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Dark Tetrad Responses to Moral Dilemmas

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DARK TETRAD RESPONSES TO MORAL DILEMMAS

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Abstract

The Dark Tetrad consists of four socially malevolent personality traits: psychopathy, sadism, narcissism, and Machiavellianism. The current study assessed the relationships among each dimension of the Dark Tetrad and moral decision making using sacrificial moral dilemma vignettes. Participants ($n = 212$ undergraduates) completed two measures of each of the four Dark Tetrad constructs then read a series of 16 sacrificial moral dilemma vignettes. These dilemmas manipulated whether the participant would personally perform the sacrifice and described either the disgusting or sad emotional consequences of the sacrifice. After each vignette, participants rated the moral rightness/wrongness, moral permissibility, and behavioral intention to sacrifice 1 person in order to save 5 people. Participants' ratings were not affected by the scenario's emotion, but they were all lower in scenarios involving personal versus impersonal sacrifices. Machiavellianism correlated with rating the sacrifice as morally permissible, $r(212) = .15$, $p = .030$. Psychopathy was additionally associated with being more willing to sacrifice someone, $r(212) = .14$, $p = .040$. Surprisingly, individuals who scored high in grandiose narcissism were more willing to sacrifice someone after vignettes that elicited disgust, $r(212) = .14$, $p = .046$, but not after vignettes that elicited sadness, $r(212) = .06$, $p = .380$, $F(1, 210) = 3.98$, $p = .047$. Sadism had no discernible relationships with any ratings. Overall, the results from this study indicate that the Dark Tetrad may be associated with grossly intact but more flexible moral reasoning and behavior.

Keywords: Dark Tetrad, psychopathy, sadism, narcissism, Machiavellianism, moral dilemmas, moral decision making, sacrificial moral dilemmas, utilitarianism, deontology, trolley dilemmas

Table of Contents

List of Tables

List of Figures

Chapter 1: Literature Review

The Dark Tetrad

The Dark Tetrad (Figure 1) consists of four socially malevolent personality traits: Machiavellianism, narcissism, psychopathy, and sadism. These traits are considered to be empirically distinct yet overlapping constructs that include self-promotion, aggressiveness, manipulation, exploitation of others, and a lack of empathy (Chabrol et al., 2009; Paulhus & Williams, 2002; Zeigler-Hill & Marcus, 2016). Prior to the inception of the Dark Tetrad, researchers studied the "Dark Triad" of personality which consisted of Machiavellianism, narcissism, and psychopathy (not sadism). As a unitary construct, the Dark Tetrad is represented by traits such as antagonism, egocentricity, dishonesty, aggressiveness, and a lack of empathy (Zeigler-Hill & Marcus, 2016).

The term Dark Triad was coined in 2002 by Paulhus and Williams. Researchers suggested adding sadism to the Dark Triad about seven years later (Chabrol et al., 2009). Despite the relatively amoral attitudes and behaviors entailed in each of the Dark Tetrad constructs, a limited amount of research has been conducted to assess the role that Dark Tetrad personality traits may play in moral decision making. Thus, this literature review elaborates upon both the content of measures that assess the features of each of the four Dark Tetrad traits and the studies that have linked these traits to moral decision making. A review of each construct of the Dark Tetrad as well as the self-report measures used to characterize the features of each construct is outlined below.

Machiavellianism. The origins of Machiavellianism date back to the early 16th century. The personality trait is based upon the philosophical and tactical recommendations for successful political rulers contained in the writings of Nicolo Machiavelli, a political advisor to the

Florentine Medici family (Furnham et al., 2013; Paulhus & Williams, 2002). Machiavellianism is often described as "the manipulative personality" consisting of traits such as the exploitation of others, a cynical disregard for morality, the use of strategic manipulation, and a focus on self-interest and deception. It entails interpersonal behaviors such as flattery and lying in order to gain prestige and success (Christie & Geis, 1970; Jones & Paulhus, 2009). The goal of the manipulation of others in Machiavellian behavior is often for personal gain, despite the harm that it may cause to others that are involved (Christie & Geis, 1970; Gu et al., 2017).

The Mach-IV is the most commonly used Machiavellianism scale in both Dark Tetrad and Machiavellianism research literature (Chabrol et al., 2009; Christie & Geis, 1970). The Mach-IV is a 20-item self-report measure that was modeled after the statements in Machiavelli's 16th century writings (*The Prince & The Discourses*). Initial testing of the Machiavellian scale indicated a positive correlation between respondents who were in agreement with Machiavelli's statements and the ability to successfully manipulate others. The Mach-IV includes three sub-scales: interpersonal tactics (Tactics), cynical views of human nature (Views), and a disregard for conventional morality (Morality; Christie & Geis, 1970). Nevertheless, opponents of the Mach-IV have reported inconsistent reliabilities and an indeterminate factor structure with some exploratory analysis resulting in up to 9 factors (Gu et al., 2017; Miller, Nicols, & Konopaske, 2019; Miller, Smart, & Rechner, 2015).

The Machiavellian Personality Scale (MPS; Dahling, Whitaker, & Levy, 2009) was developed as a response to the Mach-IV to assess contemporary traits of Machiavellianism including a distrust of others, a willingness to engage in amoral manipulation, a desire for control over others in interpersonal situations, and a desire to accumulate status for oneself. Reviews indicate that both Machiavellian measures are most reliable as unitary dimensions due to

unreliable subscales (Miller et al., 2015). In comparison to the MACH-IV, the MPS has been shown to have more predictive power in assessing sensitivity to reward; however, limited research has been published that directly compares the MACH-IV and the MPS (Birkás et al., 2015; Paulhus & Jones, 2015).

Narcissism. Narcissism has a more complex structure than Machiavellianism. The concept of Narcissism originated in the story of Narcissus and Echo from Greek mythology (Kubarych et al., 2004). Narcissism first appeared in psychological literature in 1898 in the writing of Havelock Ellis who defined the term narcissuslike as "a tendency for the sexual emotions to be lost and almost entirely absorbed in self-admiration" (Raskin & Terry, 1988). Between 1914 and 1975, key figures in psychology such as Sigmund Freud and Otto Kernberg published studies that further elaborated upon the concept of narcissism (Freud, 1914; Kernberg, 1975). Of note, Freud's writings indicated that he believed that narcissism was the source of energy that led to the development of the ego (Freud, 1914). Pathological narcissism is exemplified by impairment in self-regulation (including emotions and behaviors) driven by the need to be recognized and admired by others (Pincus et al., 2014).

The study of subclinical narcissism accelerated in 1979 with the advent of Raskin & Hall's self-report Narcissistic Personality Inventory (NPI). The NPI has several variations but is most commonly administered as a 40-item forced choice response inventory that measures the grandiose dimensions of narcissism as defined by the DSM-III diagnosis of Narcissistic Personality Disorder (NPD). The construct of grandiose narcissism is based on the DSM-III to DSM-5 definition of NPD. Characteristics of grandiose narcissism include overt grandiosity, having a need for admiration, arrogance, a sense of superiority, exploitation of others, feelings of entitlement, and a lack of empathy (American Psychiatric Association, 1987a; Chabrol et al.,

2009; Southard et al., 2015). Despite an inconsistent factor structure, the NPI-40 is consistently the most widely used measure in Narcissism research.

As a measure of grandiose narcissism defined by the DSM-III, the NPI-40 fails to address the entirety of the narcissism construct by measuring narcissism as a global construct rather than discerning each of the underlying facets of personality that comprise narcissism. Of note, the NPI-40 also does not report upon traits of vulnerable narcissism. Vulnerable narcissism differs from grandiose narcissism due to traits such as heightened feelings of shame, envy, and helplessness in addition to standard traits of pathological narcissism such as a heightened need for admiration (Dickinson & Pincus, 2003; Pincus et al., 2014; Southard et al., 2015).

In comparison to the NPI-40, the Five-Factor Narcissism Inventory Short Form (FFNI-SF; Sherman et al., 2015) measures both vulnerable and grandiose dimensions of Narcissism and was used in addition to the NPI-40 in this study. The FFNI-SF is primarily based on the Five Factor Model (FFM) conceptualization of Narcissism rather than DSM diagnostic criteria (Glover et al., 2012; Sherman et al., 2015). The five factors of the FFM are Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience (Costa et al., 1991). Individuals who scored high in grandiose narcissism on the FFNI-SF exhibited low levels of Openness ($r = -.24$) and low levels of Agreeableness ($r = -.64$) within the FFM. In contrast, individuals who scored high in vulnerable narcissism on the FFN-SF exhibited high levels of Neuroticism ($r = .69$) and low levels of Extraversion ($r = -.27$), Agreeableness ($r = -.30$), and Conscientiousness ($r = -.22$; Sherman et al., 2015). For this study, only the grandiose variants of the FFNI-SF were assessed because Dark Tetrad research focuses primarily on grandiose narcissism and not vulnerable variants of narcissism.

Psychopathy. Psychopathy's structure is perhaps the most complicated of the Dark Tetrad constructs. It is a personality disorder characterized by antisocial behavior, fearlessness, dominance, and both interpersonal and emotional detachment (Benning et al., 2005). Traits of psychopathy include callousness, low levels of empathy, high levels of erratic behavior, and interpersonal manipulation (Hare, 1985; Southard et al., 2015). Dark Triad research often pronounces that psychopathy should be considered the most malevolent of the three personality traits and that individuals with these traits may lack a conscience (Cleckley, 1988; Furnham et al., 2013). The two-factor model of psychopathy is based on the Psychopathy Checklist (PCL and the PCL-R) and posits that psychopathy consists of two dimensions (Hare, 2003). Traits of Factor 1 psychopathy include grandiosity, lying, lack of remorse, and guiltlessness which reflect the interpersonal and emotional components of the disorder. Traits of Factor 2 psychopathy include impulsivity and early behavior problems which are described as the socially deviant aspects of the disorder (Hare, 2003).

Exploratory factor analysis of the Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996) resulted in the Dual Process Model of psychopathy which indicates that psychopathy is not a unitary construct but rather consists of two orthogonal dimensions: fearless dominance and impulsive antisociality (Benning et al., 2003, 2005). Fearless dominance (FD) consists of 3 subscales of the PPI: social potency, fearlessness, and stress immunity. Traits of FD include interpersonal features such as glibness, grandiosity, deceitfulness, and manipulativeness; in addition to, low stress reaction, low harm avoidance, reduced fears, and reduced anxiety. In comparison, impulsive antisociality (IA) consists of the following subscales: Machiavellian egocentricity, impulsive nonconformity, carefree non planfulness, and blame externalization. IA is associated with PCL-R Factor 2 of psychopathy, impulsivity, aggression, antisocial behavior,

substance abuse, low socialization, and interpersonal alienation (Benning et al., 2005).

Additional research assessing the construct of IA referred to IA as "Self-Centered Impulsivity"

(SCI; Lilienfeld & Widows, 2005).

The Self-Report Psychopathy Scale-III (SRP-III Paulhus, Neumann, & Hare, 2009) is

modeled after the PCL-R and measures four subscales of psychopathic traits: callous affect,

interpersonal manipulation, erratic lifestyle, and criminal tendencies. PCL-R Factor 1 is

conceptualized as the core of the Dark Tetrad which is also represented by the SRP-III scales of

callous affect and interpersonal manipulation. The Triarchic Psychopathy Measure (TriPM

Patrick, Fowles, & Krueger, 2009) measures three distinct phenotypic constructs of psychopathy

in non-forensic samples: disinhibition, boldness, and meanness. Meanness and disinhibition are

most closely related to the SRP-III scales (Drislane et al., 2014).

Sadism. The newest member of the Dark Tetrad, sadism is defined as the "tendency to

engage in or to think about engaging in cruel, demeaning, or aggressive behaviors for pleasure or

subjugation" (Plouffe et al., 2017, p. 167) and is often referred to as everyday sadism due to its

subclinical designation (Paulhus & Dutton, 2016). Everyday sadism should not be confused with

sexual sadism (a paraphilia in the DSM-5) as the form of sadism researched in the Dark Tetrad is

not based in sexual desires or sadomasochism (American Psychiatric Association, 2013; Paulhus

& Dutton, 2016). Although the roots of sadism have been clinical in nature, Sadistic Personality

Disorder has not been included in the DSM since its first appearance under the 1987 DSM-III-R

category of disorders needing further study (American Psychiatric Association, 1987b). The

construct of non-sexual sadism has been removed from subsequent DSM editions due to a lack

of empirical studies supporting the validity of the diagnosis; however, non-sexual sadism

continues to be studied as a subclinical personality trait (Myers et al., 2006). Examples of

everyday sadism include violent films, internet trolls, and violent sports such as cage fighting and hockey (Paulhus & Dutton, 2016). Sadism correlated with other Dark Tetrad traits from .24 to .69 (Book et al., 2016).

The introduction of sadism to the Dark Tetrad occurred as a result of the development of viable everyday sadism measures. The Comprehensive Assessment of Sadistic Tendencies (CAST) scale (Buckels et al., 2013) assesses direct physical, direct verbal, and vicarious forms of everyday sadism. Research indicates that men tend to score higher than women on vicarious and physical forms of sadism; whereas, women score equally as high as men on the subscale of verbal sadism (Paulhus & Dutton, 2016). Elevated CAST scores have predicted reports of dominance via threats (including partner abuse), fire setting, vandalism, and animal abuse (Paulhus & Dutton, 2016). The Assessment of Sadistic Personality (ASP) scale (Plouffe et al., 2017) was developed to be used as an additive measure to the Short Dark Triad scale (SD3; Daniel N. Jones & Paulhus, 2014) and measures three subscales of everyday sadism: subjugation, pleasure-seeking, unempathetic traits (Plouffe et al., 2017). The ASP expands the definition of sadism beyond that of the CAST to include the trait of subjugation defined as "behaving in an overbearing manner toward others and showing absolute disregard for the other's need" (O'Meara et al., 2011; Plouffe et al., 2017).

