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## The Relationship between the Dark Tetrad using the HEXACO Personality Models in Relationship to Mental Toughness in College Athletes

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## ABSTRACT

Dark Triad has been examined before in previous literature many different times. The Dark Tetrad is recently new to the field and does not have the same amount of literature as the Triad. The Dark Triad and Tetrad have been examined with the Big Five Personality model numerous times and have been negatively correlated in the previous research. However, most of the research examined did not use Honesty-Humility that the HEXACO Personality Model has incorporated into the Big Five Personality model. The topic of mental toughness has been researched numerous times since its acceptance as a personality trait. The difficulty with mental toughness is the debate on the psychological trait being unidimensional or multidimensional. However, there was no prior research on the relationship between the Dark Tetrad, HEXACO Personality Model, and Mental Toughness in College athletes. The aim of this study was to further develop the understanding of the relationship between the Dark Tetrad and the HEXACO personality model in relation to mental toughness in college athletes. The HEXACO PI-R, Dirty Dozen, the Comprehensive Assessment for Sadistic Tendencies (CAST), and the Mental Toughness Questionnaire (MTQ) were administered online to 245 undergraduate students. These students were also asked if they participated in sports and how long they participated in the sport. Results showed that mental toughness did not have a correlation with the Dark Tetrad. HEXACO personality model specifically, emotionality, was negatively correlated with mental toughness. Extraversion and Openness to Experiences

was positively correlated with mental toughness. Finally, athletes have shown to be more mentally tough than non-athletes. These findings are important because it helps further explore the construct of mental toughness and shows that mental toughness is a multidimensional psychological trait. Finally, it shows that mental toughness does not need to express antisocial personality traits to establish mental toughness.

The Relationship between the Dark Tetrad using the HEXACO Personality Models in  
Relationship to Mental Toughness in College Athletes

A Thesis

Presented to

The Faculty of the Graduate School

Abilene Christian University

In Partial Fulfillment

Of the Requirements for the Degree

Master of Science in Clinical Psychology

By

Michael K. Ryerson

May 2018

This thesis, directed and approved by the candidate's committee, has been accepted by the Graduate Council of Abilene Christian University in partial fulfillment of the requirements for the degree

Master of Science

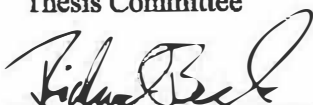


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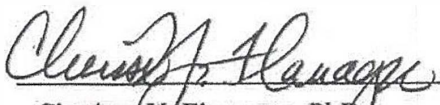
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CHAPTER I  
LITERATURE REVIEW

**Dark Triad**

For the last 20 years researchers have studied, personality traits associated with antisocial behaviors. When discussing personality traits of antisocial behaviors, three have been at the forefront, often described as the “Dark Triad”: Machiavellianism, Narcissism, and psychopathy. Each of these traits are distinct, yet overlaps each other (Paulhus & Williams, 2002). These traits share characteristics within each other yet can be defined as distinct from each other (DeShong, Helle, Lengel, Meyer, & Mullins-Sweatt, 2017).

**Machiavellianism**

Machiavellianism is a multidimensional personality trait that covers interpersonal tactics, cynical view of human nature, mistrust of others, and disregard for conventional morality (Martin, Lastuk, Jeffery, Vernon, & Veselka, 2012). Individuals who display Machiavellian-personality traits are often considered as charming and attractive personalities, while remaining hypocritical and superficial (Sabouri et al., 2016). Machiavellianism can be broken down to three facets within the personality: an avowed belief in the effectiveness of manipulative tactics in dealing with others, a cynical view of human nature and an amoral outlook that puts expediency above principle (DeShong et al., 2107). Machiavellianism has been associated with having a cold and collected view

to life, as well as being suspicious of others within the workplace and in life (DeShong et al., 2017).

According to DeShong et al. (2017) facets of the Dark Triad in relation to the Five-Factor model indicate that Machiavellianism relates negatively to agreeableness and conscientiousness, and positively with neuroticism. All aspects of agreeableness (forgivingness, gentleness, flexibility, and patience) are negatively correlated with Machiavellianism, as well as the dutifulness facet of conscientiousness (Deshong et al., 2017).

### **Narcissism**

Narcissism has been associated with a grandiose sense of self and craving positive attention (Meere & Egan, 2017). Narcissism has been linked with leadership, self-admiration, and superiority and interpersonal exploitation (Emmons, 1987). As Emmons (1987) states, narcissism consists of four correlated domain factors: leadership, self-admiration, superiority, and interpersonal exploitation. Those high on narcissism are characterized by megalomania, exaggerated self-love, dominance, superiority, self-centeredness, self-aggrandizement, and egocentric attitudes (Sabouri et al., 2016).

Wink (1991) viewed narcissism as having two faces, covert and overt. Overt narcissism is associated with direct expressions of exhibitionism, self-importance, and preoccupation with receiving attention and admiration. When narcissism is expressed covertly, its marked by unconscious feelings of grandeur and openly displayed lack of self-confidence and initiative, vague feelings of depression, and absence of zest for work (Wink, 1991). Those high on narcissism have been known to have mood swings when it comes to their self-image and their failures and successes (Emmons, 1987).

