Oxford University Press.

Foa, E. B., Liebowitz, M. R., Kozak, M. J., Davies, S., Campeas, R., Franklin, M.E., Huppert, J. D., et al. (2005). Randomized, Placebo-Controlled Trial of Exposure and Ritual Prevention, Clomipramine, and Their Combination in the Treatment of Obsessive-Compulsive Disorder. *American Journal of Psychiatry, 162(1),* 151-161.

Gal, R. (1995). Personality and intelligence in the military: The case of war heroes. In Saklofske, D. H. & Zeidner, M. (Eds), *International handbook of personality and intelligence* (pp. 727-737). New York, NY, US: Plenum Press.

Hallam, R.S. & Rachman, S.J. (1980). Courageous acts or courageous actors? *Personality and Individual Differences, 1*, 341-346.

Hayes, S. C., Strosahl, K. D., Wilson, K. G. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change.* New York, NY, US: Guilford Press.

Hayes, S.C., Bissett, R.T., Korn, Z., Zettle, R.D., Rosenfarb, I.S., Cooper, L.D., & Grundt, A.M. (1999). The impact of acceptance versus control rationales on pain tolerance. *Psychological Record, 49*, 33-47.

Heimberg, R.G. & Becker, R.E. (2002). *Cognitive-behavioral group therapy for social phobia: Basic mechanisms and clinical strategies*. New York: Guilford Press.

Hoyle, R.H., Stephenson, M.T., Palmgreen, P., Lorch, E.P., & Donohew, R.L. (2002). Reliability and validity of a brief measure of sensation seeking. *Personality and Individual Differences, 32*, 401–414.

Lang (1970). Stimulus control, response control and desensitization of fear. In Levis, D. (Ed.), *Learning approaches to therapeutic behaviour change.* Chicago: Aldine Press.

Margraf, J. & Schneider, S. (1991). Outcome and active ingredients of cognitive-behavioural treatments for panic disorder. Paper presented at the AABT Meeting. New York, November.

McMillan, T. M. & Rachman, S. J. (1988). Fearlessness and courage in paratroopers undergoing training. *Personality and Individual Differences, 9(2),* 373-378.

Milgram, S. (1963). Behavioral study of obedience. *Journal of Abnormal & Social Psychology, 67(4),* 371-378.

Milgram, S. (1974). *Obedience to Authority*. New York: Harper & Row.

Miller, W. (2000). *The Mystery of Courage.* Cambridge, Massachusetts, US: Harvard University Press.

Montaigne (1991). *Michel de Montaigne: The Complete Essays.* (M.A. Screech, Trans.) Harmondsworth: Penguin, 1991 (Original work published 1572).

Nemeth, C. & Chiles, C. (1988). Modelling courage: The role of dissent in fostering independence. *European Journal of Social Psychology, 18(3),* 275-280.

Neumann, W., Kugler, J., Seelbach, H. (1997). Effects of nondirective suggestions on pain tolerance, pain threshold and pain intensity perception. *Perceptual and Motor Skills, 84*, 963-966.

O'Connor, K., Hallam, R. S., Rachman, S. (1985). Fearlessness and courage: A replication experiment. *British Journal of Psychology, 76(2),* 187-197.

Oliner, S. P. & Oliner, P. M. (1988). *The altruistic personality: Rescuers of Jews in Nazi Europe.* New York, NY, US: Free Press.

Öst, L-G., Salkovskis, P.M.; Hellström, K. (1991). One-session therapist-directed exposure vs self-exposure in the treatment of spider phobia. *Behavior Therapy, 22,* 407-422.

Peterson, C. & Seligman, M.E.P. (2004) Bravery [Valor]. In Peterson, C. & Seligman, M.E.P. (Eds), *Character strengths and virtues: A handbook and classification* (213-228). Washington, DC, US: American Psychological Association.

Plato (1961). *Phaedo.* In Hamilton, E. & Huntington, C. (Eds), *Collected Dialogues of Plato.* (H. Tredenick, Trans.). New York: Pantheon. (Original work written 360 B.C.)

Plato (1961). *Laches.* In Hamilton, E. & Huntington, C. (Eds), *Collected Dialogues of Plato.* (B. Jowett, Trans.). New York: Pantheon. (Original work written 380 B.C.)

Powers, M.B., Smits, J.A.J., & Telch, M.J. (2004). Disentangling the Effects of Safety-Behavior Utilization and Safety-Behavior Availability During Exposure-Based Treatment: A Placebo-Controlled Trial. *Journal of Consulting and Clinical Psychology, 72*, 448-454.

Pratto, F. (1996). Sexual politics: The gender gap in the bedroom, the cupboard, and the cabinet. In D.M. Buss & N. M. Malamuth (Eds.), *Sex, power, conflict: Evolutionary and feminist perspectives* (pp. 179-230). New York: Oxford University Press.

Putman (2004). *Psychological Courage.* Lanham, MD: University Press of America.