Relationships among Dark Tetrad Members and Key Personality Dimensions

Narcissism, Machiavellianism, and psychopathy intercorrelate to varying degrees. In an initial study, Paulhus & Williams (2002) found that psychopathy and narcissism correlated .50, psychopathy and Machiavellianism .31, and narcissism and Machiavellianism .25. These results indicate that the correlation of psychopathy with both Machiavellianism and narcissism are stronger than the correlations between narcissism and Machiavellianism. These strong

psychopathy results have led some researchers to posit that a factor of psychopathy may be the core feature of dark personalities. The correlations also support the notion that these traits should be measured individually while also as a group construct. Lastly, gender differences seem to exist amongst the three traits as males consistently score higher on all three Dark Triad traits (Furnham et al., 2013; Paulhus & Williams, 2002).

Most recently, several studies have concluded that what makes a personality dark is the interplay of callousness and manipulation otherwise known as PCL-R Factor 1 of psychopathy (Bertl et al., 2017; Daniel Nelson Jones & Figueredo, 2013; Marcus et al., 2018). Researchers posit that in order for a personality to be considered dark, the traits of callousness (such as a lack of concern for others) and manipulation (such as dishonesty) must be present in order for a person to be able to intentionally act in a malicious manner (Daniel Nelson Jones & Figueredo, 2013).

Normal-Range Personality Dimensions and the Dark Tetrad

The Dark Triad and Tetrad have been mapped onto several different models of personality in order to assess the core features, similarities, and differences amongst the traits. The Big Five model of personality also known as the Five-Factor Model (FFM) is derived from the Revised NEO Personality Inventory (NEO PI-R; Costa et al., 1991) and based on the lexical hypothesis of personality which posits that natural language encodes all relevant dimensions of personality (McCrae & John, 1992). Dark Triad research has resulted in negative correlations with FFM Agreeableness: narcissism $r = -.36$, psychopathy $r = -.47$, and Machiavellianism $r = -.25$ (Jakobwitz & Egan, 2006; Paulhus & Williams, 2002). However, additional studies have not been able to replicate these results due to no discernible Narcissism correlations with Agreeableness ($r = -.04$; Lee & Ashton, 2005). Narcissism has also been shown to discernibly

correlate with FFM Extraversion ($r = .46$; Lee & Ashton, 2005). There is a lack of research between the Dark Tetrad and the FFM, but sadism research has resulted in negative correlations with FFM agreeableness as well ($r = -.24$; Buckels et al., 2013).

The HEXACO model is also the result of lexical studies of personality and consists of six factors: Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness to Experience (Lee & Ashton, 2004). Five of the six HEXACO factors have been shown to have FFM counterparts, but the Honesty-Humility (HH) factor is a unique variant that is not addressed by the FFM. The HH dimension is defined by "honesty, fairness, sincerity, modesty, and a lack of greed" (Lee & Ashton, 2004). Dark Triad research indicates that dark personalities have strong negative correlations with the HEXACO HH facet: Psychopathy $r = -.72$, Machiavellianism $r = -.57$, and Narcissism $r = -.53$ (Lee & Ashton, 2004). Narcissism has also shown strong positive correlations with HEXACO Extraversion ($r = .49$ and $r = .53$; Lee & Ashton, 2005; Book et al., 2016). Furthermore, Dark Tetrad research has resulted in negative correlations with the HH factor psychopathy $r = -.38$, Machiavellianism $r = -.54$, narcissism $r = -.33$, and sadism $r = -.29$ (Book et al., 2016).

The Interpersonal Circumplex (IPC; Leary, 1957), provides a visual representation of interpersonal traits and behaviors on a circular dimension primarily defined by two orthogonal axes (Agency and Communion). Agency in the IPC has been defined as a striving for autonomy and superiority, and communion is exemplified by connecting with and helping others (Furnham et al., 2013). All three Dark Tetrad traits have been shown to be associated with high agency and low communion, which places them in Quadrant II of the IPC (Furnham et al., 2013; Jones & Paulhus, 2011). Individuals who score high in Quadrant II are often characterized as callous, manipulative, arrogant, and calculating (Jones & Paulhus, 2011). Psychopathy has been shown to

differ within the IPC compared to other Dark Triad traits due to high scores in impulsivity. Narcissism has been shown to differ due to high scores of superior identities otherwise described as self-enhancement (Furnham et al., 2013). There is a paucity of research that assesses the placement of sadism within the IPC; however, research has suggested that sadism may also lay within Quadrant II based on PID-5-BF variables (Southard et al., 2015).

Moral Decision Making

  Sacrificial moral dilemmas. To ascertain the role that dark personality traits play in moral decision making, assessments of Dark Tetrad personality constructs were paired with sacrificial moral dilemmas. Foot (1967) initially used sacrificial moral dilemmas to explain how Catholics utilized the doctrine of double effect to rationalize their views that abortion should not occur, despite its potential benefit to the mother. Foot (1967) defined the doctrine of double effect as the two results that an action may produce: the one that is the desired result and the result that is foreseen but not desired. Foot purported that the contemplation of the doctrine of double effect is used in order to discern whether individuals are for or against abortion by contemplating whether the fetus should have human status or not. To further explicate the concept of the doctrine of double effect, Foot elaborated upon a plethora of sacrificial moral dilemmas. One such dilemma, later be referred to as the "Trolley Problem" describes a scenario in which a runaway trolley is about to run over and kill five people (Foot, 1967; Thomson, 1976, 1985).

  The Trolley Problem is often parsed into two variations; the Switch Dilemma and the Footbridge Dilemma. In the Switch Dilemma variation of the Trolley Problem, a bystander sees what is happening and has the option to pull a switch that will divert the trolley onto a side-track where the trolley will hit and kill one person. Pulling the switch will stop the trolley from killing

10

five people on the main track. The Footbridge Dilemma variation (sometimes referred to as the Fat Man Dilemma) gives the bystander the option to save the same five people by pushing a very large person off a footbridge above the tracks and onto the path of the runaway trolley. The person would die in the process, but their body would stop the runaway trolley from killing the five people. The main philosophical conundrum in both the Switch and Footbridge Dilemmas is whether the bystander should intervene and kill one in order to save the five. Research indicates that most respondents report that they approve of pulling the switch in the Switch Dilemma but do not approve of personally pushing the large person in the Footbridge Dilemma (Cushman, Young, & Hauser, 2006; Greene, 2001; Greene et al., 2009; Petrinovich, O'Neill, & Jorgensen, 1993; Thomson, 1985).

Research that has elaborated upon the original Trolley Problem, has been expanded to assess participant responses to a variation of "sacrificial moral dilemmas." Theories behind sacrificial moral dilemmas distinguish between utilitarian and deontological concepts of morality to explain the differences in responses to different types of sacrificial dilemmas (Greene, 2009). Utilitarianism is defined by the concept that humans should act in a manner that will produce the most good for the most people. In sacrificial moral dilemmas, utilitarianism is reflected by the choice to sacrifice one in order to save five. Deontology is defined by the concept that individuals have principles that cannot be violated (such as one must not kill) and is represented by the choice to let the five die by not intervening (Greene et al., 2009; Kahane et al., 2018).

These sacrificial dilemmas also allow researchers to investigate the Harm/care dimension of morality. Morality comprises five separate foundations of concerns: Harm/care, Fairness/reciprocity, Ingroup/loyalty, Authority/respect, and Purity/sanctity (Graham et al., 2011). Of these five domains of moral foundations, Harm/care and Fairness/reciprocity are

considered "individualizing" foundations of morality, as they entail the focus of protecting an individual's rights rather than the protection of group norms. Within the individualizing foundation, the Harm/care dimension is most applicable to sacrificial moral dilemmas, as it entails harming and doing violence to another person. The utilitarian option in sacrificial moral dilemmas minimizes the harm done to others by sacrificing one person in order to safe five. The Fairness/reciprocity dimension comprises concerns about whether other individuals are treated dissimilarly or denied rights, which would occur in either option in sacrificial dilemmas. The other moral foundations (Ingroup/loyalty, Authority/respect, and Purity/sanctity) are referred to as "binding" foundations because they are based in group cohesiveness rather than individual concerns. Sacrificial moral dilemmas typically do not address binding moral foundations because the dilemmas typically describe unnamed and unranked people that are unfamiliar to the "bystander" in the dilemmas (Graham et al., 2011). Nevertheless, in the sacrificial dilemmas created for this study, some variations (sadness conditions) include vignettes wherein the bystander is familiar with the individuals who are at risk of dying.

Personal versus impersonal sacrificial behavior. People may adopt a more deontological or utilitarian response style by whether they are prompted to imagine personally harming individuals or instead are prompted to imagine causing harm in an impersonal manner. Personal moral dilemmas are exemplified by using "personal force" to push the large man off the footbridge in the Footbridge Dilemma. Personal force has been defined as "the force that directly impacts the other is generated by the agent's muscles, as when one pushes another with one's hands or with a rigid object" (Greene et al., 2009, p. 5). Impersonal moral dilemmas are exemplified by pulling the switch to divert the trolley in the Switch Dilemma. Thus, the bystander indirectly diverts the trolley without using personal force (Cushman, Young, &

Hauser, 2006; Greene, 2001; Greene et al., 2009; Petrinovich, O'Neill, & Jorgensen, 1993; Thomson, 1985).

Personal moral dilemmas have been shown to be associated with increased activation in brain regions associated with social cognition and emotion processing (medial prefrontal cortex, posterior cingulate, and superior temporal sulcus). In comparison, impersonal moral dilemmas have been shown to be associated with cognitive processing and increased activation in the parietal lobe and dorsolateral prefrontal cortex, two regions that have been shown to be involved in problem solving and abstract reasoning (Greene et al., 2001, 2004; Greene & Haidt, 2002). Additional studies indicate that personal dilemmas that used personal force to sacrifice the victim were viewed as less morally acceptable than scenarios that did not require personal force. Physical contact and spatial proximity to the victim has been shown to have no effect on how morally right or wrong participants viewed the scenarios (Greene et al., 2009). Thus, the distinction between the personal and impersonal versions of the Trolley Problem lies in the direct versus indirect application of personal force that results in the sacrifice.

Emotions in sacrificial moral decision making. It is unclear precisely which emotions might undergird the differential reactivity to personal and impersonal scenarios. One candidate might be the disgust or revulsion people may feel at the aftermath of the person's death in sacrificial dilemmas (e.g., the blood, viscera, and other body parts). Disgust is an emotion that evolved to protect humans from noxious substances, offensive food sources, and disease (Olatunji et al., 2008; Pizarro et al., 2011). Disgust research indicates that there are three main types of disgust: core, contamination, and animal reminder (Olatunji et al., 2008). Core disgust is elicited by vomit and scenes of acute consumption of vile materials that represent an immediate survival threat to an organism. Contamination disgust is elicited by depictions of rotting food,

toilets, garbage, or other putrescent scenes that could lead to illness if they were to be consumed. Animal reminder disgust is elicited by blood, viscera, or other "inner workings" of the mortal (human) animal (Olatunji et al., 2008). Because sacrificial moral dilemmas entail mortality of some of the participants rather than digestive illness or other kinds of contamination; the dilemmas created for this study reference bloody, mutilated, and injured people to elicit animal reminder disgust. All three types of disgust have been shown to be correlated with neuroticism and behavioral inhibition. Within the domain of Dark Tetrad research, animal reminder disgust negatively predicts everyday sadism (Meere & Egan, 2017). In contrast, overall disgust sensitivity is negatively associated with physical and verbal aggression. These findings suggest that individuals high in disgust sensitivity may be less likely to be willing to harm others in sacrificial moral dilemmas, especially in the personal condition (Pond et al., 2012).

One prominent study tested whether inducing disgust would alter moral judgments (Schnall et al., 2008). Whether elicited by a noxious odor or videos played before vignettes, the experience of disgust was positively correlated with heightened levels of moral condemnation of moral dilemma vignettes in comparison to control conditions. Furthermore, video clips that induced sadness did not result in heightened levels of moral condemnation of actions. Another prominent disgust study reported that perceptions of taste (sweet, bitter, or neutral) affected participant's responses to moral dilemmas vignettes. Specifically, when participants ($N = 57$) consumed a bitter liquid (defined as disgusting in the study), they rated moral dilemmas vignettes as more "morally wrong" than in other conditions (Eskine et al., 2011).

Nevertheless, a 2016 replication study of Schnall et al. (2008) found that written disgust manipulations did not relate to participants rating moral dilemmas more harshly (Johnson et al., 2016). The replication study used a larger sample size ($N = 1,412$ in comparison to 478) and

reported that individuals high in Private Body Consciousness did not rate moral dilemmas more harshly during a disgust inducing writing task. Furthermore, disgust manipulations were not moderated by the participant's accessibility to their current mood state, which also contradicted the original study's findings (Johnson et al., 2016; Schnall et al., 2008). Likewise, a meta-analysis of 11 replication studies of Eskine et al. (2011) reported that taste perceptions (a form of physical disgust) were not related to heightened levels of moral condemnation in response to moral dilemma vignettes (Ghelfi et al., n.d.). As a result, manipulating participants' levels of disgust outside the moral dilemmas themselves may not be effective in altering their moral reasoning. However, whether manipulating disgust cues in the scenarios themselves (e.g., including descriptions of body parts or viscera in the scenario to elicit animal reminder disgust) has effects on moral decision making has yet to be investigated.

Another emotion that may be elicited in response to sacrificial dilemmas is the sadness people may feel in response to the loss of interpersonal connection they cause when allowing or forcing another person to die. This specific type of sadness is based in response to communal loss rather than general unhappiness that may be the result of life stressors. In contrast to the disgust-moral decision literature, the literature examining sadness's relationships with moral decision making is scarce. Previous research has indicated that disgust increases the perception of condemnation in response to non-sacrificial moral dilemmas; whereas, sadness did not elicit increased feelings of condemnation in response to the dilemmas (Schnall et al., 2008). However, the effects of manipulating sadness cues in the moral dilemmas themselves (e.g., by describing the nature of the interpersonal bonds being ruptured through the sacrifice described in the vignette) have yet to be tested.