## **Psychopathy**

As defined by Hare, Clark, Grann & Thornton, (2000), individuals displaying psychopathy tend to be grandiose, arrogant, callous, dominant, superficial, deceptive, and manipulative. Individuals displaying psychopathy have shallow affect or display short tempers, are unable to form strong emotional bonds with others, and lack empathy, guilt, remorse, or deep-seated emotions (Hare et al., 2000). Other characteristics of psychopathy include high impulsivity and thrill-seeking along with low empathy and anxiety (Paulhus & Williams, 2002). Psychopathy traits can resemble ‘evolved cheaters’ who take advantage of others with the lack of empathy for human nature and lacks mechanisms that filters antisocial behaviors (Book, Visser, & Volk, 2015). Suggestions have been made that psychopathy is the ability to be able to understand emotions and motivations of others but without the normal emotional mechanisms to express and have emotional responses (Book, Visser, & Volk, 2015). Having these interpersonal and affective characteristics, psychopathy characteristics may drive individuals to live a socially deviant lifestyle with impulsive behaviors and tend to violate and ignore socially conventions and morals (Hare et al., 2000). As Hare (1999) reported, individuals with the combination of these characteristics have features that place them at high risk for crime and violence.

## **Dark Tetrad**

Within the last decade, researchers have been suggesting that a fourth trait should be added to the Dark Triad. Sadistic traits were added to the Dark Triad—psychopathy, narcissism, and Machiavellianism—to create the Dark Tetrad. Researchers have reported significant correlations among these antisocial traits when correlating sadism with the

Dark Triad (Chabrol, Melioli, Van Leeuwen, Rodgers, & Goutaudier, 2015). The Dark Tetrad has confirmed its usefulness in understanding of socially aversive behaviors (Chabrol et al., 2015).

Sadism has two facets or dimensions: sexual sadism and everyday sadism (Meere & Egan, 2017). Sexual sadism concerns sadism among individuals who take pleasure from experiencing sexual pleasure from extreme pain of others and can be an indicator for violent and non-sexual reoffending (Eher et al., 2015).

Non-sexual sadism has been labeled as ‘everyday sadism’. Everyday sadism can be viewed as an individual who, in their everyday lives enjoys cruel behaviors such as watching crime shows on television, taking pleasure in watching violent sports combat involving both humans and animals (Meere & Egan, 2017). Everyday sadism is the aspect of sadism that is included in the Dark Tetrad (Meere & Egan, 2017).

### **The HEXACO Personality Model**

Throughout the last decades, the Big Five Personality Model has been the dominant paradigm guiding personality research (Lee & Ashton, 2014). In the recent years, Hahn et al. (1999), has argued for the inclusion of Honesty-Humility into the Big Five, creating a six-dimensional trait model named HEXACO: Honesty-humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness.

Honest-Humility represents individual differences in the will to cooperate with others, even when one could gain advantage by exploiting or defecting against others (Lee & Ashton, 2014). Individuals with high scores on Honesty-Humility scale avoid manipulative behaviors for personal gain, can be considered rule-following and are uninterested in personal exploitation, with little feeling of entitlement to improve their

social status (Lee & Ashton, 2009). On the other end, individuals who score low on Honesty-Humility are associated with behaviors of exploitation, manipulation for personal gain, expresses motivation for material gains, and are more prone to break rules for personal profits (Lee & Ashton, 2009).

Individuals with high scores in emotionality experience fear of physical dangers, experience anxiety in response to life's stresses, feel the need for emotional support from others, and the feeling of sentimental attachment with others (Lee & Ashton, 2009). Individuals who score low on this scale are not afraid or effected by the possibility of physical harm, feel little worry in stressful situations, and have little connection with others on an emotional level (Lee & Ashton, 2009).

Individuals with high scores on extraversion tend to feel positively about themselves, have confidence when leading or addressing groups of people, enjoy social situations or gatherings, and experience positive feelings of enthusiasm and energy (Lee & Ashton, 2009). People with low scores on extraversion consider themselves unpopular, feel awkward when the center of attention, indifferent to social activities, and feel less lively and optimistic than others.

Persons with higher scores on agreeableness are willing to forgive, less likely to judge others, and are willing to cooperate with others (Lee & Ashton, 2009). Low scores are associated with individuals who hold grudges, critical and are judgmental to others, and are more likely to defend their point of view to others (Lee & Ashton, 2009).

Persons with high scores on the Conscientiousness scale can be organized and coordinated with their time, work in ways that are directed to completion of their goals, and strive for perfection in their tasks, and is careful at making decisions without thinking

them through (Lee & Ashton, 2009). Individuals who score low in conscientiousness, can be associated with having poor self-control, reckless behaviors, and deficits in avoidance orientation (Jones & Paulhus, 2011) as well as avoiding difficult tasks or challenging goals, and can be impulsive (Lee & Ashton, 2009).

Individuals with high scores on openness can express flexible mindsets such as being open to various areas of knowledge, being able to use imagination freely, and can take interest in unusual people or ideas (Lee & Ashton, 2009). People with low scores on openness avoid creative ideas, feel little curious about intellectual ideas, and have little attraction toward ideas that may seem unconventional (Lee & Ashton, 2009).

