AN EXPLORATORY STUDY OF MOOD STATES AND TRANSIENT EMOTION IN AMATEUR DRESSAGE RIDERS

by

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ABSTRACT

The purpose of this study was to explore the horse-rider relationship through the effect of a rider's mood on the horse's behavior in practice and competition. A total of 18 Female amateur dressage riders participated in this study. The participants completed five surveys and two observations. Surveys included a demographic survey, Rotter's I-E Scale, Orientation to Life Questionnaire, and the Profile of Mood States (POMS). Observations took place at a scheduled practice and during one competition per participant. The POMS results showed increased mood disturbance from the riders (N=16, M= -9.94), p= 0.03 between practice and competition. Observation data revealed no significance in horse conflict behavior between practice and competition (M= -1.18) p= 0.95. The differences between rider TMD and horse conflict behavior pre- and post-competition, the results demonstrated a strong, positive, and significant correlation (r=0.868), p=0.000. These results are preliminary, but highlight a potential moderator of the horse-rider relationship.

CHAPTER 1. INTRODUCTION

When defining a victorious team, descriptors likely to explain this cohesion include compatibility, a developed sense of trust, confidence, and communication. To achieve cohesiveness, practice, experience, and emotional intelligence are all required to reach this label. In traditional sports, athletes can work in an individual or team setting. In team sports, each athlete relies on one another. A team could be considered an entire football team, or doubles partners in tennis. No matter, each is equal to the others and all must work to reach a common goal. Equestrian athletes are a very different type of team: the horse and the rider. In equestrian sport, this defines a partnership (Wipper, 2000). This partnership becomes of great importance because performance depends on the actions and reactions of the rider and the horse across events.

Equestrian competitions are labeled with three commonly known categories: Horseracing, Western, and English. Multiple concentrations exist within each category. Horseracing is a category of equestrian sport globally known. In the United States, the most common horseraces are those associated with the Triple Crown, i.e., the Kentucky Derby, Belmont, and Preakness. A predominant amount of research surrounding this competition setting focuses on jockeys and maladaptive behaviors to keep body weight low for improved performance (Caulfield & Karageorghis, 2008).

Western is viewed in an array of competitions, ranging from barrel racing and bull riding in rodeo, to Western pleasure or reining. Western pleasure is a style of competition where judges evaluate the horse on their relaxed nature though different gait cadences, those being the walk, trot and the lope. In this competition, all contestants compete against each other in the same arena at the same time. A reining competition is opposite. The pace is faster. The reining is

designed for equestrian athletes to demonstrate compulsory movements such as large fast circles, sliding stops, and 360-degree spins. This form of competition is designed to show the required abilities of a working ranch horse who would move livestock, such as cattle. English riding competitions are dressage, hunt seat, show jumping, and eventing. Personal choice determines the division of equestrian sport one may prefer more. This preference could stem from a desire for a fast-paced environment, jumping, events requiring endurance, or limited tackle.

Eventing can be thought of as an "equestrian triathlon". There are three phases to this: dressage, show jumping, and endurance (cross-country). An eventing competition takes places over three days to avoid exhausting both the rider and horse. Dressage is a series of movements where both the rider and horse are judged on their ability to demonstrate precision, flexibility, smoothness, and the horse's obedience to a rider's invisible aids (United States Equestrian Federation [USEF], 2017a). Aids are the subtle movements of the hands, such as flexion in the wrist, and through the squeezing of the legs. Each movement phase is scored individually, instead of the entire performance, such as in gymnastics or figure skating. The second portion of the eventing competition is a test for speed and endurance. The cross-country course covers less than five miles and consists of multiple obstacles to be jumped. The goal for the athletes is to complete the course within the allotted time, with the least amount of penalties. Faults include falling off or the horse refusing to jump an obstacle. The last day of eventing is the show jumping. The jumping course highlights a horse's ability to extend its body, model suppleness, or jump to its highest capacity (USEF, 2017a). The jump pattern is determined by the obstacle on the course. The jumps could be vertical, with poles stacked above the other, water/ditches, combination, which comparably to hurdles, a rhythm must be created. Lastly, there is the oxer jump which consists of poles placed on a horizontal plane, to create a jump demonstrating width.

The hunt seat, or hunter jumping seat, tests on both the flat and over fences. The flat is the area in the area where gait patterns are demonstrated. These movements are performed leading towards a jump. Judges monitor for precision and subtleness of the rider's aids, leading the horse to execute the correct movement (USEF, 2017b).

Simple differences do exist between the Eastern and Western categories of equestrian sport. Gait patterns, examining changes in speed and cadence, are very different depending on the category. While all judges across these two categories score for a walk and trot, in Western events, the last movement speed is coined as a "lope" and in English, this movement is referred to as a "canter". However, the definition of the two is the same. A second difference among categories is the clothing used in a competition. The English disciplined riders wear tight tan pants, a jacket, and a helmet, while Western riders are far flashier. The shirts are always tucked, tight, and covered in sequins or rhinestones accompanied with tight jeans. Furthermore, the tackle and saddles used per discipline differ. A Western saddle is far larger and heavier than that of the English saddle (Torres-McGehee, Monsma, Gay, Minton, & Mandy-Foster, 2011).

The horse-rider relationship is complex and excels with harmonious communication. An equestrian sport judged on the symbiotic relationship of the rider and the horse is dressage. Dressage competitions extend across local, national, international, and Olympic levels. The national governing body of dressage is the United States Dressage Foundation (USDF). Under this foundation, the U.S has 10 different regions across the various states. Each of these regions contain clubs which compete in both local (schooling) and rated (or recognized) shows. Both show types use the same judging criteria and pattern requirements, but schooling shows are more practice-oriented, while the rated are more prestigious competitions. Those competing in rated shows compete for points toward higher competitions. Upon registration, the rider is responsible

for reporting the competition level they will be judged (USEF, 2017b). Equestrian athletes may compete at one of four levels, each increasing in difficulty. In each level, the judges search for fundamental movements associated with each from the horse. The same concept of fundamentals with increasing difficulties applies to the rider as well. However, for the rider, judges monitor for position in the saddle, aids with the hands given to the equine, and the harmony and effortless look between the two (USEF, 2017). The aids given by the rider are through subtle movements in the seat, with their hands, or with their legs and feet. Primary aids stem from the movement in the seat. The flexion in the wrist and squeezing of the legs are secondary, and communicate to the horse different requirements than the seat.

Individuals working with dressage assume that if the rider communicates with the horse, the relationship will function effectively in practice and competition (Wolframm, Shearman, & Micklewright, 2010). The problem with this assumption is that horses are a very sensitive species and as a result, can read emotions as well as non-verbal and verbal communication skills of humans (Visser et al., 2008; Wipper, 2000). Therefore, the horse can demonstrate, during a routine in the ring, the emotions of the rider, which can be negative or positive. In dressage, due to the strenuous motor actions, it is essential the horse does not deviate from the aids given by the rider including other stimulus, which may add a surplus of different responses from the horse. (McBride & Mills, 2012). If horses and riders can form an empathetic relationship, this could cause behaviors to change to accommodate the other partner. For example, if a rider is nervous, there will be a physiological difference in muscle tension from when they are calm. If aids from the rider come from movement in the seat, or through the hands and legs, increased muscle tension can send confusing signals, causing the horse to respond differently, creating a cycle of misread cues.

When the negative performance of the dressage partnership is evaluated more closely, the horse's underlying temperament may directly determine the partnership performance level or the rider's underlying temperament may influence the horse's performance level in the partnership (Visser et al., 2003). Although the rider can strongly impact the horse's performance, the breed of the horse can also influence the temperament of the horse. Temperament serves as the core to mood, emotional responses, and therefore the resulting behavior.

In dressage, scores are calculated subjectively. Therefore, it is important for the horse and rider to appear effortless and congruent in all movements and aids to obtain a high scored performance. For the rider, a negative mood and emotional state could spark a reaction from an emotionally reactive horse, thus potentially affecting the performance of the two.

In the past, research has studied the effects of the fluctuation in mood and emotional states of athletes during pre-competition between novice and advanced equestrian athletes (Wolframm et al., 2010). Following British Equestrian guidelines, advanced riders are the equivalent to professionals, while novice riders were the remaining athletes not meeting this criterion. The difference in the two demonstrated a large displacement. It is known professional athletes possess an efficient capacity to regulate emotions in competition. Therefore, sampling amateur athletes would provide a greater variability in mood states, creating further inferences. To date, there is no previous literature examining mood and emotional states pre- and post-competition in dressage athletes as well as their horse's behavior to such. By examining both the pre- and post- mood and affective states, as well as behaviors in the horse, interpretations may be drawn suggesting the strength of the horse-rider relationship.

Purpose Statement

The purpose of this study was to explore the horse-rider relationship through the effect of a rider's mood on the horse's behavior in practice and dressage competition**.** The secondary purpose of this research study is to explore the mood states of amateur dressage riders pre- and post-competition.

CHAPTER 2. REVIEW OF LITERATURE

The relationship between an equestrian athlete and his/her horse demands synergy through strong emotional stability and listening skills to build strong rapport which leads to better performance. Equestrian sport differs from that of traditional sport due to the unique horse/rider relationship versus human only interactions. Previous research has examined affect leading to competition in dressage athletes and their horses (Wolframm et al., 2010), however, no post performance research has been examined. This review of literature will examine the foundations leading to emotional responses in both the horse and rider to further explain the role of mood and affect in competition.

The Horse

To perform at an optimal level, both the rider and animal must be in the utmost fitness, both physically and psychologically. For the horse, there are three separate but connected levels that determine optimal functioning: temperament, mood, and emotional reaction (McBride & Mills, 2012). This triad determines the behavior of a horse. Past research suggests that the personalities of the rider and equine must be synchronized for the relationship to be effective (Visser et al., 2008).

Temperament. The horse is naturally a prey animal, which means it is more perceptive to environmental stimuli than humans. The sensitivity of this perception can be utilized in studying temperament. An understanding of the horse's temperament has been examined and found to be beneficial in equestrian competitions (Visser et al., 2001). Although there are different ways to describe temperament, the most accurate way to describe the temperament of a horse encompasses the genotype of the equine as well the evolving phenotype (McBride & Mills, 2012). The significance of this description is that the temperament is explicit to the competition

the horse is active in and the genotype is the genetic component of all living creatures. Phenotype is the physical representation of the genotype, meaning, a miniature horse will never win the Triple Crown due to its size and lack of speed (McBride & Mills, 2012). Certain temperaments may be advantageous over others, depending on the competition. For example, horses can be classified as 'flighty' and will shy away from quick movements, leaves moving on the ground, or a sudden sound. This level of sensitivity would behoove a racehorse due to the surrounding external stimulus, such as the crowd, other horses, and riders. This same temperament style would not be beneficial to the performance of a jumping horse (McBride & Mills, 2012).

To determine a flighty, also called emotionally reactive behavior, standardized behavioral tests are completed. The novel object and handling tests are common temperament tests. To begin both tests, a heart rate monitor is attached to the equine to establish a resting rate. Once recorded, the horse is placed in an arena. For the novel object test, a closed umbrella is placed into the arena to where it is visible to the horse. The umbrella is opened and the horse's reaction and heart rate are recorded. A large deviation from baseline measurements suggests a more emotionally reactive temperament. The handling test is conducted by a familiar human walking beside the equine over plywood plates (also referred to as a bridge) to determine reactivity (Axel-Nilsson, 2015; McBride & Mills, 2012, Visser et al., 2008). The handling test also comprises itself of two components: 'patience' and 'willingness to perform' (Visser et al., 2001). However, the study performed only examined young horses (9-22 months).

Frequently studied, personality is an individualistic factor affecting environmental stimulus. Lloyd, Martin, Bornett-Gaucci, & Wilkinson (2008) examined different breed's personalities using the Horse Personality Questionnaire (HPQ). It is important to note that

personality and temperament are different, however they are interrelated. The multiple classifications of horses seen in equestrian sports demonstrated primarily opposite traits. The results indicated that quarter horses were low in sociability with others, less inquisitive, and less protective. The thoroughbred group, however, scored highest in the dominance category. Components of this category include eccentric, anxiousness, aggressiveness, and stubbornness. The quarter horse did not place high in any categories (Lloyd et al., 2008). Research has also suggested horses share personalities to humans, possessing similar dimensions of Costa & McCrae's (1999) Big Five Theory. Relating to affective responses, horses show signs of both neuroticism and extraversion, explaining both the social and flighty behaviors in horses (Gosling & John, 1999). If temperament acts as the core guiding an emotional response, personality serves as a moderator to mood and emotion, and thus behavior. Different personality characteristics of the horse could dictate the equine's emotional state and mood.

Emotional State. After conducting behavioral tests and heart rate variability to determine an equine's temperament, it is possible to understand their emotional state. This state can be evaluated through performance in both practice and competition settings based on arousal. Understanding the emotional state regarding performance is critical due to different needs per competition (McBride & Mills, 2012). Meaning, at the starting gate, a race horse would require different levels of intensity than an English jumping horse would, as the environments are different. Due to the horse's inability to communicate verbally, horses can express their negative or positive emotional states through noise or body movements.

Williams (2004) explains how four different body parts on a horse can explain many emotions. For example, a high raised tail indicates excitement or alertness, while the equine whose tail is low suggests tiredness or even compliance. More so, a swishing movement of the

tail suggests annoyance. These tail movements are also associated with other body parts such as the legs, facial expressions, and ears. For example, an attentive or enthusiastic horse is pictured as possessing a high-raised tail, flared nostrils, with ears angled forward. Indications of anger or annoyance would be accompanied by tail swishing, stamping or pawing, dilated pupils revealing whites around the eyes and ears fastened smooth against the top of the neck. These negative responses to a stimulus are referred to as conflict behaviors.

Conflict Behaviors. Conflict behaviors (CB) are a response from an animal when they experience either a mental or physical discomfort (Gorecka-Bruzda, Kosinska, Jaworski, Jezierski, & Murphy, 2015). These behaviors indicate hyperactivity, confusion, or resistance to the aids of a rider. A study observing conflict behaviors in dressage horses resulted in agonistic behaviors such as tail swishing, accompanied with laying back of the ears (Gorecka-Bruzda et al., 2015). The swishing of the tail was mostly exhibited during the pirouette movement, a movement requiring the horse to canter and turn in the same place. The pirouette is not a required skill until the fourth level of dressage competition, therefore tail swishing may not be as frequent in lower skill sets. Previous research observing conflict behaviors involved measuring the duration of these behaviors throughout specified movements such as walking, trotting, working canter, and passing movements to different directions (Gorecka-Bruzda et al., 2015). After completion of the routine, the frequency of the conflict behaviors was divided by the duration of the movement phase. This created a measureable number for maladaptive behaviors during competition.

Horses can communicate through sound. This is typically exemplified through high-pitched whinnies, which are used to locate other horses over a distance, or a low pitch nicker, indicating they are hungry (Williams, 2004). Like humans, horses may also develop maladaptive

habits due to boredom, nerves, or a surplus of energy that can decrease performance (Williams, 2004). Common horse vices or measurable behaviors are cribbing, weaving, pawing, or stall kicking. Bored horses are likely to be seen weaving, which entails rocking side to side, kicking the doors in their stalls, or pawing the ground. Cribbing, the other common negative behavior, involves chewing on a fixed surface. This process can become addictive due to its physiological effects. For example, the cribbing process is completed through biting into a fixated surface, arching of the neck, and a quick inhalation. Any one of these actions releases endorphins into the blood stream, relieving feelings of nervousness or fear (Williams, 2004). This physiological effect continues to generate satisfaction that produces an addiction through craving it over time. Being a social animal, this causes the horse to be perceptive to those interacting with it. Therefore, it is plausible that a rider may act as a source of anxiety to the equine that can result in these conflict behaviors (Borstel, Visser, & Hall, 2017). However, little is known regarding the emotional state of the rider and its effect on the horse in a competition setting (Bridgeman, 2009).