Responses to moral dilemmas. Early moral dilemma studies included the presentation of moral dilemma vignettes followed by prompts that asked participants whether they believed the action they were prompted to perform was "appropriate" or "inappropriate" given the scenario. An example of a personal condition was the original Footbridge Dilemma, wherein the participant was asked to imagine personally touching the man to push him off the footbridge. An example of an impersonal condition was pulling a lever to divert the trolley, thus causing change in an impersonal manner. Results indicated longer reaction times when participants labeled personal conditions as "appropriate." Researchers purported that labeling personal moral dilemma vignettes as "appropriate" was an emotionally incongruent experience for the participants. An evaluation of participant response time also indicated longer reaction times for personal conditions in comparison to impersonal conditions. Overall, these results suggested that participants were experiencing increased emotional engagement when responding to personal vignettes (Greene et al., 2001).

Opponents of the appropriate/ inappropriate phrasing (sometimes phrased as permissible/ impermissible) reported that the use of this phrasing was too ambiguous. Researchers claimed that the use of "appropriate" did not indicate whether the participant viewed the action as "required" and did not clarify whether the participant viewed the alternative vignette response option to also be appropriate (Kahane & Shackel, 2010). In order to resolve this critique, researchers have suggested that participants should be asked both whether an act is "morally wrong" and whether the act was "permissible" (Kahane & Shackel, 2010). To rate an act as "morally wrong" equates to defining the act as forbidden. Defining an act as "morally right" equates to defining the act as obligatory. In comparison, rating an act as "permissible" defines the act as allowable, even if it is not morally required.

These kinds of moral judgments and stated behavioral moral behavioral intentions are related but not isomorphic. Studies of ethical judgements aim to assess the moral foundations that participants align with, whereas behavioral intention studies assess whether participants intend to act upon their moral judgements. It is unclear whether responses to hypothetical moral dilemmas are predictive of behavioral intentions in real-life moral dilemmas. In some studies, ethical beliefs and behavioral intentions align in moral scenarios but not in scenarios that do not require moral reasoning (e.g., Bass, Barnett, & Brown, 1999). In others, utilitarian responses to sacrificial dilemmas do not relate to real-world ethical judgments (e.g., Kahane, Everett, Earp, Farias, & Savulescu, 2015). Consequently, it was important to collect ratings of moral wrongness in addition to judgments of whether a person would actually enact the sacrificial option in moral dilemmas.

Real life behavioral intention. There is debate as to whether responses to moral dilemma vignettes are actually predictive of behavior that individuals would enact if faced with real life moral dilemmas (Bostyn et al., 2018). A study using live mice in an in vivo experiment reported that hypothetical moral dilemma responses were not predictive of real-life responses to a moral dilemma scenario. In this study, participants viewed two cages of mice hooked up to an electroshock machine, and participants were told that the shock machine was setup to deliver a painful (but nonlethal) electroshock to the cage containing five mice. The electroshock machine was on a 20 second timer and participants were told that if they pressed a button, the shock would be delivered to the cage containing one mouse instead of the cage containing five mice. No actual shocks were administered to the mice in this experiment. Participants in this experiment ($n = 292$) were more than twice as likely to make a utilitarian decision in response to a written hypothetical moral dilemma (34%) than they were in the in vivo mice experiment

(17%). Furthermore, their willingness to shock the actual mouse was not related to their preference for utilitarian decisions in a series of traditional moral dilemmas that did not involve shocking mice.

Dark Tetrad and Moral Decision Making

A limited number of studies have assessed how personality traits of the Dark Tetrad predict behavioral intentions in sacrificial moral dilemmas. The Dark Tetrad (as a unitary construct) predicts utilitarian responses to both personal ($R^2 = 0.05$, $p = 0.001$) and impersonal ($R^2 = 0.03$, $p = 0.05$) sacrificial dilemma behavioral intentions (Karandikar et al., 2019). Nevertheless, Sadism did not predict utilitarian responses to either personal or impersonal moral dilemmas beyond the other three components of the Dark Tetrad. Furthermore, men scored higher than women in Dark Tetrad traits and tended to respond in a utilitarian manner to personal dilemmas; however, men did not respond in a utilitarian manner to impersonal dilemmas. In comparison, women scored higher in individualizing moral foundations (Karandikar et al., 2019). High scores in psychopathy and Machiavellianism have been shown to predict utilitarian behavioral intentions to sacrificial moral dilemmas in subclinical populations (Bartels & Pizarro, 2011; Djeriouat & Trémolière, 2014). In contrast, narcissism has not been shown to be a discernible contributor to either deontological or utilitarian responses (Djeriouat & Trémolière, 2014; Karandikar et al., 2019).

As a personality construct, psychopathy is often characterized by a distinct lack of morality (Cleckley, 1988). Individuals who score high in traits of psychopathy also tend to have emotional deficits in empathy and guilt (Blair, 2007). For this reason, some individuals have posited that psychopaths should be eligible for the insanity defense; however, the current U.S. legal system does not support this notion and does not excuse individuals with psychopathy

"because they do not misunderstand their circumstances" (Stern, 2012). Furthermore, individuals who score high in psychopathy may utilize more utilitarian moral reasoning due to their emotional deficits (Blair, 2007). This notion has been supported by research studies that have shown that self-reported psychopathy (and Machiavellianism) predicted utilitarian responses to sacrificial moral dilemmas (Bartels & Pizarro, 2011). In addition, a study that assessed the difference between low-anxious and high-anxious psychopaths, reported that incarcerated individuals tended to respond in a more utilitarian manner to impersonal moral dilemmas but not personal moral dilemmas (Koenigs et al., 2012). Nevertheless, multiple studies have shown no relationship between psychopathy and moral decision making; samples included French university students, American community members, psychopathic offenders, and non-psychopathic control groups (Cima et al., 2010; Glenn et al., 2009; Tassy et al., 2013).

Moral decision-making research has been used to gain further insight into the relationship between moral judgement and psychopathy. A meta-analysis assessing the relationship between psychopathy and moral dilemma responses ($k = 23$, $N = 4376$; Marshall, Watts, & Lilienfeld, 2018) found that psychopathy related to greater endorsement of the sacrificial option when pooled across personal and impersonal dilemmas ($r = .26$, $p < .001$, $k = 7$). Effects were not statistically discernible for impersonal ($r = .09$, $p = .05$, $k = 7$) or personal dilemmas ($r = .06$, $p = .40$, $k = 11$) when analyzed separately. Furthermore, sacrificial moral dilemmas resulted in discernible heterogeneity in effects across psychopathy measures ($Q(6) = 25.07$, $p < .001$). Thus, the effects of psychopathy on moral decision making are relatively small, though larger effects may be revealed if psychopathy is decomposed into its constituent facets (Marshall et al., 2018).

Studies of moral decision making are also prevalent within the field of business ethics. Similar to psychopathy, Machiavellianism is often defined by to immoral behaviors (Christie &

Geis, 1970). In a study of business ethics, individuals who scored high in Machiavellianism reported high levels of behavioral intention to unethical selling scenarios (Bass et al., 1999). Nevertheless, Machiavellianism was not related to consistent unethical judgements in this same study (Bass et al., 1999). A more recent business study reported that the "amoral manipulation" facet of Machiavellianism was related to unethical pro-organizational behaviors (UPB; Castille, Buckner, & Thoroughgood, 2018). Additionally, Machiavellianism has been reported to be negatively related to both moral reasoning and authentic leadership in business ethics (Sendjaya et al., 2016).

Sadism, the newest member of the Dark Tetrad, has contributed to unique insights in moral decision making. Individuals who score high in traits of sadism have been shown to be willing to work towards the goal of hurting another person (Greene et al., 2001). For each hypothetical moral dilemma in a 2016 study, participants responded to a 7-point Likert-type scale (1 Not at all, to 7 Totally) in response to how much they believed that "(1) the action was morally wrong, (2) the agent should feel guilty, and (3) the agent should be punished." The results from this study indicated that individuals who score high in sadism may actively respond in a utilitarian manner based on their appetitive desire to inflict harm (Trémolière & Djeriouat, 2016).

Chapter 2: Current Study

A review of the aforementioned literature in Chapter 1 of this thesis led to the generation of this research study and hypothesis. Self-report measures for each of the traits of the Dark Tetrad were selected based upon this literature review and programmed into Qualtrics (an online survey software). Sixteen sacrificial moral dilemmas were then written based upon the original Trolley Problems and the Greene sacrificial vignettes (Foot, 1967; Greene, 2009; Greene et al., 2001). Core prompts for each of the 16 vignettes were written in addition to variations in the type (impersonal/personal) of sacrificial dilemma and emotion (sadness/ disgust) targeted in each dilemma (See Appendix B). The personal versus impersonal causation of harm in sacrificial dilemmas derived from literature suggesting this manipulation impacted a wide range of moral decisions (Cushman et al., 2006; Greene et al., 2001, 2009). The emotion conditions were created after considering which emotional deficits are likely across Dark Tetrad traits that may influence moral decision making: sadness and disgust. In sacrificial dilemmas, the kinds of deaths the people involved are described to suffer entail various levels of gore and mutilation, which I predicted would elicit animal reminder disgust. In contrast, I predicted that the rending of interpersonal bonds inherent in sacrificial dilemmas would elicit feelings of sadness. Previous studies have assessed how disgust affects moral decision making, but there was a paucity of literature on the role of sadness in moral decision making.

A review of response choices for previous sacrificial vignette studies led to the selection of the three primary dependent variables for this study (Bass et al., 1999; Greene et al., 2001; Kahane et al., 2015; Kahane & Shackel, 2010). Following each vignette presentation, each participant was asked to respond to the following three questions on a 6-point Likert type response scale: "In this situation is it morally right or wrong to sacrifice 1 person to save 5

people?"; "In this situation is it permissible to sacrifice 1 person to save 5 people?"; and lastly "In this situation would you sacrifice 1 person to save 5 people?"

In summation, the current study sought to examine the associations between moral decision-making, emotion, and Dark Tetrad personality traits in a subclinical population. Moral dilemma vignettes were developed to assess whether participants would hypothetically sacrifice 1 person in order to save 5 people. Personal dilemmas required participants to imagine exerting personal force upon the individuals in the dilemma that will be sacrificed. Conversely, impersonal dilemmas did not require the participants to imagine directly interacting with the individuals who would be sacrificed. Sadness conditions aimed to elicit feelings of sadness in the participant and Disgust conditions aimed to elicit feelings of animal reminder disgust.

Hypotheses

As shown in Table 1, I predicted a pattern of results that would indicate that psychopathy would be the strongest predictor out of all four Dark Tetrad personality traits. This hypothesis is based on previous literature that indicates that PCL-R Factor 1 (callous affect and interpersonal manipulation) is conceptualized as the core feature of the Dark Triad (Hare, 2003; Jones & Figueredo, 2013). I believed that within the Dark Tetrad, the lack of empathy commonly expressed in individuals who score high in traits of psychopathy would be the driving force behind elevated Dark Tetrad total scores (Paulhus, 2014) thus causing psychopathy to be the strongest predictor out of all of the traits. Additionally, I believed that psychopathy would specifically have a stronger relationship with the dependent variables in the personal condition (in comparison to the impersonal condition). I predicted that Machiavellianism will be positively correlated with both moral permissibility of the sacrificial decision and a behavioral intention to sacrifice one to save five. I also hypothesized that Machiavellianism would not be correlated

22

with any main effects or two-way interactions. I hypothesized that there would not be relationships between any dependent variable and grandiose narcissism because these moral decisions do not reflect concerns related to grandiose narcissism such as status or self-regard.

I expected unique contributions by sadism as the newest member of the Dark Tetrad. I predicted that there would be a positive relationship between sadism and behavioral intention; however, there would not be any discernible relationship between sadism and moral acceptability, and those two relationships would discernibly differ from each other. I also predicted a sadism x im/personal interaction effect on the behavioral intention such that the sadism-behavioral intention relationship would be stronger in the personal condition compared to the impersonal condition. I predicted that there may be an interaction effect between sadism and the emotional condition such that sadism would be more strongly related to behavioral intentions in the disgust condition than in the sadness condition.

Chapter 3: Method

Participants

    A power analysis indicated a total of 205 participants were needed to detect a population correlation of |.23| with a Sidak-corrected initial alpha level of .0127 (to maintain a nominal alpha level of .05 accounting for the four Dark Tetrad constructs) and a power of 0.80. Participants consisted of a convenience sample of 212 undergraduate students (58.8% cis women, 39.2% cis men, 2.0% nonbinary) from the University of Nevada, Las Vegas (UNLV) online Sona system. The Sona system allowed students to sign up for research credits online in order to meet requirements for their undergraduate psychology courses. A total of 228 participants completed this in-person study. However, 10 participants were excluded due to missing Qualtrics data and an additional 6 participants were excluded due to a human error in which 3 pairs of participants were labeled with the same participant number in Qualtrics.

    Participants reported that they identified with the following race/ ethnic groups: 39.3% White; 14.7% Filipino; 13.3% Mexican/ Mexican American/ Chicano; 10.4% Black/ African American; 5.7% Chinese; 4.3% Other Spanish/ Hispanic, Latino; 4.3% East Asian (Vietnamese, Japanese, Korean); 1.4% Pacific Islander; 1.4% multiracial; and 4.7% reported other racial/ethnic backgrounds. There was also 0.9% of missing demographic data for participants who did not respond to the race/ethnicity prompts in Qualtrics. Participants were limited to individuals between the ages of 18 to 65 ($M = 20.5$ years old, $SD = 3.92$, range = 18-39) and free of uncorrectable visual or hearing impairments. Participants were restricted to the age of 18 and older due to the graphic nature of the sacrificial dilemmas. Participants were limited to a cutoff age of 65 in order to avoid potential outlier responses due to generational differences in perceptions of the meanings of the relationships entailed in the moral dilemma vignettes.

Participants were awarded SONA research credits (0.5 credits per half hour) upon completion of the study.