### **HEXACO and the Dark Triad and Tetrad**

The reason Honesty-Humility was considered to be an addition to the Big Five was due to the results of low scores to be comparable to common elements of the Dark Triad (Lee & Ashton, 2014). Due to the Dark Triad being created based on the Big Five personality there has been little effort to reduce the redundancy of the two personality models (Lee & Ashton, 2014). The HEXACO framework follows from the understanding that the portion Honesty-Humility is roughly common with the connection to the Dark Triad variables (Lee & Ashton, 2014).

### **Mental Toughness**

Mental toughness can be defined as having a psychological edge that enables an athlete to cope consistently with the pressures and demands of the sport during competition and in his or her lifestyle and training (Mack & Ragan, 2008). Mental Toughness can be considered a unidimensional personal characteristic that represents a

psychological capacity to deliver high performance on a regular basis despite varying situational demands (Madigan & Nicholls, 2017).

Mental Toughness can also be viewed multidimensionally, with facets involving hope, optimism, resilience, and perseverance (Guillen & Laborde, 2014). Hope can be defined as an expectation of success relative to goals (Guillen & Laborde, 2014). Dispositional optimism has been defined as a generalized expectancy that good things will happen (Guillen & Laborde, 2014). Perseverance has been conceptualized as persistence by Cloninger et al. (1994), and refers more specifically to the propensity of being eager to work hard when facing challenges, despite fatigue or frustration (Guillen & Laborde, 2014). Resilience represents a positive adaptation toward risk or adversity and the ability for the individual to maintain stable levels of physical and mental function (Guillen & Laborde, 2014). Mental Toughness not only can be viewed at individuals who participate in sports, but individuals that need to perform in schools, businesses, administration, and even the military (Guillen & Laborde, 2014).

**Mental toughness in athletes.** Mental toughness is similar with the construct of hardness, and is distinguished confidence, which is needed for athletes to perform in their selected sports (Chen & Cheesman, 2013). The idea of mental toughness is not a reaction to particular circumstances that question or challenge and individual, but is a positive psychological trait motivating one to excel (Chen & Cheesman, 2013). Mental toughness is considered a collection of values, attitudes, cognition, emotions, and behaviors that impact how athletes assess and manage negative, adverse as well as positive challenging competitive situations to consistently achieve their goals (Petrie, Deiters, & Harmison, 2014). Guillen and Laborde (2014) found that individuals who participated in athletics



scored higher on mental toughness than individuals who were not athletes (Guillen & Laborde, 2014).

**Mental toughness, the Dark Tetrad, and HEXACO.** The Dark Triad traits have been positively associated with Mental Toughness (Sabouri et al., 2016). By definition, mentally tough individuals feel committed to their aims and goals, while feeling committed to one's own goals is also characteristic of those scoring high on Machiavellianism (Sabouri et al., 2016). Machiavellianism is closely related to self-interest, personal gain, and achievement of own aims (Sabouri et al., 2016). Mentally tough individuals report having high confidence in their abilities; likewise, those with higher narcissism scores have confidence in their abilities (Sabouri et al., 2016).

**The Current Study: The Relationship of Mental Toughness with the Dark Tetrad and HEXACO among Athletes and Non-Athletes**

As noted above, the Dark Tetrad traits—psychopathy, narcissism, Machiavellianism, and everyday sadism—have displayed associations with the HEXACO personality model, most especially with Honest-Humility. Low scores on the Honesty-Humility portion of the HEXACO personality model can be viewed as a common element among the Dark Tetrad traits. Low scores on Honesty-Humility can indicate the want or need to manipulate for personal gain, exploitation, and a motivation for material wealth (Lee & Ashton, 2009). Such motivations are implicated in the Dark Tetrad (Lee & Ashton, 2014).

Mental toughness has also been associated with aspects of the Dark Tetrad and HEXACO models. The Dark Triad traits have been positively and significantly associated with Mental Toughness (Sabouri et al., 2016). By definition, mentally tough

individuals feel committed to their aims and goals, while feeling committed to own goals is also characteristic of those scoring high on Machiavellianism (Sabouri et al., 2016).

Overall, then, various associations between mental toughness, the Dark Tetrad and HEXACO have been observed. These associations suggest that there may be positive, adaptive aspects to the Dark Tetrad traits. One example of this may be in the area of athletic competition.

Mental toughness, as defined previously, is a positive psychological trait that allows an athlete to excel in his/her respective sport. And mental toughness has been associated with the Dark Tetrad. This suggests that traits required for success in the arena of athletic competition might be considered unethical or even immoral in other contexts. Athletics allows individuals to challenge and defeat opponents in a form that society views as acceptable, using deception and exploitation of weaknesses for personal gain, or using in some sports, physical dominance with little to no empathy. All of these aspects of athletic competition suggest ways in which Dark Tetrad traits can be viewed adaptively. To date, however, no research has explored the associations between the Dark Tetrad, HEXACO and mental toughness in the same sample, or compared these associations among athletes and non-athletes.

To investigate the associations between the Dark Tetrad, HEXACO, and mental toughness, measures of these traits were administered to college athletes and non-athletes. Beyond replicating previously observed associations between these traits, it was predicted that mental toughness would be positively correlated with the Dark Tetrad traits of narcissism, and negatively correlated with Honesty-Humility. In addition, it was

predicted that college athletes would score higher on mental toughness and Dark Tetrad traits when compared to non-athletes, and lower on Honesty-Humility.