The Rider

To successfully complete a task in dressage, harmony must be reached between the rider and the horse. Before this mutual collaboration can begin, it is important to understand the psyche of the rider. This begins with defining affective states and mood. The initial difference in the two is time. Emotions are short lasting while moods possess a longer duration (Cerin & Barnett, 2011). Further differences include intensity, reference to a stimulus, and origin (Vallerand & Blanchard, 2000). Emotions are concentrated and event-related, while moods are not triggered by a stimulus as they are individual-related.

A clear definition between the two terms enables researchers to sort competitive event

responses to the correct category. Emotional responses in a competition relate to a specific event causing a physiological change. This is in opposition to a mood, which is more indirect, varies in intensity, and more likely related to the individual (Cerin & Barnett, 2011). Furthermore, a mood state is an assortment of multiple emotions (Wolframm et al., 2010).

Lazarus' Model of Stress (Lazarus, 1999). Lazurus' Interactional Model of Stress (Figure 1), describes stress and its effect on mood, and therefore, behavior. According to the model, stress is viewed in two different appraisals, primary and secondary. Primary appraisal is the assessment of a stressor, and the impact it will impose on both physical and psychological well-being (Kaiseler, Polman, & Nicholls, 2013). The model explains there are four different facets of perceiving a primary appraisal, including benefit, challenge, threat, and harm. Secondary is the ability to cope with the perceived stress. Secondary appraisal defines how an athlete evaluates and creates a coping strategy to eliminate the threat, resulting in optimum gains.

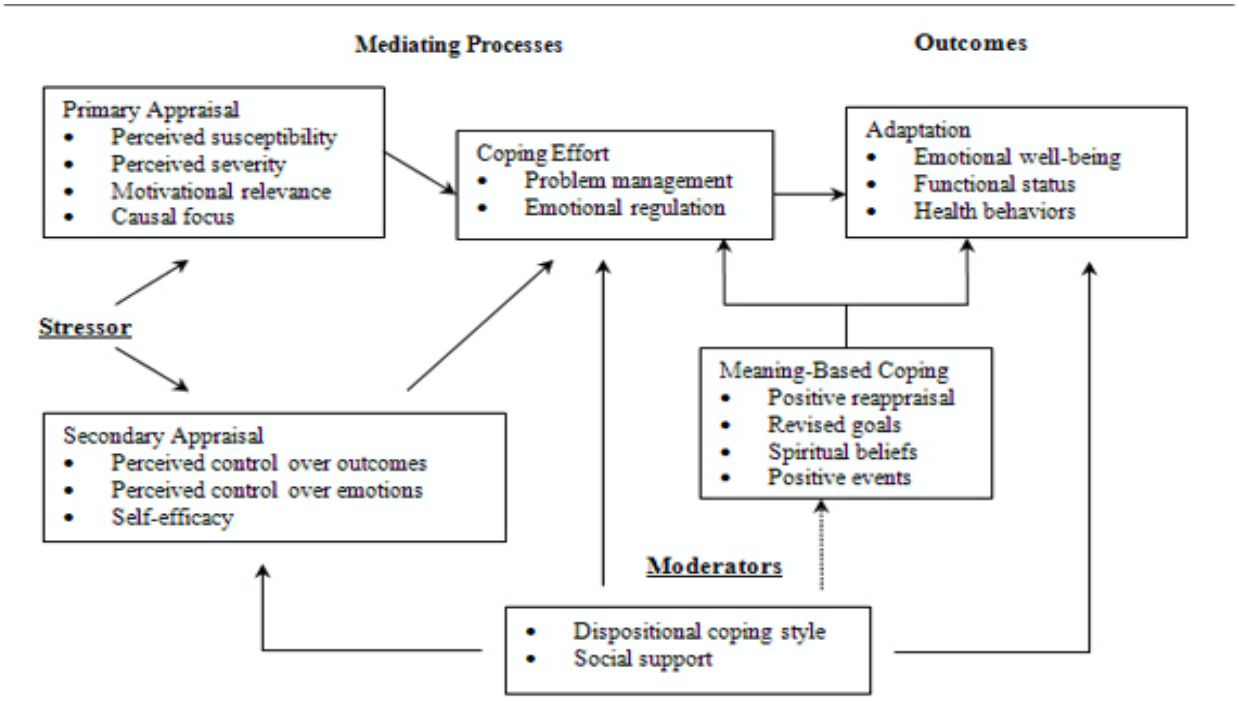


Figure 1. Lazarus' Model of Stress

Smith and Lazarus (1993) distinguished inner-appraisal dimensions further defining the primary and secondary appraisals. Goal congruence, goal relevance, and ego-involvement further identify primary appraisal. Secondary appraisal inner-appraisal dimensions are blame/credit, coping behavior, and future expectations. Based on the environment, goal congruence describes the perception an individual views the four facets, while goal relevance explains the importance of the event, as well as the intensity of the emotion (Cerin & Barnett, 2011)

However, while Lazurus' model explains a reaction to stress, it does not account for competitive emotions. To account for this, Cerin, Szabo, Hunt, & Williams (2000) adapted Lazarus' (1999) and Hardy, Jones, & Gould's (1996) models into an interactional model of competitive stress (Figure 2). The model incorporates competition, divided into opportunities, constraints, and demands, the athlete's appraisal, the emotional response, and coping strategies.

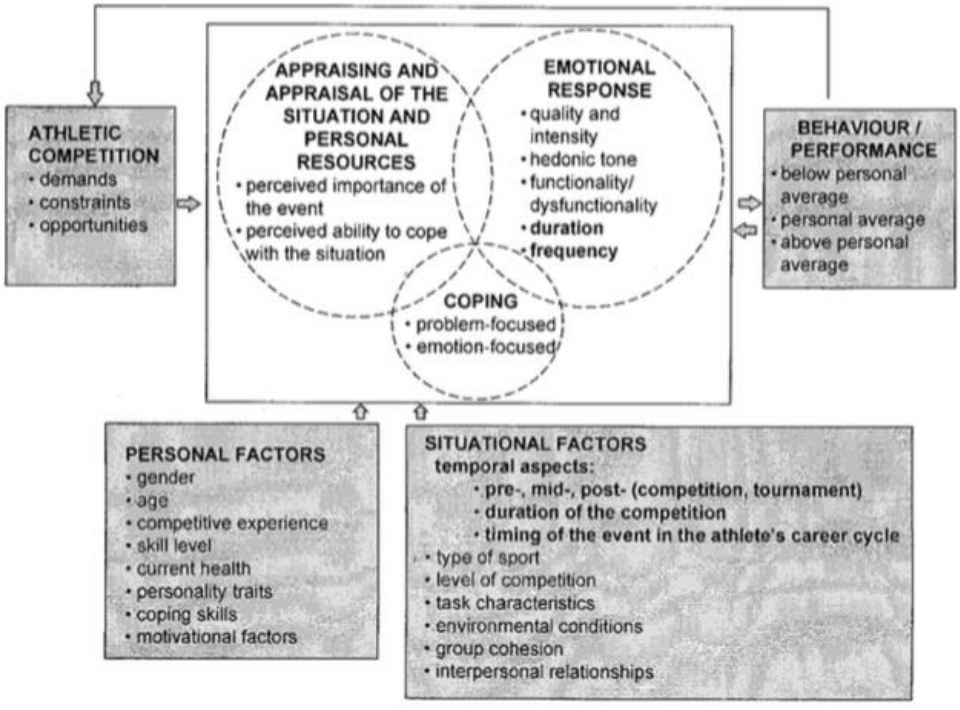


Figure 2. Interactional Model of Competitive Stress

The quality or intensity of affective states is influenced by the appraisal. Therefore, this intensity could affect an athlete's behavior and further, their performance. The emotional response exhibited by an athlete can further be divided by hedonic tone, the duration and frequency, and the functionality/dysfunctionality of the response. A focused explanation of the emotional response is shown in Figure 3. The model provides a detailed perspective of the many transient

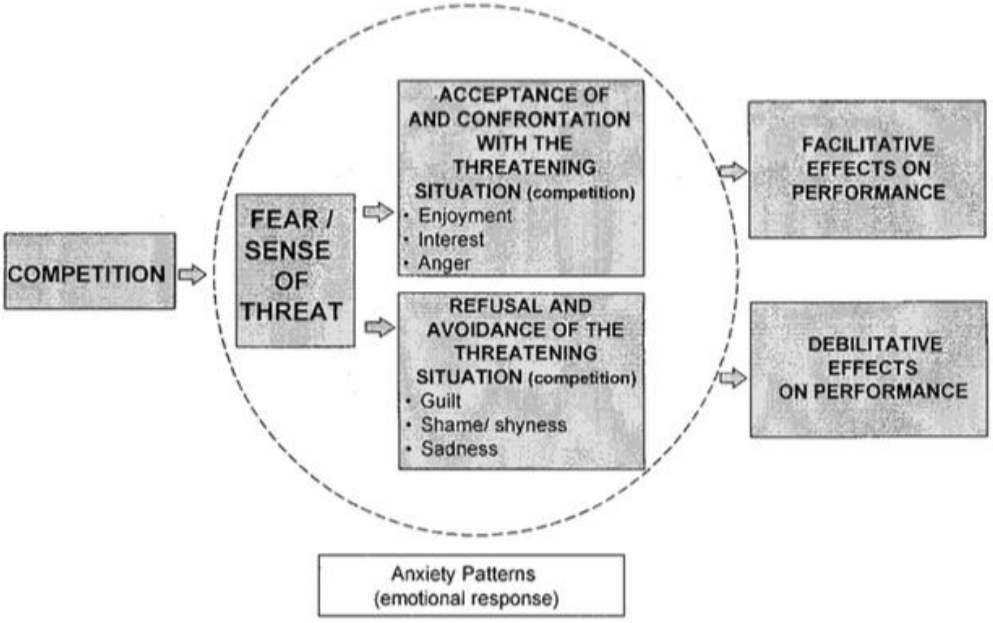


Figure 3. Focused View of Interactional Model of Stress

emotional responses an athlete could experience in response to stress. With this interactional model, an athlete's reaction is influenced by level of competition, age, disposition to stress, and timing of the event (Cerin et al., 2000).

The chosen coping mechanism defines an athlete's ability to control or improve the perceived stressor (Cerin & Barnett, 2011). Coping can be defined as the "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are taxing or exceeding the resources of the person" (Lazarus, 1984, p. 141). Problem-focused coping works by minimizing or even eliminating the perceived stressor. Using emotion-focused

coping acts by regulating intensity levels to manage the distress. Lastly, avoidance coping describes both the physical and psychological decisions an individual makes to separate from a situation. In a competition, adopting an avoidance coping strategy would be the least effective. The chosen coping mechanism to the stressor likely is affected by an individuals' internal or external locus of control and sense of coherence.

Locus of Control and Sense of Coherence. Locus of control (LOC) is a problem-solving expectancy first described by Rotter (1966), derived from Social Learning Theory and explains how one perceives control of their life. Individuals with a high external locus of control attribute an event to unpredictable luck and chance. On the opposite end, internal locus of control describes one who believes events are contingent of their personal actions (Rotter, 1966). The strength of an individual's internal or external locus of control determines the variables that affect an emotional response. Control is related to the secondary appraisal component. Based on the perceived control of the threat, an athlete is likely to engage in problem-focused, avoidance, or emotional-focused coping strategies (Kaiseler et al., 2013).

Individuals who can successfully cope with perceived stress are presumed to possess a sense of coherence (SOC) (Antonovsky, 1979). Sense of coherence shares similarities to the concepts contained in Lazarus' model. They are meaningfulness, comprehensibility, and manageability (Endo, Kanou, & Oishi, 2012). The motivational element, meaningfulness, shares similarities to goal relevance. Meaningfulness describes the amount of energy one plans to input into a perceived threat or need. Stemming from the environment, comprehensibility, the cognitive portion, explains how a stimulus is perceived. Lastly, manageability, the behavioral piece, describes the means used to properly react to a stimulus (Endo et al., 2012). Individuals with a high SOC perceive the environment as structured. Therefore, life events are predictable,

and understandable.

According to both Rotter (1966) and Antonovsky (1979), it is theorized that possessing a high SOC and internal LOC is more beneficial to performance. However, this assumption was debated in the Visser and colleagues (2008) study. Participants were asked to ride a horse that was unfamiliar. Following this, the participants answered two questionnaires, one pertaining to temperament of the horse, the other for cooperation between the horse and rider. Simultaneously, an external judge completed the same questionnaires regarding perceived temperament and horse-rider cooperation. The results indicated that riders with high external LOC and low SOC were more likely to report a higher level of cooperation, thus predicting a higher performance. Both concepts explain control, therefore, riders who perceive the world as unstructured and unpredictable will perform better than one with a higher sense of personal control. Further research has not identified possible hypotheses to explain these findings.

Equestrian Sport

The complex horse-rider relationship requires cooperation and harmony to improve performance (Visser et al., 2003). The sport is composed of male and female athletes participating in various technical competitions based on a mixture of aesthetic judging and points to determine a victor. Extensive research in equestrian sports is scant. The limited amount focuses primarily on physiological components. The literature containing psychological factors is outdated, creating gaps.

A common researched area of equestrian sport is horseracing. However, the greater amount of available research concerns jockeys and their eating habits. This is because jockeys are notorious for engaging in a rigorous process to maintain a low body weight called wasting (Caulfield & Karageorghis, 2008). These multiple maladaptive techniques include excessive

sauna use, extreme dieting, laxative use, smoking, diuretics, and vomiting. A study of New Zealand jockeys revealed the riders possessed decreased bone density and were deficient in many nutrients (Leydon & Wall, 2002). To combat gains, jockeys combined weight loss techniques to "make weight", while only 22% of the athletes participated in outside exercise (Leydon & Wall, 2002). A weight-restricted sport such as this receives more focus compared to the other disciplines of equestrian athletes (Torres-McGehee et al., 2011).

Objective Equestrian Sport. A division of equestrian sports lacking a depth of research is rodeo. The National Intercollegiate Rodeo Association (NIRA) is composed of men and women from different regions competing in saddle bronc, bull riding, team roping, barrel racing, and many more. In this competition setting, the victor is chosen based on the fastest time or highest amount of points. To achieve victory, psychological skill sets are required.

A study of collegiate rodeo athletes compared event type to psychological constructs of the Psychological Skills Inventory for Sport (PSIS). The results indicated that collegiate athletes possessed high levels of anxiety management, concentration, confidence, and motivation (Meyers, 1999). To knowledge, no other research has been conducted regarding psychological skill sets in this population.

Subjective Equestrian Sport. English and Western classification of equestrian sports is considered more aesthetic than the more objective events such as horseracing and rodeo. Examples of English riding include dressage, hunter seat, and jumping. In these events, judgment is based on the rider's position on the saddle and the performance of the horse to work in harmony with their rider to display effortless and smooth transitions (USEF, 2017). Common Western events include reining and western pleasure. In a reining competition, the focus in on the rider to display control in the pattern with a quiet hand. Regardless of concentration, in both

categories, judges critique on smooth gaits, pattern transition, precision and accuracy, as well as the harmony of both participants (USEF, 2017).