Dark Tetrad Measures

Table 2 provides descriptive statistics for each of the following Dark Tetrad self-report measures. Table 3 depicts the correlations among Dark Tetrad composite scales. All eight Dark Tetrad self-report measures used in this study correlated more than .50, suggesting that these self-report measures may be reasonably averaged to create construct scores for each of the four Dark Tetrad personality traits.

Machiavellianism.

Mach-IV (Christie & Geis, 1970). The Mach-IV is a 20-item self-report measure that is the most widely used assessment tool in Machiavellian research. The MACH-IV consists of three subscales: Morals, Views, and Tactics. The Mach-IV scale consists of 5-point Likert items (1 = *strongly disagree*, 5 = *strongly agree*). Ten of the Mach-IV items assess high Machiavellianism traits and the other ten items assess low Machiavellianism traits. Internal consistency for the Mach-IV have ranged from alphas of .51 to .74 (Chabrol et al., 2009); this study had an $\omega_H = .68$ for Mach-IV total scores.

Machiavellian Personality Scale (MPS; Dahling et al., 2009). The MPS is a 16-item self-report measure. Using a 7-point Likert scale, the MPS measures four factor structures of the construct of Machiavellianism: distrust of others, desire for status, desire for control, and amoral manipulation. The authors of the MPS have reported a Cronbach alpha of .82 for the aggregate MPS score (Dahling et al., 2009) an additional study has reported alpha coefficients of .79 and .88 (Zagenczyk et al., 2014). Subscale evaluations have yielded mixed results which has led

some reviewers to suggest that the MPS should be measured by its total score (Miller et al., 2015). This study had an ω_H = .86 for MPS total scores.

Narcissism.

Narcissistic Personality Inventory (NPI-40; Raskin & Hall, 1979). The NPI-40 is a 40-item self-report measure that assesses the grandiose dimensions of narcissism. The NPI-40 is a forced choice response questionnaire wherein participants choose between either a narcissistic or a non-narcissistic statement for each item. Factor structures of the NPI-40 have ranged from two to seven factors (Ackerman et al., 2011) but the overall alpha reliability for the NPI-40 has been reported as .84 (Paulhus & Williams, 2002). This study had an ω_H = .87 for NPI-40 total scores.

Five-Factor Narcissism Inventory Short Form (FFNI-SF; Sherman et al., 2015). The FFNI-SF is a 60-item self-report measure that addresses both grandiose (α = .94) and vulnerable (α = .85) variants of Narcissism based on the Five Factor Model of personality (Glover, Miller, Lynam, Crego, & Widiger, 2012; Miller et al., 2016; Sherman et al., 2015). There are three factors of the FFNI-SF (Miller et al., 2016): Antagonism (α = .92), Neuroticism (α = .88), and Agentic Extraversion (α = .90). These three factors are split into 15 subscales. Vulnerable narcissism consists of 3 subscales: Need for Admiration, Reactive Anger, and Shame, Grandiose narcissism consists of the remaining 12 subscales: Acclaim-Seeking, Arrogance, Authoritativeness, Distrust, Entitlement, Exhibitionism, Exploitativeness, Grandiose Fantasies, Indifference, Lack of Empathy, Manipulativeness, and Thrill-Seeking. Reported FFNI-SF subscale alphas range from .61 to .87 (Sherman et al., 2015). This study had an ω_H = .88 for FFNI-SF Grandiose Narcissism and an ω_H = .81 for FFNI-SF Vulnerable Narcissism scores.

Psychopathy.

Self-Report Psychopathy Scale-III (SRP-III; Paulhus et al., 2009). The SRP-III is a 64-item measure that was developed in order to assess facets of the interview-based Psychopathy Checklist Revised (PCL-R; Hare, 2003) in a self-report format that could also be used in non-forensic settings. The SRP-III consists of four subscales: Callous Affect, Interpersonal Manipulation, and Erratic Lifestyle. The summation of the four subscales yields a Total Psychopathy score. The SRP-III response choices consist of a 5-point Likert scale (1 = *Disagree Strongly*, 5 = *Agree Strongly*). Internal consistencies have been reported as α = .93 for SRP-III total scores and for each of the subscales: Callous Affect α = .76, Interpersonal Manipulation α = .86, Erratic Lifestyle α = .84, and Criminal Tendencies α = .82 (Drislane et al., 2014). This study had ω_{HS} of .91 for total SRP-III scores, .76 for Callous Affect scores, .83 for Interpersonal Manipulation scores, .78 for Erratic Lifestyle scores, and .82 for Criminal Tendencies scores.

Triarchic Psychopathy Measure (TriPM; Patrick et al., 2009). The TriPM is a 58-item self-report measure intended for use in non-forensic settings. The TriPM consists of three subscales: Boldness (19 items), Meanness (19 items), and Disinhibition (20 items). The three subscales scores combined yield a Total Psychopathy score. Response choices are based on a 4-point Likert scale (1 = *False*, 2 = *Somewhat False*, 3 = *Somewhat True*, 4 = *True*). Internal consistencies have been reported as α = .85 for TriPM total scores and for each of the three subscales: Boldness α = .79, Meanness α = .83, and Disinhibition α = .79 (Drislane et al., 2014). This study had had ω_{HS} of .87 for Boldness scores, .87 for Meanness scores, and .82 for Disinhibition scores.

Sadism.

Comprehensive Assessment Sadistic Tendencies (CAST; Buckels et al., 2013). The CAST scale is an 18-item self-report measure that consists of three subscales of sadism: Direct Sadism – Physical, Direct Sadism – Verbal, and Vicarious Sadism. Items are rated using a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). CAST total scores have reported coefficient alphas of .89. Subscales of the CAST have resulted in alpha reliabilities of: direct physical sadism (5-items) α = .80, direct verbal sadism (6-items) α = .81, and vicarious sadism (7-items) α = .81 (Buckels et al., 2014). This study had an ω_H = .87 for CAST total scores. The CAST also contains 11 optional filler items that are neutral statements that can be used to offset the negativity of the scale. If the 11 filler items are included the CAST becomes a 29-item measure. Filler items were not included in this study.

Assessment of Sadistic Personality (ASP; Plouffe et al., 2017). The ASP is a 9-item self-report measure that assesses three domains of everyday sadism: Subjugation, Pleasure-seeking, and Unempathetic. The ASP was developed to be used in addition to the Short Dark Triad (SD3; Jones & Paulhus, 2014) in order to assess the Dark Tetrad. The ASP scale is measured using a 5-point Likert response format (1 = *strongly disagree*, 5 = *strongly agree*). The authors of the ASP have reported an internal consistency alpha of 0.83. This study had an ω_H = .81 for ASP total scores.

Other Measures

Demographics. The demographics questionnaire consists of 61 questions and includes questions to assess a participant's age, gender, race/ethnicity, marital status, family history, educational history, medical history, psychological history, substance use, and criminal activity.

Multidimensional Personality Questionnaire – Brief Form: Absorption Scale (MPQ-BF; Patrick, Curtin, & Tellegen, 2002). The Absorption scale of the MPQ-BF is 12 true/false questions aimed to assess the "propensity for imaginative and self-involving experiences. Internal consistency estimates have reported a Cronbach's alpha of .76 for the Absorption trait scale (Patrick et al., 2002).

Meanness in Psychopathy (MiP-SR; Benning et al., 2017). The MiP-SR short form is a 90-item self-report measure that assesses the role of meanness in psychopathy in a more complex way than the TriPM meanness scale. The MiP-SR consists of three factors: malice, coldness, and imperviousness. Malice reflects the propensity to misuse other people for fun or gain along with haughty attitudes towards others and society's rules. Coldness measures a dearth of interpersonal connections including empathy and emotional experience. Imperviousness assesses a lack of reactivity to socially mediated negative emotions. The MiP-SR consists of 26 subscales with 3 items per subscale, these 26 subscales aggregate into the 3 factors of malice, coldness, and imperviousness. The response choices are set as a 4-point Likert scale (1 = *strongly disagree*, 2 = *slightly disagree*, 3 = *slightly agree*, 4 = *strongly agree*). This study had had ω_{HS} of .94 for Malice scores, .88 for Coldness scores, and .84 for Imperviousness scores.

Oxford Utilitarianism Scale (OUS; Kahane et al., 2018)*.* The Oxford Utilitarianism Scale (OUS) is a 9-item self-report measure that deconstructs the concept of utilitarianism into two dimensions: Impartial Beneficence and Instrumental Harm. Impartial Beneficence is defined as "the tendency to endorse the impartial promotion of everyone's personal welfare even at personal sacrifice to oneself." Instrumental Harm is notated as the core feature of Utilitarian judgment and defined as "the sacrifice of an individual to save a greater number" of individuals. OUS questions are presented in a randomized manner. Response choices are listed as a 7-point

Likert scale ranging from "strongly disagree" to "strongly agree." The authors of the OUS scale have reported viable construct validity as an alpha of .74 and reported that both Instrumental Harm and OUS total scores predict endorsing sacrifice in moral dilemma scenarios (Kahane et al., 2018).

Disgust Propensity and Sensitivity Scale-Revised (DPSS-R; Olatunji et al., 2007). The Disgust Propensity and Sensitivity Scale-Revised (DPSS-R) is a 28 question self-report measure that assess two factors of disgust: Disgust Propensity and Disgust Sensitivity. Responses are measured on a 5-point Likert response scale ranging from "not disgusting at all" to "extremely disgusting. The DPSS-R subscales have demonstrated good reliability and validity reported as Disgust Propensity (α=0.78; test–retest reliability = 0.69) and Disgust Sensitivity (α = 0.77; test–retest reliability = 0.77; Olatunji et al., 2007).

Rumination on Sadness Scale (RSS; Conway, Csank, Holm, & Blake, 2000). The Rumination on Sadness Scale (RSS) is a 13 question self-report measure that assesses the propensity to ruminate on present sadness and distress. The RSS scale is measured on a 5-point Likert response scale and each question is prompted by the statement "When I am sad, down, or feel blue…" Cronbach's alpha for the RSS scale has been reported as .91, and test-retest reliability has been reported as .70 (Conway et al., 2000).

Moral Dilemmas

As shown in Appendix B, 16 moral dilemmas were created for this study. Dilemmas were presented as text vignettes based on the traditional framework of the Switch and Footbridge Dilemmas (Foot, 1967; Greene, 2009; Greene et al., 2001). Within each scenario, five people were at risk of dying and the participant had the option to let the five people die or choose to sacrifice one person to save the five. Each scenario described the participant as both safe from

peril and unable to sacrifice herself or himself to save the five. The description of each scenario was presented as one screen of text (see Figure 2), and audio recordings of the text was played over headphones to ensure participants attend to the text in multiple modalities. The scenario text terminated once the audio finished playing. These vignettes were given in the same order to all participants.

On the next screen, additional text was used as manipulations of the action needed to resolve the dilemma and the emotion targeted in each vignette. Specifically, these manipulations reflected either personal or impersonal involvement and be written to elicit either sadness or disgust as emotional responses. Based on the writings of Joshua D. Greene (P. Conway et al., 2018; Greene et al., 2009), vignettes either required personal force to be applied to the victim that is to be sacrificed (personal conditions), or the sacrifice would occur without the use of personal force (impersonal conditions). Personal manipulations of the vignettes paralleled the Footbridge Dilemma, wherein the participant must imagine physically touching the person that is to be sacrificed. Impersonal manipulations of the moral dilemmas kept the participant separate from the individual that was sacrificed and allowed participants to imagine using indirect means to enable the sacrifice (such as buttons or levers).

To further explore the role that emotions play in responses to moral dilemma vignettes, I assessed how participants responded to dilemmas that were framed to elicit either sadness or disgust. I chose these two emotional dimensions based on my conceptualization of what the two most prominent negative emotional responses to moral dilemma vignettes may be. Sadness descriptions focused on feelings of interconnectedness between the participants and the individuals that will die. Disgust descriptions focused on the gore and mutilation of those who would die.

In each vignette, text describing the im/personal manipulation was presented at the top of the screen, and text describing the emotional manipulation was presented at the bottom of the screen. Audio recordings of each manipulation was played consecutively, and the text display terminated when the last audio recording finished. These manipulations were presented in counterbalanced orders across participants (Figure 2). For example, one participant's first four dilemmas could have the personal disgust, personal sadness, impersonal disgust, and impersonal sadness presented in that order, iterating through that sequence four times across all 16 dilemmas. The next participant would then see the same four dilemmas with the personal sadness, impersonal disgust, impersonal sadness, and personal disgust versions of the same vignettes, iterating through that sequence four times across all 16 dilemmas.

Procedure

Participants were recruited through Sona to come to the lab. The research assistant sat down with the participant in the entry room of the lab with the informed consent form. During the consent process, the participant was reminded that the experiment would take up to 4.0 hours, and he/she would be compensated with 4.0 Sona research credits upon completion. On average it took participants 2 hours and 21 minutes to complete this study (Minimum = 1 hour 5 minutes, Maximum = 4 hours). One participant was unable to complete the study within the allotted 4-hour timeframe and opted to discontinue at the 4-hour mark. The duration of this study was greatly increased as it was part of a larger study that also assessed theory of mind and emotional intelligence. Participants were able to take breaks if needed and a handful of participants opted to do so. The methods of psychological measures utilized in the study and their accompanying risks were explained. The research assistant also explained that the participant has the right to withdraw from the study at any point without risk of penalization. Participants then sat at a lab

computer and completed all demographic and self-report measures via Qualtrics, an online survey software. The measures were administered in the following order across all participants: demographics, ASP, CAST, DPSS-R, FFNI-SF, MACH-IV, MiP-SR-SF, MPQ Absorption, MPS, NPI-40, OUS, RSS, SRP-III, TriPM. Once participants completed all of the Qualtrics questionnaires, they responded to the 16 moral dilemma scenarios presented through PsychoPy on the same lab computer.