Rachman, S. (1983). Fear and courage among military bomb-disposal operators. *Advances in Behaviour Research & Therapy, 4(3),* 175.

Rachman, S. (1984). Fear and courage. *Behavior Therapy, 15(1),* 109-120.

Rachman, S. (1990). Fear and courage (2nd ed.). New York, NY, US: W. H. Freeman/Times Books/ Henry Holt & Co.

Rothschild, J. & Miethe, T. D. (1999). Whistle-blower disclosures and management retaliation: The battle to control information about organization corruption. *Work and Occupations, 26(1),* 107-128.

Saviotti, F. M., Grandi, S., Savron, G., Ermentini, R., et al. (1991). Characterological traits of recovered patients with panic disorder and agoraphobia. *Journal of Affective Disorders, 23(3),* 113-117.

Schmidt, N. B. & Koselka, M. (2000). Gender differences in patients with panic disorder: Evaluating cognitive mediation of phobic avoidance. *Cognitive Therapy and Research, 24(5),* 533-550.

Schmidt, N.B., & Woolaway-Bickel, K. (2000). The effects of treatment compliance on outcome in cognitive-behavioral therapy for panic disorder: Quality versus quantity. *Journal of Consulting and Clinical Psychology, 68(1),* 13-18.

Seligman, M.E.P. & Nolen-Hoeksema, S. (1987). Explanatory style and depression. In: Magnusson, D. & Öhman, A. (Eds), *Psychopathology: An interactional perspective* (pp. 125-139). San Diego, CA, US: Academic Press, Inc.

Shelp, E. E. (1984). Courage: A neglected virtue in the patient-physician relationship. *Social Science & Medicine, 18(4),* 351-360.

Shepela, S. T., Cook, J., Horlitz, E., Leal, R., Luciano, S., Lutfy, E., Miller, C., Mitchell, G., & Worden, E. (1999). Courageous resistance: A special case of altruism. *Theory & Psychology, 9(6),* 787-805.

Stangier, U., Heidenreich, T., Peitz, M., Lauterbach, W., & Clark, D.M. (2003). Cognitive therapy for social phobia: Individual versus group treatment. *Behaviour Research and Therapy, 41(9),* 991-1007.

Swaim, R.C., Henry, K.L., & Baez, N.E. (2004). Risk-taking, attitudes toward aggression, and aggressive behavior among rural middle school youth. *Violence and Victims, 19,* 157-170.

Szagun, G., & Schäuble, M. (1997). Children's and adults' understanding of the feeling experience of courage. *Cognition & Emotion, 11(3),* 291-306.

Taylor, S., Zvolensky, M.J., Cox, B.J., Deacon, B., *et al.* (in press). Robust dimensions of anxiety sensitivity: Development and initial validation of the Anxiety Sensitivity Index-3. *Psychological Assessment*.

Telch, M. J., Brouillard, M., Telch, C. F., Agras, W. S., & Taylor, C. B. (1989) Role of cognitive appraisal in panic-related avoidance. *Behaviour Research and Therapy, 27(4),* 373-383.

Walk, R. D. (1956). Self ratings of fear in a fear-invoking situation. *Journal of Abnormal & Social Psychology, 52,* 171-178.

Williams, J.E. & Best, D.L. (1990). *Measuring sex stereotypes: A multination study* (Rev. ed.). Newbury Park, CA: Sage.

Williams, S.L. (1990). Guided mastery treatment of agoraphobia: Beyond stimulus exposure. In Hersen, M., Eisler, R.M., Miller, P.M. (Eds*)*: *Progress in behavior modification, Vol. 26* (pp 89-121). Thousand Oaks, CA, US: Sage Publications, Inc.

Wingfield, J.C., Hegner, R.E., Dufty, A.M.Jr., and Ball, G.F. (1990). The "challenge hypothesis": theoretical implications for patterns of testosterone secretion, mating systems, and breeding strategies. *American Naturalist, 136*, 829-846.

Zuckerman, M. (2007). Sensation seeking and substance use and abuse: Smoking, drinking, and drugs. In Zuckerman, M. (Ed): *Sensation seeking and risky behavior* (pp. 107-143). Washington, DC, US: American Psychological Association.

VITA

Jesse Ray Cougle was born in New Orleans, Louisiana, on June 30, 1975, the son of Allan and Judy Cougle. After graduating from Lutheran High School, Springfield, Illinois, in 1993, he entered Azusa Pacific University in Azusa, California. He received a Bachelor of Arts (B.A.) in psychology from Azusa Pacific University in Fall 1997. He then enrolled in Oxford University in January, 1998, and received his Master of Science (M.Sc.) in Experimental Psychology in Fall 2001. In August 2001, he entered the Graduate School of the University of Texas at Austin.

Permanent Address: 908 Morgan Bluff, Pearl River, LA 70452.

This dissertation was typed by the author.