Dressage. An equestrian sport with competition categories increasing up to the Olympic level is dressage. The dressage discipline places a large amount of emphasis on the training of submission. In the dressage routine, the horse and the rider are judged simultaneously. The horse's judging criteria is based on four items: Gaits, impulsion, submission, and the rider's position in the seat. Also, judges score the rider on their ability to exhibit trainability and suppleness of horses (Bridgeman, 2009). In a dressage test, the three gaits critiqued are walk, trot, and canter. Judges evaluate these gaits in terms of purity, quality and correctness (USEF, 2017). Each movement pattern requires a different tempo. The walking routine entails marching with four beats. Trotting is at a pace of two beats, but the horse's diagonal legs should alternate when moving. Lastly, the canter stage requires marching at a three-beat pace. At this stage, the judges examine if the horse leads with one of their front legs. According to the national levels, the United States Dressage Federation (USDF), the horse judgment is based on five levels: Training, First, Second, Third, and Fourth. A sixth level, Introductory, exists for beginning dressage riders, however it is not considered a competition level by the USDF. Examples of tests for level One through Four can be found in Appendix E. Outside of the U.S. international competition levels, the Fédération Equestre Internationale (FEI), surpass the fourth level and continue into the Prix St. Georges, the Grand Prix, Grand Prix Special, and Freestyle. At competition, riders may show two different tests at their level (USEF, 2017), meaning, if an athlete enters at first level, they may compete at Level One, Test A and Test B.

The levels increase in difficulty as the level of show continues. In the first level, judges examine if the horse can demonstrate the fundamentals and displays improved balance while

sustaining contact with the bit. In the subsequent levels, judges examine for the equine to continue the previous level fundamentals while developing a greater uphill balance, more reliability on the bit, as well as an increasing level of straightness, suppleness, and cadence as they increase in competition. The rider is judged on: position in the saddle, correct and effective use of aids, the response and performance of the horse, accuracy, and harmony between both participants (USEF, 2017). In the beginning level test, judges critique if the rider sits in the correct posture and alignment and while demonstrating all correct mechanics creating smooth gait transitions, turns, and circles. In the higher-level rider tests, judges examine how the rider changes the length of the horse's strides and gait transition while maintaining the proper alignment and posture. With different movements, the rider is to stay centered in the saddle while aiding the horse in the required movements. The aids the rider gives to the horse should cue the horse to perform the proper bends and gaits judged in the level tests previously discussed.

The aids used by the rider are divided into two parts: primary and secondary. The primary aid from a rider is through their seat. The positioning in the seat determines rhythm, speed, and stride lengths (USDF, 2017). Correct seating means positioning in the lowest part of the saddle without gripping or contracting his muscles with a relaxed straight back. This positioning allows you to absorb the shock from the horse's hooves hitting the ground. However relaxed doesn't indicate limp, the rider should have voluntary control of the muscles. Movement forward and backward in the seat is how the rider instructs their horse to shorten or elongate their stride. Secondary aids come from micro movements in the legs, feet, and hands. These aids are responsible for guiding the horse to proper bends, and asking for more impulsion.

Measuring Mood in Equestrian Sport. Used in close to 4000 studies, the Profile of Mood States (POMS) measures six mood states: Tension-Anxiety, Depression-Dejection, Anger-Hostility, Vigor-Activity, Fatigue-Inertia, and Confusion-Bewilderment (McNair, Lorr, & Droppleman 1992; Lorr, McNair, & Heuchert, 2003). The total of the scores determine Total Mood Disturbance (TMD) and is graphically represented by an "iceberg profile". This profile was created to reflect positive mental health (Weinberg & Gould, 2015). The iceberg profile for a successful athlete portrays a higher level of vigor, above the mean, while the remaining negative subscales fall below. The use of the iceberg profile in sport began with Nagle, Morgan, Helickson, Serfass, and Alexander (1975) in which the researchers compared the Olympic Wrestling Team to a sample of non-athletes. The results determined the wrestlers exhibited less anxiety, depressive symptoms, confusion, and fatigue than the non-athletes. Furthermore, the profile indicated the wrestlers had a higher level of vigor than the nonathletic population.

Most recently in equestrian sport, Wolframm et al., (2010) examined precompetitive mood states in advanced and novice equestrian athletes. Following the British Dressage guidelines, advanced riders were considered the equivalent of a professional. Using the POMS, the results indicated novice riders experienced more tension and confusion, and less vigor in comparison to the advanced athletes. Variance accounted between mood states was 49%, suggesting a large effect size. However, due to the limited number of participants, the researchers predicted a Type II error occurred, affecting the credibility of the results. The researchers further discussed the POMS as an accurate predictor of performance, especially when studying the role of mood in equestrian sports. It was suggested for future researchers to use the POMS to consider differences in mood responses, or as an indicator of emotional control. To date, this is the most current study examining mood states on dressage athletes.

Summary

Equestrian performance can be influenced by multiple variables such as body awareness, personality, horse temperament, and balance (Visser et al., 2008). It is theorized that equines are susceptible to subtle changes in a rider's mood and emotions (Wipper, 2000). These ideas lead researchers to believe that the animal is a "large biofeedback machine" (Professional Association of Therapeutic Horsemanship [PATH] International, 2013). The sensitivity of this "machine" could derive from the equine's temperament. Equestrian competitions are a combination of "two athletes. . .two personalities. . . and two minds," (Wipper, 2000, p 48). Therefore, to achieve optimal performance, the two athletes require cooperative synchronization. With gaps in the literature, a study examining the effects of mood in the horse-rider relationship pre- and post-competition would foster a greater understanding and create a new line of research for future studies.

Research Questions

Question 1: What are the exhibited behaviors of the horses pre-and post-competition?

Question 2: What are the changes in mood states of amateur dressage riders pre-and post-competition?

Question 3: Does a rider's affect influence the amount of observed conflict behaviors exhibited by a horse?

Question 4: What is the relationship of LOC and SOC to performance score?

Hypotheses

Question 1:

H1: Horses will exhibit more negative behavior in practice than competition

Question 2:

H2: Riders will demonstrate a change in mood states between pre- and post-competition.

Question 3:

H3: More conflict behavior will be observed in horses whose riders report a negative mood on the POMS

Question 4:

H4: Riders reporting with a high external LOC and low SOC will display a higher performance score than those with a high internal LOC and high SOC

CHAPTER 3. METHOD

The primary purpose of this research study was to explore the mood states of amateur dressage rider's pre- and post-competition. The secondary purpose was to determine if the rider's mood state influences the horse's behavior. Amateur dressage riders and their horses were sampled for this study. This chapter will outline the participants, measures, procedures, and statistical analyses utilized to answer the questions asked in this study.

Participants

An amateur sample of 50 riders were selected for this study. A delineation of the different competition classes is explained below. Research has shown that professional athletes possess a higher level of self-confidence and anxiety management skills. Therefore, by selecting an amateur population, it was inferred a higher variability will occur for emotional and behavioral differences in amateur riders.

Novice: Novice classes are open to horse/rider combinations that have not attained one/three/six scores of 60% or higher, respectively, in Dressage at Federation or Equine Canada licensed competitions in the level in which they are shown (USEF, 2017b). Furthermore, individuals competing at a training level and below will be considered novice.

Amateur. Regardless of equestrian skills and/or accomplishments, a person is an amateur if after his 18th birthday, he has not engaged in any of the activities which identify as a professional (USEF, 2017b)

Professional: The classification of a professional class is one who accepts remuneration as well as rides, exercises, drives, shows, trains, assists in training, schools or conducts clinics or seminars. The professional accepts payment by giving lessons, in driving, riding, showmanship, and equitation, trains horses, or provides consultation services any of the options listed above.

The professional uses his name, photograph or other form of personal association as a horseperson about any advertisement or product/service for sale (USEF, 2017b).

Inclusion criteria for this study included no present illness or injury for either the rider or the equine; the rider qualified for the adult amateur rank classified by the USEF regulations; and the rider was female. Riders in this study only qualified if competing between First to Fourth level of competition and if they belonged to dressage clubs in Texas. For horses, inclusion criteria allowed both hot and warm-blooded horses, and both genders, mares and geldings.

Participants were excluded for the study if they did not meet the qualifications for an adult amateur determined by the USEF, i.e., under the age of 18, or meeting the qualifications for a novice or for professional; male dressage riders; or if competing at FEÍ elite levels including Prix St. George, Intermediare I and II, and the Grand Prix. Participants were excluded if they belonged to a Region 9 club outside of Texas (i.e., Arkansas Dressage Society and the Oklahoma Dressage Society). Horses were excluded if they are received any form of sedative or tranquilizer to reduce anxiety, which could disrupt collection of data.

Measures

Demographic Questionnaire. A demographic questionnaire was distributed to all participants asking for age, years of experience, months and years riding the horse, and level of competition. Demographic information was obtained regarding the horses name and gender. The level of competition corresponded to a conflict behavior observation tool possessing each level's pattern that was used by the observer.

Rotter's I-E Scale (Rotter, 1966). The LOC is a 29-item questionnaire with two options per question. 23-items are forced-choice, while six are filler items. The prompt asks users to "select the statement that you agree with the most". A high sore indicates an external LOC, while

a low suggests internal LOC. The scale asks the participant to choose option A or B. Such as: "*What happens to me is my own doing"* or *"Sometimes I feel that I don't have enough control over the direction my life is taking."* Reliability coefficient of the I-E Scale is .70, with evidence of construct validity. The I-E Scale may be found in Appendix B

Orientation to Life Questionnaire (Antonovsky, 1979). The Orientation to Life scale is a 29-item scale on a 7-point Likert scale. The scale measures for three subscales: Comprehensibility, Manageability, and Meaningfulness. 13 items are reverse scored. 11 items are added together to identify the Comprehensibility score. 10 items from the scale calculate Manageability. The remaining 8 items total the Meaningfulness subscale. The questionnaire asks questions such as "*Do you have the feeling that you don't really care about what goes on around you?"* A score of a 1 indicates 'Very seldom or never' and a 7 denotes 'Very often". Or "*Life is…"* where a score of 1 indicates 'Full of interest' and 7 equals 'Completely routine'. Cronbach's alpha reliability for the scale ranges from 0.70-0.95. Consensual, construct, predictive, and criterion validity exist for this scale. Consensual validity demonstrated a correlation of 0.87. A composite score for the SOC can be found by totaling the numbers. Scoring can range from 29-203 based on a answers. The Orientation to Life Questionnaire may be found in Appendix C.

Profile of Mood States (POMS) Questionnaire (McNair, 1971). The POMS is a 65-item questionnaire rated on a 5-point Likert scale. On the scale a 0 indicated 'Not at all' and a 4 signifies 'Extremely'. Two items are reverse scored, those being 'Relaxed' and 'Efficient'. The Cronbach alpha rating for the POMS is reported from .75-.92 for a total score. Internal consistency between subscales ranges from .63-.92. Convergent validity for the POMS was established via correlations to the Positive and Negative Affect Scale (PANAS-X), where all

correlations were equal to or exceeded .84. The POMS has 6 subscales including Tension-Anxiety (0-28), Anger-Hostility (0-48), Fatigue-Inertia (0-28), Depression-Dejection (0-60), Vigor-Activity (0-32), and Confusion-Bewilderment (0-28). Total Mood Disturbance (TMD) is determined by the following equation: [TEN+DEP+ANG+FAT+CON]-[VIG]. The six subscales inquire the individual to rank feelings such as "Tense", "Full of pep", "Annoyed", "Trusting", "Unable to Concentrate", and "Lonely".

Tension-Anxiety (Curran, Andrykowski, & Studts, 1995). The reliability coefficient for this subscale was .67 in a healthy sample. Convergent validity for this scale correlates with fear (.57). Feelings related to this subscale include 'Tense', 'On edge', and 'Panicky'.

Anger-Hostility (Bourgeouis, LeUnes, & Meyers, 2010). This subscale reports a reliability coefficient of .93. Convergent validity for this scale correlates with Hostility (.84). Items from the POMS for this subscale include 'Grouchy, 'Annoyed', and 'Peeved'.

Fatigue-Inertia (Bourgeouis et al., 2010). The reliability coefficient is .98 for this subscale. Convergent validity for this scale correlates with Fatigue (.73). The feelings associated with this scale are 'Worn-Out, 'Exhausted, and 'Weary'.

Depression-Dejection (Bourgeouis et al., 2010). The reliability coefficient score for this subscale is .90. Convergent validity for this scale correlates with sadness (.70). The feelings associated with this scale are 'Unhappy', 'Guilty', and 'Helpless.

Vigor-Activity (Bourgeouis et al., 2010). This subscale reports a reliability coefficient of .98. Convergent validity for this scale correlates with positive affect (.79). Items from the POMS for this subscale include 'Lively, 'Alert', and 'Vigorous'.

Confusion-Bewilderment (Bourgeouis et al., 2010). The reliability coefficient is .69 for this subscale. Items for this subscale include 'Unable to concentrate', 'Muddled, and 'Forgetful'.

There is not convergent validity for this subscale.

Observations. Observations took place in both practice and competition environments. To complete this step, the observer monitored the horse's behavior while being ridden. An observation recording sheet contained the dressage pattern corresponding to the participant's level of competition (Appendix C). Following the pattern, the observer recorded both the frequency and duration of the Conflict Behavior to yield a total conflict behavior. Observations lasted no longer than 60 minutes, creating ample time for participants to warm up and begin their practice.

Procedures

To begin this study, DRB approval was obtained. The time to complete this study was less than 12 weeks. The dates of the study began February 1st and concluded following April 8th. Participants were recruited via Texas dressage clubs affiliated with Region 9. Those being, Alamo Dressage Association, Austin Dressage Unlimited, Brazos Association for Classical Horsemanship, Central Texas Dressage Society, Dallas Dressage Club, Fort Worth Dressage Club, Houston Dressage Society, Southern Eventing and Dressage Association, and Tri-State Dressage Society. Information regarding the study and its timeline was distributed to all participants. All questionnaires were manually entered in Qualtrics. Beginning February 1st, an email from Qualtrics was sent to all participants creating access to complete the Demographic Questionnaire, I-E Scale, and Orientation to Life Questionnaire. Participants were informed that the questionnaire may be accessed from their mobile browser as well as their computer. Consent was obtained through completion of their first questionnaire. Participants had one week to complete the first three administered questionnaires before being removed from the study.

Prior to the rider's normal practice time, the participants were sent a link from Qualtrics

to complete the POMS. Also, an observer attended a scheduled practice to record conflict behaviors exhibited by the horse. Conflict behaviors were measured by the frequency of the maladaptive behaviors divided by the duration of the pattern. The observer used a stopwatch with a lap feature to record the pattern time. After completion of the practice, the observer mathematically created the total conflict behaviors in the pattern. This was used in data analysis to compare to mood states of the rider. Following the practice observation, the participants were asked if their horse behaved in an atypical manner. If this occurred, the observation was repeated, and the original observation and POMS data was be deleted. The purpose of this allows the researcher to compare differences between similar behaviors following the observations.

To measure for post-competition mood states the participants competed in one of the rated dressage competitions identified by Region 9. A sample of these competitions is shown in Figure 4. During the competition, a researcher recorded the number of conflict behaviors exhibited by the horse to be compared to the rider's emotional state. Again, the conflicting behaviors were measured by the frequency of the maladaptive behaviors divided by the duration of the pattern to create a total conflict behavior number. Immediately following the competition, the participant was asked to complete the POMS within an hour of finishing their pattern. The participants were asked of their judge's score and if errors occurred when completing the competition POMS. If the score was not available, the participants were contacted the next day. Knowing this occurrence aided in differentiating between the effects of mood, or rider/horse error. Following the period of collection, data analysis proceeded.