## CHAPTER II

### METHODS

#### **Participants**

The participants of this study were recruited from undergraduate classes at Abilene Christian University. Overall, 245 participants completed online surveys assessing the Dark Tetrad, HEXACO, and mental toughness. The mean age was 19.23 (SD = 2.34). The ethnicity breakdown was: 59.7% Caucasian, 14.8% African-American, 19.1% Hispanic/Latino, and .8% Pacific Islander. The gender breakdown was 63.8% female and 36.2% male. Thirty-seven of the participants were student athletes.

#### **Assessment Instruments**

##### **HEXACO-PI-R**

The HEXACO-PI-R (Lee & Ashton, 2009) is a 60-item assessment, using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The HEXACO-PI-R is a measure used to assess personality traits on six-dimensions: Honesty-humility, emotionality, extraversion, agreeableness, conscientiousness, and openness to experience. Honesty-Humility scale has six items measuring sincerity, fairness, greed-avoidance, and modesty. Example items include “I wouldn’t use flattery to get a raise or promotion at work, even if I thought it would succeed.” and “If I knew that I could never get caught, I would be willing to steal a million dollars.” The emotionality scale measures fearfulness, anxiety, dependence and sentimentality. Example items include “I would feel afraid if I

had to travel in bad weather conditions.” and “I sometimes can’t help worrying about little things.” The extraversion scale measures social self-esteem, social boldness, sociability, liveliness. Example items include “I feel reasonably satisfied with myself overall.” and “I rarely express my opinions in group meetings.” The agreeableness scale measures forgiveness, gentleness, flexibility, and patience. Example items include “People sometimes tell me that I am too critical of others.” and “I rarely hold a grudge, even against people who have badly wronged me.” The conscientiousness scale measures organization, diligence, perfectionism, and prudence. Example items include “I plan ahead and organize things, to avoid scrambling at the last minute.” and “I often push myself very hard when trying to achieve a goal.” Finally, openness to experience scale measures aesthetic appreciation, inquisitiveness, creativity, and unconventionality. Example items include “I would be quite bored by a visit to an art gallery.” and “I’m interested in learning about the history and politics of other countries.” The college samples in Merre & Egan (2017) study indicated the reliability of the HEXACO to be .70 (Meere & Egan, 2017).

### **Dirty Dozen**

The Dirty Dozen (Jonason & Webster, 2010) is a 12-item questionnaire using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The Dirty Dozen assesses the Dark Triad dimensions: Narcissism, psychopathy, and Machiavellianism. The narcissism scale measures admiration, attend, status and favors in a manipulative sense. Example items include “I tend to want others to admire me.” and “I tend to want others to pay attention to me.” The psychopathy scale measures lack of remorse, amorality, callousness, and cynical views. Example items include “I tend to be cynical.”

and “I tend to lack remorse.” Finally, the Machiavellianism scale measures manipulation, deception, flattery, exploitation. Example items include “I tend to manipulate others to get my way” and “I have used flattery to get my way.” The overall alpha for the Dirty Dozen is .89 (Jonason & Webster, 2010).

### **Comprehensive Assessment of Sadistic Tendencies.**

The Comprehensive Assessment of Sadistic Tendencies (CAST; Buckels, Trapnell, & Paulus, 2014) is an 18-item assessment using a Likert scale from 1 (strongly disagree) to 7 (strongly agree). The CAST assesses the three dimensions of sadism: Verbal, Physical, Vicarious. The Verbal sadism scale measures subjugation or the act of dominance of others. Example items include “I have made fun of people, so they know I am in control.” And “When I tell people what to do, they know to do it.” The Physical sadism scale measures pleasure-seeking behaviors. Example items include “Being mean to others can be exciting.” And “I enjoy humiliating others.” Finally, the Vicarious sadism scale measure un-empathetic behaviors. Example items include “I think about hurting people who irritate me.” and “I’d lie to someone to make them upset.” The overall alpha for the CAST is .89 (Buckels & Paulus, 2014).

### **Mental Toughness Questionnaire**

The Mental Toughness Questionnaire (Golby & Wood, 2016) is an 18-item assessment using a Likert scale from 1 (disagree) to 5 (agree). The Mental Toughness Questionnaire assesses mental toughness in four dimensions: Hope, Optimism, Perseverance, and Resilience. The Hope scale measures the belief in oneself to achieve competition goals. Example items include “Even when under considerable pressure I usually remain calm.” and “I tend to worry about things well before they actually

happen.” The Optimism scale measures the general expectancy that good things will happen. Example items include “I generally look on the bright side of life.” and “However bad things are, I usually feel they will work out positively in the end.” The Perseverance scale measures consistency in achieving one’s goals even when facing adversity. Example items include “I usually find it difficult to make a mental effort when I am.” and “When I am feeling tired I find it difficult to get.” Finally, the Resilience scale measures the ability to adapt to changes in the environment. Example items include “I am generally able to react quickly when something unexpected happens.” and “I generally feel in control.” The overall alpha is .91 (Golby & Wood, 2016).

## CHAPTER III

### RESULTS

#### **The Relationship between Mental Toughness and The Dark Tetrad**

One of the goals of this study was to examine the relationship of mental toughness with the Dark Tetrad. It was predicted that mental toughness would positively correlate with the Dark Tetrad. To test these hypotheses, correlations were run between the Dark Tetrad measures and mental toughness. These correlations can be found in Table 1.