After each moral dilemma scenario, participants were asked on a 6-point Likert scale (1) how morally right or wrong it is to sacrifice one person to save five people in this situation, (2) how permissible it is to sacrifice one person to save five people in this situation, and (3) how likely it is that they would sacrifice one person to say five people in the situation. Following the completion of the study, the participants were debriefed by the research assistant regarding the aims of the study. Any questions the participants may have had were answered by the research assistant. The participants were also provided with a copy of the consent form and invited to contact the principal investigator with any additional questions or concerns they had.

Chapter 4: Data Analysis

Each of the Dark Tetrad measures' total scores (excluding the MiP-SR, TriPM Boldness, and FFNI-SF Vulnerable Narcissism) was z scored before averaging each Dark Tetrad construct's comprising scales into one composite construct score. This resulted in 4 total personality scores for each participant: Narcissism (composed of NPI-40 and FFNI-SF Grandiose Narcissism), Machiavellianism (composed of Mach-IV and MPS total scores), Psychopathy (composed of SRP-III total scores and the average of TriPM Meanness and Disinhibition), and Sadism (composed of CAST and ASP total scores).

Preliminary factorial ANOVAs were conducted to ascertain the strengths of the manipulations for each of the three dependent variables (morally right, morally permissible, and behavioral intent) that followed each of the 16 sacrificial vignettes. These ANOVAs used type x emotion as the within subjects factors (type = personal/ impersonal; emotion = sadness/ disgust). For each moral dilemma dependent variable (DV), a series of three factorial ANCOVAs were conducted using Type (personal versus impersonal) and Emotion (disgust versus sadness) as the within-subjects factors and each one of the four Dark Tetrad constructs as the covariate in turn, for a total of 12 ANCOVAs. The three response choices were as follows: (1) In this situation, is it morally right or wrong to sacrifice 1 person to save 5 people? (2) In this situation, is it permissible to sacrifice 1 person to save 5 people? (3) In this situation, would you sacrifice 1 person to save 5 people?

Each ANCOVA's DV represents a different family of research questions, so I initially expected to use a sequential Sidak comparison to control false positive error rates among the four Dark Tetrad constructs. However, none of the analyses attained statistical discernibility after

correcting for multiple comparisons among Dark Tetrad components. Therefore, the final results

represent analyses uncorrected for multiple comparisons across the four Dark Tetrad constructs.

Chapter 5: Results

Moral Decision Making ANOVAs

The results reported below indicate the ANOVA main effects for each of the three responses (morally right, morally permissible, and behavioral intent) that followed each of the 16 sacrificial vignettes.

Morally right. Sacrificing one person to save five people was rated as discernibly more morally right in impersonal ($M = 3.21$, $SE = .06$) than in personal scenarios ($M = 2.91$, $SE = .06$), $F(1, 211) = 64.3$, $p < .001$, $\eta^2_p = .23$. However, the moral rightness of this decision was not discernibly affected whether the scenario entailed disgust ($M = 3.06$, $SE = .06$) or sadness ($M = 3.12$, $SE = .06$), $F(1, 211) = 2.78$, $p = .097$, $\eta^2_p = .01$. There was also no discernible Type x Emotion interaction effect on judgments of sacrificial moral rightness, $F(1, 211) = 0.46$, $p = .498$, $\eta^2_p = .00$.

Morally permissible. Sacrificing one person to save five people was rated as discernibly more morally permissible in impersonal ($M = 3.47$, $SE = .05$) than in personal scenarios ($M = 3.18$, $SE = .05$), $F(1, 211) = 39.83$, $p < .001$, $\eta^2_p = .16$. It was also rated as more morally permissible in scenarios featuring sadness ($M = 3.36$, $SE = .05$) versus disgusting ($M = 3.29$, $SE = .06$) descriptions of the sacrifice, $F(1, 211) = 4.02$, $p = .046$, $\eta^2_p = .02$. There was no discernible Type x Emotion interaction effect on judgments of sacrificial moral permissibility, $F(1, 211) = 1.61$, $p = .206$, $\eta^2_p = .01$.

Behavioral intent. The behavioral intent to sacrifice one person to save five people was rated as discernibly more likely to occur in impersonal ($M = 3.82$, $SE = .06$) than in personal scenarios ($M = 3.63$, $SE = .06$), $F(1, 211) = 62.24$, $p < .001$, $\eta^2_p = .23$. However, the behavioral intention of this decision was not discernibly affected by whether the scenario elicited disgust (M

= 3.58, *SE* = .06) or sadness (*M* = 3.63, *SE* = .06), $F(1, 211) = 1.16$, $p = .283$, $\eta^2_p = .01$. There was also no discernible Type x Emotion interaction effect on reports of behavioral intentions, $F(1, 211) = 0.02$, $p = .877$, $\eta^2_p = .00$.

Dark Tetrad ANCOVAs

As shown in Table 4, a series of three factorial ANCOVAs was conducted for each Dark Tetrad composite score (Machiavellianism, narcissism, psychopathy, and sadism) based on the three ratings (morally right, morally permissible, and behavioral intent) of the sixteen sacrificial vignettes. A fifth ANCOVA was conducted for Dark Tetrad total scores, which consisted of a combination of total scores for each of the four Dark Tetrad Traits.

Dark Tetrad total scores. As shown in Table 4, individuals who scored high in Dark Tetrad total scores were more likely to report that they believed that it was morally permissible to sacrifice one person to save five, $r(212) = .14$, $p = .039$. Dark Tetrad total scores were also positively correlated with a discernible behavioral intent to sacrifice one to save five, $r(212) = .14$, $p = .048$. There were no discernible main effects involving Dark Tetrad scores and judging scenarios as morally right or wrong. There were no main effects or interaction involving Dark Tetrad scores and scenario type or emotion.

Machiavellianism. Individuals who scored high in Machiavellianism traits were more likely to report that they believed that sacrificing 1 to save 5 was morally permissible, $r(212) = .15$, $p = .030$. Nevertheless, as shown in Table 4, there was no discernible main effect between elevated scores in Machiavellianism and a propensity to rate moral dilemmas as morally right or morally wrong. There was also no discernible main effect between reported behavioral intention and elevated Machiavellianism scores. Neither the type (personal/ impersonal) nor the emotion (disgust/ sadness) interacted with Machiavellianism for any of the three ratings.

Narcissism. To my surprise, the only Dark Tetrad construct that reported an interaction effect between emotion and response to the vignettes was Narcissism. As shown in Table 4, individuals who scored high in traits of grandiose narcissism were more likely to report behavioral intention to sacrifice 1 to save 5 in response to vignettes that elicited disgust, $r(212) = .14$, $p = .046$. However, grandiose narcissism was not positively correlated with the behavioral intention to sacrifice 1 to save 5 in response to vignettes that elicited sadness, $r(212) = .06$, $p = .380$, $F(1, 210) = 3.98$, $p = .047$. Furthermore, there was no discernible interaction between narcissism and scenario type for ratings of moral permissibility, moral rightness, or moral wrongness. There were also no main effects for grandiose narcissism on any of the three ratings.

Psychopathy. Individuals who scored high in traits of psychopathy were more likely to report permissibility to sacrifice 1 person to save 5 people $r(212) = .14$, $p = .040$, but were not likely to report that it was morally right $r(212) = .11$, $p = .125$. Individuals who scored high in psychopathy were also more willing to express behavioral intention of sacrificing 1 person in order to save 5, $r(212) = .14$, $p = .049$. Of note, this response pattern paralleled the response pattern of Dark Tetrad total scores. As shown in Table 4, there were no interaction effects between elevated traits of psychopathy and scenario type or emotion and psychopathy scores for any of the three ratings.

Sadism. Contrary to my original hypothesis, individuals who scored high in sadism had no discernible results within the moral decision-making task. Sadism was not correlated with reports of moral appropriateness (phrased as morally right/wrong), moral permissibility, or behavioral intention to sacrifice 1 person in order to save 5 at risk of dying in the sacrificial vignettes. There were also no discernible interaction effects involving the emotion or type of moral dilemma and sadism scores for any of the three ratings.

Chapter 6: Discussion

Overall Moral Decision Making, Psychopathy, and Machiavellianism

In this study, individuals who scored high on the Dark Tetrad (specifically, Machiavellianism and psychopathy) were more likely to rate that it was morally permissible to sacrifice 1 in order to save 5 and thus act in a utilitarian manner. This result supports prior literature that reported relationships between Machiavellianism, psychopathy, and Dark Tetrad total scores and utilitarian response styles (Bartels & Pizarro, 2011; Djeriouat & Trémolière, 2014; Karandikar et al., 2019). Similarly, individuals who scored high in traits of psychopathy and Dark Tetrad total scores were more likely to report behavioral intent to act in a utilitarian manner and sacrifice 1 to save 5. I was surprised to find that sadism did not relate to any moral decision ratings, which contradicts prior reports that sadism is related to an appetitive desire to inflict harm (Djeriouat & Trémolière, 2014). Because the vignettes described only negative emotional reactions to the sacrifices, such a sadistic appetitive desire may not have been elicited in the scenarios. It is possible that if the vignettes reported positive emotional reactions to the sacrifices, sadism may have been related to sacrificial moral dilemma ratings.

Moral reasoning appears broadly intact across Dark Tetrad traits, consistent with notions that judgments of moral rightness and wrongness (rather than moral permissibility) are the best arbiters of moral reasoning (Kahane & Shackel, 2010). There were no discernible results that indicated that individuals who scored high in Dark Tetrad traits reported that sacrificing 1 to save 5 was morally right or morally wrong. However; Machiavellianism, psychopathy, and Dark Tetrad total scores were associated with the belief that it was permissible to sacrifice 1 in order to save 5. It is possible that this differentiation in results was driven by the distinction between defining behavior as "morally right" versus "permissible." Aligning with the statement that the

behavior was permissible does not imply that the individual would also believe that the behavior was morally right or wrong. These results indicate that describing Machiavellianism entails a cynical disregard for morality and that psychopathy is associated with a lack a conscience may characterize these individuals in too harsh of a manner (Christie & Geis, 1970; Cleckley, 1988). Furthermore, these results show that individuals who score high in Machiavellianism, psychopathy, and Dark Tetrad overall may experience higher levels of moral flexibility than the general population. Additional studies are needed in order to explore these concepts further.

Machiavellianism is often described as a personality trait that is focused on personal gain despite the harm that it may cause to others that are involved (Christie & Geis, 1970; Gu et al., 2017). It is unlikely that this study's results for Machiavellianism would be driven by self-interest, as participants were explicitly excluded from being harmed in the scenarios. Thus, they may better be explained by Machiavellian moral flexibility. This is also supported by the lack of behavioral intention to sacrifice 1 in order to save 5 reported by individuals who scored high in Machiavellianism. Thus, individuals who score high in Machiavellianism may report that it is permissible to sacrifice 1 to save 5, but they do not report having the intention to actually do so.

Assessing whether something is morally right/wrong or morally permissible does not reflect upon the behavioral intent to act upon the sacrifice. Psychopathy within the Dark Tetrad was uniquely associated with rating higher behavioral intention of sacrificing 1 person to save 5. This pattern may reflect the trait of impulsivity that is often exemplified in psychopathic behavior (Hare, 2003), composing a subtrait of disinhibition within the triarchic model of psychopathy (Patrick et al., 2002; Patrick & Drislane, 2015). Within the Dark Tetrad, psychopathy is consistently characterized by dysfunctional impulsivity, narcissism by functional impulsivity, and Machiavellianism has inconsistent relationships to impulsivity (Jones &

Paulhus, 2011). Thus, a dysfunctionally disinhibited response style may have driven psychopathy's relationship with behavioral intention ratings in this study. Nevertheless, these same participants may not act upon their reported behavioral intention faced with a real-life moral dilemma. This is evidenced by a recent in vivo experiment using live mice which reported that hypothetical moral dilemma responses were not predictive of real-life responses to a moral dilemma scenarios (Bostyn et al., 2018).

Personal Versus Impersonal Moral Decision Making

Previous studies have reported that participants often indicate that they approve of indirectly sacrificing 1 to save 5 but they do not approve of directly sacrificing 1 to save 5 (Cushman, Young, & Hauser, 2006; Greene, 2001; Greene et al., 2009; Petrinovich, O'Neill, & Jorgensen, 1993; Thomson, 1985). As reported in Table 1, I initially predicted that individuals who scored high in traits of psychopathy, sadism, and Dark Tetrad total scores would report a more utilitarian response style in response to scenarios that detailed the personal condition (directly touching the individual that would be sacrificed). However, there were no discernible interactions between the personal nature of the scenarios and Dark Tetrad scores despite finding the expected main effect. This result indicates that Dark Tetrad traits did not confer a specific insensitivity to the effects of envisioning physically touching a person to perform a sacrifice, even given the core unempathetic and antagonistic features of these personality traits. This pattern aligns with a recent study in which all Dark Tetrad total scores reported higher behavioral intention to sacrifice 1 in order to save 5 in response across personal and impersonal sacrificial dilemmas (Karandikar et al., 2019). However, such sensitivity to the type of scenario may not generalize to more deviant populations. In a study of incarcerated individuals described as "psychopaths," participants tended to respond in a utilitarian manner in response to impersonal

dilemmas but not personal dilemmas, which contrasts with the results of this current study (Koenigs et al., 2012).

Disgust Versus Sadness and Narcissism

Disgust manipulations outside of sacrificial moral dilemma vignettes do not affect moral condemnation responses (Johnson et al., 2016). Sadness cues within the scenarios make sacrifices seem more permissible than disgust cues. The sadness vignettes in this study often described the interpersonal bonds being ruptured through the sacrifice described in the vignette. It is possible that due to the description of interpersonal bonds being ruptured, participants reported that sacrificing 1 person was permissible to save 5 due to the "binding" moral considerations entailed in each scenario's descriptions of the group's cohesiveness. Consequently, sacrificing one group member would cause fewer "binding" violations than sacrificing five group members. In prior studies, sacrificial moral dilemmas typically did not address binding moral foundations because the dilemmas described unnamed and unranked people that are unfamiliar to the "bystander" in the dilemmas (Graham et al., 2011). Thus, this study has provided insight into how interpersonal connections might alter responses to sacrificial moral dilemmas. Nevertheless, the mean score for sadness and disgust variations differed only slightly for permissibility ratings, and the same pattern of mean differences (albeit statistically indiscernible) was found across right/wrong and behavioral intent. Future studies may assess the role that interpersonal connections play in moral decision making.