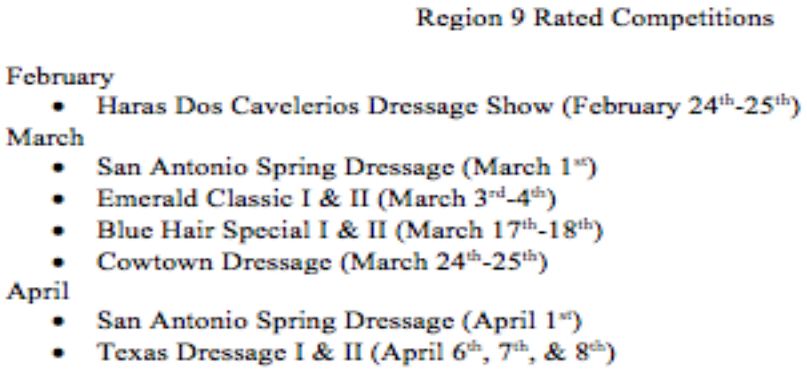


Figure 4. Spring Competitions Recognized by USDF Region 9

Statistical Analysis

Descriptive statistics were used to determine the means and standard deviations of the demographic data. That being age, years ridden, level of competition, and years competing with the horse. The first research question was tested using a dependent t-test. This compared differences in observed conflict behaviors between practice and competition. The second research question was answered with a dependent t-test. This determined the difference in answers reported on the POMS from practice and competition. The third research question was calculated by taking the difference in scores from the rider's TMD and the horses observed Conflict Behavior. To remove negative values, the raw scores were translated into T-scores. Following this a correlation was used. To further evaluate the interaction of rider mood and horse conflict behavior, a linear regression was used, saving the standardized residuals. Lastly, a Pearson Product Correlation Moment (PPMC) was used to determine the relationship of the rider and horse. To measure the fourth research questions, a Pearson Product Correlation Moment (PPMC) compared the relationship external/internal LOC and SOC groups to the participants scored given by the judges. Significance was set at $p<0.05$.

CHAPTER 4. RESULTS

The results from this study represent the change in mood states in Adult Amateur equestrian riders in the state of Texas from practice to competition. These results also represent the effect of the equestrian athlete's pre- and post-competitive mood state on the behavior of their horse. The following research questions were asked during this study: (1) What are the exhibited behaviors of the horses pre-and post-competition? (2) What are the changes in mood states of amateur dressage riders pre-and post-competition? (3) Does a rider's affect influence the amount of observed conflict behaviors exhibited by a horse? (4) What is the relationship of LOC and SOC to performance score? This chapter is divided into five sections: demographics, question 1, question 2, question 3, and question 4.

Demographics

Originally, 18 female equestrian athletes volunteered to participate in this study. All participants were required to give their informed consent prior to beginning the questionnaires. One participant chose to withdraw from the study before practice and competition data were obtained. Another participant did not compete during the scheduled competition, and therefore was withdrawn. Therefore, 16 riders completed this study. Attrition rate for this sample of riders was 11.1%. Table 1 shows study demographics including age, level, years riding, years competing, Group Member Organization (GMO), and Horse Gender.

Table 1.
Participants by Level, Age, Years Riding, Years Competing, GMO, and Horse Gender

Level	N	Age	N	Years Riding	N	Years Competing	N	GMO	N	Horse Gender	N
1	7	20-39	4	0-20	6	1-10	12	FWDC	13	Gelding	13
2	2	40-59	10	21-40	8	11-20	3	DDC	3	Mare	5
3	7	60+	4	40+	4	21-30	3	HDC	1		
4	2							ADA	1		
Total	18		18		18		18		18		18

FWDC=Fort Worth Dressage Club, DDC=Dallas Dressage Club, HDC=Houston Dressage Club, ADA= Alamo Dressage Club

A Pearson Product-Moment Correlation (PPMC) was run on all descriptive data. Significance was revealed with age and years riding, r=0.650, p<0.05, and years competing and level, r=0.653, p<0.05. Table 2 shows the correlation data.

Table 2.
Correlations of Descriptive Data

	Years Riding		Level	
	r	p	*r*	p
Age**	0.65	0.004		
Years Competing**			0.65	0.003

Note: *p<0.05, *p<0.01

Conflict Behaviors

The first research question examined the difference in conflict behaviors of each horse in practice and at competition. These behaviors were only accounted for while the participant was performing their pattern. To calculate conflict behavior, the frequency of the seven observed behaviors (tail swishing, head shaking, sudden stops, walking backwards, pulling reins, gaping, and ears pinned back) was divided by the duration in each section of the participants test. Then the sum of those numbers was then totaled to yield a final conflict behavior number. This was accomplished for all practice and competition observations. A dependent t-test was run

comparing the difference in means from practice to competition. The means, standard deviations, and p values can be found in Table 3.

Table 3.
Dependent t-test of Conflict Behaviors, Practice and Competition

	Pre	Post	p
Tail Swishing	11.82 14.07	12.44±12.12	0.851
Head Shaking	1.76±2.16	1.19±1.33	0.406
Sudden Stops	0.24±0.56	0.25±0.57	1.000
Walking Backwards	0.06±0.24	0.25±0.05	0.188
Pulling Reins	3.24±2.88	3.25±3.04	0.884
Gaping	0.65±1.50	1.87±2.78	0.095
Ear Pinning	0.41±0.87	0.25±0.48	0.485

T-test results revealed no significant differences for any conflict behaviors from the two observation times. The first hypothesis of this study predicted that the horses would display more negative behavior in practice than in competition. Therefore, the hypothesis was rejected. The horses did not exhibit more conflict behaviors in practice than competition.

Mood States of Riders

The second research question asked about the changes in pre- and post-competitive mood states of equestrian athletes. Total Mood Disturbance (TMD) on the POMS is calculated through 60 transient emotion questions. The questions are then divided into 6 subscales. A dependent t-test revealed significance at $p<0.05$ in varying emotions across pre- and post-competition. These differences can be found in Table 4.

Table 4.
Dependent t-test of Transient Emotions, Practice and Competition

	Pre	Post	df	p
Shaky (n=16)*	1.89±3.77	2.47±4.79	16	0.046
Panicky (n=16)*	2.11±4.22	2.94±5.71	16	0.049
Nervous (n=16)*	3.11±6.26	4.24±8.24	16	0.049
Vigorous (n=16)*	4.44±8.93	5.41±10.52	16	0.047

Note: *p<0.05

Pre- and post-emotions approaching significance included ‘Spiteful” (M=2.294±0.5879), p=0.056; ‘Uneasy’ (M=-0.4706± 0.9432), p=0.056; and ‘Gloomy’ (M=-0.2941± 0.5879), p=0.056. Transient emotions ‘Shaky’, ‘Panicky’, and ‘Nervous’ correspond to the ‘Tension’ subscale of TMD. The results indicated the riders experienced a decrease in these emotions from practice to competition. ‘Vigorous’ belongs to the “Vigor’ subscale in predicting TMD. The results of the t-test revealed a decrease in vigorous emotion.

To examine the differences in mood from practice to competition, a dependent t-test was run. The individual transient emotions were sorted into 6 categories on the POMS: Tension, Depression, Anger, Fatigue, Confusion, and Vigor. To calculate TMD, the following equation was used: [Ten]+[Dep]+[Ang]+[Fat]+[Con]-[Vig]. The mean and standard deviation of pre- and post- competitive mood states is shown in Table 5.

Table 5.
Means and Standard Deviation of POMS Subscales

	Mean	SD	N
PreTension	17.44	11.78	16
PostTension	19.63	8.82	16
PreDepression	15.13	3.81	16
PostDepression	16.19	4.62	16
PreAnger	11.75	1.63	16
PostAnger	12.38	2.71	16
PreFatigue	11.88	3.52	16
PostFatigue	12.38	3.63	16
PreConfusion	11.06	1.65	16
PostConfusion	11.25	1.49	16
PreVigor	22.25	4.47	16
PostVigor	22.31	5.51	16
PreTMD	45.00	11.78	16
PostTMD	54.94	8.82	16

A dependent t-test showed significant differences between PreTMD and PostTMD (M= -9.938), p=.003. Pre- and post-tension and depression approached significance (M= -2.188), p=.053, (M=-1.063), p=.052, respectively. The second research question explored the changes in mood states between pre- and post-competition, hypothesizing there would be a change. Based on the t-test results, the second hypothesis was supported. The results of the paired sample test are listed in Table 6.

Table 6.

Dependent t-test Pre-and Post- POMS Subscales

	Pre	Post	df	p
Tension	17.35±3.70	19.63±4.62	15	0.053
Depression	15.18±1.59	16.19±2.44	15	0.052
Anger	11.76±1.71	12.38±2.70	15	0.145
Fatigue	12.12±3.55	12.38±3.63	15	0.623
Confusion	11.18±1.67	11.25±1.39	15	0.694
Vigor	22.21±4.35	22.13±5.51	15	0.969
PreTMD-PostTMD**	45.47±11.56	54.94±8.82	15	0.003

Note: *p<.05, **p<.01

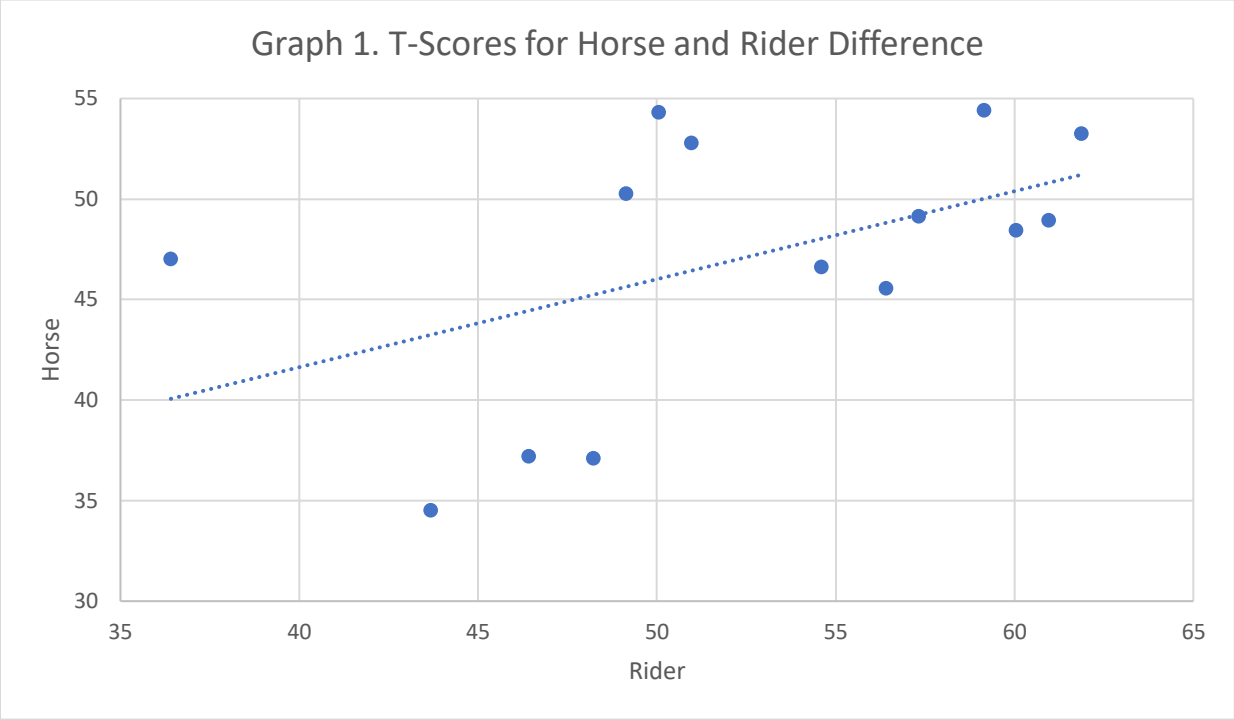
Rider Mood and Horse Behavior

The third research examined whether the rider's affect influenced negative behaviors of the horse. It was hypothesized that more conflict behaviors would be exhibited by the horses whose riders scored higher on negative mood states on the POMS. To calculate this, the difference in rider TMD was taken from pre- and post- POMS data. Similarly, the difference was taken from the horse observations during practice and competition. The means and standard deviations of these differences can be found in Table 7. The raw scores were then translated into Z-scores. As some scores resulted in negative values, the differences were then translated into T-scores. The horse behavior differences as observed in practice and competition revealed two horse score outliers that were at least three standard deviations away from the rest. These outliers were removed by applying a filter keeping the scores under 60. This is shown in Graph 1.

Table 7.

Means and SD of Rider and Horse Differences

	Mean	SD	N
Rider Difference	9.9375	10.99375	16
Horse Difference	0.0307	1.04058	16



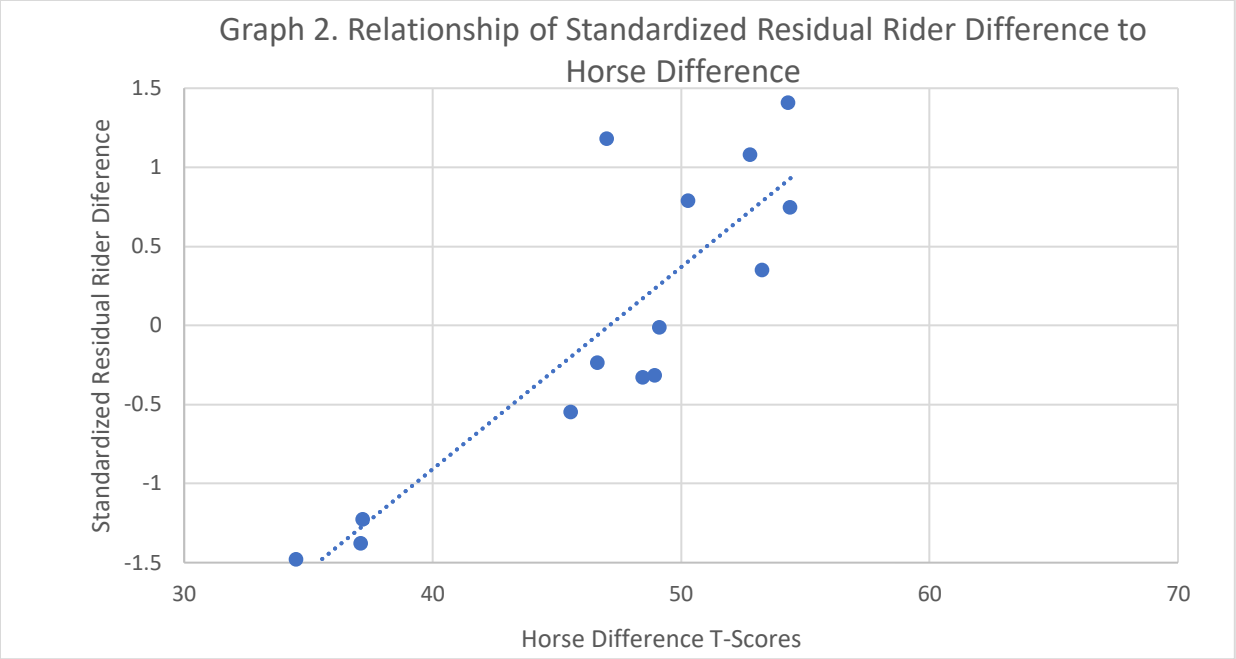
There is error with correlation. Therefore, a linear regression was then used saving standardized residuals, allowing the error to be viewed. The standardized residual of the independent variable, rider difference, was then used. A correlation of the standardized residual and difference in Horse T-Scores revealed a significant, positive, and strong relationship, *r*= .868, p=.000. These results may be viewed in Graph 2 and Table 8.

Table 8.

Correlation of Rider Difference TMD and Horse Difference CB

	Standardized Residual	
	r	p
Horse T-Scores**	0.868	0.000

Note: * p<.05, **p<.01



Locus of Control and Sense of Coherence

The final research question examined the rider's adaption to competition stress by comparing Locus of Control (LOC) and Sense of Coherence (SOC) to their score given by the judges. It was hypothesized that the participants who possessed a higher external locus of control and lower sense of coherence would receive higher scores than those with the opposite manifestations.

Reliability statistics were completed for both the Rotter I-E scale and Orientation to Life questionnaire. In social science, a reliability score of .70 is considered acceptable. Cronbach's α for Rotter's I-E was -0.334, indicating the scale was not reliable in this sample of equestrian athletes. This could be related to small sample size (n=14). Cronbach's α for the Orientation to Life Questionnaire was .554. Again, the scale was not considered to have internal consistency. The lack of reliability could be due to the sample size (n=10).