As seen in Table 1, contrary to predictions, the Dark Tetrad was uncorrelated with mental toughness. This pattern of results differs from what Sabouri et al. (2016) observed, and will be discussed in Chapter IV.

Table 1

*Correlations between Mental Toughness and The Dark Tetrad*

	1.	2.	3.	4.	5.	6.
1. Mental Toughness						
2. DT-Mach.	-.11					
3. DT-Psychopathy	-.03	.43*				
4. DT-Narcissism	-.06	.42*	-.24*			
5. Sadism-Verbal	-.04	.47*	.47*	-.29*		
6. Sadism-Physical	.00	.33*	.52*	.08	.42*	
7. Sadism-Vicarious	.09	.20*	.36*	.05	.45*	.44*

\*p < .001



### The Relationship between HEXACO and Mental Toughness

A second goal of the study was to examine the relationships between mental toughness and the HEXACO personality traits. Overall, it was predicted that mental toughness would show a negative correlation with Honesty-Humility. To test this hypothesis, correlations were run between the mental toughness and the HEXACO scales. These correlations can be found in Table 2. Surprisingly, portions of the HEXACO personality model did show correlations with mental toughness. As seen in Table 2, emotionality showed a negative correlation with mental toughness. Also, Extraversion was positively correlated with mental toughness. Finally, Agreeableness was positively correlated with mental toughness. Surprisingly, there was not a correlation between mental toughness and Honesty-Humility as predicted.

Table 2

#### *Correlations between HEXACO and Mental Toughness*

	1.	2.	3.	4.	5.	6.
1. Mental Toughness						
2. Honesty-humility	.07					
3. Emotionality	-.41**	.16*				
4. Extraversion	.61**	.02	-.14*			
5. Agreeableness	.19**	.31**	-.04	.12		
6. Conscientiousness	.12	.15*	.12	.06	.09	
7. Openness	-.05	.12	.16*	.03	.04	-.03

\*p < .001 \*\*p < .005

## **Mental Toughness, HEXACO, and the Dark Tetrad in College Athletes and Non-Athletes**

The final goal of the study was to explore if there were differences between student athletes and non-athletes on mental toughness, the HEXACO personality model, and the Dark Tetrad. To explore possible differences, independent samples t-tests were run between student athletes and non-athletes on mental toughness, HEXACO, and Dark Tetrad ratings. Group means and t-tests can be found in Table 3.

As can be seen in Table 3, athletes displayed higher scores on mental toughness compared to non-athletes. In addition, non-athletes displayed higher scores in emotionality than athletes. In addition, non-athletes scored higher in Openness to Experience than athletes. Finally, athletes scored higher in both physical sadism and vicarious sadism than non-athlete.

Table 3

### *Mean Differences between Athletes and Non-Athletes*

	Athletes	Non-Athletes	
Variables:	<u>Mean (SD)</u>	<u>Mean (SD)</u>	<u>t-test (df)</u>
Mental Toughness	61.94 (9.90)	56.42 (9.81)	3.05 (218)*
HEXACO:			
Honesty-Humility	26.32 (5.09)	27.80 (5.10)	1.55 (210)
Emotionality	30.36 (5.85)	33.81 (7.13)	2.62 (208)*
Extraversion	28.24 (6.89)	26.43 (5.76)	1.61 (204)
Agreeableness	32.50 (6.92)	32.58 (6.63)	.06 (206)
Conscientiousness	35.74 (5.62)	36.11 (6.37)	.32 (202)

Openness	30.18 (6.50)	33.27 (7.15)	2.31 (207)*
Dark Tetrad:			
Machiavellianism	9.16 (2.85)	9.38 (3.25)	-.38 (224)
Psychopathy	7.70 (3.21)	7.41 (3.00)	.55 (225)
Narcissism	11.19 (3.38)	11.30 (3.79)	-.15 (223)
Sadism- Verbal	15.22 (6.78)	14.15 (6.64)	.89 (220)
Sadism- Physical	6.97 (4.23)	5.69 (2.78)	2.33 (222)*
Sadism- Vicarious	18.95 (7.56)	15.50 (6.15)	2.99 (223)*

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\*p < .05

## CHAPTER IV

### DISCUSSION

#### **Overview of Goals and Findings**

Overall, the goal of the study was to analyze the relationship with mental toughness in correspondence with the HEXACO personality model and the Dark Tetrad. In addition, college athletes and non-athletes were compared on mental toughness, the Dark Tetrad and the HEXACO model.

In order to examine the relationships between mental toughness and the Dark Tetrad with the HEXACO personality models, the study had 245 undergraduate participants complete measures of mental toughness, the Dirty Dozen (a Dark Triad measure), the Comprehensive Assessments of Sadistic Tendencies, and the HEXACO personality model. It was predicted that mental toughness would be positively correlated with the Dark Tetrad Traits. It was also predicted that mental toughness would be negatively correlated with Honesty-Humility within the HEXACO model. In addition to these predictions, college athletes and non-athletes were compared on mental toughness, the Dark Tetrad and HEXACO. It was predicted that athletes would score higher on mental toughness than non-athletes. Additionally, athletes were predicted to have higher scores on the Dark Tetrad traits. Finally, it was expected that athletes would have lower scores on Honesty-Humility compared to non-athletes.