Originally, I hypothesized that individuals who scored high in sadism and Dark Tetrad total scores would report higher levels of behavioral intention when scenarios elicited disgust. This hypothesis was supported by a prior study that reported that lower experiences of animal reminder disgust discernibly predicted sadism scores (Meere & Egan, 2017). Nevertheless, the

results from this study indicated that there was no discernible results between individuals who scored high in traits of sadism and moral decision making.

Conversely, I originally hypothesized that there would be no discernible results or relationships for grandiose narcissism. Narcissism has not been shown to be a discernible contributor to either deontological or utilitarian responses (Djeriouat & Trémolière, 2014; Karandikar et al., 2019). To my surprise, grandiose narcissism was associated with reporting discernible behavioral intention to sacrifice 1 in order to save 5 in response to vignettes that elicited disgust but not in response to scenarios that elicited sadness. It is unclear why elevated grandiose narcissism scores interacted with scenarios that elicited animal reminder disgust. Grandiose narcissism entails traits associated with reduced negative affectivity, such as indifference to social disapproval, which may have contributed to these behavioral intention results (Sherman et al., 2015). In this study, I excluded from the psychopathy composite the bold features that are most strongly associated with reduced negative emotion, which reduced psychopathy's ability to evidence this interaction.

Limitations and Future Directions

Priming effects. Participants may have been unintentionally primed to respond in a manner that aligns with Dark Tetrad traits because participants completed self-report measures prior to completing the moral decision-making task, which may have primed associations between those traits and task behavior (Bargh et al., 2012; Molden, 2014). For example, it is possible that responding to questions such as "A lot of people are "suckers" and can easily be fooled" (a psychopathy item from the SRP-III scale) or "I am willing to be unethical if I believe it will help me succeed" (a Machiavellian item from the MPS scale) may have primed participants to respond to moral decision making tasks in a manner that aligns with these

unempathetic personality traits (Buckels et al., 2013; Dahling et al., 2009). Nevertheless, there

no discernible results for sadism, which self-report scales included statements such as "I enjoy

physically hurting people" (CAST scale), indicating that such priming effects were not robustly

found. Future studies may be used to assess whether having participants complete questionnaires

related to callous unemotional traits (such as Dark Tetrad related scales) before versus after

responding to moral dilemmas affects participant responses due to priming effects.

Response options. As shown in Appendix B, each of the three response option questions

(morally right/wrong, permissible, and behavioral intent) that followed each of the 16 sacrificial

vignettes was framed in a utilitarian manner by using the phrase "sacrifice 1 person to save 5

people." None of the response options were written in a deontological manner such as "let the 5

die by not intervening." Thus, there is a possibility that participants may have been inclined to

respond in a utilitarian manner based on the response option phrasing. The study may have been

more balanced if three deontological questions paralleled the three utilitarian questions that were

used.

There may have also been additional limitations to the phrasing of the first response

option shown in Appendix B, "In this situation, is it morally right or wrong to sacrifice 1 person

to save 5 people?" A 6 item Likert-type response scale followed this question with the following

response options: Strongly Morally Wrong, Moderately Morally Wrong, Slightly Morally

Wrong, Slightly Morally Right, Moderately Morally Right and Strongly Morally Right. As

shown in the results in Table 4, there was no discernible results related to moral wrongness or

moral rightness, it is possible that collapsing these two domains into one question may have

altered response styles to this particular question. It may have been beneficial to split this

question into two with one question asking, "In this situation, is it morally right to sacrifice 1

person to save 5 people?" and a second question asking "In this situation, is it morally wrong to sacrifice 1 person to save 5 people?" It is unclear whether collapsing these two questions into one may have altered responses to this variable.

Lastly, order effects may have played a role in the results reported in Table 4. Each of the 16 vignettes was followed by the same 3 questions in the same order "In this situation, is it morally right or wrong to sacrifice 1 person to save 5 people?"; "In this situation, it is permissible to sacrifice 1 person to save 5 people?"; and lastly "In this situation, would you sacrifice 1 person to save 5 people?" There is a possibility that ordering the responses in this manner may have altered the response style of participants. However, there were no discernible results for question 1 (morally right/wrong), and a variety of discernible results for both moral permissibility (question 2) and behavioral intention (question 3). Thus, for this particular study, order effects would have had to potentiate rating effects rather than attenuate them.

Elicitation of emotions. A large component of this study aimed to assess whether experiences of sadness or disgust altered participants responses to sacrificial vignettes. Because no preliminary tests were done to discern whether sadness or disgust variations actually elicited the same emotions, there is a possibility that these vignettes did not in fact elicit experiences of sadness or disgust. One way to fix this problem would have been to ask the participants to rate whether they actually experienced sadness or disgust following each vignette. Another option would have been to test the vignettes with a separate group of participants in advance to determine if the vignettes actually elicited the emotions. Thus, the limited findings related to emotion in this study (Table 4) may have been due to the vignettes themselves rather than the actual ability of emotions to alter responses to sacrificial vignettes.

Sampling frame. The sample used in this study was drawn from a convenience frame of undergraduate students, which limits the generalizability of these findings despite the relatively diverse ethnic and racial composition of the sample. Future studies should assess a broader range of participants such as community samples, incarcerated individuals, and different cultures.

Vignettes. The core nature of sacrificial vignettes is based on extreme non-realistic scenarios (Foot, 1967; Greene, 2009; Greene et al., 2001). Alternatively, an offshoot of moral decision making literature has begun to assess the use of realistic vignettes (Kruepke et al., 2018). The vignettes created for this study (Appendix B) were written in an extreme sacrificial manner to have the highest likelihood of eliciting strong emotional responses in participants. Furthermore, some studies have indicated that reported behavioral intentions in sacrificial vignettes do not predict real-life behaviors (Bostyn et al., 2018). There is a possibility that individuals might not follow through with their reported behavioral intention in real life scenarios.

Conclusions

The results of this study support prior reports that Machiavellianism, Psychopathy, and the Dark Tetrad as a unitary construct is discernibly related to utilitarian responses to sacrificial moral dilemma vignettes (Bartels & Pizarro, 2011; Blair, 2007; Karandikar et al., 2019; Koenigs et al., 2012), though all of these effects and relationships were relatively small. This study provided perplexing results that only grandiose narcissism was related to the behavioral intention to act in a utilitarian manner specifically in response to scenarios that elicited disgust. The distinction between moral rectitude, moral permissibility, and behavioral intent (Kahane & Shackel, 2010) highlights that the Dark Tetrad may be associated with grossly intact but more flexible moral reasoning and behavior.
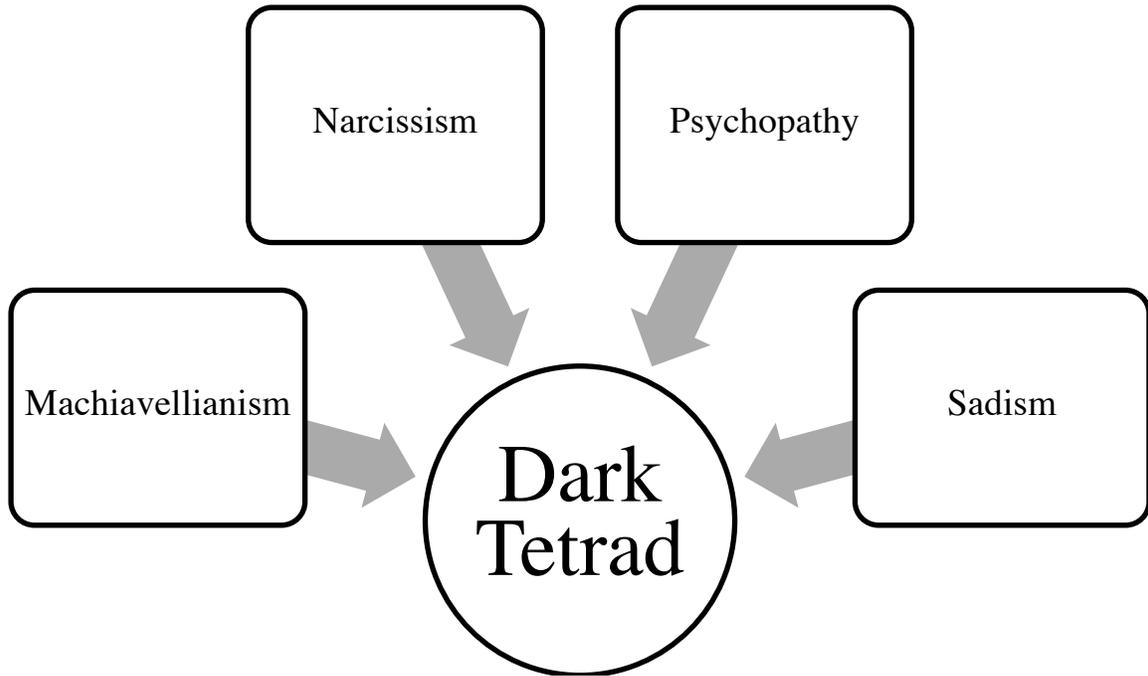
Figure 1: A visual representation of the Dark Tetrad.
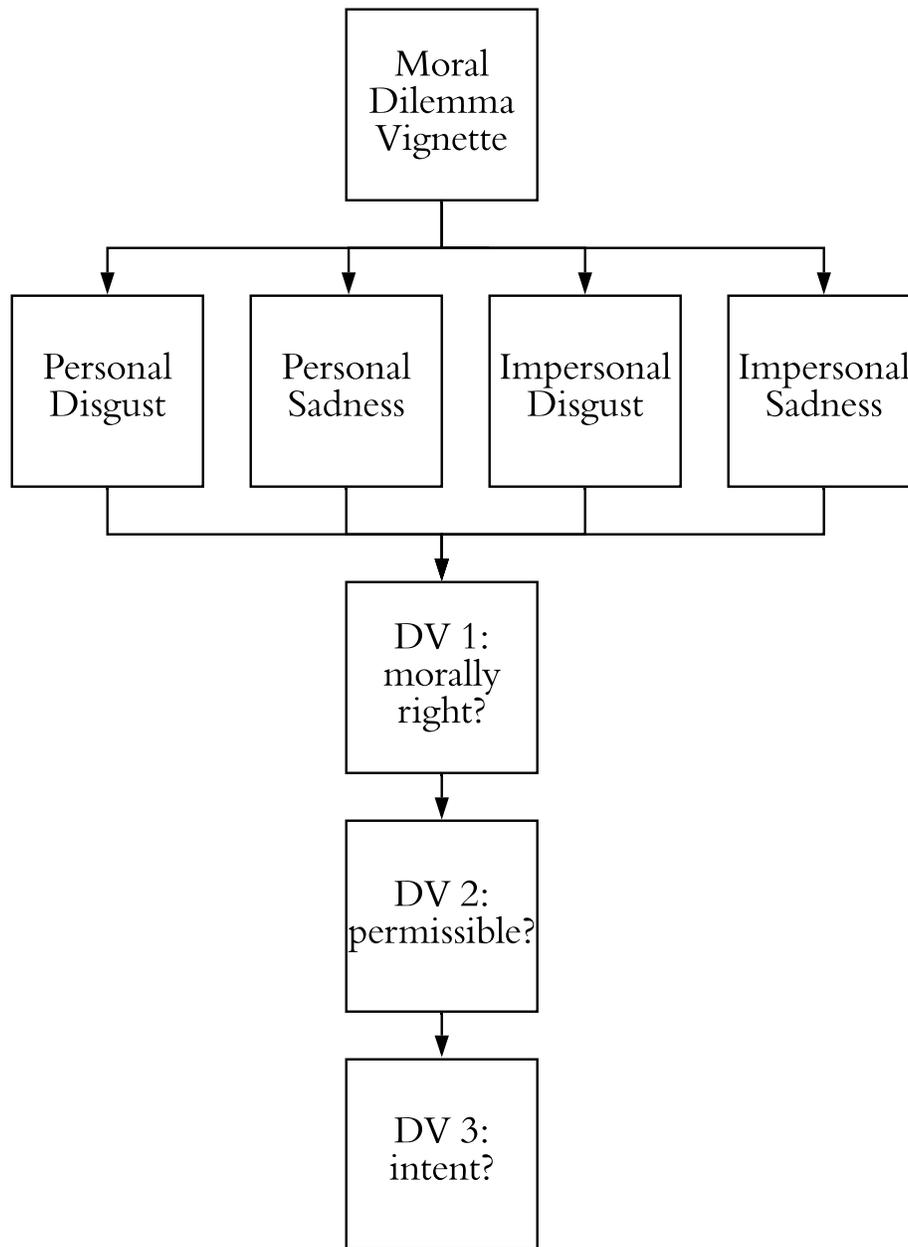
Figure 2: A visual representation of the counterbalanced vignette manipulations.

Table 1: Predictions of ANCOVA Covariate Effects (Hypothesis).

ANCOVA Covariate Effects	Machiavellianism			Narcissism			Psychopathy			Sadism			DT Total		
	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I
Dark Tetrad (DT)	0	+	+	0	0	0	++	++	+	0	0	+	++	++	+
DT*Im/personal	0	0	0	0	0	0	++	++	+	0	0	++	++	++	++
DT*Disgust/Sadness	0	0	0	0	0	0	0	0	0	0	0	++	0	0	++
DT*Type*Emotion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note. R = "In this situation is it morally right or wrong to sacrifice 1 person to save 5 people?" P = "In this situation is it permissible to sacrifice 1 person to save 5 people?" I = "In this situation would you sacrifice 1 person to save 5 people?" Type = Impersonal/Personal (within-subjects factor). Emotion = Sadness/Disgust (within-subjects factor).
+ = positive relationship, - = negative relationship, * relationship of unspecified direction, 0 = no relationship. 1 symbol = weak effect, 2 symbols = moderate effect, 3 symbols = strong effect

Table 2: Descriptive Statistics.