To test the fourth research question, correlations were examined between LOC, SOC, and judge's score (Table 9). It is important to note, one participant did not compete after answering the questionnaires, decreasing the sample size (n=9). No significance was found between SOC and the judges score, r= -0.344, p= 0.365. No significance between LOC and the judges score was found, r=-0.425, p=0.101. Both correlations revealed a negative relationship. All participants possessed an external LOC and higher SOC, therefore suggesting that riders with an external LOC and high SOC would receive lower scores from the judges. These results refute the fourth hypothesis.

Table 9.

Correlations of LOC, SOC, and Judge's Score

	Judges Score		
	r	p	N
LOC	-0.425	0.101	14
SOC	-0.344	0.365	9

CHAPTER 5. DISCUSSION

This study investigated the horse-rider relationship through the role of a rider's mood on their horse's behavior. Secondly, this study examined pre- and post-competitive mood states in adult amateur dressage riders. In subjective scored sports, such as dressage, a negative horse-rider relationship could affect the athlete's performance score.

Descriptive statistics are discussed in this section, including the average age, years riding and years competing of the dressage riders who participated. The results from the observed conflict behaviors from the horses at one scheduled practice and one scheduled competition will also be presented and the mood states of the riders pre- and post-competition will follow. The final interpretation of results will examine the relationship between Locus of Control, Sense of Coherence, and the judges score from competition. Finally, the limitations of this study will be examined and future research will be recommended.

Descriptive Statistics

The participants in this study ranged in age from 22-72 years and were all Adult Amateur ranked competing at level one through four in dressage. All Region 9 GMO's in the state of Texas were invited to participate and members from four different organizations participated in this study. Those GMO's were the Alamo Dressage Association, Fort Worth Dressage Club, Dallas Dressage Club, and Houston Dressage Society. The amount of experience in riding ranged from 10 to 50 years. All the riders had at least one year of experience competing in dressage, while some neared thirty years. For this study design, at least 50 participants were suggested, however, only 18 amateur dressage riders volunteered for this study. Due to injury, failure to set appointments, and attrition, the final representation was 16 participants.

Question 1: Conflict Behavior

The first research question examined conflict behaviors (CB) in dressage horses during practice and at competition. This was completed using an observation tool to account for seven different negative behaviors used in prior research (Gorecka-Bruzda et al., 2015; Visser et al., 2008). No significance was found in conflict behaviors between practice and competition. The conflict behaviors did vary in severity between the two observations scheduled. An increase occurred for the frequency of tail swishing, suddenly stopping, pulling the reins, and gaping at competition. These increases could be related to extraneous variables. For example, during the Cowtown Dressage competition, pigeons flew into the arena and acted as catalysts for the horses to spook. At the Texas Dressage Classic I, it was raining and all participants competed in outdoor arenas. These uncontrolled incidents could be causal for the increase in some behaviors. Also, the increased rein pulling could be related to the amount of tension in the reins. The horse's head is held with an amount of bend in the neck. In relation to scores from the judges, horses whose noses are kept behind the vertical have received higher sores from the judges (Lasshley, Nauwelearts, Vernooij, Back, & Clayton, 2014). The pulling of the reins by the horse could be a reaction to the increased curvature in the neck causing discomfort.

The remaining behaviors, head shaking, walking backwards, and ear pinning decreased from the practice to competition observations. The decrease in these behaviors could be related to practice scenarios. For example, across many of the observations, different trainers cracked whips. Although never using the whip on the horses, the trainers would follow in the arena while cracking a whip (also referred to as a crop). It was observed that as the trainer cracked the whip, more conflict behaviors occurred. The sharp pop of the whip could yield a negative hedonic tone. Also, riding crops are made of fiberglass, bound by leather or other fabric and pain previously

induced by a crop could also stimulate negative behaviors. A difference in verbal communication from the rider could affect these behaviors. During the practice observations, verbal communication from the rider to their horses included kissing and clicking, also called clucking sounds. This communication is used across all equestrian disciplines to encourage the horse to move at a faster pace. At a dressage show, the riders do not make sounds to their horses, as this is considered a fault, and would result in a reduction of score by the judges (USEF, 2017).

Due to rainfall and wet arenas, many of the participants and horses did not practice until the conditions were suitable. Many horses reside in stalls at the trainers' barns and are scheduled to be released into the pasture throughout the day. However, it is found that horses that spend a more time in stalls possess higher amounts of excess energy. This energy can be viewed through bucking, shaking of the head in lateral and superior/inferior direction (Rivera, 1999). Horses in the pasture are given room to run, play, and release more energy as compared to those with limited stall space. Time in stalls and pastures during non-practice time was not controlled for in this study.

Question 2: Mood States of Riders

The second research question explored the difference in amateur dressage riders' mood states during practice and competition. Currently, research has examined the difference in pre-competitive mood states between novice and advanced dressage riders (Wolframm et al., 2010). Wolframm examined British dressage riders and found that advanced riders managed pre-competitive mood differently than novice riders. The hypothesis was supported as the Adult Amateur riders experienced a change in mood between practice and competition. The results for this question were divided into two parts: transient emotion differences and mood subscales.

The POMS is composed of a 65-item transient emotions scale that is comprised of six mood subscales. Pre- and post-emotions were measured to determine the changes in mood. Rider's experienced a significant increase in feeling shaky, panicky, and nervous, corresponding to the tension subscale. The research related to dressage and mood states is very limited. One reason these emotions were found in the riders could be due to poor sleep quality (Brandt, Bevilacqua, & Andrade, 2017; Lastella, Lovell, & Sargent, 2014). This was not assessed in the current study, but other researchers have found that quality and/or lack of sleep contributed to decreased levels of vigor (Brandt et al., 2017) and increased levels of fatigue and tension (Lastella et al., 2014). For competition, riding times were established days before and varied throughout the day. Therefore, it is plausible the participant's quality of sleep was affected the evening before competition, creating some of the changes in transient emotions.

The mood profile of successful athletes should represent what mirrors an "Iceberg". Iceberg means negative moods would be reflected below the mean and a positive mood state, vigor, would be reflected above the mean. The participants in this study displayed levels of tension and depression above the mean for both pre-competitive and post-competitive mood states. This increase may be related to experience or competitive rank, as it is understood professionals are more successful in managing mood and emotion (Wolframm et al., 2010).

The participants also experienced an increase in Total Mood Disturbance (TMD) from practice to competition. An explanation of this could be the coach-athlete relationship. In equestrian sport, this relationship is between the trainer and rider. During the practice of the test, some trainers yelled, cursed, and one made statements that caused a participant to cry while executing her pattern. Due to the POMS being administered prior to the observation, the intensity of the rider's emotion during the observation was not captured. However, if a pre-existing

negative relationship exists between the trainer and rider, this could serve as a plausible explanation for the increased TMD. At competition, the presence of the coach watching could have increased the rider's TMD. Davis & Jowett (2014) examined attachment styles between coaches and athletes and the resulting affect. They found low levels of interpersonal conflict resulted in feelings associated with a positive affect. The results also found that high levels of interpersonal conflict were related to negative affect feelings such as irritability or being upset. Moreover, Stirling and Kerr (2013) surveyed the coach-athlete relationship for emotional abuse through national and international athletes varying in sports. The results of the qualitative data were divided into three categories: Psychological effects, training effects, and performance effects. Psychological effects noted across the sample included decreased mood, anger, low self-efficacy and self-esteem, and increased anxiety (Stirling & Kerr, 2013). Athlete's reported feelings of being emotionally upset or angry, and felt apprehensive toward going to practice. Research regarding the coach-athlete relationship in equestrian sport is nonexistent and should be considered in future research

Question 3: The Rider's Mood on Horse Behavior

This question asked if the rider's mood influenced the conflict behavior exhibited by their horse. As previously discussed, PATH International (2013), describes horses as a "large biofeedback machine", suggesting an empathetic relationship is formed between the rider and horse. This serves as a fundamental component of the horse-rider relationship and the strong and significant relationship found in the results confirms this. As the rider's mood becomes more disturbed, the horse's conflict behaviors increased.

Upon further examination of the relationship between rider mood and horse conflict, clusters of data points appeared. To interpret this, it is important to label the direction of the axis.

The negative numbers represented the lowest amount of TMD, while the top of the axis signified the highest amount of TMD (Graph 2). It can be inferred that the lowest TMD represents self-efficacy, while the higher suggests anxiety related to performance. The cluster of data points approaching the middle of these two concepts suggest a new variable is affecting the riders. This means there is a transitional point where self-efficacy is depleting and anxiety is beginning.

In the presence of stress, riders constantly appraise their surroundings (Cerin et al., 2000). Stress is appraised either as a benefit, challenge, threat, or harm. It can be assumed the highest amounts of confidence stem from either a benefit or challenge appraisal. A change in this appraisal to threat or harm in a subjectively scored event such as dressage, can introduce the concept of self-doubt while riding. Previous studies have examined self-efficacy and behavior as a linear relationship that is influenced by motivational factors (Bandura, 1997; Ede, Sullivan, & Feltz, 2017). However, a more accurate description of this relationship could be considered curvilinear: as one variable increases, the other does to a point, and then begins to decrease. Woodman, Akehurst, Hardy, & Beattie (2010) examined a group of expert skippers. The results indicated that by implementing an element of self-doubt, the participant's self-efficacy was decreased. Interestingly, the skipper's performance improved after the self-doubt intervention. This increase in performance could be related to the level of skill, again noting that competitive level influences the capacity to control emotion. This raises a question of whether amateur riders in this study possessed the level of control to manage self-doubt, projecting themselves into a high mood disturbance with increased anxiety, therefore increasing the conflict behaviors of their horse.

Question 4: Locus of Control and Sense of Coherence

The fourth research question compared the relationship of Locus of Control (LOC) and Sense of Coherence (SOC) to performance score. SOC is associated to athlete's holding a more positive mental health, adaptive coping strategies, and increased resistance to stressful situations (Fallby, Hassmen, Kentta, & Durand-Bush, 2011). This assumption was proven in the Fallby et al., (2011) study where the results demonstrated the athletes with a high SOC and internal LOC harnessed higher mental skills. In an equestrian population, research has suggested that riders with a high SOC and external LOC have decreased cooperation with horses, therefore suggesting performance will be worsened (Visser et al., 2008). In sports such as dressage, cooperation is required to generate a higher competition score.

Reliability of Rotter's I-E scale and the Orientation to Life Questionnaire revealed an alpha score that was not acceptable. The previous study that used this scale with equestrian athletes did not report reliability (Visser et al., 2008), therefore it is possible reliability was not examined. Other probable reasons could be the sample. This studies sample size was smaller than the previous study to measure LOC and SOC in equestrian riders.

According to Antonovsky (1979), an individual's SOC continues to develop with personality until the age of 30. The current study included participants with a mean age of 50, while the previous study to measure personal level of control used college-aged students. Other explanations could be the scale itself. Rotter's I-E scale consists of forced-choices inquiring about one's belief on government, fate, luck, and statements unrelated to competition. The conceptualization of a sport locus of control that is multidimensional would best capture an athlete's capacity to control competition stress. Presson (1987) sought to achieve this, however, the scale failed to achieve validity and reliability.

LOC and SOC were separately compared to the judge's score and both revealed an inverse relationship. According to individual data, all participants encompassed a high SOC score and an external LOC. Therefore, according to previous literature/research, riders with an external LOC and high SOC will have a poorer performance score in a subjectively scored event such as dressage. Both concepts refer to an individual's capacity to maintain control in the presence of an appraised stressor. This inverse relationship creates a contradiction. Previous research has suggested that athletes with an internal LOC compete with a greater advantage than athletes with an external LOC personality component (Cox, 2002; Fallby et al., 2011). The results of this study suggest that adult amateur riders who identify events as dependent upon their actions (internal LOC), yet do not perceive their surroundings as structured and understandable (High SOC), will experience the most success based on the judges scores. Therefore, the results of this research question are inconclusive and should be examined further.

Limitations

This study did not occur without limitations. One limitation was the sample size. With multiple results approaching significance, a larger sample size could have created more inferences. Obtaining 50 participants for this study was met with challenges, beginning with advertising. Consent was given by all club presidents allowing the researcher to post to GMO social media pages, however, not all club social media pages posted the recruitment flyer or subsequent postings. The amount of surveys also served as a hindrance for this study. Although the estimated time of completion was listed on all surveys, feedback received from non-participating members mostly centered around a lack of motivation to answer survey questions. Participation in dressage competition for the 2018 year has experienced a decrease, with some competitions experiencing a decrease by 43%.

Weather also served as a large limitation for this study. Due to rainfall, practice observations were delayed until the end of February/beginning of March due to wet arenas. Moreover, at one competition, all arenas were outside while it rained and the city experienced high winds. An example of this was during one observation the wind increased causing a clip-board to travel into the arena which caused the horse to spook and exhibit many conflict behaviors. Because the participant was completing their routine, these behaviors were counted into the total number for that observation. A third limitation was the lack of blinding of the researcher. Although participants were assigned an ID number to protect confidentiality, all participant names were known by the researcher while conducting observations during practice and competition. As a result, this created the possibility of a researcher bias during observations.

Future Directions

Due to very little research being conducted by sport psychologists related to mood states and horse-rider relationships in dressage, there are many suggestions for future researchers. Understanding psychological components of equestrian riders is beneficial in creating interventions for mental performance consultants. One area of research to examine is injury, as horseback riding is the leading cause of sport traumatic brain injury (Winkler et al., 2016). It would be interesting to examine trauma from injury discerning if differences exist between this population and more traditional sport.

Future research should explore pre-and post-competitive mood states and horse behavior in a male dressage populations. This would allow for comparisons to be made between gender and mood. Furthermore, research inquiries of mood should expand to other equestrian sports. These inquiries could further be divided by either English and Western discipline, or even objective and subjective scored events.

Trainers frequently participate in competitions while concurrently serving as coaches to their riders. However, by playing the role of both coach and athlete, this calls into question who the coach is to the trainer when they are competing. Future research should examine stress, anxiety, and potentially burnout of trainers due to a high-volume load and examine coping styles of these individuals.

Lastly, future studies should aim to investigate the eating habits of equestrian athletes. A population of interest would be Equitation. Equitation is divided in four forms: Hunt Seat, Saddle Seat, Western, and Dressage. In equitation, the rider is judged based on positioning in the seat, posture, and attire. With an aesthetic focus on the rider, understanding attitudes toward eating would provide comparable data across non-aesthetic events. Moreover, irregular or disordered eating habits are known to cause psychological changes, such as mood. This study examined the effect of a rider's mood on the horse. Influencing factors of mood changes should be studied in this population.

Summary

The findings of this study are preliminary. However, they are of importance to future researchers and practicing mental performance coaches. The horse-rider relationship is a cyclical one. A positive relationship between the rider and horse can act as a critical component leading to success. Implementing psychological skills training such as goal setting, mental imagery, or positive self-talk can enable equestrian athletes to increase control of competition emotion and mood. Therefore, they can establish an effective, symbiotic relationship with their horse, potentially increasing performance. This study supports the claim of a compassionate bond between rider and horse. A bond that could be influenced by the rider's emotions and mood.

REFERENCES

Antonovsky, A. (1979). *Health, stress and coping. New perspective on mental and physical well-being*. San Francisco, CA: Jossey-Bass.

Axel-Nilson, M. (2015). The match between horse and rider. (Unpublished doctoral dissertation). Swedish University of Agricultural Sciences.

Bandura, A. (1997). *Self-efficacy. The exercise of control.* New York: W.H. Freeman and Company.

Borstel, U. K., Visser, E. K., & Hall, C. (2017). Indicators of stress in equitation. *Applied Animal Behavior Science, 190,* 43-56.

Bourgeois, A., LeUnes, A., & Meyers, M. (2010). Full-scale and short-form of the profile of mood states: A factor analytic comparison. *Journal of Sport Behavior, 33,* 355-376.