Surprisingly, the HEXACO facets of emotionality, extraversion, and agreeableness were correlated with mental toughness. Emotionality was negatively correlated with mental toughness, which suggests that individuals who score low on the emotionality scale are less afraid of the possibility of physical harm, feel little worry in stressful situations, and have little connection with others on an emotional level (Lee & Ashton, 2009). Extraversion was positively correlated with mental toughness, which would help explain why individuals with high scores on extraversion tend to feel positively about themselves, have confidence when leading or addressing groups of people, enjoy social situations or gatherings, and experience positive feelings of enthusiasm and energy (Lee & Ashton, 2009). Agreeableness was positively, though weakly, correlated with mental toughness. This is an interesting finding given that individuals with higher scores on agreeableness are willing to forgive, less likely to judge others, and are willing to cooperate with others (Lee & Ashton, 2009). It is unclear why these dispositions are predictive of mental toughness but, as discussed in Chapter I, mental toughness is correlated with optimism and hope.

Contrary to predictions, the study did not show correlations between mental toughness and the Dark Tetrad. Similarly, there was no correlation between mental toughness and Honesty/Humility in the HEXACO model. This result is inconsistent with prior research (Sabouri et al., 2016), which has found associations between mental toughness and the Dark Triad.

Two explanations for this lack of association suggest themselves. First, the different results between this study and others could have been due to a Christian population of the sample. A Christian population could be associated with lower scores

on the Dark Tetrad measures. Second, the lack of a correlation between the Dark Tetrad and mental toughness suggests that mental toughness need not include antisocial personality traits for an individual to be mentally tough. The positive, though weak, association between mental toughness and agreeableness in this study is consistent with this notion. Still, given the associations found in other studies, more research is needed before any firm conclusion can be drawn.

Non-athletes displayed higher scores than athletes in Emotionality. This could be due to athletes experiencing greater daily stress through school, practice, competition, and personal standards that may exceed the non-athlete population. This might lead athletes to having higher tolerances to failure, and to conflicts due to the nature of their sport. Another explanation could be due to the fact that athletes have high expectations for themselves and have developed coping mechanisms to deal with these emotions.

Non-athletes also expressed higher scores on Openness to Experiences than athletes. This could be due to the rigid schedules of athletes, managing time between schooling as well as practices, scheduled games, academics, as well as required tutoring sessions required by the school and the athletic department. Non-athletes may have additional time on their hands that may allow them to explore more of the world outside of school and work.

Athletes reported higher scores on Physical-Sadism than non-athletes. This result could potentially be due to the nature of the sport. If an athlete participates in a contact sport (football, wrestling, lacrosse, etc.) the nature of physical violence would be engrained within the acceptable limitation of the sport. The higher Physical-Sadism scores among athletes could also be explained by an interest in activities that involve

inflicting physical harm upon others, though within the acceptable scope of the sport. Athletes may have reported higher sadism scores than non-athletes because within the sport they may be expected or encouraged to express violence in a socially acceptable way within the sport. Athletes may have reported higher Physical-Sadism scores due to experiencing their sport as similar to a fight or a war, where one side must do everything possible to win or gain an advantage over the opponent.

Athletes also expressed higher scores on Vicarious-Sadism than the non-athletes. This particular result could be due to a general interest among athletes in contact sports, such as boxing, mixed martial arts, or any other contact style professional sport. The interest in these styles of sporting event could be due physical violent and potential for injury associated with these sports. For instance, collisions in football games, car crashes in NASCAR, or knockouts in mixed martial arts or boxing, may excite athletes more than non-athletes because of the interest in the dramatic wins or losses that can happen within sports generally. Athletes may also have expressed higher scores due to how the imagery of physically dominating over the opposition resembles and inspires their own efforts to defeat opponents in athletic contests.

### **Implications**

The main aim in this study was to address the lack of research investigating mental toughness among athletes. In addition, differences on the Dark Tetrad and HEXACO were also explored, due to their predicted associations with mental toughness.

Accordingly, the first major practical contribution of the present research is that it provides evidence for the facets of Extraversion, Emotionality, and Agreeableness as being associated with in mental toughness. By observing links with the HEXACO model,

this research opens up a new line of inquiry for researchers to focus on different aspects of mental toughness.

However, this study did not show correlations between the Dark Tetrad and mental toughness as previous studies have shown. This finding also demands future research.

One issue that may explain these findings is that, prior to this study, researchers haven't agreed on how best to conceptualize and measure mental toughness. Madigan and Nicholls (2017) argued that mental toughness is a unidimensional psychological trait. Contradictory to this view, Guillen and Laborde (2014) suggest that mental toughness is multidimensional trait consisting of hope, optimism, perseverance, and resilience. Determining if mental toughness is best understood as a unidimensional or multidimensional trait may help clarify some of the divergent findings in the literature.

Another area that researchers can expand in the field of mental toughness is to examine how mental toughness might be cultivated. Understanding how mental toughness is cultivated could help those working in sport—from psychologists to coaches—to increase the mental toughness of the athletes they are working with. Relatedly, an area that researchers can expand on is investigating how mental toughness varies over time among individuals. That is, is mental toughness similar to a skill that must be practiced, or it will be lost? Or is mental toughness more like a trait that, once acquired, stays with the individual over time?

