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# Differentiating the Effects of Animal-Assisted Versus Equine Facilitated Psychotherapy on Positive Psychological Outcomes Through a Stress Induction Context

Catherine J.V. Jones

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DIFFERENTIATING THE EFFECTS OF ANIMAL-ASSISTED VERSUS EQUINE  
FACILITATED PSYCHOTHERAPY ON POSITIVE PSYCHOLOGICAL OUTCOMES  
THROUGH A STRESS INDUCTION CONTEXT

by

CATHERINE J.V. JONES

(Under the Direction of Jeff Klibert)

ABSTRACT

The unique benefits of Equine Facilitated Psychotherapy (EFP) such as the human-horse bond, a non-traditional therapy setting, and performing altruistic acts are thought to facilitate positive change in humans. One mechanism by which positive changes occur is through improved coping and resilience in the face of stress. To date, only a handful of correlational studies speak to the potential effects of EFP on resilience-based outcomes. Thus, this study sought to address this gap in the literature by exploring the benefits of EFP compared to traditional Animal Assisted Therapy (AAT) in an experimental context. Specifically, we examined the effects of different intervention (EFP vs. AAT vs. control) on three resilience-based outcomes (i.e., positive affect, well-being, and altruism). In addition, we wanted to ascertain whether participation in specific types of psychological interventions may buffer the negative effects of stress on these resilience-based outcomes. In an online study, participants were randomly assigned to one of three conditions and asked to listen to a 10-minute audio guided imagery exercise depicting an EFP, AAT, or control group intervention. Participants were then asked to complete a number of surveys, including measures of stress, affect, well-being, and altruism. Overall, results did not reveal any significant differences in stress reduction, mood, or well-being across conditions.

Additionally, analyses did not reveal any moderating effects of intervention type on the relationship between stress and resilience-based outcomes. One significant finding indicates that, contrary to our prediction, participants in the EFP group reported lower levels of altruism than the other two groups. Overall, the results of the current study do not lend significant support for the use of EFP as an effective approach in managing stress and increasing resilience-based outcomes. A number of notable limitations in the current study are discussed as well as suggestions for addressing these issues in future research.

INDEX WORDS: EFP, AAT, Mood, Positive affect, Well-being, Altruism, Resilience

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## TABLE OF CONTENTS

LIST OF TABLES.....	6
LIST OF FIGURES .....	7
CHAPTER 1 INTRODUCTION .....	8
Purpose.....	13
Significance.....	14
Definition of Terms.....	15
EFP.....	15
AAT .....	15
Guided Imagery Control .....	15
Mood.....	16
Well-being.....	16
Altruism.....	17
State Stress .....	17
CHAPTER 2 LITERATURE REVIEW .....	18
Connecting EFP to Resilience-Based Outcomes .....	18
Positive Affect .....	18
Well-being.....	19
Altruism and Prosocial Behaviors .....	20
Buffering the Effects of Stress on Resilience-Based Outcomes.....	21
Targeted Interventions .....	24
Current Study .....	27
Hypotheses .....	27

CHAPTER 3 METHODOLOGY .....	28
Participants.....	28
Procedure .....	29
Research Design and Experiemtnal Conditions.....	29
Measures .....	30
The Positive and Negative Affect Schedule (PANAS).....	30
The Ryff Scales of Psychological Well-Being (RPWB) .....	31
The Self Report Altruism Scale (SRA).....	32
Self-Reported Stress.....	32
Demographic Information.....	32
CHAPTER 4 RESULTS .....	33
Preliminary Analyses .....	33
Rural Differences .....	33
Baseline Stress Reports.....	33
Changes in Stress Scores .....	34
Primary Analyses .....	34
Differences in Reported Resources.....	34
Moderated Effects.....	35
CHAPTER 5 DISCUSSION.....	38
Review of Purpose .....	38
EFP as a Stress Management Strategy.....	38
EFP and Positive Resources.....	39

Positive Affect and Well-Being .....	39
Altruism .....	40
Moderated Effects.....	41
Clinical Implications.....	41
Limitations .....	42
General Conclusions .....	43
REFERENCES.....	45
APPENDIX I: EQUINE FACILITATED PSYCHOTHERAPY INTERVENTION.....	66
APPENDIX II: ANIMAL ASSISTED INTERVENTION.....	68
APPENDIX III: GUIDED IMAGERY CONTROL CONDITION.....	70

## LIST OF TABLES

TABLE 1. MEANS, STANDARD DEVIATIONS, AND RANGE SCORES FOR THE DEPENDENT VARIABLES BY CONDITION .....	62
TABLE 2. MAIN EFFECTS AND INTERACTION EFFECTS WITH POSITIVE AFFECT, WELL-BEING, AND ALTRUISM.....	63

## LIST OF FIGURES

FIGURE 1. MEANS AND STANDARD ERRORS OF THE INTERVENTIONS ACROSS  
TIME..... 64

FIGURE 2. MARGINAL MEANS AND STANDARD ERRORS OF THE INTERVENTIONS  
ACROSS RESILIENCE-BASED OUTCOMES..... 65

## CHAPTER 1: INTRODUCTION

Ronald Reagan is often credited with the old adage “There is nothing so good for the inside of a man as the outside of a horse” (Pointon, 2005). Those who have experienced a bond between horse and human often describe it as a unique, dynamic, and fulfilling experience. The unique sensitivity, beauty, and power of horses make working with them exciting, fulfilling, and humbling (Bachi, 2013; Chardonnens, 2009; Kirby, 2010). Equine Facilitated Psychotherapy (EFP), also known as Equine Facilitated Therapy and Equine Assisted Psychotherapy, is a discipline of psychotherapy that utilizes human-horse bonds to facilitate traditional therapeutic goals in the treatment of a diverse range of psychosocial and mental health problems (Brandt, 2013; Ford, 2013; Kemp et al., 2014; Massini, 2010). EFP usually includes a licensed mental health clinician, an equine specialist (a licensed horse riding instructor or other experienced equine professional), and at least one horse (Trask, 2010). Although EFP may include riding, it often involves ground interactions with horses, such as feeding and grooming (Meinersmann et al., 2008; Siporin, 2012). Afterwards, clients process their experiences with their human therapists in a way that promotes well-being and wellness (Kane, 2009).

Theorists contend that EFP generates opportunities for clients to increase a number of psychosocial resources including a strong sense of personal responsibility, assertiveness, enhanced work ethic, increased communication skills, and improved interpersonal relationships (Brandt, 2013; Ford, 2013; Kemp et al., 2014; Massini, 2010). Through hands-on interactions with horses, which may include grooming, tending to physical needs such as food and water, or simply spending time with the horse, clients have the opportunity to develop a mutual, positive relationship with another living being (Chardonnens, 2009). This relationship is further strengthened by the sensitivity of this animal (Kirby, 2010; Massini, 2010). This sensitivity is

best understood when comparing the nature of horses against other animals. Dogs and cats are predators, but horses are prey animals who react to threatening situations by fleeing to avoid attack (Meinersmann, 2008; Siporin, 2012). Thus, horses have a certain vulnerability that causes them to respond, and react, to the behaviors and emotions of their human handler in a way that is not always seen in other domesticated animals (Massini, 2010; Meinersmann, 2008; Siporin, 2012). Time investment and engagement with such a unique animal may facilitate a number of unique outcomes that may not be commonly experienced with other predatory animals (e.g., cat or dog).

In addition, clients benefit from the sense of responsibility experienced when caring for an animal and the sense of fulfillment which results from such altruistic acts (Chardonens, 2009). For instance, during the course of EFP, a client may be asked to engage in such activities as feeding, cleaning the barns, grooming, and walking or riding the horse. Such activities helps clients appreciate the benefits of investing time and taking care of another living being; two outcomes not commonly achieved through more traditional forms of psychotherapy. By meeting the horse's needs in this way, clients often experience the sense of responsibility and fulfillment which further facilitates the development of a bond between horse and human (Chardonens, 2009; Kirby, 2010). In addition, clients may be able to generalize adopted altruistic and invested dispositions with horses to every day interactions with other human beings, which in turn, may facilitate greater levels of social and emotional intelligence (Chardonens, 2009; Kirby, 2010). Finally, it is important to recognize the benefit clients can experience simply from being physically active in a natural, outdoor setting (Kirby, 2010). The well-known value of fresh air, natural light, and physical exercise (Brawley, 2007; Staal & Jespersen, 2015; Walsh et al., 2014), cannot be discounted when describing the therapeutic benefits of EFP. By conducting

psychotherapy in this non-traditional setting, client may experience benefits that are not possible in an office or traditional therapy room (Maujean et al., 2013).

Although EFP is a relatively new subfield of psychotherapy, horses have been regularly utilized in other types of treatment. In particular, the physiological benefits of interacting with horses have long been recognized. Two examples are Therapeutic Riding and Hippotherapy. Therapeutic Riding is an equine-facilitated activity that enables individuals with special needs to learn about horsemanship and how to ride horses (Bachi, 2012). Hippotherapy is an equine-facilitated therapy related to physiotherapy, occupational therapy, and speech therapy (Bachi, 2012). These types of equine therapy were developed for use with individuals with disabilities, whether physical, developmental, or intellectual (Siporin, 2012). The positive gains seen when utilizing these approaches is often focused on physical rehabilitation although individuals with disabilities often appear to experience emotional and psychological benefits as well (Siporin, 2012). Alternatively, the use of EFP is not limited to those with disabilities, and may be appropriate for use with any sub-population of people who are in need of resources to help cope with life. Additionally, the focus of treatment in EFP is psychological rather than physiological, which provides a unique pathway by which stress, emotional distress, and psychosocial challenges can be effectively navigated.