Brandt, R., Bevilacqua, G. G., & Andrade, A. (2017). Perceived sleep quality, mood states, and their relationship with performance among Brazilian elite athletes during a competitive period. *Journal of Strength & Conditioning Research, 31,* 1033-1040.

Bridgeman, D. J. (2009). The working relationship between horse and rider during training and competition in equestrian sports. (Unpublished doctoral dissertation). University of Southern Queensland.

Caulfield, M. J., & Karageorghis, C. I. (2008). Psychological effects of rapid weight loss and attitudes towards eating among professional jockeys. *Journal of Sports Sciences, 26,* 877-883.

Cerin, E., & Barnett, A. (2011). Predictors of pre-and post-competition affective states in male martial artists: A multilevel interactional approach. *Scandinavian Journal of Medicine Science and Sports, 21,* 137-150.

Cerin, E., Szabo, A., Hunt, N., & Williams, C. (2000). Temporal patterning of competitive emotions: A critical review. *Journal of Sports Sciences, 18,* 605-626.

Costa, P. T. & McCrae, R. R. (1999) A five-factor theory of personality. *Handbook of personality theory and research* (pp. 139-153). New York, NY: Guilford Press.

Cox, R. H. (2002). *Sport psychology. Concepts and applications (5th ed.)*. New York: McGraw-Hill.

Curran, S. L., Andrykowski, M. A., & Studts, J. L. (1995). Short form of the profile of mood states (poms-sf): Psychometric information. *Psychometric Information, 7,* 80-83.

Davis, L., & Jowett, S. (2014). Coach-athlete attachment and the quality of the coach-athlete relationship: Implications for athlete's well-being. *Journal of Sports Sciences, 32*, 1454-1464.

Ede, A., Sullivan, P. J., & Feltz, D. L. (2017). Self-doubt: Uncertainty as a motivating factor on effort in an exercise endurance task. *Psychology of Sport and Exercise, 28,* 31-36.

Endo, S., Kanou, H., & Oishi, K. (2012). Sports activities and sense of coherence (soc) among college students. *International Journal of Sport Health Science, 10,* 1-11.

Fallby, J., Hassmen, P., Kentta, G., & Durand-Bush, N. (2006). Relationship between locus of control, sense of coherence, and mental skills in Swedish elite athletes. *International Journal of Sport and Exercise Psychology, 4,* 111-120.

Gorecka-Bruzda A., Kosinska, I., Jaworski Z., Jezierski, T., & Murphy, J. (2015). Conflict behavior in elite show jumping and dressage horses. *Journal of Veterinary Behavior, 10*, 137-146.

Gosling, S. D. & John, O. P. (1999) Personality dimensions in nonhuman animals: A cross-species review. *Current Directions in Psychological Science*, *8*, 69–75.

Hardy, L., Jones, G., & Gould, D. (1996). *Understanding psychological preparation for sport: Theory and practice of elite performers.* Chichester: John Wiley.

Heuchert, J. P., & Mcnair, D. M. (2014). The profile of mood states 2nd edition (POMS2). *Journal of Pyschoeducational Assessment, 33*, 273-277.

Kaiseler, M., Polman, R., & Nicholls, A. R. (2013). Gender differences in stress, appraisal, and coping during golf putting. *International Journal of Sport and Exercise Psychology, 11*, 258-272.

Lasshley, M. J., Nauwelearts, S., Vernooij, J. C., Back, W., & Clayton, H. M. (2014). Comparison of the head and neck position of elite dressage horses during top-level competitions in 1992 versus 2008. *The Veterinary Journal, 202*, 462-465.

Lastella, M., Lovell, G. P., & Sargent, C. (2014). Athletes' precompetitive sleep behavior and its relationship with subsequent precompetitive mood and performance. *European Journal of Sport Science, 14*, 123-130.

Lazarus, R. S. (1999*). Stress and emotion: A new synthesis*. London: FA Books.

Lazarus, R. S. (1993). From psychological stress to the emotions: A history of changing outlooks. *Annual Review of Psychology, 44*, 1-21.

Lazarus, R. S. (1984). *Stress, appraisal, and coping.* New York: Springer-Verlag.

Leydon, M. A., & Wall, C. 2002. New Zealand jockey's dietary habits and their potential impact on health. *International Journal of Sport Nutrition and Exercise Metabolism, 12*, 220-237.

Lorr, M., McNair, D. M., & Heuchert, J. P. (2003). Manual for the profile of mood states. Toronto: Multi-Health Systems Inc.

Lloyd, A. S., Martin, J. E., Bornett-Gauci, H. L. I., & Wilkinson, R. G. (2008). Horse

personality: Variation between breeds. *Applied Animal Behavior Science, 112*, 369-383.

McBride, S. D., & Mills, D. S. (2012). Psychological factors affecting equine performance. *BMC Veterinary Research, 8*, 1-11.

McNair, D. M., Lorr, M., & Droppleman, L. F. (1992). Manual for the profile of mood states. San Diego, CA: Educational and Industrial Testing Service.

McNair, D. M., Lorr, M., & Droppleman, L. F. (1971). *Manual for the Profile of Mood States.* San Diego, CA: Educational and Industrial Testing Services.

Meyers, M. C. (1999). Psychological skills assessment and athletic performance in collegiate rodeo athletes. *Journal of Sport Behavior, 19*, 132-146.

Nagle, F., Morgan, W., Helickson, R., Serfass, R., & Alexander, J. (1975). Spotting success traits in olympic contenders. *Physician and Sports Medicine,3,* 31-34.

Presson, C. V. (1987). The adaptation and validation of a sport-specific measure of locus of control. Unpublished doctoral dissertation. Springfield College, Springfield, MA.

Professional Association of Therapeutic Horsemanship International. (2013). What is equine-facilitated psychotherapy and equine-facilitated learning. Retrieved from http://www.pathintl.org/resources- education/resources/eaat/201-what-is-efpl.

Rivera, E. (1999). Behavioral and physiological responses of horses to initial training: The comparison between pastured versus stalled horses. (Unpublished doctoral dissertation). Michigan State University.

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied, 80*, 1-28.

Smith, C.A, & Lazarus, R. S. (1993). Appraisal components, core relational themes, and the emotions. *Cognitive Emotion*s, *7*, 233–269.

Stirling, A. E., & Kerr, G. A. (2013). The perceived effects of elite athletes' experiences of emotional abuse in the coach-athlete relationship. *International Journal of Sport and Exercise Psychology, 11*, 87-100.

Torres-McGehee, T. M., Monsma, E. V., Gay, J. L., Minton, D. M., & Mady-Foster, A. N. (*2011*) Prevalence of eating disorder risk and body image distortion among national collegiate athletic association division I varsity equestrian athletes. *Journal of Athletic Training, 46,* 431-437.

United States Equestrian Federation (USEF). (2017). Rulebook. *Chapter dr dressage division*. Retrieved from https://files.usef.org/assets/GnV8b0VzJdw/08-dr.pdf.

United States Equestrian Federation (USEF). (2017a). Rulebook. *Chapter ev eventing division*. Retrieved from https://www.usef.org/forms-pubs/KlV5P9prkmM/ev-eventing-division.

United States Equestrian Federation (USEF). (2017b). Rulebook. *Gr13 competition participants and associated individuals*. Retrieved from https://www.usef.org/forms-pubs/nT3TlM3v0NA/gr13-competition-participants-and.

Vallerand, R. J., & Blanchard, C. M. (2000). The study of emotions in sport and exercise: Historical, definitional, and conceptual perspectives. E*motions in sport,* 3–37.

Visser, E. K., Van Reenen, C. G., Blokhuis, M. Z., Morgan, E. K., Hassmen, P., Rundgren, M. M., & Blokhuis, H. J. (2008). Does horse temperament influence horse–rider cooperation? *Journal of Applied Animal Welfare Science, 11*, 267–284.

Visser, E. K., Van Reenen, C. G., Engel, B., Schilder, M. B. H., Barnveld, A., & Blokhuis, H. J. (2003). The association between performance in show-jumping and personality traits earlier in life. *Applied Animal Behaviour Science, 82*, 279–295.

Visser, E. K., Van Reenen, C. G., Hopster, H., Schilder, M. B. H., Knaap, J. H., Barneveld, A.,

& Blokhuis, H. J. (2001). Quantifying aspects of young horses' temperament: Consistency of behavioural variables. *Applied Animal Behaviour Science, 74*, 241–258.

Weinberg, R. & Gould, D. (2015) *Foundations of Sport and Exercise Psychology*. Champaign, IL. Human Kinetics.

Williams, C. A. (2004). *The basics of equine behavior*. Retrieved from http://esc.rutgers.edu/fact_sheet/the-basics-of-equine-behavior/.

Winkler, E. A., Yue, J. K., Burkey, J. F., Chan, A. K., Dhall, S. S., Berger, M. S., Manley, G. T., & Tarapore, P. E. (2016). Adult sports-related traumatic brain injury in united states trauma centers. *Journal of Neurosurgery, 40*, E4.

Wipper, A. (2000). The partnership: The horse-rider relationship in eventing. *Symbolic Interaction, 23*, 47-70.

Wolframm, I. A., Shearman, J., & Micklewright, D. (2010). A preliminary investigation into pre-competitive mood states of advanced and novice equestrian dressage riders, *Journal of Applied Sport Psychology, 22*, 333-342.

Woodman, T., Akehurst, S., Hardy, L., & Beattie, S. (2010). Self-confidence and performance: A little self-doubt helps. *Psychology of Sport and Exercise, 11*, 467-470.

APPENDIX A. Questionnaires

Demographic Questionnaire

Start of Block: Default Question Block

Thank you for your participation in taking this survey. The purpose of this questionnaire is to obtain information about yourself and your horse that will be utilized throughout this study. Your responses during this study will be used to help further understand the horse-rider relationship.

Throughout this study, you will be asked to complete questionnaires that will be sent to your provided email address. Some of the survey questions may elicit emotional responses. You also will be contacted to create an appointment so an observer may travel to your specified arena to view one practice and one rated competition. This length of this study is determined by your schedule. You're participation in this study will be completed after answering survey questions, completing one observed practice and one rated competition. You are able to withdraw from this study at any point if you no longer wish to participate. This survey will take between five to ten minutes to complete. By completing this questionnaire your consent to participate in this study will be considered obtained.

If you have further questions, comments, or concerns, please feel free to contact me at collin.k.pursley@tcu.edu OR 817-584-1676

Page Break

1 Participating in this study will require a researcher to make an appointment to view your horses behavior at one (1) practice and (1) competition. Are you comfortable with a researcher contacting you?

- ○ Yes (1)
- ○ No (2)

Skip To: End of Survey If 1 = No

2 Please provide your last name, first initial (Ex: Smith, J)

_____

3 What is your age?

_____

Skip To: End of Survey If 3 < 18

4 What is your preferred method of contact?

- ○ Call (1)
- ○ Text (2)
- ○ Email (3)

Page Break

5 You will be contacted via your preferred method throughout the course of this study. Please provide your phone number or email address below.

_____

6 What GMO are you affiliated with?

_____

7 How many years have you rode horses?

_____

8 How many years have you competed in Dressage?

_____

Page Break

9 What level do you compete at?

- ○ First Level (1)
- ○ Second Level (2)
- ○ Third Level (3)
- ○ Fourth Level (4)

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10 Please select all the Region 9 RATED shows you will be competing at this spring:

- ☐ Haras Dos Cavelerios Dressage Show (February 24th-25th) (1)
- ☐ San Antonio Spring Dressage (March 1st) (2)
- ☐ Emerald Classic I & II (March 3rd-4th) (3)
- ☐ Blue Hair Special I & II (March 17th-18th) (4)
- ☐ Cowtown Dressage (March 24th-25th) (5)
- ☐ San Antonio Spring Dressage (April 1st) (6)
- ☐ Texas Rose (April 6, 7th, & 8th) (7)
- ☐ Other: (8) _____

---

11 What test will you be competing in at competition? (Ex: A, B, C)

_____

---

12 Please enter your horses name

_____

Page Break

13 Your horse is a:

- ○ Mare (1)
- ○ Gelding (2)

14 How long have you been competing with this horse?

_____

End of Block: Default Question Block

I-E Locus of Control Scale

Start of Block: Default Question Block

This survey asks you to respond to questions unrelated to dressage or in competition. The purpose of this survey is to understand how you view success and failure in life experiences. Each question will have two different statements. Please select the statement that you agree with the most. This should take less than five minutes to complete.

1 To maintain your confidentiality, please enter the ID number given to you at the beginning of this study

_____

Page Break

Q2 Select the statement that you agree with the most

- Children get into trouble because their parents punish them too much
- The trouble with children nowadays is that their parents are too easy with them

Q3 Select the statement that you agree with the most

- People's misfortunes result from the mistakes they make
- Many of the unhappy things in people's live are partly due to bad luck

Q4 Select the statement that you agree with the most

- ○ One of the major reasons why we have wars is because people don't take enough interest in politics
- ○ There will always be wars, no matter how hard people try to prevent them

Q5 Select the statement that you agree with the most

- ○ In the long run people get the respect they deserve in this world
- ○ Unfortunately, an individual's worth often passes unrecognized no matter how hard he/she tries

Q6 Select the statement that you agree with the most

- ○ The idea that teachers are unfair to students is nonsense
- ○ Most students do not realize the extent to which their grades are influenced by accidental happenings

Page Break

Q7 Select the statement that you agree with the most

- ○ Without the right breaks one cannot be an effective leader
- ○ Capable people who fail to become leaders have not taken advantage of their opportunities

Q8 Select the statement that you agree with the most

- ○ People who cannot get others to like them do not understand how to get along with others
- ○ No matter how hard you try some people just do not like you

Q9 Select the statement that you agree with the most

- ○ Heredity plays the major role in determining one's personality
- ○ It is one's experiences in life which determine what they are like

Q10 Select the statement that you agree with the most

- ○ I have often found that what is going to happen will happen
- ○ Trusting to fate has never turned out as well for me as making a decision to take a definite course of action

Q11 Select the statement that you agree with the most

- ○ In the case of the well prepared student there is rarely if ever such a thing as an unfair test
- ○ Many times exam questions tend to be so unrelated to course work that studying is useless

Page Break

Q12 Select the statement that you agree with the most

- ○ Becoming a success is a matter of hard work, luck has little or nothing to do with it
- ○ Getting a good job depends mainly on being in the right place at the right time

Q13 Select the statement that you agree with the most

- ○ The average citizen can have an influence in government decisions
- ○ This world is run by the few people in power, and there is not much the little guy can do about it

Q14 Select the statement that you agree with the most

- ○ When I make plans, I am almost certain that I can make them work
- ○ It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow

Q15 Select the statement that you agree with the most

- ○ There are certain people who are just no good
- ○ There is some good in everyone

Q16 Select the statement that you agree with the most

- ○ In my case, getting what I want has little or nothing to do with luck
- ○ Many times we might just as well decide what to do by flipping a coin

Page Break

Q17 Select the statement that you agree with the most

- ○ Getting people to do the right thing depends upon ability. Luck has little or nothing to do with it
- ○ Who gets to be the boss often depends on who was lucky enough to be in the right place first

Q18 Select the statement that you agree with the most

- As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control
- By taking an active part in political and social affairs the people can control world events

Q19 Select the statement that you agree with the most

- Most people do not realize the extent to which their lives are controlled by accidental happenings
- There really is no such thing as 'luck'

Q20 Select the statement that you agree with the most

- One should always be willing to admit mistakes
- It is usually best to cover up one's mistakes

Q21 Select the statement that you agree with the most

- It is hard to know whether or not a person really likes you
- How many friends you have depends upon how nice of a person you are

Page Break

Q22 Select the statement that you agree with the most

- In the long run, the bad things that happen to us are balanced by the good ones
- Most misfortunes are the result of a lack of ability, ignorance, laziness, or all three

Q23 Select the statement that you agree with the most

- With enough effort we can wipe out political corruption
- It is difficult for people to have much control over the things politicians do in office

---

Q24 Select the statement that you agree with the most

- Sometimes I cannot understand how teachers arrive at the grades they give
- There is a direct connection between how hard I study and the grades I get

---

Q25 Select the statement that you agree with the most

- Many times I feel that I have little influence over the things that happen to me
- It is impossible for me to believe that chance or luck plays an important role in my life

---

Q26 Select the statement that you agree with the most

- People are lonely because they do not try to be friendly
- There is not much use in trying too hard to please people, if they like you, they like you

---

Q27 Select the statement that you agree with the most

- ○ There is too much emphasis on athletics in high school
- ○ Team sports are an excellent way to build character

Q28 Select the statement that you agree with the most

- ○ What happens to me is my own doing
- ○ Sometimes I feel that I do not have enough control over the direction my life is taking

---

Q29 Select the statement that you agree with the most

- ○ Most of the time I cannot understand why politicians behave the way they do
- ○ In the long run, the people are responsible for bad government on a nation and local level

---

Q30 Select the statement that you agree with the most

- ○ A good leader expects people to decide for themselves what they should do
- ○ A good leader makes it clear to everybody what their jobs are

End of Block: Default Question Block

Orientation to Life Questionnaire

Sense of Coherence

Start of Block: Default Question Block

Q1 Here is a series of questions relating to various aspects of our lives. Each question has seven (7) possible answers. Please mark the number which expresses your answer with numbers 1 and 7 being the extreme answers. If the words under 1 are correct for you, please click '1'; if the words under 7 are correct, please click '7'. If you feel differently, please click the number that best expresses your feeling.