Overall, sport and clinical psychologists can benefit from understanding mental toughness, within both athletes and non-athletes. Mental toughness does not have to be solely a characteristic of athletes and athletics. Improving mental toughness may help



clients struggling with mental disorders, such as depression, substance abuse, and even personality disorders. For individuals who do not suffer from mental disorders, cultivating mental toughness could also benefit everyday life by improving coping with everyday stresses.

Mental toughness can be seen throughout society, within business owners/leaders, military personnel, and employees. Improving mental toughness within a company can potentially allow for growth and less stress for employees, which in turn might create higher profits. In addition, this study may make a case for athletes in the hiring process, giving empirical evidence that athletes and former athletes are better able to manage and process stress in the pursuit of a goal. Mental toughness can be viewed as a multilayered foundation for individuals to build upon to achieve their goals regardless if it is health, business, and in life.

### **Limitations and Future Directions**

The study that was performed could benefit from a larger sample of student athletes as well as a larger sample population. In addition, the data was collected from self-report measures which are susceptible to socially desirable responses and biases. Perhaps an interpersonal interview could eliminate any telescoping, attribution, selective memory, or exaggeration. An observer reported assessment by a coach might also eliminate some self-reporting biases.

Based on the results of this study, researchers should also investigate the facets of mental toughness, expanding or condensing the criteria of mental toughness. With mental toughness possibly being a multidimensional construct, analyzing different aspects of mental toughness may allow more significant results in a similar research plan. Another

limitation in the research is the lack of a longitudinal design, for the relationship between mental toughness and other personality traits.

### **Conclusion**

The purpose of the study was to examine the relationship of mental toughness, the Dark Tetrad and the HEXACO personality models among student athletes and non-athletes. Running correlations and t-tests, the study observed that student athletes scored higher on mental toughness than non-athletes. Surprisingly, mental toughness did show correlations with emotionality, extraversion, and openness to experiences. This correlation suggests that mental toughness may be a multidimensional psychological trait. Contrary to predictions, mental toughness had no correlation with the Dark Tetrad personality traits.

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## APPENDIX A

### Institutional Review Board Approval Letter

**ABILENE CHRISTIAN UNIVERSITY**  
*Educating Students for Christian Service and Leadership Throughout the World*  
Office of Research and Sponsored Programs  
320 Hardin Administration Building, ACU Box 29103, Abilene, Texas 79699-9103  
325-674-2885



February 28, 2018

Michael Ryerson

Department of Psychology

Dear Michael,

On behalf of the Institutional Review Board, I am pleased to inform you that your project titled  
The Relationship Between the Dark Tetrad using the HEXACO personality models in relation to Mental Toughness in  
College Athletes

was approved by expedited review (Category 7 ) on 2/28/2018 (IRB # 17-117 ). Upon  
completion of this study, please submit the Inactivation Request Form within 30 days of study completion.

If you wish to make any changes to this study, including but not limited to changes in study personnel,  
number of participants recruited, changes to the consent form or process, and/or changes in overall  
methodology, please complete the Study Amendment Request Form.

If any problems develop with the study, including any unanticipated events that may change the risk profile  
of your study or if there were any unapproved changes in your protocol, please inform the Office of Research  
and Sponsored Programs and the IRB promptly using the Unanticipated Events/Noncompliance Form.

I wish you well with your work.

Sincerely,

*Megan Roth*

Megan Roth, Ph.D.  
Director of Research and Sponsored Programs

## APPENDIX B

### HEXACO-PI-R

1. I would be quite bored by a visit to an art gallery.
2. I plan ahead and organize things, to avoid scrambling at the last minute.
3. I rarely hold a grudge, even against people who have badly wronged me.
4. I feel reasonably satisfied with myself overall.
5. I would feel afraid if I had to travel in bad weather conditions.
6. I wouldn't use flattery to get a raise or promotion at work, even if I thought it would succeed.
7. I'm interested in learning about the history and politics of other countries.
8. I often push myself very hard when trying to achieve a goal.
9. People sometimes tell me that I am too critical of others.
10. I rarely express my opinions in group meetings.
11. I sometimes can't help worrying about little things.
12. If I knew that I could never get caught, I would be willing to steal a million dollars.
13. I would enjoy creating a work of art, such as a novel, a song, or a painting.
14. When working on something, I don't pay much attention to small details.
15. People sometimes tell me that I'm too stubborn.
16. I prefer jobs that involve active social interaction to those that involve working alone.

17. When I suffer from a painful experience, I need someone to make me feel comfortable.
18. Having a lot of money is not especially important to me.
19. I think that paying attention to radical ideas is a waste of time.
20. I make decisions based on the feeling of the moment rather than on careful thought.
21. People think of me as someone who has a quick temper.
22. On most days, I feel cheerful and optimistic.
23. I feel like crying when I see other people crying.
24. I think that I am entitled to more respect than the average person is.
25. If I had the opportunity, I would like to attend a classical music concert.
26. When working, I sometimes have difficulties due to being disorganized.
27. My attitude toward people who have treated me badly is “forgive and forget”.
28. I feel that I am an unpopular person.
29. When it comes to physical danger, I am very fearful.
30. If I want something from someone, I will laugh at that person's worst jokes.
31. I’ve never really enjoyed looking through an encyclopedia.
32. I do only the minimum amount of work needed to get by.
33. I tend to be lenient in judging other people.
34. In social situations, I’m usually the one who makes the first move.
35. I worry a lot less than most people do.
36. I would never accept a bribe, even if it were very large.
37. People have often told me that I have a good imagination.
38. I always try to be accurate in my work, even at the expense of time.