The efficacy of EFP has been regularly observed and experienced by the therapists and clients who use this intervention (Kirby, 2010; Lancia, 2008; McCormick & McCormick, 2011). However, the existing literature exploring the effectiveness of this type of therapy is limited and consists mostly of case studies and qualitative examinations of this type of treatment. Although theorists have speculated on the benefits of EFP as a treatment modality, there is a distinct lack of quantitative research that explores the unique factors that facilitate such benefits. Furthermore,

there is a paucity of literature that compares EFP to other forms of Animal Assisted Psychotherapies (AAP), such as those which utilize dogs. For instance, it is scientifically unknown whether or not EFP offers any unique psychological gains when compared to broader AAP approaches (Bachi, 2012, Vidrine, 2002).

The benefits of EFP are different than those gained by employing traditional AAT approaches (Bachi, 2012, Vidrine, 2002). For example, when using dogs in AAT, therapy is commonly conducted in a traditional therapy room or office with the dog simply present during a standard psychosocial intervention. As previously discussed, conducting therapy in an out-door setting allows the client to experience the psychological and physiological benefits of natural light and air, while the work required to tend to the horses needs also provides physical exercise (Kirby, 2010; Lancia, 2008; McCormick & McCormick, 2011). Furthermore, a natural, outdoor setting may be viewed by the client as a more relaxing, safe, and less stigmatizing environment when compared to traditional therapeutic settings (Brandt, 2013). Additionally, horses are often considered as a particularly sensitive breed of animal. This is due to the innate nature of the horse as a prey animal which requires them to be attuned to their surrounding environment at all times (Brandt, 2013; Massini, 2010; Meinersmann, 2008; Siporin, 2012). Despite their sensitivity, horses embody characteristics that generate opportunities to form unique bonds with humans (Vidrine, 2002). Once a horse grows to trust and accept human beings as care-givers the relationship between the horse and the human can facilitate improved communication, increased trust, and increased empathy (Bachi, 2013; Ford, 2013; Johansen et al., 2014). Over time, these gains can also facilitate improvements in human-human relationships for the client (Bachi, 2013; Ford, 2013; Ewing et al., 2007; Johansen et al., 2014). Alternatively, for more domesticated species, such as dogs, the creation of this human-animal bond is often less challenging and, as a

result, may result in fewer psychological and social gains. Finally, when utilizing EFP, the client is often asked to perform duties that include caring for the horse's daily needs, such as feeding, grooming, and exercising. These altruistic acts are often not present in AAT as the animal is usually merely present in the therapy room. Performing acts of altruism have often been linked to increased well-being (Schwartz et al., 2009). For example, some studies have found that helping others is related to improved social relations, purpose in life, and self-acceptance (Schwartz et al., 2009).

EFP, by its very nature, is often associated with rural areas (Maujean et al., 2013). Utilizing this therapeutic approach requires an equestrian facility, usually a barn and at least some portion of land for paddocks, fields, etc., to house the animal. Thus, while equestrian facilities do exist in urban areas, such an approach lends itself very well to a more rural setting. In addition to these practical benefits, there may be characteristics of EFP that make it a culturally sensitive option to reduce feelings of distress for individuals who live in rural areas. For example, rural populations may be more accustomed to engaging in work and leisure activities that take place in natural, outdoor environments (Maujean et al., 2013). Rural populations may also be at an increased likelihood to have experienced previous interactions with large animals such as horses. Finally, EFP may not hold as many social stigmas when compared to traditional forms of psychotherapy (Maujean et al., 2013). For instance, working with horses on a farm may feel more natural to individuals in rural areas (Maujean et al., 2013). Moreover, such work does not perpetuate social impressions that a person is "receiving therapy from a shrink" and engaging in therapeutic activities that imply that a person is "characteristically weak or impaired." Overall, because of its natural and stigma reducing

components, EFP may be a more appealing therapeutic approach for individuals living in rural areas (Maujean et al., 2013).

The unique benefits of EFP illustrated in previous sections, such as the human-horse bond (Chardonnens, 2009; Johansen et al., 2014; Kirby, 2010), a non-traditional therapy setting (Kirby, 2010; Maujean et al., 2013), and performing altruistic acts (Chardonnens, 2009; Kirby, 2010), are thought to facilitate positive change in humans. One mechanism by which positive changes occur is through increments in clients' perceptions and abilities to cope with stress and daily hassles (Kemp, 2014). For instance, there are a number of studies linking EFP to improved coping and resiliency in the face of daily stressors (Kemp et al., 2014; Meinersmann, 2008). However, the majority of these studies offer only correlational or observational evidence of these pathways. It is important that studies examine whether or not EFP offers improved psychosocial functioning in the face of daily hassles through an experimental context.

### **Purpose**

Overall, this study sought to fill gaps in the EFP literature. In particular, we sought to examine pathways that may facilitate positive change in individuals exposed to EFP when compared to other therapeutic components of animal-assisted therapies. Specifically, theorists contend that certain elements commonly associated with EFP (e.g., non-traditional therapy setting, altruistic acts, and the human-horse bond) would produce unique psychological gains that would not be readily achieved by other animal-assisted therapeutic approaches (Brandt, 2013; Ford, 2013; Kemp et al., 2014; Massini, 2010). Moreover, theorists contend that the unique benefits associated with EFP would be achieved through enhanced coping efforts (Kirby, 2010; Lancia, 2008; McCormick & McCormick, 2011).

In the context of this study, we examined how specific components of an EFP intervention contribute to increases in mood, well-being, and altruistic tendencies when compared to an animal-assisted intervention and a control group. The current study employed guided imagery interventions (one EFP intervention, one AAT, and a control conditions) to explore the unique benefits of EFP when compared to traditional AAT approaches and a control group. Given the impetus of the current study, the following questions were offered for investigation:

1. Do individuals from rural areas report greater attraction to unique components of EFP when compared to individuals from non-rural areas?
2. Do individuals who participate in an EFP intervention report greater levels of positive affect, well-being, and altruism tendencies, and lower levels of negative affect compared to individuals who participate in an AAT intervention or individuals who participate in the control conditions?
3. Does the type of intervention moderate the relation between reports of stress and different positive psychological resources (e.g., positive affect, well-being, and altruism)?

### **Significance**

This study addresses an important gap in the existing literature on EFP by using quantitative analysis to examine the benefits associated with EFP and comparing them to those gained in AAT through an experimental research design. This expands on existing research which focuses on qualitative and case studies to determine the effectiveness of EFP as a viable therapeutic option. This is important because it may help clinicians gather useful information about the factors that lead to positive change in EFP and how these factors can be used to facilitate more successful EFP interventions. It may also aid clinicians in determining when to

use EFP versus alternative treatment approaches, and for whom EFP would be most appropriate based on specific client characteristics and treatment goals.

### **Definition of terms**

Participants who volunteered were randomly assigned to different intervention groups and asked to complete a series of self-report measures. Participants were randomly assigned to one of three intervention/control conditions.

1. **EFP:** EFP as an interactive process by which humans interact with horses in a way that generates some positive therapeutic gains (PATH Intl., 2012). Different components of EFP (e.g., physical touch of the horse, caring for the horse's needs, being in a natural, outdoor environment) were captured through a guided imagery exercise. The exercise was intended to help participants reflect on the experience of taking care, grooming, and interacting with a horse (Appendix I).
2. **AAT:** AAT refers to interventions that utilize animals as part of the therapeutic process (Bachi, 2012). For the purposes of this study, AAT is used to describe psychotherapies which use any animal other than a horse. AAT interventions are captured through a guided imagery exercise. Specifically, the therapeutic exercise asks client to envision coping with distress with the use of a dog as the therapeutic aid in a traditional psychotherapeutic setting (Appendix II).
3. **Guided Imagery Control:** Research indicates all guided imagery exercises, regardless of the content, elicit some positive emotional benefits to most individuals (Leviton & Leviton, 2004). As a result, I wanted to control for the effects of using guiding imagery exercises in the current study. I accomplish this by randomly assigning participants to a

psychologically bland guided imagery exercise (i.e., taking a trip to the grocery store; Appendix III).

There are three dependent variables associated with the implemented research design. These variables are inter-related but conceptually different, which provide a robust context to understand the positive gains associated with EFP and AAT interventions.

- 1. Mood:** Mood is defined as a prevailing psychological state (Clark, 2008). Specifically, mood is a feeling, state, or prolonged emotion that influences an individual's experience of life events (Clark, 2008; de Carvalho et al., 2013). Both positive and negative indices of mood were examined in the context of the current study. Mood is similar to yet conceptually different than emotions. Emotions are usually aroused by specific contextual stimuli, including objects, events, and situations (Mohanty & Suar, 2014). Moods, by comparison, are considered less intense and more stable than emotions, and do not necessarily occur as the result of a specific stimulus (Clark & Isen, 1982). Considering the state-base components of this study, mood appears to be the optimal outcome to measure how a person feels at a given moment because it is more likely to capture longer lasting, more stable benefits that are experienced as a result of the interventions than measures of emotion.
- 2. Well-Being:** Core features of well-being are positive emotions, engagement, relationships, meaning, and achievement (Seligman, 2011). According to research, well-being is the overarching concept that connects autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance (Abbott et al., 2010).

- 3. Altruism:** The term altruism has been used to describe helping behaviors, altruistic acts, and generativity (Schwartz et al., 2009). For the purposes of this study, altruism refers to the desire to purposely perform an act, or acts, that result in some benefit to another living being. An 'increased sense of altruism' is defined as the psychological benefit derived from performing such actions.

Finally, participants were asked to complete two measures of stress.