Variable	Scale	Mean	SD	Median	Minimum	Maximum	Skewness	Kurtosis
DARK TETRAD VARIABLES								
Machiavellianism	MACH-IV	2.80	0.43	2.77	1.60	4.20	0.08	0.01
	MPS	3.57	0.93	3.53	1.44	6.00	0.12	-0.79
Narcissism	NPI-40	1.35	0.19	1.32	1.02	1.90	0.55	-0.21
	FFNI-SF	2.88	0.50	2.84	1.77	4.23	0.21	-0.32
Psychopathy	SRP-III	2.32	0.42	2.34	1.28	3.58	0.19	-0.20
	TriPM	1.82	0.37	1.79	1.10	2.87	0.48	-0.24
Sadism	CAST	2.47	0.84	2.36	1.06	5.11	0.53	-0.14
	ASP	1.78	0.63	1.67	1.00	4.22	0.96	0.76
RESPONSE VARIABLES								
Right/Wrong		3.13	1.14	3.22	1	6	-0.01	-0.52
Permissible		3.36	1.01	3.44	1	6	-0.14	-0.02
Behavioral intent		3.64	1.04	3.67	1	6	-0.17	0.09

Note. n = 212. MPS = Machiavellian Personality Scale, NPI = Narcissistic Personality Inventory, FFNI-SF = Five-Factor Narcissism Inventory Short Form Grandiose Narcissism, SRP-III = Self-Report Psychopathy Scale-III, TriPM = Triarchic Psychopathy Measure Meanness and Disinhibition subscale average, CAST = Comprehensive Assessment Sadistic Tendencies, ASP = Assessment of Sadistic Personality.

Table 3: Correlations Among Dark Tetrad Composite Scales.

Correlations		Machiavellianism		Narcissism		Psychopathy		Sadism	
		Mach-IV	MPS	NPI-40	FFNI-SF	SRP-III	TriPM	CAST	ASP
Machiavellianism	Mach-IV	1.00	0.62	0.23	0.37	0.57	0.56	0.43	0.50
	MPS	0.62	1.00	0.51	0.66	0.62	0.58	0.50	0.55
Narcissism	NPI-40	0.23	0.51	1.00	0.79	0.55	0.37	0.41	0.46
	FFNI-SF	0.37	0.66	0.79	1.00	0.73	0.53	0.52	0.53
Psychopathy	SRP-III	0.57	0.62	0.55	0.73	1.00	0.80	0.70	0.66
	TriPM	0.56	0.58	0.37	0.53	0.80	1.00	0.63	0.65
Sadism	CAST	0.43	0.50	0.41	0.52	0.70	0.63	1.00	0.74
	ASP	0.50	0.55	0.46	0.53	0.66	0.65	0.74	1.00

Note. n = 212. MPS = Machiavellian Personality Scale, NPI = Narcissistic Personality Inventory, FFNI-SF = Five-Factor Narcissism Inventory Short Form Grandiose Narcissism, SRP-III = Self-Report Psychopathy Scale-III, TriPM = Triarchic Psychopathy Measure Meanness and Disinhibition subscale average, CAST = Comprehensive Assessment Sadistic Tendencies, ASP = Assessment of Sadistic Personality.

Table 4: ANCOVA Covariate Effects (F values).

ANCOVA Covariate F values	Machiavellianism			Narcissism			Psychopathy			Sadism			DT Total		
	R	P	I	R	P	I	R	P	I	R	P	I	R	P	I
Dark Tetrad (DT)	2.63	**4.79***	2.61	0.47	0.87	2.31	2.37	**4.27***	**3.94***	0.01	0.42	2.88	2.39	**4.30***	**3.95***
DT*Im/personal	0.58	0.19	0.08	0.06	0.87	0.68	0.00	0.03	0.22	0.43	0.11	1.81	0.01	0.04	0.22
DT*Disgust/ Sadness	0.09	0.27	0.59	0.97	2.69	**3.98***	0.18	1.87	1.00	1.40	2.15	0.39	0.18	1.82	0.97
DT*Type*Emotion	0.01	2.14	1.27	0.34	0.37	0.19	0.16	1.32	0.96	0.04	0.00	0.01	0.16	1.33	0.96

Note. Degrees of freedom for all *F* values = 1,210. R = "In this situation, is it morally right or wrong to sacrifice 1 person to save 5 people?" P = "In this situation, is it permissible to sacrifice 1 person to save 5 people?" I = "In this situation, would you sacrifice 1 person to save 5 people?" Type = Impersonal/Personal (within-subjects factor). Emotion = Sadness/Disgust (within-subjects factor).
* $p < 0.05$.

Appendix B

Moral Dilemma Vignettes (16)

1. Organ Transplant Dilemma

You are a farmer living in a third world country. Five people from your village have saved up enough money to see a doctor who has opened a small hospital nearby. You, the five people from the village, and a driver travel to see the doctor. The doctor explains to everyone (including the driver) that the five people are about to die, each from a different failing organ. The doctor also says that the only way to save the five people is for the doctor to humanely kill the driver and to transplant the organs from the driver into the other five bodies. Unlike the driver, your blood is incompatible with the five blood types.

TYPE

➢ Personal: You will have to strap the driver onto the hospital bed.

➢ Impersonal: You will have to notify the doctor to kill the one driver to save the five.

EMOTION

➢ Sadness: You have known the five ill people and the driver your whole life. You grew up together in your small village. You cannot imagine anyone to miss the harvest and not to be around any longer. You love all of them and losing any one of them would cause you great pain for years to come.

➢ Disgust: If you sacrifice the one person, you would see the bloody organs being cut and pulled out of the body, and only a bloody mess would be left behind. If you let the five people die, they will sweat and vomit as their organs begin to slowly fail.

MORAL REASONING

➢ In this situation, is it morally right or wrong to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Morally Wrong; Moderately Morally Wrong; Slightly Morally Wrong; Slightly Morally Right; Moderately Morally Right; Strongly Morally Right

➢ In this situation, is it permissible to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Not Permissible; Moderately Not Permissible; Slightly Not Permissible; Slightly Permissible; Moderately Permissible; Strongly Permissible

➢ In this situation would you sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Unlikely; Moderately Unlikely; Slightly Unlikely; Slightly Likely; Moderately Likely; Strongly Likely

2. Kidnapper Dilemma

On your vacation in South America you and six other travelers have been kidnapped. The kidnappers have hung up five members of your group from the ceiling in front of your cell. The kidnappers tell you, your cellmate and the other five group members that if your cellmate is killed, they are going to let the five people live. If you refuse to kill your cellmate, the kidnappers will kill the five people and release your cellmate to tell the media about the situation.

TYPE

➢ Personal: You will have to kill your cellmate using an axe.

➢ Impersonal: You will tell the kidnappers to kill your cellmate.

EMOTION

➢ Sadness: It is quiet and one after another you share how much you mean to each other and how awful it is that some of you must die. The misery is overwhelming and you all begin to cry. You share old memories; you talk about plans you had for the future.

➢ Disgust: You can see the axe they use to decapitate prisoners. In the corner lies a decaying body. The head is nearby, and you can see where the axe sliced through the throat. A smell of rotten flesh is creeping towards you.

MORAL REASONING

➢ In this situation, is it morally right or wrong to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Morally Wrong; Moderately Morally Wrong; Slightly Morally Wrong; Slightly Morally Right; Moderately Morally Right; Strongly Morally Right

➢ In this situation, is it permissible to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Not Permissible; Moderately Not Permissible; Slightly Not Permissible; Slightly Permissible; Moderately Permissible; Strongly Permissible

➢ In this situation would you sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Unlikely; Moderately Unlikely; Slightly Unlikely; Slightly Likely; Moderately Likely; Strongly Likely

3. Circus Elephant Dilemma

An angry circus elephant has broken free. The elephant is running down an exit hallway towards five circus crew members and is going to trample them in an attempt to leave the tent. The five crew members are aware they will die unless you help them.

TYPE

➢ Personal: You can push a very large worker into the hallway where the elephant is running. This will trip the elephant so that it does not reach the exit with the five crew members, but the large person will die in the process. The large person is aware that their body could be used to stop the elephant and is too weak to stop you from pushing them.

➢ Impersonal: You can push a button that will close the exit gate. This will stop the elephant from trampling the five crew members. However, if you push the button. the elephant will run to the other exit without a gate and kill the worker who is standing there. The one worker at the gate is aware you may push the button and has no way to escape.

EMOTION

➢ Sadness: You have traveled the country with your circus coworkers for many years. They have all become your family and you cannot imagine your life without any of them. You begin to weep as you try and decide what to do from the overwhelming sense of loss you begin to feel.

➢ Disgust: You've seen a person crushed to death before. Their blood and guts splattered flat across the floor. Tiny pieces of bone were stuck to the ground and you could only tell

that the crushed corpse used to be human due to the chunks of clothing mixed into the bloody mess.

MORAL REASONING

➢ In this situation, is it morally right or wrong to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Morally Wrong; Moderately Morally Wrong; Slightly Morally Wrong; Slightly Morally Right; Moderately Morally Right; Strongly Morally Right

➢ In this situation, is it permissible to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Not Permissible; Moderately Not Permissible; Slightly Not Permissible; Slightly Permissible; Moderately Permissible; Strongly Permissible

➢ In this situation would you sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Unlikely; Moderately Unlikely; Slightly Unlikely; Slightly Likely; Moderately Likely; Strongly Likely

4. Car Dilemma

You are an engineer testing your new self-driving vehicle. Your car is malfunctioning and is about to run over five of your coworkers. If you take control of the vehicle, your only other option is to run over the one coworker standing on the sidewalk nearby. The five coworkers and the coworker on the sidewalk are aware that you will have to decide who to crash into and kill.

TYPE

- ➤ Personal: You are in the self-driving vehicle and will have to take over control of the steering wheel just in time to crash into your one coworker nearby. The airbags will protect you during impact.

- ➤ Impersonal: You are in the control room and will have to flip a switch to make the car turn just in time to crash into your one coworker nearby.

EMOTION

- ➤ Sadness: You spend more time with your coworkers than with your family and have become very close to them. You become heartbroken thinking about losing them.

- ➤ Disgust: You will hear bones breaking as the car crashes against bodies and drives over them. Blood will smear across the street.

MORAL REASONING

- ➤ In this situation, is it morally right or wrong to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Morally Wrong; Moderately Morally Wrong; Slightly Morally Wrong; Slightly Morally Right; Moderately Morally Right; Strongly Morally Right

➤ In this situation, is it permissible to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Not Permissible; Moderately Not Permissible; Slightly Not Permissible; Slightly Permissible; Moderately Permissible; Strongly Permissible

➤ In this situation would you sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Unlikely; Moderately Unlikely; Slightly Unlikely; Slightly Likely; Moderately Likely; Strongly Likely

5. Construction Dilemma

You are working on the roof of a building. A large steel plank has become loose and is about to roll down the roof and kill five workers on the ground. The five workers hear the steel plank break loose and look up in dismay as they realize that it will fall on them and there is no time to escape.

TYPE

➢ Personal: You are standing on the roof and can push a very large coworker next to you in the way of the steel plank rolling down the roof. The person would stop the steel plank from falling off the roof. This would kill the large coworker but save the other five coworkers. The coworker is aware of the decision you have to make and would not be able to stop you.

➢ Impersonal: You can push a button on the crane that would move the position of the steel plank before it falls down from the roof. While you would save the five people working on the ground, you would kill another person on the ground nearby who is on break. The coworker is aware of the decision you have to make and does not have enough time to escape.

EMOTION

➢ Sadness: You feel depressed thinking about this senseless death. Pictures of family members at the grave come into your mind. You feel like crying.

➢ Disgust: You have seen someone else being crushed by one of these heavy steel planks before. Bones will crack. Intestines and blood will cover the area.

MORAL REASONING

➤ In this situation, is it morally right or wrong to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Morally Wrong; Moderately Morally Wrong; Slightly Morally Wrong; Slightly Morally Right; Moderately Morally Right; Strongly Morally Right

➤ In this situation, is it permissible to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Not Permissible; Moderately Not Permissible; Slightly Not Permissible; Slightly Permissible; Moderately Permissible; Strongly Permissible

➤ In this situation would you sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Unlikely; Moderately Unlikely; Slightly Unlikely; Slightly Likely; Moderately Likely; Strongly Likely

6. Blood Transplant Dilemma

You are a soldier on the front line of an active war zone and are in a medical tent with five soldiers who have been injured by a landmine. There is also one healthy soldier who is in the same medical tent. You have been trained to use a machine that handles blood transfusions. The only way to save the five soldiers is to kill the last healthy soldier in your group and transfer the blood of that person into the other five bodies. Unlike the healthy soldier, your blood is incompatible with the other blood types. The five injured soldiers and the last healthy soldier aware you will have to decide who will live. The healthy soldier is too small to fight you.

TYPE

➢ Personal: You will have to strap the soldier to be killed onto the hospital bed and hook up the blood transfer machine.

➢ Impersonal: The soldier to be killed is already hooked up the blood transfer machine. All you have to do is flip the switch of the blood transfer machine.

EMOTION

➢ Sadness: You have spent a lot of time with all of the soldiers in your group. It pains you to think about anyone one of them dying. Tears are streaming down your face as you think about the loss of life.

➢ Disgust: The tent you are in with the soldiers is smelling badly from their injuries. The body of the person who would have to be killed would turn blue as the blood is transferred into the other five bodies.

➢ In this situation, is it morally right or wrong to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Morally Wrong; Moderately Morally Wrong; Slightly Morally Wrong; Slightly Morally Right; Moderately Morally Right; Strongly Morally Right

➢ In this situation, is it permissible to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Not Permissible; Moderately Not Permissible; Slightly Not Permissible; Slightly Permissible; Moderately Permissible; Strongly Permissible

➢ In this situation would you sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Unlikely; Moderately Unlikely; Slightly Unlikely; Slightly Likely; Moderately Likely; Strongly Likely

7. Dam Dilemma

You are working on a dam. You spot a leak in the dam and realize that the water pressure is about to bust the dam open and kill five people working on a water pathway attached to the dam. The five workers are aware they will die and have no time to escape.