39. I am usually quite flexible in my opinions when people disagree with me.
40. The first thing that I always do in a new place is to make friends.
41. I can handle difficult situations without needing emotional support from anyone else.
42. I would get a lot of pleasure from owning expensive luxury goods.
43. I like people who have unconventional views.
44. I make a lot of mistakes because I don't think before I act.
45. Most people tend to get angry more quickly than I do.
46. Most people are more upbeat and dynamic than I generally am.
47. I feel strong emotions when someone close to me is going away for a long time.
48. I want people to know that I am an important person of high status.
49. I don't think of myself as the artistic or creative type.
50. People often call me a perfectionist.
51. Even when people make a lot of mistakes, I rarely say anything negative.
52. I sometimes feel that I am a worthless person.
53. Even in an emergency I wouldn't feel like panicking.
54. I wouldn't pretend to like someone just to get that person to do favors for me.
55. I find it boring to discuss philosophy.
56. I prefer to do whatever comes to mind, rather than stick to a plan.
57. When people tell me that I'm wrong, my first reaction is to argue with them.
58. When I'm in a group of people, I'm often the one who speaks on behalf of the group.
59. I remain unemotional even in situations where most people get very sentimental.
60. I'd be tempted to use counterfeit money, if I were sure I could get away with it.

## APPENDIX C

### Dirty Dozen

I tend to want others to admire me.

I tend to want others to pay attention to me. I tend to expect special favors from others.

I tend to seek prestige or status.

I tend to feel that things are owed to me.

I tend to try to be dominant in social situations. I tend to be grandiose or pompous.

I tend to feel that I am more special than others. I tend to feel that I am better than others.

I tend to have a sense of self-importance.

I tend to be egocentric.

I tend to lack remorse.

I tend to be callous or insensitive.

I tend to not be too concerned with morality or the morality of my actions.

I tend to be cynical.

I tend to get frustrated easily.

I tend to lose my temper quickly.

I have used deceit or lied to get my way.

I tend to manipulate others to get my way.

I have used flattery to get my way.

I tend to exploit others towards my own end.

I tend to have trouble understanding other people's feelings.

## APPENDIX D

### Comprehensive Assessment of Sadistic Tendencies

#### Direct - Verbal

1. I was purposely mean to some people in high school.
2. I enjoy making jokes at the expense of others.
3. I have purposely tricked someone and laughed when they looked foolish.
4. When making fun of someone, it is especially amusing if they realize what I'm doing.
5. Perhaps I shouldn't have, but I never got tired of mocking certain classmates.
6. I would never purposely humiliate someone. (R)

#### Direct - Physical

1. I enjoy physically hurting people.
2. I enjoy tormenting people.
3. I have the right to push certain people around.
4. I have dominated others using fear.
5. I enjoy hurting my partner during sex (or pretending to).

#### Vicarious

1. In video games, I like the realistic blood spurts.
2. I love to watch YouTube clips of people fighting.

3. I enjoy watching cage fighting (or MMA), where there is no escape.
4. I sometimes replay my favorite scenes from gory slasher films.
5. There's way too much violence in sports. (R)
6. I enjoy playing the villain in games and torturing other characters.
7. In professional car-racing, it's the accidents that I enjoy most.

Fillers can be intermixed to offset negativity:

I'm considered to be a kind person.

By staying strong, one can better help others.

I'd do anything – even break the law – for those I love.

I go out of my way to help family members.

I have ambitions to make the world a better place.

My goal is to be a missionary and help others.

I give money to poor people on the street.

I'm worried that we have already seriously damaged the Earth.

I want to spend my life helping sick children.

I have had some really good friends.

I am a religious person.

## APPENDIX E

### Mental Toughness Questionnaire

- 1) Even when under considerable pressure I usually remain calm 1 2 3 4  
5
- 2) I tend to worry about things well before they actually happen 1 2 3 4  
5
- 3) I usually find it hard to summon enthusiasm for the task I have to do 1 2 3  
4 5
- 4) I generally cope well with any problems that occur 1 2 3 4 5
- 5) I generally feel that I am a worthwhile person 1 2 3 4 5
- 6) "I just don't know where to begin" is a feeling I usually have when presented with  
several things to do at once 1 2 3 4 5
- 7) I usually speak my mind when I have something to say 1 2 3 4 5
- 8) When I make mistakes I usually let it worry me for days after 1 2 3 4  
5
- 9) In discussions, I tend to back-down even when I feel strongly about something  
1 2 3 4 5
- 10) I generally feel in control 1 2 3 4 5
- 11) I often wish my life was more predictable 1 2 3 4 5
- 12) When I am feeling tired I find it difficult to get going 1 2 3 4 5

- 13) I am generally able to react quickly when something unexpected happens 1 2  
3 4 5
- 14) However bad things are, I usually feel they will work out positively in the end 1  
2 3 4 5
- 15) I generally look on the bright side of life 1 2 3 4 5
- 16) I generally find it hard to relax 1 2 3 4 5
- 17) I usually find it difficult to make a mental effort when I am tired 1 2 3  
4 5
- 18) If I feel somebody is wrong, I am not afraid to argue with them 1 2 3  
4 5