- 1. State Stress:** Stress occurs when environmental demands exceed a person's resources or threaten well-being (Ayala, Ellis, Grudev, & Cole, 2017; Lazarus, 1966). During this study, estimates of state stress were measured using self-reported ratings of perceived stress on a sliding scale from 1-10 two times during the study. Specifically, state stress was measured before and after random assignment to a stress management condition.

## CHAPTER 2: LITERATURE REVIEW

The impetus of the current study was to empirically examine the impact of an EEP intervention on mood, well-being, and altruism. Based on the literature, it is important that researchers evaluate interventions on their ability to alleviate distress and build resilience. There are many unique components of resilience that are important to consider when assessing for the preliminary effectiveness of interventions, like EFP. Three components of resilience that need to be considered in the evaluation of interventions are positive affect, well-being, and altruism and prosocial behavior.

*Positive Affect.* Previous research suggests that positive affect produces a wide range of desirable outcomes because it generates increased resilience in the face of future adversity (Loh et al., 2014). According to the Broaden and Build model (Fredrickson, 2000), individuals who experience more positive affect are likely to identify and utilize more cognitive and behavioral resources to overcome conflicts, stress, and challenge. For instance, individuals who experience higher levels of positive affect demonstrate the capacity to avoid harmful cognitive processes, like rumination (Harding, Hudson, & Mezulis, 2014), activate more creativity in problem solving efforts (Bledow, Rosing, & Frese, 2013), and proactively pursue problem resolution with more efficacy (Elliott, Sherwin, Harkins, & Marmarosh, 1995). In sum, positive psychology theorists argue that the creation and expansion of positive affect is an important resource that activates resilience in response to adversity and challenge (Schiffirin & Falkenstern, 2012). Research supports this position. In terms of direct evidence, Moskowitz (2010) found that positive affect predicts resilience in the face of a diagnosis of a serious chronic illness. Based on this finding, Moskowitz suggested that interventions designed to increase positive affect in people recently diagnosed with a serious medical illness contributes to more resilient psychological and physical

health trajectories, which has the potential to increase remission rates and decrease the potential for future relapse. Similarly, McHugh, Kaufman, Frost, Fitzmaurice, and Weiss (2013) found evidence that positive affect reduces stress reactivity in a sample of outpatients with substance use difficulties. Essentially, higher levels of positive affect reduce over-emotional reactions to stress in a way that allows for more resilience in coping efforts. Finally, Kishida and Elavsky (2015) found evidence suggesting that positive affect associated with behavioral activation (via exercise) is an important determinant in how middle aged women suffering from menopausal difficulties manage and bounce back from painful and uncomfortable symptoms. Overall, studies such as these present a strong case that positive affect is an important component in helping individuals quickly recover and positive grow from stressful experiences.

Moreover, task-focused interventions, like EFP, have been found to promote positive affect (Holmes et al., 2012). Literature on the benefits of task-focused coping suggests that this goal-oriented approach results in lower levels of perceived stress and increased positive affectivity in the face of negative life events and daily hassles (Burke et al., 2014). A number of studies have found that task-oriented coping strategies have been associated with decreased psychopathology and higher reported positive emotions (Hatchett, 2015; Myers et al., 2013; Pérez-García et al., 2014). For example, Gardner and Fletcher (2009) found that more use of task-focused coping when faced with occupational stress, rather than emotion-focused coping and avoidance, was associated with higher levels of positive affect and increased job satisfaction.

*Well-Being.* A second important component of resilience is well-being. According to research, well-being is the overarching concept that connects autonomy, self-efficacy, personal growth, interpersonal effectiveness, life-purpose, and self-acceptance (Abbott et al., 2010). Previous literature suggests that increased resilience is strongly associated with a number of

facets of well-being including academic success (Cole et al., 2015), psychological health (Cole et al., 2015; Smith & Hollinger-Smith, 2015), and secure relationships with significant figures (Mota & Matos, 2015). For example, resources that contribute to well-being such as autonomy and interpersonal effectiveness have been found to significantly predict increased resilience to the stress and uncertainty often experienced when going through a major life transition such as moving away to university (Dawson & Pooley, 2013). Another well-being resource that can activate resilience is a sense of self-efficacy. For example, academic self-efficacy beliefs found in girls with learning disabilities are associated with improved resiliency among this population (Amitel & Gumpel, 2015).

Task-oriented interventions have been linked to a number of well-being indices. Previous literature suggests that pro-active, problem solving approaches to adversity and everyday events are more successful in managing stress and lead to greater personal well-being than more passive approaches (Roffey, 2015). Using positive, task-oriented coping strategies to deal with stress, and learning skills to adapt to stressful environments, has been shown to improve well-being in a number of contexts including academic environments (Roffey, 2015), the workplace (Leon & Halbesleben 2014), and when facing mental and physical health challenges (Pérez-García et al., 2014). Considering these findings, it is likely that mental health interventions that target task-focused coping could offer opportunities for improved overall stress management through well-being.

*Altruism and Prosocial Behavior.* The third component of resilience that needs to be considered in the evaluation of stress-based interventions is altruism. Altruism, or prosocial behavior, has been used to describe helping behaviors, selfless acts, and generativity (Schwartz et al., 2009). According to existing literature, an increased sense of altruism, referring to the

psychological benefit derived from performing altruistic acts, often leads to increased resilience to stress and daily hassles (Bath, 2014; Lietz, 2011). For example, engaging in altruistic acts after victimization or trauma has led to quicker recovery and posttraumatic growth (Staub & Volhardt, 2008; Uttervall, 2014). Specifically, altruistic acts have been found to increase resilience following traumatic events such as natural disasters (Ai et al., 2013; Yim et al., 2014), partner violence (López-Fuentes & Calvete, 2015), and sexual assault (Staub & Volhardt, 2008).

When considering best practices in promoting stress management through prosocial behavior, once again research suggests that active, task-oriented approaches are more effective (Bonhote et al., 1999; Sanders et al., 2013). Passive, emotion-focused approaches to therapy are often self-focused and, as a result, may fail to activate or facilitate an increased sense of altruism in participants (Endler, Parker, & Summerfeldt, 1998). Alternatively, task-oriented, or problem-focused approaches have been found to predict more prosocial behaviors (Carlo et al., 2012; Roussi & Vassilaki, 2001). During task-focused interventions such as EFP, participants engage in activities and perform tasks that actively provide physical and emotional benefit such as feeding, grooming, petting, and exercising the horse. Such altruistic acts are an integral part of EFP and thus, may provide opportunities to manage stress and positively grow from stressful experiences when compared to passive approaches to stress reduction (Chardonens, 2009; Kirby, 2010).

### **Buffering the Effects of Stress on Resilience-Based Resources**

From a theoretical perspective, the physical and behavioral consequences associated with adverse life events and stress are well-documented. For instance, Selye's (1936) theory suggested that individuals experience a physiological response to negative stressful life events which significantly impairs functioning. Of importance, Selye indicated that the experience of

adversity is directly associated with a multiple-stage “stress response” system which significantly impairs cardiovascular, renal, pulmonary, and neuroendocrine functioning. More recently, Lazarus and Folkman’s (1984) theory on stress and cognitive appraisal suggests that stress and adverse life events have a significantly negative impact on physical and psychological health and well-being. According to Lazarus and Folkman, the accumulation of stress cognitively and emotionally impairs our ability to navigate through challenging circumstances. For example, stress alters our perceptions and appraisals of stress from a manageable circumstance to an overwhelming burden marked by hopelessness and depleted self-efficacy. When individuals perceive stress as difficult and insurmountable, it affects a person’s ability to maintain social functioning such as their satisfaction with interpersonal relationships and their ability to fulfill various social roles (Lazarus & Folkman, 1984). Similarly, if negative perceptions of stress persist, it leaves individuals vulnerable to significant mood disruptions (e.g., depression) and other behavioral difficulties including suicide (Santorelli et al., 2012).

From an empirical perspective, stress has long been associated with physical and mental health deficits (Cassidy, 2000; Lazarus & Folkman, 1984; Lu, 1991; Vasiliadis, 2013). Previous literature suggests that increased stress caused by adversity can perpetuate physical, cognitive, and emotional dysfunction in profound ways (Lu, 1991, McIntosh, Gillanders, & Rodgers, 2010). For example, the detrimental effects of stress on mental health were explored by Lu (1991), who found that the impact of stress on mental health was substantial, even when controlling for variables such as previous mental health states and risk factors such as unemployment. Moreover, increased exposure to adversity predicted decreased well-being (Lu, 1991). Other researchers have confirmed the negative influence of stress on salient psychological outcomes. For instance, Bouteyre and colleagues (2007) found that different

domains of stress predicted unique variance in depression scores. McIntosh and colleagues (2010) also found that individuals with chronic mood difficulties report substantially greater experiences with adversity than those who report more stable mood. Consistent with this position, stress has been positively linked with a wide variety of negative psychological outcomes including anxiety (Raymond et al., 1986), depression (Vasiliadis et al., 2013), and interpersonal difficulties (Harper et al., 2000).

Similarly, there are a litany of studies that link stress to the experience of physical illness and decreased levels of wellness. For example, stress caused by adversity has been linked to physical health conditions such as diabetes (Morris et al., 2011), chronic tension headaches (Carhart, 2008), rheumatoid arthritis (Fifield et al., 2004), and increased disease severity among people with psoriasis (Verhoeven, 2009). In addition, Cassidy (2000) examined the role of stress on participants' general health. Consistent with expectations, results suggested that higher levels of reported stress caused by every day events was correlated with more frequent bouts of illness and poorer physical health ratings. However, no correlation was found between negative major life events and participants' health which is somewhat surprising. These patterns of results are consistent with existing theories on stress and coping which suggest that an accumulation of more minor stressors may prove more detrimental to psychological and physical health compared to major life stressors (Lazarus & Folkman, 1984). Overall, while the effects of major life events on health and well-being may be debated, the literature is overwhelmingly consistent with regard to the impact of stress on physical wellness and psychological well-being (Cassidy, 2000; Kohn et al., 1994; Lazarus & Folkman, 1984; Lu, 1991; Vasiliadis, 2013; Williams et al., 1992).