---

1 To maintain your confidentiality, please enter the ID number given to you at the beginning of this study

_____

Q2 When you talk to people, do you have the feeling they do not understand you?

- ○ (1) Never Have this Feeling
- ○ 2
- ○ 3
- ○ (4) Neutral
- ○ 5
- ○ 6
- ○ (7) Always Have this Feeling

Q3 In the past, when you had to do something which depended upon cooperation with others, did you have a feeling that it:

- ○ (1) Surely Would Not be Completed
- ○ 2
- ○ 3
- ○ (4) Neutral
- ○ 5
- ○ 6
- ○ (7) Surely Would be Completed

Q4 Think of the people with whom you come into contact daily, aside from the ones whom you feel closest. How well do you know most of them?

- ○ (1) You Feel They Are Strangers
- ○ 2
- ○ 3
- ○ (4) Neutral
- ○ 5
- ○ 6
- ○ (7) You Know Them Very Well

Q6 Do you have the feeling that you do not really care about what goes on around you?

- (1) Very Seldom or Never
- 2
- 3
- (4) Neutral
- 5
- 6
- (7) Very Often

Q7 Has it happened in the past that you were surprised by the behavior of people whom you thought you knew well?

- (1) Never Happened
- 2
- 3
- (4) Neutral
- 5
- 6
- (7) Very Often

Page Break

Q8 Has it happened that people whom you counted on disappointed you?

- ○ (1) Never Happened
- ○ 2
- ○ 3
- ○ (4) Neutral
- ○ 5
- ○ 6
- ○ (7) Always Happened

Q9 Life is:

- ○ (1) Full of Interest
- ○ 2
- ○ 3
- ○ (4) Neutral
- ○ 5
- ○ 6
- ○ (7) Completely Routine

Q10 Until now your life has had:

- (1) No Clear Goals or Purposes
- 2
- 3
- (4) Neutral
- 5
- 6
- (7) Very Clear Goals and Purposes

Q11 Do you have the feeling that you're being treated unfairly?

- (1) Very Often
- 2
- 3
- (4) Neutral
- 5
- 6
- (7) Very Seldom or Never

Q12 In the past years, your life has been:

- (1) Full of Change Without Your Knowing What Will Happen Next
- 2
- 3
- (4) Neutral
- 5
- 6
- (7) Completely Consistent and Clear

Page Break

Q13 Most of the things you do in the future will probably be:

- (1) Completely Fascinating
- 2
- 3
- (4) Neutral
- 5
- 6
- (7) Deadly Boring

Q14 Do you have the feeling that you are in an unfamiliar situation and do not know what to do?

- (1) Very Often
- 2
- 3
- (4) Neutral
- 5
- 6
- (7) Very Seldom or Never

Q15 What best describes how you see life:

- (1) One Can Always Find a Solution to Painful things in Life
- 2
- 3
- (4) Neutral
- 5
- 6
- (7) There is No Solution to Painful Things in Life

Q16 When you think about your life, you very often:

- (1) Feel how Good it is to be Alive
- 2
- 3
- (4) Neutral
- 5
- 6
- (7) Ask Yourself why You Exist

Q17 When you face a difficult problem, the choice of a solution is:

- (1) Always Confusing and Hard to Find
- 2
- 3
- (4) Neutral
- 5
- 6
- (7) Always Completely Clear

Page Break

Q18 Doing the things you do every day is:

- ○ (1) A Source of Deep Pleasure and Satisfaction
- ○ 2
- ○ 3
- ○ (4) Neutral
- ○ 5
- ○ 6
- ○ (7) Source of Pain or Boredom

Q19 Your life in the future will probably be:

- ○ (1) Full of Change Without Your Knowing What Will Happen Next
- ○ 2
- ○ 3
- ○ (4) Neutral
- ○ 5
- ○ 6
- ○ (7) Completely Consistent and Clear

Q20 When something unpleasant happened in the past, your tendency was:

- (1) "Eat Yourself Up" About it
- 2
- 3
- (4) Neutral
- 5
- 6
- (7) Say "OK, that's that", and go on

Q21 Do you have very mixed-up feelings and ideas?

- (1) Very Often
- 2
- 3
- (4) Neutral
- 5
- 6
- (7) Never

Q22 When you do something that gives you a good feeling:

- ○ (1) You Continue Feeling Good
- ○ 2
- ○ 3
- ○ (4) Neutral
- ○ 5
- ○ 6
- ○ (7) Something Will Happen to Spoil that Feeling

Page Break

Q23 Does it happen that you have feelings inside you would rather not feel?

- ○ (1) Very Often
- ○ 2
- ○ 3
- ○ (4) Neutral
- ○ 5
- ○ 6
- ○ (7) Never

Q24 You anticipate that your personal life in the future will be:

- ☐ (1) Totally Without Meaning or Purpose
- ☐ 2
- ☐ 3
- ☐ (4) Neutral
- ☐ 5
- ☐ 6
- ☐ (7) Full of Meaning and Purpose

Q25 Do you think that there will always be people whom you'll be able to count on in the future?

- ○ (1) You are Certain There Will Be
- ○ 2
- ○ 3
- ○ (4) Neutral
- ○ 5
- ○ 6
- ○ (7) You Doubt There Will Be

Q26 Does it happen that you have the feeling that you don't know exactly what's about to happen?

- ○ (1) Very Often
- ○ 2
- ○ 3
- ○ (4) Neutral
- ○ 5
- ○ 6
- ○ (7) Never

Q27 How often in the past have you felt like a loser in certain situations?

- ○ (1) Never
- ○ 2
- ○ 3
- ○ (4) Neutral
- ○ 5
- ○ 6
- ○ (7) Very Often

Q28 When something happened, have you generally found that:

- ○ (1) You Will Always Succeed in Overcoming the Difficulties
- ○ 2
- ○ 3
- ○ (4) Neutral
- ○ 5
- ○ 6
- ○ (7) You Will Not Succeed in Overcoming Difficulties

Page Break

Q29 When you think of difficulties you are likely to face in important aspects of your life, do you have a feeling that:

- ○ (1) Very Often
- ○ 2
- ○ 3
- ○ (4) Neutral
- ○ 5
- ○ 6
- ○ (7) Never

Q30 How often do you have the feeling that there is little meaning in the things you do in your daily life?

- (1) Very Often
- 2
- 3
- (4) Neutral
- 5
- 6
- (7) Never

Q31 How often do you have feelings that you are not sure you can keep under control

- (1) Very Often
- 2
- 3
- (4) Neutral
- 5
- 6
- (7) Never

End of Block: Default Question Block

Profile of Mood States (POMS)

Start of Block: Default Question Block

Q1 Below is a list of words that describe feelings people have. Please read each one carefully. Then select ONE option which best describes how you have been feeling DURING THE PAST WEEK INCLUDING TODAY

1 To maintain your confidentiality, please enter the ID number given to you at the beginning of this study

_____

Q2 How have you felt during the past week including today?

	Not At All (1)	A Little (2)	Moderately (3)	Quite a Bit (4)	Extremely (5)
Friendly (1)	○	○	○	○	○
Tense (2)	○	○	○	○	○
Angry (3)	○	○	○	○	○
Worn Out (4)	○	○	○	○	○
Unhappy (5)	○	○	○	○	○

Q3 How have you felt during the past week including today?

	Not At All (1)	A Little (2)	Moderately (3)	Quite a Bit (4)	Extremely (5)
Clear-headed (1)	○	○	○	○	○
Lively (2)	○	○	○	○	○
Confused (3)	○	○	○	○	○
Sorry For Things Done (4)	○	○	○	○	○
Shaky (5)	○	○	○	○	○

Q4 How have you felt during the past week including today?

	Not At All (1)	A Little (2)	Moderately (3)	Quite a Bit (4)	Extremely (5)
On Edge (1)	○	○	○	○	○
Grouchy (2)	○	○	○	○	○
Blue (3)	○	○	○	○	○
Energetic (4)	○	○	○	○	○
Panicky (5)	○	○	○	○	○

Page Break

Q5 How have you felt during the past week including today?

	Not At All (1)	A Little (2)	Moderately (3)	Quite a Bit (4)	Extremely (5)
Hopeless (1)	○	○	○	○	○
Relaxed (2)	○	○	○	○	○
Unworthy (3)	○	○	○	○	○
Spiteful (4)	○	○	○	○	○
Sympathetic (5)	○	○	○	○	○

Q6 How have you felt during the past week including today?

	Not At All (1)	A Little (2)	Moderately (3)	Quite a Bit (4)	Extremely (5)
Uneasy (1)	○	○	○	○	○
Restless (2)	○	○	○	○	○
Unable to Concentrate (3)	○	○	○	○	○
Fatigued (4)	○	○	○	○	○
Helpful (5)	○	○	○	○	○

Page Break

Q7 How have you felt during the past week including today?

	Not At All (1)	A Little (2)	Moderately (3)	Quite a Bit (4)	Extremely (5)
Annoyed (1)	○	○	○	○	○
Discouraged (2)	○	○	○	○	○
Resentful (3)	○	○	○	○	○
Nervous (4)	○	○	○	○	○
Lonely (5)	○	○	○	○	○

Q8 How have you felt during the past week including today?

	Not At All (1)	A Little (2)	Moderately (3)	Quite a Bit (4)	Extremely (5)
Miserable (1)	○	○	○	○	○
Muddled (2)	○	○	○	○	○
Cheerful (3)	○	○	○	○	○
Bitter (4)	○	○	○	○	○
Exhausted (5)	○	○	○	○	○

Q9 How have you felt during the past week including today?

	Not At All (1)	A Little (2)	Moderately (3)	Quite a Bit (4)	Extremely (5)
Anxious (1)	○	○	○	○	○
Ready to Fight (2)	○	○	○	○	○
Good Natured (3)	○	○	○	○	○
Gloomy (4)	○	○	○	○	○
Desperate (5)	○	○	○	○	○

Q10 How have you felt during the past week including today?

	Not At All (1)	A Little (2)	Moderately (3)	Quite a Bit (4)	Extremely (5)
Sluggish (1)	○	○	○	○	○
Rebellious (2)	○	○	○	○	○
Helpless (3)	○	○	○	○	○
Weary (4)	○	○	○	○	○
Bewildered (5)	○	○	○	○	○

Page Break

Q11 How have you felt during the past week including today?

	Not At All (1)	A Little (2)	Moderately (3)	Quite a Bit (4)	Extremely (5)
Alert (1)	○	○	○	○	○
Deceived (2)	○	○	○	○	○
Furious (3)	○	○	○	○	○
Efficient (4)	○	○	○	○	○
Trusting (5)	○	○	○	○	○

Page Break

Q12 How have you felt during the past week including today?

	Not At All (1)	A Little (2)	Moderately (3)	Quite a Bit (4)	Extremely (5)
Full of Pep (1)	○	○	○	○	○
Bad-tempered (2)	○	○	○	○	○
Worthless (3)	○	○	○	○	○
Forgetful (4)	○	○	○	○	○
Carefree (5)	○	○	○	○	○

Q13 How have you felt during the past week including today?

	Not At All (1)	A Little (2)	Moderately (3)	Quite a Bit (4)	Extremely (5)
Terrified (1)	○	○	○	○	○
Guilty (2)	○	○	○	○	○
Vigorous (3)	○	○	○	○	○
Uncertain About Things (4)	○	○	○	○	○
Bushed (5)	○	○	○	○	○

End of Block: Default Question Block

APPENDIX B. Questionnaire Subscales

Locus of Control

Internal Locus of Control

2b. People's misfortunes result from the mistakes they make

3a. One of the major reasons why we have wars is because people don't take enough interest in politics

4a. In the long run, people get the respect they deserve in this world

5a. The idea that teachers are unfair to students is nonsense

6b. Capable people who fail to become leaders have not taken advantage of their opportunities

7b. People who cannot get others to like them do not understand how to get along with others

9b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action

10a. In the case of the well-prepared student there is rarely if ever such a thing as an unfair test

11a. Becoming a success is a matter of hard work, luck has little or nothing to do with it

12a. The average citizen can have an influence in government decisions

13a. When I make plans, I am almost certain that I can make them work

15a. In my case getting what I want has little or nothing to do with luck

16b. Getting people to do the right thing depends upon ability. Luck has little or nothing to do with it

17b. By taking an active part in political and social affairs the people can control world events

18b. There really is no such thing as "luck"

20b. How many friends you have depends upon how nice a person you are

21b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three

22a. With enough effort, we can wipe out political corruption

23b. There is a direct connection between how hard I study and the grades I get

25b. It is impossible for me to believe that chance or luck plays an important role in my life

26a. People are lonely because they don't try to be friendly

28a. What happens to me is my own doing

29b. In the long run the people are responsible for bad government on a national as well as a local level

External Locus of Control

2a. Many of the unhappy things in people's lives are partly due to bad luck.

3b. There will always be wars, no matter how hard people try to prevent them.

4b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

5b. Most students don't realize the extent to which their grades are influenced by accidental happenings.

6a. Without the right breaks one cannot be an effective leader.

7a. No matter how hard you try some people just do not like you.

9a. I have often found that what is going to happen will happen.

10b. Many times, exam questions tend to be unrelated to course work so studying is really useless.

11b. Getting a good job depends mainly on being in the right place at the right time.

12b. The world is run by the few people in power, and there is not much the little guy can do about it.

13b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad.

15b. Many times, we might just as well decide what to do by flipping a coin.

16a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.

17a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.

18a. Most people do not realize the extent to which their lives are controlled by accidental happenings.

20a. It is hard to know whether or not a person really likes you.

21a. In the long run the bad things that happen to us are balanced by the good ones.

22b. It is difficult for people to have much control over the things politicians do in office.

23a. Sometimes I cannot understand how teachers arrive at the grades they give.

25a. Many times, I feel that I have little influence over the things that happen to me.

26b. There's not much use in trying too hard to please people, if they like you, they like you.

28b. Sometimes I feel that I do not have enough control over the direction my life is taking.

29a. Most of the time I cannot understand why politicians behave the way they do.

Sense of Coherence

Comprehensibility

1. When you talk to people, do you have the feeling they do not understand you?

3. Think of the people with whom you come into contact daily, aside from the ones whom you feel closest. How well do you know most of them?