## Targeted Interventions

Given the chronic and detrimental impact of stress, there is a clear need for researchers to develop and validate interventions that help individuals manage resulting stress. Existing approaches to mental health often focus on the treatment of existing psychiatric disorders such as Major Depressive Disorder, Posttraumatic Stress Disorder and anxiety disorders. While some of these approaches may tangentially help individuals navigate through stressful circumstances, they do not offer specific pathways by which individuals can navigate stress in a way that will reduce negative emotional difficulties *and* build resilience (Rickwood, 2004). Resilience is characterized by two main concepts. The first concept of resilience is the ability to recover from a negative emotional experience. The second is the ability to be flexible to changes that arise from stressful experiences (Block & Block, 1980; Lazarus, 1993; Tugade & Fredrickson, 2007). Resilience can be seen as a resource that positively impacts an individual's ability to manage traumatic experiences and adversity (Tugade & Fredrickson, 2007). According to previous research, resilient individuals are often capable of accumulating positive emotions in a way that can reduce stress (Richardson, 2002). Therefore, individuals who reflect on and attend to positive emotions can counteract negativity. Strength-based researchers acknowledge the importance of extending and enhancing positive emotions to enhance resilience (Semple et al., 2010). By implementing therapeutic approaches that target emotional recovery and increased resiliency in the face of stress, it may help individuals prevent the development of emotional difficulties and/or buffer against future relapse.

AAT does not directly target proactive approaches that help individuals navigate through stress in a way that will build resilience. As previously noted, AAT constructs therapy in a way that will help support recovery from stressful circumstances (Kirby, 2010; McCormick &

McCormick, 2011), but offers little in the way of building resilience. For instance, AAT contends that interactions with an animal are likely to help clients self-soothe when distressed. However, as the presence of the animal is the source of self-soothing; the client is not actually learning how to identify and implement self-soothing skills that will facilitate more effective and healthy approaches in managing a wide variety of stress. Overall, individuals participating in AAT treatment do not actively generate ways to flourish under fire, as they might when working under more active, task-oriented interventions (Lancia, 2008). Consequently, the AAT approach to stress reduction appears more passive and incomplete, especially for clients who are seeking more long-term skills and management strategies to recover and thrive in the face of stress.

In fact, AAT approaches to stress reduction mirror processes associated with ‘emotion-focused’ rather than ‘task-oriented’ coping strategies. From a more traditional perspective, emotion-focused coping is characterized by attempts to reduce stress through the expression of overwhelming emotions (e.g., anger, shame), self-preoccupation in the form of self-judgment (e.g., fault finding), and fantasizing (Endler, Parker, & Summerfeldt, 1998). Such tactics are considered indirect and passive means of managing stress because they are focused on resolving emotional turmoil surrounding the stressful stimuli, not the actual stressful stimuli. Some specific emotion-focused tactics have been found to be successful in alleviating stress (Ano & Vasconcelles, 2005), but generate little in the way of inducing positive emotions or more long-term solutions to stress management (Gruszczyńska, 2013). As a result, emotion-focused coping may not be effective at facilitating positive change in individuals who do not also engage in other forms of coping (Asbury & Wosidlo, 2012). Incidentally, a number of researchers (e.g., Herman & Tetrick, 2009) contend that emotion-focused coping may actually have negative implications for adjustment and well-being.

Alternatively, when compared against the procedures associated with AAT, EFP appears to be consistent with an active and skill building approach to psychotherapy. According to theorists, EFP helps individuals manage emotional distress and perceptions of stress through a series of unique processes. For instance, theorists contend that EPF offers clients unique social skills training through the establishment of a human-horse bond (Chardonens, 2009; Johansen et al., 2014; Kirby, 2010), creativity skills through a non-traditional therapy setting (Kirby, 2010; Maujean et al., 2013), and prosociality through voluntary and good deed acts (Chardonens, 2009; Kirby, 2010). Overall, considering these facets, it appears that EFP is a task-oriented approach to psychotherapy.

Task-oriented approaches to coping and psychotherapy are characterized by purposeful efforts to solve problems, cognitively reconstruct the nature of problems, and/or attempts to alter circumstance by which problems arise (Bohart, 2002). In addition, task-oriented approaches also include tactics that help individuals cultivate resources and skills to directly manage problems. Previous literature suggests that task-focused approaches to stress management are largely effective in producing immediate and long-lasting outcomes, including resilience (Gaudreau, 2012). Thus, researchers strongly assert that the creation and evaluation of stress management procedures should entail a heavy emphasis on task-oriented skill building and problem solving tactics.

Given the current findings, it would seem likely that participation in specific interventions may buffer the effects of stress in the development of key resilience-based resources. With this in mind, the current study seeks to examine the moderating effects of intervention placement on the relationship between adverse life events and resilience-based resources.

## **Current Study**

Overall, the literature linking EFP, specifically, to stress management gains in positive affect, well-being, and prosocial behavior is consistent, yet very limited. This study sought to fill these gaps. In particular, the current study sought to examine the effects of different intervention (EFP vs. ATT) on resilience based outcomes (i.e., positive affect, well-being, altruism). Specifically, we contend that certain elements (e.g., non-traditional therapy setting, altruistic acts, and the human-horse bond) commonly associated with EFP would produce unique psychological gains that would not be readily achieved by other animal-assisted therapeutic approaches (Brandt, 2013; Ford, 2013; Kemp et al., 2014; Massini, 2010). In addition, based on the current literature, participation in specific types of psychological interventions may buffer the effects of stress on specific resilience based outcomes.

Based on the existing literature, the following hypotheses were made:

1. Individuals who participated in the EFP intervention would report greater levels of positive affect and lower levels of negative affect compared to individuals who participated in the ATT and the control group.
2. Individuals who participated in the EFP intervention would report greater levels of well-being compared to individuals who participated in the ATT and the control group.
3. Individuals who participated in the EFP intervention would report greater levels of altruism tendencies and the desire to engage in prosocial behaviors compared to individuals who participated in the ATT and the control group.
4. Engagement in EFP interventions would reduce the strength of the relationship between stress and resilience based outcomes.

## CHAPTER 3: METHODOLOGY

### Participants

The participants in this study consisted of undergraduate students enrolled in a psychology course at Georgia Southern University, a large college in a rural community in the southeast region of the United States. A total of 321 students were recruited. Of those, 180 student survey responses were removed from the final sample tally because they did not answer the survey catch items correctly or did not answer at least 90 percent of the survey questions. The final sample of 141 students consisted of 55 freshmen (39.0%), 48 sophomores (34.0%), 29 juniors (20.6%), and 9 seniors (6.4%). The age of the sample ranged from 18 to 47 with an average age of 19.85 and standard deviation of 3.36 years. In the final sample, the sample varied with regard to race/ethnicity, including participants who self-identified as White/non-Hispanic ( $n = 98$ , 69.5%), African American/Black ( $n = 36$ , 25.5%), Hispanic American ( $n = 10$ , 7.1%), American Indian/Native American ( $n = 4$ , 2.8%), Other ( $n = 3$ , 2.1%), International Student ( $n = 2$ , 1.4%), and Asian/Asian American ( $n = 1$ , 0.7%). Additionally, 85 participants identified themselves as being from a rural area (60.3%) and 56 participants who identified as being from a non-rural area (39.7%). In the final participant sample, 33 identified as being low to moderate socioeconomic status (SES; 23.4%), 59 as moderate SES (41.8%), 43 as moderate to high SES (30.5%), and 6 as being high SES (4.3%). Notably, with regard to prior experience with horses, 47 participants reported that they were “not familiar at all” (33.3%), 83 indicated that they were “somewhat familiar - some contact” (58.9%), and only 11 individuals in the final sample endorsed being “very familiar - frequent contact” (7.8%). Finally, participants in this study were randomly assigned to the following three conditions: the grocery store control group ( $n = 49$ ,

34.8%), the animal assisted experimental group ( $n = 48$ , 34.0%), and the equine facilitated experimental group ( $n = 44$ , 31.2%).

### **Procedure**

Participants were recruited for this study through SONA, an online system that allows students to register for psychological studies. Students viewed a list of research studies being conducted and chose to enroll in studies they found interesting. Students received research participation credit for their participation. Once registered, students accessed the study online via the SONA system. Before beginning the administration process online, participants were asked to indicate, by clicking on the “I give my consent freely” button on their screen, that they had read and understood the instructions and the limitations to participating in this research, and to indicate that they voluntarily agreed to participate in the study. Students who voluntarily consented to participate in the online study then completed an initial questionnaire designed to measure current stress.

Next, participants were randomly assigned to one of three conditions during which they were asked to participate in a 10-minute audio, online activity using personal headphones. Once the experimental and control guided imageries were concluded, participants were asked to complete a number of surveys, including the basic stress questionnaire administered previously, in addition to measures of mood, well-being, and altruism. Finally, the researcher provided the participants with resources they could utilize in the event that they experienced any emotional distress following their participation in this research study. In total, participation in this study lasted approximately 45 minutes.

### **Research Design and Experimental Conditions**

Participants were randomly assigned to one of three conditions.

*Control Task.* Condition 1 (C1) was the guided imagery control group. Participants in this condition listened to a 10-minute guided imagery depicting a scene from every-day life (see Appendix III). The scene that was used in this study was a trip to the grocery store. The scene was not expected to elicit any strong emotional output, but offered participants a quiet distraction from the different elements of the study. The use of a guided imagery control condition was important as some research has suggested that guided imagery alone, regardless of the content, may induce small shifts in affect (Bigham, McDannel, Luciano, & Salgado-Lopez, 2014).

*Animal-Assisted Task.* Condition 2 was the first experimental group (E1). Participants in this condition listened to a 10-minute guided imagery depicting a scene intended to mirror the interaction between a dog and a client during Animal-Assisted Therapy (AAT) (see Appendix II). Participants were asked to imagine themselves in a scenario where they are sitting with a dog, while petting and grooming it.

*Equine-Facilitated Task.* Condition 3 was the second experimental group (E2). Participants in this condition listened to a 10-minute guided imagery depicting a scene intended to mirror the experiences of a client receiving Equine-Facilitated Psychotherapy (EFP) (see Appendix I). Participants were asked to imagine themselves grooming a horse and taking the horse outside to graze.

## **Measures**

*The Positive and Negative Affect Schedule (PANAS).* The PANAS (Watson, Clark, and Tellegen, 1988) is a 20-item self-report measure of positive and negative affect. The PANAS consists of two 10-item mood scales, one to provide a brief measure of positive affect (PA) and one to measure negative affect (NA). Respondents are asked to rate the extent to which they have experienced each particular emotion either in the present moment. Participants used a 5-point

Likert-type scale to rate their emotional experiences. The options on the Likert-type scale varied from 1 'very slightly or not at all', 2 'a little', 3 'moderately', 4 'quite a bit' and 5 'very much'. Scores on each of the two 10-item scales can range from 10-50, with higher scores indicating higher levels of PA or NA. The PANAS was normed on an undergraduate sample of students. Psychometric evaluation of the PANAS revealed good internal consistency (Cronbach's alpha = .89 for the PA scale, and .85 for the NA scale; Crawford & Henry, 2004). In addition, Ostir et al. (2005) demonstrated that the PANAS had good test/retest reliability (intra-class correlation values for the positive and negative affect scales were 0.79 and 0.93, respectively). The PANAS was also found to have good construct validity (Crawford & Henry, 2004). In the current study, the PANAS-PA demonstrated a good internal consistency estimate ( $\alpha = .91$ ).

*The Ryff Scales of Psychological Well-Being (RPWB)*. The RPWB (Ryff, 1989) is a measure designed to assess multiple indices of psychological well-being. It is available in a number of different forms with varying item number (18-120). The 42-item form that was used for this study consisted of statements that reflect six areas of well-being: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance (Abbott et al., 2010). Participants were asked to rate each of these statements on a scale of 1 to 6, with 1 indicating strong disagreement and 6 indicating strong agreement. For the purposes of this study, only a total well-being score was considered. In addition, participants were asked to respond to these items in a 'here and now' timeframe. Total scores range from 42 to 232 with higher scores reflecting greater levels of well-being. Psychometric evaluation of the RPWB has revealed good internal consistency coefficients ( $\alpha = .86-.93$ ) and good test-retest reliability ( $r = .81-.85$ ; Ryff, 1989). The RPWB has also demonstrated good construct and

predictive validity (Abbot et al., 2006). In the current study, the RPWB demonstrated an acceptable internal consistency estimate ( $\alpha = .83$ ).

*The Self Report Altruism Scale (SRA).* The SRA (Rushton, Chrisjohn, & Fekken, 1981) is a 20-item scale designed to assess intentions related to altruistic behaviors. Participants reported the frequency with which they desire to perform altruistic acts on a 5-point scale ranging from “never” to “very often.” Total scores range from 20 to 100 with higher scores reflecting greater tendencies toward altruism. Participants were asked to respond to each item on the SRA in a ‘here and now’ timeframe. The SRA has been shown to be psychometrically sound, with high internal consistency and good discriminant validity (Rushton et al., 1981). In the current study, the SRA demonstrated an acceptable internal consistency estimate ( $\alpha = .93$ ).

*Self-Reported Stress.* Participants were asked to rate their perceptions of stress before and after completing one of the interventions. Participants were asked to rate their stress on a sliding scale from 1-100.

*Demographic Information.* Demographic information was collected at the end of the experiment using a self-report questionnaire created by the researcher. The questionnaire included questions about gender, age, ethnicity, rurality, and past experience with dogs and horses. In terms of rurality, participants were asked to respond to a series of questions concerning their developmental history and current living status. Participants self-reported either growing up/currently living in a rural versus urban community setting. In addition, information pertaining to their zip code of participants’ home town was obtained.

## CHAPTER 4: RESULTS

### Preliminary Analysis

*Rural Differences.* Mean differences regarding rurality were examined to ascertain whether those from a rural versus non-rural background differed in their self-reported preferences/perceptions which may affect their attraction to EFP interventions. Specifically, we examined variables which might logically be affected by possible differences in environment, and exposure or lack of exposure to activities or other stimuli in rural areas when compared to non-rural areas. The three variables we examined included attraction to pets/animals, familiarity with horses and equine-related activities, and self-reported appeal of working with/riding horses across the two groups (rural background versus non-rural background). A one-way Multivariate Analysis of Variance (MANOVA) indicated a non-significant overall effect for rurality, Wilk's  $\Lambda = .99$ ,  $F(3, 136) = .70$ ,  $p = .55$ ,  $\eta_p^2 = .02$ . Considering these results, students from rural and non-rural backgrounds appeared to self-report similar preferences/perceptions, suggesting that any observed benefits of EFP found during the current study were not significantly affected by more stable differences which may have developed from simply being raised in a rural area, such as attitudes toward animals or familiarity with horses and equine-related leisure activities.

*Baseline Stress Reports.* Mean differences in pre-stress level were also examined to determine whether participants across the three levels of the IV (i.e., C1, E1, and E2) differed in self-reported stress prior to participating in the assigned interventions. A between-subjects, univariate analysis of variance (ANOVA) indicated that the three groups did not significantly differ in stress level,  $F(2, 137) = 1.70$ ,  $p = .19$ ,  $\eta_p^2 = .02$ . Across the three conditions of the independent variable, comparable self-reported stress was reported in the grocery store control

( $M = 53.60$ ,  $SD = 3.65$ ), animal-assisted experimental ( $M = 44.38$ ,  $SD = 3.65$ ), and the equine-facilitated experimental ( $M = 46.84$ ,  $SD = 3.82$ ) groups.

*Change in Stress Scores.* Changes in self-reported perceptions of stress were also examined to ascertain whether participation in the three interventions of the independent variable would reduce overall stress levels. This was examined using a 2 (time) x 3 (intervention), mixed-method Analysis of Covariance (ANCOVA), with perceptions of secluded environment, head phone use, and attention as the three covariates. The results yielded a non-significant main effect for time,  $F(1, 132) = 2.01$ ,  $p = .16$ ,  $\eta_p^2 = .02$ . Likewise, an examination of between-subjects differences revealed a non-significant main effect for condition (intervention),  $F(2, 132) = 2.33$ ,  $p = .10$ ,  $\eta_p^2 = .03$ , indicating that there were no significant differences in perceived stress found across the three levels of the independent variable. Furthermore, results showed a non-significant interaction between time and intervention level,  $F(2, 132) = .90$ ,  $p = .41$ ,  $\eta_p^2 = .01$ . Overall, these results indicate that no significant reductions in self-reported stress (from time 1 to time 2) were found among the three intervention conditions. Please refer to Figure 1 to view the marginal means and standard errors yielded in this analysis.

### **Primary Analyses**

*Differences in Reported Resources.* For the primary analysis, differences in reported positive psychological resources were examined using a one-way MANOVA. This test yielded a significant overall multivariate effect, Wilk's  $\Lambda = .90$ ,  $F(6, 270) = 2.57$ ,  $p = .02$ ,  $\eta_p^2 = .05$ . Therefore, three follow-up ANOVAs were subsequently used to obtain specific differences among the three dependent variables (i.e., positive affect; well-being; and altruism) by intervention group. Overall, there was a non-significant effect of intervention type on levels of self-reported positive affect,  $F(2, 137) = 1.37$ ,  $p = .26$ ,  $\eta_p^2 = .02$ . Individuals in the control ( $M =$

300.88,  $SD = 28.48$ ), animal assisted ( $M = 329.77$ ,  $SD = 28.77$ ), and equine facilitated ( $M = 369.77$ ,  $SD = 30.40$ ) interventions reported comparable levels of positive affect.

In addition, an examination of effects indicated that intervention type did not significantly influence participants' self-reported perceptions of well-being,  $F(2, 137) = .99$ ,  $p = .38$ ,  $\eta_p^2 = .01$ . Individuals in the control ( $M = 76.45$ ,  $SD = 1.74$ ), animal assisted ( $M = 75.33$ ,  $SD = 1.76$ ), and equine facilitated ( $M = 78.87$ ,  $SD = 1.86$ ) interventions reported comparable levels of well-being.

Notably, the third ANOVA conducted revealed a significant main effect of intervention type on participants' altruism ratings,  $F(2, 137) = 3.54$ ,  $p = .03$ ,  $\eta_p^2 = .05$ . Pairwise comparisons were performed using Least Significant Difference (LSD) post hoc tests and results indicated that individuals in the equine facilitated intervention ( $M = 68.21$ ,  $SD = 2.29$ ) reported lower levels of altruism compared to individuals in the control intervention ( $M = 75.93$ ,  $SD = 2.14$ ) and the animal assisted intervention ( $M = 74.98$ ,  $SD = 2.16$ ). However, individuals in the control intervention reported comparable levels of altruism to individuals in the animal assisted intervention. Means and standard deviations are also reported in Figure 2.

Finally, I re-analyzed these findings with two covariates (SES, previous exposure to horses). The inclusion of these variables did not affect the significance of the findings.