5. Has it happened in the past that you were surprised by the behavior of people whom you thought you knew well?

10. In the past years, your life has been:

12. Do you have the feeling that you are in an unfamiliar situation and do not know what to do?

15. When you face a difficult problem, the choice of a solution is:

17. Your life in the future will probably be:

19. When something unpleasant happened in the past, your tendency was

21. When you do something that gives you a good feeling:

24. Do you think that there will always be people whom you'll be able to count on in the future?

26. How often in the past have you felt like a loser in certain situations?

Manageability

2. In the past, when you had to do something which depended upon cooperation with others, did you have a feeling that it:

6. Has it happened that people whom you counted on disappointed you?

9. Do you have the feeling that you're being treated unfairly?

13. What best describes how you see life:

18. How often do you have feelings that you are sure you can not keep under control?

20. Do you have very mixed-up feelings and ideas?

23. You anticipate that your personal life in the future will be:

25. Does it happen that you have the feeling that you don't know exactly what's about to happen?

27. When something happened, have you generally found that:

29. How often do you have the feeling that there is little meaning in the things you do in your daily life?

Meaningfulness

4. Do you have the feeling that you do not really care about what goes on around you?

7. Life is:

8. Until now your life has had:

11. Most of the things you do in the future will probably be:

14. When you think about your life, you very often:

16. Doing the things you do every day is:

22. Does it happen that you have feelings inside you would rather not feel?

28. When you think of difficulties you are likely to face in important aspects of your life, do you have a feeling that:

Reversed Scored Items

1, 4, 5, 6, 7, 11, 13, 14, 16, 20, 23, 25, 27

Profile of Mood States

Anger-Hostility

3. Angry

12. Peeved

17. Grouchy

24. Spiteful

31.Annoyed

33. Resentful

39. Bitter

42. Ready to Fight

47. Rebellious

52. Deceived

53. Furious

57. Bad Tempered

Tension-Anxiety

2. Tense

10. Shaky

16. On Edge

20. Panicky

22. Relaxed

26. Uneasy

27. Restless

34. Nervous

41. Anxious

Depression-Dejection

5. Unhappy

9. Sorry for Things Done

14. Sad

18. Blue

21. Hopeless

23. Unworthy

32. Discouraged

35. Lonely

36. Miserable

44. Gloomy

45. Desperate

48. Helpless

58. Worthless

61. Terrified

62. Guilty

Fatigue-Inertia

4. Worn out

11. Listless

29. Fatigued

40. Exhausted

46. Sluggish

49. Weary

65. Bushed

Confused-Bewildered

8. Confused

28. Unable to Concentrate

37. Muddled

50. Bewildered

54. Efficient

59. Forgetful

64. Uncertain about Things

Vigor-Activity

15. Active

19. Energetic

38. Cheerful

51. Alert

56. Full of Pep

60. Carefree

63. Vigorous

Reverse Scored:

Relaxed and Efficient

Items Not Scored

1. Friendly

6. Clear Headed

13. Considerate

25. Sympathetic

30. Helpful

43. Good Natured

55. Trusting

APPENDIX C. Conflict Behavior Template, Abbreviations, and Definitions

Operational Definitions:

- Head Shaking-Frequency of shaking head in lateral direction or in circles
- Sudden Stops-Making unintended stops (rider is not applying pressure on reins)
- Tail Swishing-Frequency of tail swishing in lateral direction
- Walking Backwards-Stepping backwards without prompt-rider is not pulling back on reins
- Pulling Reins-Moving mouth forward resulting in longer/looser reins
- Gaping-Opening of the mouth to avoid the pressure of the bit
- Ear Pinning- Ears pinned back/laid flat against head

Conflict Behavior Observation Form

	Pattern	Observed conflict behavior (Frequency)	Time in Section (duration)	Total Frequency/Duration	Final Score
1		HS- SS- TS- WB- PR- GP- EP-			
2		HS- SS- TS- WB- PR- GP- EP-			
3		HS- SS- TS- WB- PR- GP- EP-			
4		HS- SS- TS- WB- PR- GP- EP-			
5		HS- SS- TS- WB- PR- GP- EP-			
6		HS- SS- TS- WB- PR-			

		GP- EP-			
7		HS- SS- TS- WB- PR- GP- EP-			
8		HS- SS- TS- WB- PR- GP- EP-			
9		HS- SS- TS- WB- PR- GP- EP-			
10		HS- SS- TS- WB- PR- GP- EP-			

APPENDIX D. Level Tests

First Level Dressage – Test 1

(introduces 10m half circle at trot; 15m circle in canter; lengthening of stride in trot and canter.)

1	**A** – Enter working trot
	X – Halt, Salute
	Proceed Working Trot
2	**C –** Track Left
	E-X – Half circle left 10m, returning to track at H
3	**B-X –** Half circle right 10m, returning to track at M
4	**C** – Circle left 20m rising trot, allowing the horse to stretch forward and downward (X2)
	Before C – Shorten the reins
	C – Working trot
5	**S-F** – Change rein, lengthen stride in trot
	F – Working trot
6	**A** – Medium walk
7	**V-R** – Change rein, free walk (X2)
	R – Medium walk
8	**M** – Working trot (X2)
	C – Working canter left lead
9	**S-V** – Lengthen stride in canter
10	**V –** Circle left 15m
	Developing working canter in first half of circle
11	**FXH** – Change rein
	X – Working trot
12	**C** – Working canter right lead
13	**R-P** – Lengthen stride in canter
14	**P**– Circle right 15m
	Develop working canter in first half of circle
15	**A –** Working trot
16	**V-M –** Change rein, lengthen stride in trot
	M – Working trot
17	**E –** Half circle left 10m
	X – Down centerline
	G – Halt, Salute

Leave Arena at A in free walk

Second Level Dressage – Test 1

1	**A** – Enter Collected trot **X** – Halt, Salute Proceed Collected Trot
2	**C –** Track Left **H-P** – Change rein, medium trot **P –** Collected Trot
3	**Transitions at H & P**
4	**K-E** – Shoulder-In Right (x2) **E –** Turn Right
5	**B** – Turn Left **B-M –** Shoulder-In Left (x2)
6	**C –** Halt, Rein Back 3-4 Steps, Proceed Medium Walk (x2)
7	**C-S –** Medium Walk
8	**S-P** – Change rein, free walk **P –** Medium Walk (x2)
9	**Before F** – Shorten the Stride in Walk **F –** Collected Canter Right Lead
10-12	**A-C** – Serpentine 3 Equal Loops Width of Arena, Simple change of lead over centerline
10	**Score for first simple change**
11	**Score for second simple change**
12	**Score for quality of serpentine**
13	**M-P –** Medium Canter **P –** Collected Canter
14	**A –** Circle Right 10m
15	**K-B –** Change Rein **B-M –** Counter Canter
16	**M –** Medium walk **Before C –** Shorten stride in walk **C –** Collected canter left lead
17	**H-V –** Medium Canter **V –** Collected Canter
18	**A –** Circle left 10m
19	**F-E –** Change rein **E-H –** Counter canter
20	**H –** Collected trot **M-V –** Change rein, medium trot **V –** Collected trot
21	**Transitions H, M and V**
22	**A –** Down centerline **G –** Halt, Salute

Third Level Dressage – Test 1

1	**A** – Enter Collected trot
	X – Halt, Salute
	Proceed Collected Trot
2	**C –** Track Left
	S-V – Shoulder-In Left
3	**V-L –** Half Circle 10m
	L-H – Half Pass Left
4	**R-P –** Shoulder-In Right
5	**P-L** – Half Circle 10m
	L-M – Half Pass Right
6	**HXF** – Medium Trot
	F – Collected Trot
7	**A** – Halt, Rein Back 4 Steps
	Proceed Medium Walk
8	**K-R** – Change Rein, Extended Walk
	R – Medium Walk
9	**M –** Turn Left
	Between G&H – Shorten Stride, Half Turn on Haunches Left
	Proceed Medium Walk
10	**Between G&M** – Shorten Stride, Half Turn on Haunches Right
	Proceed Medium Walk
	H – Track Right
11	**Medium Walk RMG(H)G(M)GHC**
12	**Before C –** Shorten the Stride in Walk
	C – Collected Canter Right Lead
13	**M-F** – Medium Canter
	F – Collected Canter
14	**V –** Circle Right 10m
15	**V-R –** Change Rein, Flying Change between Centerline and R
16	**H-K –** Extended Canter
	K – Collected Canter
17	**Transitions at H & K**
18	**P –** Circle Left 10m
19	**P-S –** Change Rein, Flying Change between Centerline and S
20	**C –** Collected Trot
21	**MXK –** Extended Trot
	K – Collected Trot
22	**Transitions at M and K**
23	**A –** Down Centerline
	X – Halt, Salute

Leave Arena at A in walk on a long rein

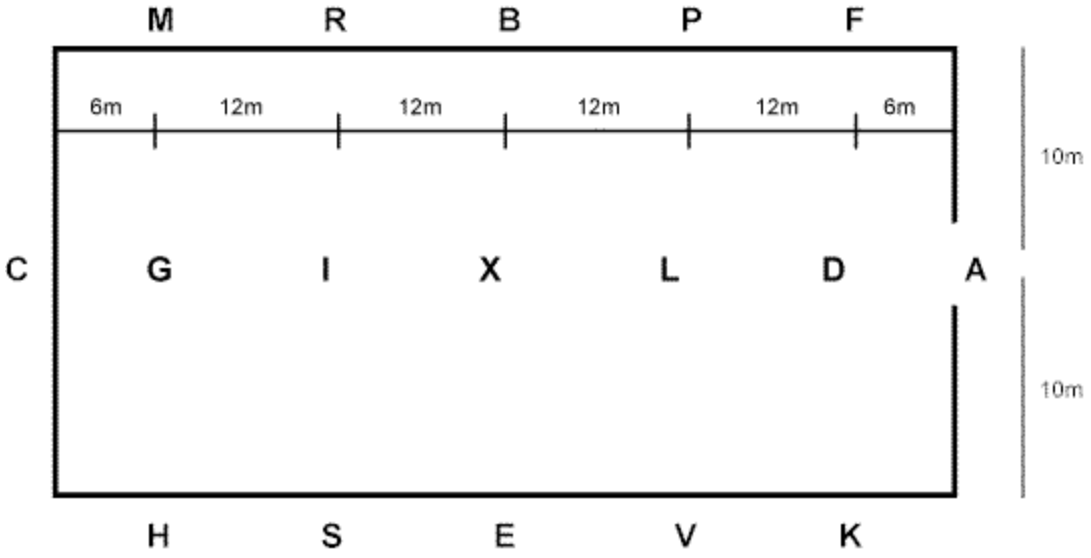
Fourth Level Dressage – Test 1

1	**A** – Enter Collected Canter **X** – Halt, Salute Proceed Collected Trot
2	**C –** Track Left **HXF** – Change rein, Medium Trot, over X, 6-7 Strides of Collected Trot **F –** Collected Trot
3	**K-X –** Half Pass Right
4	**X –** Circle Right 10m
5	**X-G** – Shoulder In Right **C –** Track Right
6	**MXK** – Change rein, Extended Trot **K –** Collected Trot
7	**Transitions at M & K**
8	**F-X** – Half Pass Left
9	**X –** Circle Left 10m
10	**X-G** – Shoulder In Left **C –** Track Left
11	**H –** Collected Walk **S – R –** Half Circle 20m in Extended Walk **R –** Collected Walk
12	**M –** Turn Left **Between G & H –** Half pirouette left Proceed collected walk
13	**Between G & M –**Half Pirouette Right Proceed Collected Walk
14	**(Collected Walk)** **HS/RMG(H)G**
15	**G –** Collected Canter Left Lead **H –** Turn Left
16	**S -K –** Medium Canter **K –** Collected Canter
17	**A –** Down centerline **D – E –** Half pass left
18	**E – H –** Counter Canter **H –** Flying Change of Lead
19	**M – F –** Extended Canter **F –** Collected Canter
20	**(Transitions M & F)**
21	**A –** Down centerline **D – B –** Half Pass Right
22	**B – M –** Counter Canter **M –** Flying Change of Lead

23	**C –** Circle left 20m, 5-6 strides of very collected canter between quarterlines
24	**H-X-F –** Change rein, three single flying changes of lead, near first quarterline, near X and near last quarterline
25	**A –** Down Centerline **X –** Halt, Salute

Leave Arena at A in walk on a long rein

Standard Dressage Arena



APPENDIX E. Consent Form

Texas Christian University
Fort Worth, Texas

CONSENT TO PARTICIPATE IN RESEARCH

Title of Research: An Exploratory Study of Mood States and Transient Emotions in Amateur Dressage Riders

Funding Agency/Sponsor: NA

Study Investigators: Collin Kay Pursley

What is the purpose of the research? The purpose of this research study is to explore how competitive mood states may affect the horse-rider relationship

How many people will participate in this study? 50 dressage riders will be participating in this study

What is my involvement for participating in this study? Your involvement in this study will consist of two parts: Observation and answering questionnaires. There is not a large deviation from your normal schedule. During this study, you will be contacted to create an appointment for one of your practices to be observed. During this time, the observer will travel to your arena to study your horse's behavior during your dressage pattern for any negative behaviors (e.g. tail swishing, ears pinned back, head shaking). The same observation will take place at one rated competition you plan to compete at this spring. In both observation settings, the observer is only monitoring your horse's behavior. You will be sent surveys to your provided email address that may be completed via computer or on your mobile browser. Following the completion of this questionnaire, you will be sent two others to understand how you view success and failure in life events unrelated to dressage or competition. These surveys should be completed by the time of your rated competition. The final survey is one to measure your mood state before and after competition. This survey will be sent to your email address the day of the observed practice and should be completed before riding. A second email measuring your mood state will be sent to your email again on the day of your rated competition and should be completed following your ride. You will receive a text reminder following your competition as well.

How long am I expected to be in this study for and how much of my time is required? Observing practice and competitions for this study will commence on April 8th. There are multiple competitions occurring before this date, therefore your time commitment in this study is based around your schedule.

What are the risks of participating in this study and how will they be minimized?
There is minimal risk associated with this study as you will already be practicing and competing in dressage this spring. The surveys could stimulate more thought into a how you perceive the relationship with their horse. This could be a negative or positive response. Although minimal because the only thing asked is to respond to surveys, your thoughts could be changed.

What are the benefits for participating in this study?
There is limited information on the horse-rider relationship. This study may provide more information on this topic. Participating in this study may also encourage all equestrian athletes to become more mindful of their mood and emotions during competition

Will I be compensated for participating in this study?
There is no compensation for participating in this study

What is an alternate procedure(s) that I can choose instead of participating in this study?

If you choose to not participate in this study, you will not be included in data collection. There is no alternate procedure. There is no punishment or ridicule for non-participation

How will my confidentiality be protected?
Only the principal investigator will have access to the names of all participants and their horse's names. This data will be kept anonymous and kept on a password protected hard drive secured in a locked location. To further protect your anonymity, you will receive an ID number to enter in all surveys distributed.

Is my participation voluntary?
Yes.

Can I stop taking part in this research?
Yes. You may choose to withdrawal from this study at any time.

What are the procedures for withdrawal?
You may withdrawal from this study at any time by directly informing the primary researcher (Collin Kay Pursley).

Will I be given a copy of the consent document to keep?
Yes. You may keep this document for your records.

Who should I contact if I have questions regarding the study?
Collin Kay Pursley, 817-584-1676, Collin.k.pursley@tcu.edu

Who should I contact if I have concerns regarding my rights as a study participant?

Dr. Tim Barth, Co-Chair, TCU Institutional Review Board, Phone 817-257-6427.
Dr. Anna Petursdottir, Chair, TCU Institutional Review Board, Phone 817 257-6436
Dr. Bonnie Melhart, TCU Research Integrity Office, Telephone 817-257-7104.

By clicking to continue below indicates that you have read or been read the information provided above, you have received answers to all of your questions and have been told who to call if you have any more questions, you have freely decided to participate in this research, and you understand that you are not giving up any of your legal rights.