*Moderated Effects.* A major focus of this study was to clarify the relations between initial reports of stress and different resilience-based outcomes. Specifically, the literature suggested that the relation between stress and resilience-based outcomes may vary as a function of intervention type (C1 vs. E1 vs. E2). To determine whether intervention type moderated the relations between stress and resilience-based outcomes, I ran three hierarchical regressions. In the first step of each regression model, initial stress rating scores and intervention type were

entered into the equation. In the second step of the model, the interaction between initial stress rating scores and intervention type was included in the model. Separate regression models were analyzed for positive affect, well-being, and altruism. The significance of the main effects and the interaction effect for each model was tested using PROCESS (Hayes, 2013). Table 1 displays the results of all three hierarchical regression models.

The first overall model predicted a non-significant amount of variance on positive affect scores,  $R^2 = .04$ ,  $p = .08$ . The effects on positive affect were first explored through the main effects of the two predictor variables (initial stress rating scores and intervention type). In Step 1, neither initial stress rating scores ( $B = .60$ ,  $p = .39$ ) nor intervention type ( $B = 33.95$ ,  $p = .11$ ) predicted significant variance on positive affect scores. Similarly, in Step 2, the interaction effect ( $B = 1.20$ ,  $p = .14$ ) did not predict a significant amount of variance on positive affect scores. The inclusion of the interaction effect did not significantly increase the total amount of variance explained in the model.

Similarly, the second overall regression model predicted a non-significant amount of variance on well-being scores,  $R^2 = .03$ ,  $p = .29$ . The effects on well-being were again explored through the main effects of the two predictor variables. As we found with the first regression model, Step 1 revealed that neither initial stress rating scores ( $B = -.08$ ,  $p = .09$ ) nor intervention type ( $B = .87$ ,  $p = .47$ ) predicted significant variance on well-being scores. Similarly, the interaction effect ( $B = .02$ ,  $p = .72$ ) did not predict a significant amount of variance on well-being scores. Furthermore, the inclusion of the interaction effect did not cause a significant increase in the total amount of variance explained in the model.

Finally, the results of the third overall model did predict significant variance on altruism scores,  $R^2 = .06$ ,  $p < .05$ . To examine this model further, the effects on altruism were once again

explored through the main effects of the two predictor variables (initial stress rating scores and intervention type). In Step 1, initial stress rating scores ( $B = .07, p = .17$ ) did not account for variance in altruism scores, however, intervention type ( $B = -3.77, p = .01$ ) did account for significant variance on altruism scores. In Step 2, similar to the models for positive affect and well-being, the interaction effect ( $B = 1.20, p = .14$ ) did not predict a significant amount of variance on altruism scores. The inclusion of the interaction effect did not significantly increase the total amount of variance explained in the model.

## CHAPTER 5: DISCUSSION

### Review of Purpose

The main purpose of the current study was to examine pathways (EFP vs. AAT vs. control) to facilitate resilience-based outcomes. Specifically, we sought to explore whether certain elements (e.g., non-traditional therapy setting, altruistic acts, the human-horse bond) commonly associated with EFP would produce unique resilience advantages compared to other interventions. Given the overarching goal of this study, the following inquiries were included: (1) whether individuals who participated in the EFP intervention would report greater levels of positive affect compared to individuals who participated in the ATT or the control group, (2) whether individuals who participated in the EFP intervention would report greater levels of well-being compared to individuals who participated in the ATT or the control group, (3) whether individuals who participated in the EFP intervention would report greater levels of altruistic tendencies and the desire to engage in prosocial behaviors compared to individuals who participated in the ATT or the control group, and (4) whether engagement in EFP interventions would reduce the strength of the relationship between stress and resilience-based outcomes.

### EFP as a Stress Management Strategy

In a preliminary analysis of the data, we examined whether EFP can reduce levels of stress when compared to the AAT and a control group. Notably, results indicated that our EFP intervention was not a better stress management approach compared to the control and AAT intervention. Specifically, while participation in the EFP intervention did not reduce levels of stress compared to the other conditions (AAT and control). This is somewhat inconsistent with the literature, which suggests that EFP is moderately more effective than other interventions at reducing feelings of stress, in part by enhancing self-esteem, self-efficacy, and feelings of

contentment (Bachi et al., 2012; Brandt, 2013; Klontz et al., 2007; Mueller & McCullough, 2017). One possible explanation for our findings is that all three interventions elicited a general calming effect. All interventions consisted of a guided imagery (a relaxation technique that uses spoken words and calming sounds to help listeners reach a relaxed psychological and physiological state) element and research shows that guided imagery is effective in reducing stress even when the content of the imagery is bland (Flynn, Jones, & Ausderau, 2016; Jallo et al., 2008; Leviton & Leviton, 2004; Trakhtenberg, 2008). To better delineate the effectiveness of different EFP interventions in reducing stress, future research may benefit from using different control group activities, such as a true control during which the participant receives no intervention or stimulation or a non-imagery control where participants read a newspaper story.

### **EFP and Positive Resources**

The primary purpose of the current study was to examine the effectiveness of an EFP guided imagery intervention on eliciting greater reports of resilience-based outcomes. Specifically, I evaluated whether an EFP intervention would prompt greater reports of positive affect, well-being, and altruism compared to a control group and an AAT guided imagery intervention.

*Positive Affect and Well-being.* Results indicated that our EFP intervention did not significantly increase self-reported estimates of positive affect and well-being compared to the AAT and control group. This is somewhat incongruent with available literature, which indicates that task-focused interventions, like EFP, increase positive affectivity in the face of negative life events and higher reports of well-being (Burke et al., 2014; Fletcher, 2009; Hatchett, 2015; Holmes et al., 2012; Myers et al., 2013; Pérez-García et al., 2014). It is quite possible that methodological issues are responsible for the incongruent findings. Specifically, it is important to

note the limitations of the online component of the research design. Participants were asked to listen to the interventions in an unstructured setting using their own audio equipment. This suggests there was little oversight over participants and how they attended to the interventions. Specifically, I cannot discuss how participants were able to limit external distractions or other confounding variables (e.g., excessive noise; suitability and quality of audio equipment; appropriateness of the setting). To this end, it is quite possible the beneficial components of the EFP intervention were minimized. To address these design limitations, it is important for future studies to re-examine the study's questions in a structured laboratory environment where such external factors can be controlled.

*Altruism.* I also explored whether individuals who participated in the EFP intervention would report greater levels of altruistic tendencies and the desire to engage in prosocial behaviors compared to individuals in the other two groups. Conversely, as previously noted, results of this analysis revealed that individuals in the EFP intervention reported lower levels of altruism compared to individuals in the control intervention and the AAT intervention. Such findings were surprising because there is research to suggest that the use of EFP interventions promotes prosocial attitudes and behaviors (Carlo et al., 2012; Endler, Parker, & Summerfeldt, 1998; Roussi & Vassilaki, 2001). In particular, tasks that actively provide physical and emotional benefit such as feeding, grooming, petting, and exercising horses are likely to engender a strong sense of prosociality (Chardonens, 2009; Kirby, 2010). One possible explanation for our findings may be related to our research design. In this case, the unique benefits of EFP illustrated in previous literature, such as the human-horse bond (Chardonens, 2009; Johansen et al., 2014; Kirby, 2010), a non-traditional therapy setting (Kirby, 2010; Maujean et al., 2013), and caring for others (Chardonens, 2009; Kirby, 2010) may simply not lend themselves well to an online

study which utilizes imagined exposure to reflect these experiences. Thus, to effectively study different prosocial outcomes associated with equine-related therapies, future research should seek to improve external validity by utilizing more real-time and setting specific interventions. This may be achieved by having participants interact with horses in a real-time setting rather than have them imagine what the experience may look like. This may be especially beneficial for participants with little or no contact with horses.

### **Moderated Effects**

The current study also examined whether participation in specific EFP interventions would buffer the effects of stress in the development of key resilience based resources. However, our results did not reveal any significant moderating effects which suggests that, as currently constructed, the EFP intervention did not buffer the negative effects of stress on different resilience-based outcomes. One explanation for these findings may be that the EFP intervention did not target stress directly. For example, the intervention did not incorporate psycho-education pertaining to stress or the expansion of coping options or ways to better regulate physiological arousal in response to stressful situations. Thus, the EFP intervention was not constructed in a manner that clearly highlights how the proposed effects could mitigate the negative impact of stress on different resilience-based outcomes. One approach to overcome this problem in future research may be to construct more integrated EFP interventions. Specifically, an approach that includes horse-human interaction alongside different educational and coping practices may be well suited to buffer the effects of stress on different resilience-based outcomes.

### **Clinical Implications**

As previously noted, the results of the current study do not lend significant support for the use of EFP as an effective approach in managing stress and increasing resilience-based

outcomes (i.e., positive affect, well-being, and altruistic tendencies). Nonetheless, it is important to consider a number of limitations of the current study which should be addressed in future research on this topic. For instance, EFP interventions may be more effective when used with certain groups of people than others. Given the unique presentation and experiences of all individuals who seek therapeutic services, it is inevitable that that certain mental health treatment approaches are more appropriate and/or better suited to certain people. Furthermore, this may be especially true when utilizing interventions that rely so heavily on bonding with an animal because individuals' preferences and experiences with horses are likely to impact the efficacy of the intervention significantly. Therefore, future research should re-evaluate these questions with select sub-populations of people to determine whether there are specific groups who derive more benefits from interacting with horses in a therapeutic context than others.

### **Limitations**

The current study also had a number of limitations. First, the participant sample may limit the generalizability of our findings. Specifically, the sample was selected from a pool of Georgia Southern University students enrolled in undergraduate psychology courses. Given that university students tend to report overall higher levels of functioning and resilience compared to the general population, these results may not be generalizable to clinical populations undergoing inpatient or outpatient mental health treatment. Future research should re-examine these questions using more diverse samples, including outpatient and inpatient treatment populations, as well as a wider range of age groups with different cultural and socioeconomic backgrounds.

Second, although a total of 321 students were recruited for this study, 180 of those student survey responses were removed from the final sample tally because they did not answer the survey catch items correctly or did not answer at least 90 percent of the survey questions.

This is significant because the individuals whose responses were removed due to violation of validity checks may be uniquely different from those who completed the task in full and answered catch items correctly. Therefore, the findings may also be moderated by unknown variables which account for why more than half of the participant sample failed validity checks.

Lastly, a limitation of the current study was the use of self-report measures for stress, positive and negative affect, well-being, and altruism. In particular, utilizing self-report surveys may have contributed to social desirability (i.e., the tendency of respondents to answer questions in a manner that will be viewed favorably by others and portray themselves in a positive light). To reduce social desirability effects and obtain more objective information, future studies should incorporate behavioral and/or observational measures of affect, well-being, and altruism which are not subject to this type of survey response bias.

### **General Conclusions**

The purpose of the current study was to examine pathways to facilitate resilience-based outcomes. Specifically, we sought to explore whether certain factors (e.g., non-traditional therapy setting, altruistic acts, the human-horse bond) associated with EFP would produce unique positive psychological benefits and increase resilience compared to other interventions. Overall, the results of the current study do not lend significant support for the use of EFP as an effective approach in managing stress and increasing resilience-based outcomes (i.e., positive affect, well-being, and altruistic tendencies). In the future, researchers should re-examine these questions by addressing a number of notable limitations of the current research design. In particular, an evaluation of the effectiveness of EFP would be better suited to either a more controlled laboratory setting if using guided imageries to simulate the therapeutic experience while controlling for extraneous variables. Alternatively, a determination of the effects of EFP

on resilience-based outcomes would be further improved by conducting real-life interventions with different treatment populations and assessing treatment outcomes over time. Such an examination would provide greater clarity in terms of the unique benefits of EFP, as well as specific groups of people that would be most appropriate for and suited to EFP as a mental health treatment approach.

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**TABLE 1**

Table 1. Means, Standard Deviations, and Range Scores for the Dependent Variables by Condition

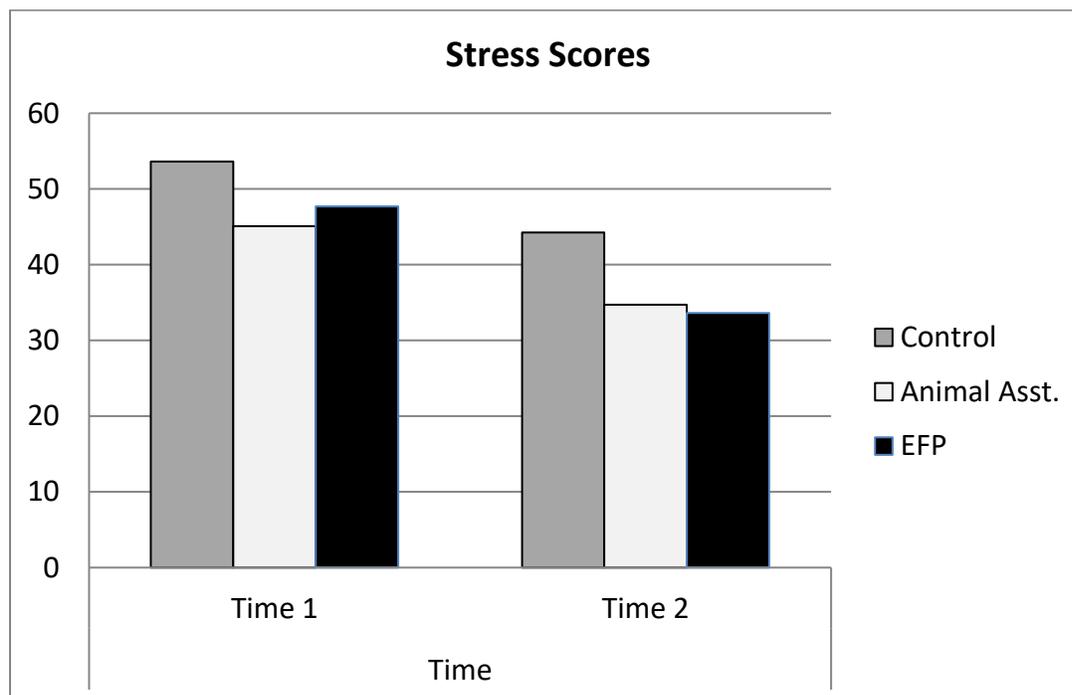
		Mean	SD	Range
Positive Affect	Control Group	300.88	28.48	13-751
	Animal Assisted Group	329.77	28.77	31-846
	Equine Facilitated Psychotherapy Group	369.77	30.40	33-735
Well-Being	Control Group	76.45	1.74	53-105
	Animal Assisted Group	75.33	1.76	53-104
	Equine Facilitated Psychotherapy Group	78.86	1.86	55-99
Altruism	Control Group	75.94	2.14	42-100
	Animal Assisted Group	74.99	2.16	27-99
	Equine Facilitated Psychotherapy Group	68.21	2.29	43-96

**TABLE 2**

Table 2. Main Effects and Interaction Effects with Positive Affect, Well-Being, and Altruism

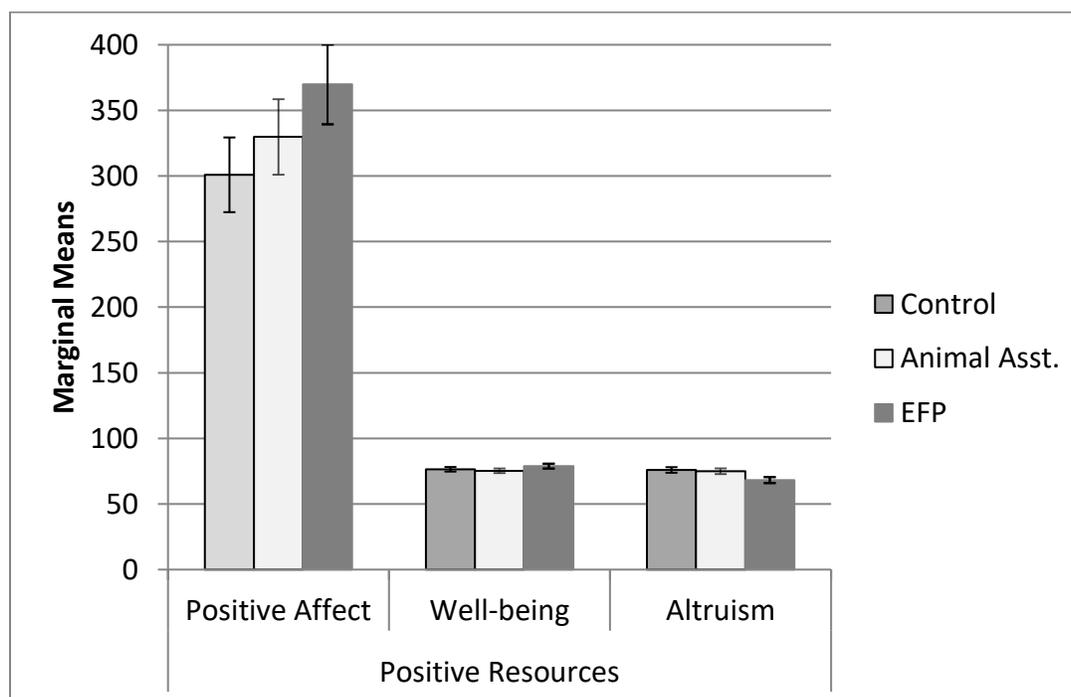
			<i>B</i>	95% <i>CI</i>	<i>p</i>	<i>R</i> <sup>2</sup>
Positive Affect		Main Effects				.04
	Step 1	Initial Stress Score	.60	-.77, 1.97	.39	
		Intervention Type	33.95	-7.75, 75.65	.11	
						$\Delta$ in <i>R</i> <sup>2</sup>
Step 2	Interaction Effect				.01	
	Initial Stress x Intervention Type	1.20	-.38, 2.79	.14		
					<i>R</i> <sup>2</sup>	
Well-Being		Main Effects				.03
	Step 1	Initial Stress Score	-.08	-.17, .01	.08	
		Intervention Type	.87	-1.53, 3.28	.47	
						$\Delta$ in <i>R</i> <sup>2</sup>
Step 2	Interaction Effect				.00	
	Initial Stress x Intervention Type	.01	-.09, .13	.72		
					<i>R</i> <sup>2</sup>	
Altruism		Main Effects				.06
	Step 1	Initial Stress Score	.07	-.03, .18	.17	
		Intervention Type	-3.77	-6.64, -.90	.01	
						$\Delta$ in <i>R</i> <sup>2</sup>
Step 2	Interaction Effect				.00	
	Initial Stress x Intervention Type	-.03	-.15, .10	.67		

FIGURE 1



**Figure 1.** Means and Standard Errors of the Interventions across Time.

FIGURE 2



**Figure 2.** Marginal Means and Standard Errors of the Interventions across Resilience-Based Outcomes.

## APPENDIX I

### Equine Facilitated Psychotherapy Intervention

**Instructions:** During this part of the study, you will listen to a recording of a scenario using a pair of personal headphones. After imagining yourself in the scenario, you will be asked you some questions about your experience. Please find a comfortable position, put on your headphones, and close your eyes. When you are ready to begin please start the recording.

**Guided Imagery Recording:** In your mind, imagine that you are at a farm. At the farm, you see a barn and horses off in the horizon. *(Pause for about 5 seconds)*. You are at the barn to find unique ways to manage your stress. You can see the barn where the horses are kept. *(Pause for about 5 seconds)*. You can see horses peacefully grazing in the pasture. *(Pause for about 5 seconds)*. You can smell the fresh air and the faint scent of horses. This is a different kind of therapeutic experience. It feels nothing like being in an office or therapy room. *(Pause for about 10 seconds)*.

Now you are moving closer to the barn. As you walk into the barn you see your therapist waiting and you can smell fresh wood shavings and the scent of leather. *(Pause for about 5 seconds)*. Your therapist instructs you to walk over to the pasture toward your assigned horse. *(Pause for about 5 seconds)*. Once you reach her, you hold your hand out with your palm open and facing up to invite the horse to sniff your hand. *(Pause for about 5 seconds)*. The horse breathes softly on your palm, showing that she trusts you. *(Pause for about 5 seconds)*. After you greet the horse, you lead her into the barn where your therapist waits. *(Pause for about 10 seconds)*

Next, you fetch a box of brushes and other tools that you will use to take care of the horse. *(Pause for about 5 seconds)*. You reach down into the box and pull out a brush. You turn toward the horse with the brush to clean her coat. *(Pause for about 5 seconds)*. While you are grooming the horse, you begin discussing difficult stressors in your life with your therapist. *(Pause for about 5 seconds)*. As you continue to talk about your stress, you notice that the horse begins to relax as you brush and pet her. *(Pause for about 5 seconds)*. The horse breathes deeply and her ears droop to either side of her head as she relaxes. *(Pause for about 5 seconds)*. When you step back from the horse to put the brush back in the box, you notice that the horse's coat begins to shine. *(Pause for about 5 seconds)*. As you notice the fruits of your work, it feels easier talking to the therapist about different stressors in your life. *(Pause for about 5 seconds)*. It is easier to talk about your emotions. *(Pause for about 5 seconds)*. You also notice that you begin to think differently about your stress. It does not seem so hard to face. Instead, you begin to think of stress as a small hiccup in your life and that you have the resources to overcome it with ease. *(Pause for about 10 seconds)*

Before ending your session, the therapist asks you to lead the horse back out to the pasture to graze. *(Pause for about 5 seconds)*. As you untie the horse from the grooming stall inside the

barn, you notice your arms ache slightly from your hard work – however, the ache does not feel bad – in fact, it reminds you of what you accomplished today. (*Pause for about 5 seconds*). After reflecting on your work, you lead the horse out to a really grassy spot in the field. (*Pause for about 5 seconds*). You notice that the sun is shining and you can hear different sounds of nature. While she grazes peacefully in the sunlight, you pat her and comb your fingers through her mane. (*Pause for about 10 seconds*)

Please take a few moments to think about what this experience was like for you. Reflect upon what it was like to share your emotions with a therapist. Think about how the presence of the horse impacted your ability to share your emotions.

## APPENDIX II

### Animal Assisted Intervention

**Instructions:** During this part of the study, you will listen to a recording of a scenario using a pair of personal headphones. After imagining yourself in the scenario, you will be asked you some questions about your experience. Please find a comfortable position, put on your headphones, and close your eyes. When you are ready to begin please start the recording.

**Guided Imagery Recording:** In your mind, imagine that you in a comfortable therapy room. *(Pause for about 5 seconds)*. You are in the room with a therapist. *(Pause for about 5 seconds)*. There is also a dog in the room with you. The dog is your favorite breed. It might be big or small, hairy or smooth. *(Pause for about 5 seconds)*. You are sitting peacefully in a comfortable chair and the dog is sitting beside you on the carpet. *(Pause for about 5 seconds)*. In front of you is the therapist's chair, with a small table between you. On the table sits a clock and on the beige walls around you are pictures of landscapes. *(Pause for about 5 seconds)*. The dog is sitting at your feet and looks happy and relaxed. *(Pause for about 5 seconds)*. You reach out your hand and pet the dog's head. You rub her head and her ears and can feel the soft fur beneath your fingers. You gently run your hand over her back. *(Pause for about 5 seconds)*. The dog looks up at you, clearly enjoying being petted. She nudges your hand to show you she likes the attention.

*(Pause for about 10 seconds)*

Imagine that as you pet the dog, you begin discussing stressors in your life with the therapist. *(Pause for about 5 seconds)*. You tell the therapist how these events or situations have impacted your life. *(Pause for about 5 seconds)*. You describe emotions resulting from the challenging and stressful experiences in your life. *(Pause for about 5 seconds)*. Emotions may include feelings of sadness, anger, happiness, pride, or loneliness. As you talk to your therapist, you look around the room that you are sitting in. *(Pause for about 5 seconds)*. You can hear the air conditioning unit humming quietly. You can see the paintings of landscapes on the walls. *(Pause for about 5 seconds)*. You see a lamp in the corner of the room giving off a soft light. There is also a computer on a desk against one wall with an office chair in front of it.

*(Pause for about 10 seconds)*

As you discuss your emotions, the dog gently places her head on your lap. You look down to see the dog wants you to pet her *(Pause for about 5 seconds)*. As you continue to talk about your emotions, you start scratching the dog behind the ears and on top of the head. *(Pause for about 5 seconds)*. As you pet her you notice how soft her fur is beneath your fingers. *(Pause for about 5 seconds)*. You can feel the warmth and the slow breathing of the dog's body beneath your hand. *(Pause for about 5 seconds)*. You scratch the dog gently behind the ears with your fingernails and she moves closer to you as an enticement for you to continue. As you continue to scratch and pet the dog, you notice it feels easier talking to the therapist about different stressors in your life.

*(Pause for about 5 seconds)*. It is easier to talk about your emotions. *(Pause for about 5 seconds)*. You also notice that you begin to think differently about your stress. It does not seem so hard to face. Instead, you begin to think of stress as a small hiccup in your life and that you have the resources to overcome it with ease.

*(Pause for about 10 seconds)*

Please take a few moments to think about what this experience was like for you. Reflect upon what it was like to share your emotions with a therapist. Think about how the presence of the dog impacted your ability to share your emotions.

## APPENDIX III

### Guided Imagery Control Condition

**Instructions:** During this part of the study, you will listen to a recording of a scenario using a pair of personal headphones. After imagining yourself in the scenario, you will be asked you some questions about your experience. Please find a comfortable position, put on your headphones, and close your eyes. When you are ready to begin please start the recording.

**Guided Imagery Recording:** In your mind, imagine a trip to the grocery store. *(Pause for about 10 seconds)*. Imagine yourself getting into your car, preparing to go to the grocery store. *(Pause for about 10 seconds)*. You have everything you need with you. You have your list, your keys, and your money. *(Pause for about 10 seconds)*. You haven't forgotten anything and you are now ready to go. *(Pause for about 10 seconds)*. You insert the key into the ignition and start your car. *(Pause for about 10 seconds)*. Before leaving, you buckle your seat belt, and notice a smudge on your window. You turn on your wind shield wipers, and watch them go from left to right, left to right. *(Pause for about 10 seconds)*. Once the smudge has been removed, you find the station you want to listen and turn it to a medium volume. *(Pause for about 10 seconds)*.

You now check your side and rear view mirrors as you prepare to leave. *(Pause for about 10 seconds)*. You put your car into gear and notice your surroundings as you begin to depart. *(Pause for about 10 seconds)*. It is safe to continue and you begin to make your way to the grocery store. You are now driving to the grocery store. *(Pause for about 10 seconds)*. Imagine the inside of your car. *(Pause for about 10 seconds)*. Imagine the things you pass by on your way. *(Pause for about 10 seconds)*. Traffic is moving at a normal pace around you. You are on your way. *(Pause for about 10 seconds)*.

Envision pulling into the parking lot at the grocery store. *(Pause for about 10 seconds)*. You turn on your turning signal and pull in to a nearby parking spot. *(Pause for about 10 seconds)*. You put your car in park. Next, you begin to gather your belongings, checking to make sure you have everything. You have your list, your keys, and your money. *(Pause for about 10 seconds)*. You haven't forgotten anything and you are now ready to go inside the store. *(Pause for about 10 seconds)*. You step out of your car, close the door and begin to walk toward the entrance of the grocery store.

Once in the store, you find a buggy and check your grocery list to determine where to go first. *(Pause for about 10 seconds)*. You decide to start your journey in the breakfast aisle. *(Pause for about 10 seconds)*. In the breakfast aisle you slowly peruse over and select from different specific cereals, granola bars, and other breakfast essentials that you find enjoyable to eat. *(Pause for about 10 seconds)*. You place each selected breakfast food in your buggy as you move onto the meat and produce aisles. *(Pause for about 10 seconds)*. You glance at your grocery list again to ensure you know what fruits, vegetables, and sources of protein you need to obtain. *(Pause for about 10 seconds)*. You take your time to examine each food selection in this

aisle before placing them in your buggy. (*Pause for about 10 seconds*). Once you have all of the essentials needed to cook breakfast, lunch, and dinner, you search out for your favorite snack food and once you find it, place it in your buggy. (*Pause for about 10 seconds*). After all of your food is secured in your buggy, you identify a short line to check out. (*Pause for about 10 seconds*). Checking out appears unusually fast as you are able to place all your food on the checkout counter quickly. (*Pause for about 10 seconds*). The grocers scan, bag, and place all of your groceries back in your buggy. (*Pause for about 10 seconds*). You pay the grocer and begin pushing your buggy toward the exit.

*Wait for about 20 seconds.*

Please take the next few moments to recall and re-experience your journey to the grocery store. Please think about the different feelings you experienced during the exercise.