TYPE

> ➢ Personal: You are standing on a bridge and can push a very large coworker next to you over the bridge who would clog the leak and prevent the dam bursting open just in time. This would kill the large coworker but save the other five coworkers. The large coworker is aware that their body may prevent the dam from bursting open and know that they would be too weak to stop you from pushing them.

> ➢ Impersonal: You can push a button that would divert the bursting dam to another pathway. This would save the five people working on the new pathway of the dam, but you would kill another person who is working on an old pathway of the dam. The person on the old pathway is aware that the dam may be diverted and would not be able to escape.

EMOTION

> ➢ Sadness: You feel helpless being faced with such a horrible decision. The thought that any of your coworkers would die hurts you deeply. They all have much life ahead of them and do not deserve to die.

> ➢ Disgust: You have heard of people drowning in the dam water. It is dirty water with germs that will quickly fill up the lungs. Corpses infested by these germs will turn green and blue and smell horribly.

MORAL REASONING

- ➢ In this situation, is it morally right or wrong to sacrifice 1 person to save 5 people?

  - 6-point Likert-type response options: Strongly Morally Wrong; Moderately Morally Wrong; Slightly Morally Wrong; Slightly Morally Right; Moderately Morally Right; Strongly Morally Right

- ➢ In this situation, is it permissible to sacrifice 1 person to save 5 people?

  - 6-point Likert-type response options: Strongly Not Permissible; Moderately Not Permissible; Slightly Not Permissible; Slightly Permissible; Moderately Permissible; Strongly Permissible

- ➢ In this situation would you sacrifice 1 person to save 5 people?

  - 6-point Likert-type response options: Strongly Unlikely; Moderately Unlikely; Slightly Unlikely; Slightly Likely; Moderately Likely; Strongly Likely

8. Terrorist Dilemma

You are a cameraman at a news station and come in to work on the weekend. You find that terrorists are holding five of your coworkers hostage and is about to kill them using poison. The terrorists give you the option that they will not kill the five coworkers if you help them find the news anchor who is well known to the public. The five coworkers are listening to this conversation. You see the news anchor is hiding in the adjacent room and can also hear the conversation. You are safe because you are the only one who knows how to use the equipment that will broadcast the execution.

TYPE

➢ Personal: You will have to inject the deadly poison.

➢ Impersonal: You will have to tell the terrorist your decision.

EMOTION

➢ Sadness: You consider all your coworkers to be your friends and you cannot imagine a world without them. You think about the grief that will overwhelm everyone who will watch the video. You are disappointed and heartbroken thinking about all the bad news you have seen lately and that more people will be hurt today.

➢ Disgust: The recording will show that the poison causes a slow death. Green foam will begin to seep from their mouth and they will slobber and choke. Their eyes will turn bright red and bleed. Vomit will spill out and splatter on the ground.

MORAL REASONING

➢ In this situation, is it morally right or wrong to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Morally Wrong; Moderately Morally Wrong; Slightly Morally Wrong; Slightly Morally Right; Moderately Morally Right; Strongly Morally Right

➢ In this situation, is it permissible to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Not Permissible; Moderately Not Permissible; Slightly Not Permissible; Slightly Permissible; Moderately Permissible; Strongly Permissible

➢ In this situation would you sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Unlikely; Moderately Unlikely; Slightly Unlikely; Slightly Likely; Moderately Likely; Strongly Likely

9. Helicopter Dilemma

You are in your helicopter flying over your flight training academy. Your propeller has stopped functioning and you are about to crash into a field with five people from your helicopter class directly below you. If you veer the helicopter to the left, you will avoid crashing into the five people but will instead land on one person from your class in the adjacent field. Your helicopter is malfunctioning and cannot be steered in any other direction. The five people below you and the one person in the adjacent field are aware that you will have to decide who dies. None of the people have enough time to run away.

TYPE

> ➢ Personal: You will turn the helicopter to the left, killing your one classmate as you crash. Your harness will protect you during impact.

> ➢ Impersonal: You will turn the helicopter to the left, and then jump to safety using your parachute to land.

EMOTION

> ➢ Sadness: You've spent the past year training with the people in the fields below you. You are overwhelmed with grief as you think of crashing into any of them. You've gotten to know everyone's families and feel sorrowful thinking about their potential loss. You begin to weep as the helicopter plummets towards the ground.

> ➢ Disgust: The propeller blades are sharp and will surely cut through any flesh they meet. You imagine the blades decapitating your classmates causing blood to spray everywhere. Limbs, organs, and soft tissue will splatter across the windshield as the helicopter crashes.

MORAL REASONING

- ➢ In this situation, is it morally right or wrong to sacrifice 1 person to save 5 people?

  - 6-point Likert-type response options: Strongly Morally Wrong; Moderately Morally Wrong; Slightly Morally Wrong; Slightly Morally Right; Moderately Morally Right; Strongly Morally Right

- ➢ In this situation, is it permissible to sacrifice 1 person to save 5 people?

  - 6-point Likert-type response options: Strongly Not Permissible; Moderately Not Permissible; Slightly Not Permissible; Slightly Permissible; Moderately Permissible; Strongly Permissible

- ➢ In this situation would you sacrifice 1 person to save 5 people?

  - 6-point Likert-type response options: Strongly Unlikely; Moderately Unlikely; Slightly Unlikely; Slightly Likely; Moderately Likely; Strongly Likely

10. Cult Dilemma

You are a member of a cult. Six members of the cult have offended the cult's beliefs. Five of the six cult members have been caught and sentenced to death by sacrifice. You know where the sixth member is hiding. The cult leader has told you and the five cult members that if you find the sixth member who escaped, he will only sacrifice the cult member who escaped and will spare the other five cult members. You know the escaped cult member is hiding in the adjacent room and is listening to your conversation through the wall.

TYPE

- ➢ Personal: You will have to catch and deliver the escaped member to the cult leader.

- ➢ Impersonal: You will have to tell the cult leader where the escaped cult member is hiding.

EMOTION

- ➢ Sadness: You have a close bond to every member of your cult. You have lived together for many years and you consider them your chosen family. You feel crushed and will feel lonely if any cult members die.

- ➢ Disgust: Whoever will be sacrificed will be chained up and burnt alive. Skin will melt and peel from the bone. Eyes will pop out and roll on the ground towards you. Blood will leak from the body and create a mess on the floor.

MORAL REASONING

- ➢ In this situation, is it morally right or wrong to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Morally Wrong; Moderately Morally Wrong; Slightly Morally Wrong; Slightly Morally Right; Moderately Morally Right; Strongly Morally Right

➢ In this situation, is it permissible to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Not Permissible; Moderately Not Permissible; Slightly Not Permissible; Slightly Permissible; Moderately Permissible; Strongly Permissible

➢ In this situation would you sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Unlikely; Moderately Unlikely; Slightly Unlikely; Slightly Likely; Moderately Likely; Strongly Likely

11. Government Dilemma

Your country has been taken over by a government that intends to kill anyone who does not follow their belief system. A family of five people from your neighborhood are hiding in your house. Soldiers from the new government are at your door asking if you know of anyone hiding in your neighborhood. If you do not help them, they will search your house, and be able to find the five neighbors hiding in your house and kill them. If you tell them about the one person hiding in the house next door, the soldiers will kill that person and not search your house. The person next door and the five people in your house can hear your conversation with the soldiers on the street and have no way to escape. No matter what happens, you will be safe because you are a teacher and are needed to take care of children in the neighborhood.

TYPE

➢ Personal: You will have to help the soldiers tie up whoever was captured.

➢ Impersonal: You will have to point to where someone is hiding.

EMOTION

➢ Sadness: You have known all your neighbors for many years and feel sorry that you will have to make the choice who will die. You remember happy celebrations you have had with them. You think about how much you will miss them and how empty your life will feel without them. You have to stop yourself from crying.

➢ Disgust: You know whoever will be caught by the soldiers will face a terrible fate. Before the soldiers kill their victims, they force them to work in an old factory where they have to

sleep on dirty floors and in clothes infested with lice. The only food given to them are insects and rats. The factory smells of sick and dying people.

MORAL REASONING

➢ In this situation, is it morally right or wrong to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Morally Wrong; Moderately Morally Wrong; Slightly Morally Wrong; Slightly Morally Right; Moderately Morally Right; Strongly Morally Right

➢ In this situation, is it permissible to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Not Permissible; Moderately Not Permissible; Slightly Not Permissible; Slightly Permissible; Moderately Permissible; Strongly Permissible

➢ In this situation would you sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Unlikely; Moderately Unlikely; Slightly Unlikely; Slightly Likely; Moderately Likely; Strongly Likely

12. Chemical Production Plant Dilemma

You are a worker at a chemical production plant. You are standing on a bridge above a tank containing toxic chemicals in a securely locked room. The tank is malfunctioning and about to spill over. Five coworkers are standing next to the tank and will die from the chemical burns if the tank overflows. They are aware of the situation but have no way of escaping. You can redirect the flow of chemicals, but another coworker would be exposed to the chemicals and surely die.

TYPE

➢ Personal: You are standing on a bridge above the tank with another coworker. Your coworker is much larger than yourself. If you push the large coworker into the tank, the tank will shut down. The large coworker is aware that their body could be used to shut down the malfunctioning tank and would not be able to stop you from pushing them in.

➢ Impersonal: You can push a button to redirect the chemicals to an emergency drain, but the chemicals would kill a coworker cleaning the emergency drain. The coworker can hear you discussing the situation on the radio but would not have enough time to climb out of the drain.

EMOTION

➢ Sadness: You have worked with your coworkers for many years. You spend time with all of their families and think about how hurt their children will feel over the loss of their parent. You feel helpless and begin to cry.

➢ Disgust: The chemicals will peel skin from red, burning flesh. Organs will burst, releasing bodily fluids. The mix of chemicals and decay will create a sickening smell.

MORAL REASONING

➢ In this situation, is it morally right or wrong to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Morally Wrong; Moderately Morally Wrong; Slightly Morally Wrong; Slightly Morally Right; Moderately Morally Right; Strongly Morally Right

➢ In this situation, is it permissible to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Not Permissible; Moderately Not Permissible; Slightly Not Permissible; Slightly Permissible; Moderately Permissible; Strongly Permissible

➢ In this situation would you sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Unlikely; Moderately Unlikely; Slightly Unlikely; Slightly Likely; Moderately Likely; Strongly Likely

13. Joker Dilemma

You are on your way to a party. After entering a dark room in a hotel, the door suddenly slams shut, and you are trapped in the room. The lights go on and you see five people tied to electric chairs. Through the speakers you and the five people can hear the voice of a famous mass murderer informing you that these five people will be executed unless you decide that the guest locked in the adjacent room will die. The person in the adjacent room can hear the speaker through the wall. The person cannot escape because the doors are locked. You know all of the five people in the room and the one person in the adjacent room. The person cannot communicate with the outside world because all communication devices are disrupted. You know from news reports that the mass murderer is known for playing evil games like this and always keeps their word.

TYPE

➢ Personal: You will either have to strap the person from the adjacent room in an electric chair or secure the straps of the five people already trapped in the electric chairs.

➢ Impersonal: You will have to tell the murderer your decision.

EMOTION

➢ Sadness: You know everyone has a family and people who depend on them. This senseless death seems like an immense loss. You feel overwhelmed with grief and sorrow.

➢ Disgust: You have seen pictures of former victims and know how brutal the mass murder's techniques of killing are. One of the victims had its hands cut off to bleed out. Another had its eyeballs and tongue removed. The mass murderer likes to eat cut off body parts.

MORAL REASONING

➢ In this situation, is it morally right or wrong to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Morally Wrong; Moderately Morally Wrong; Slightly Morally Wrong; Slightly Morally Right; Moderately Morally Right; Strongly Morally Right

➢ In this situation, is it permissible to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Not Permissible; Moderately Not Permissible; Slightly Not Permissible; Slightly Permissible; Moderately Permissible; Strongly Permissible

➢ In this situation would you sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Unlikely; Moderately Unlikely; Slightly Unlikely; Slightly Likely; Moderately Likely; Strongly Likely

14. Waterfall Dilemma

A raft containing five people is traveling down a river towards a waterfall. The waterfall is very steep and the five people will die if they go over the edge. Nearby, there is one person strapped into a canoe. If the canoe collides with the raft, it will push the raft with the five people to safety on the shore. However, the canoe will then go over the waterfall killing the one person in the process. The five people and the one person in the canoe is aware of the decision you will have to make. The person in the canoe does not have enough time to get out of the restraints of the canoe.

TYPE

➢ Personal: You will have to push the canoe with the one person in it.

➢ Impersonal: You will have to quickly untie the rope connecting the canoe to the shore.

EMOTION

➢ Sadness: All of you have tears in your eyes and you are sobbing. Everyone is extremely upset. The thought of anyone going over the waterfall is heartbreaking, and you feel hopeless.

➢ Disgust: Whoever goes over the waterfall will land on the sharp rocks below. Their bones will break through the skin and organs will rupture from the impact. You imagine the bloody mess their bodies will make.

MORAL REASONING

➢ In this situation, is it morally right or wrong to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Morally Wrong; Moderately Morally Wrong; Slightly Morally Wrong; Slightly Morally Right; Moderately Morally Right; Strongly Morally Right

➢ In this situation, is it permissible to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Not Permissible; Moderately Not Permissible; Slightly Not Permissible; Slightly Permissible; Moderately Permissible; Strongly Permissible

➢ In this situation would you sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Unlikely; Moderately Unlikely; Slightly Unlikely; Slightly Likely; Moderately Likely; Strongly Likely

15. Occupied Dilemma

Your country is being occupied by a foreign enemy. A high-ranking military doctor has set up a base in the local hospital and is conducting deadly experiments on human subjects. The doctor captured five people from your village and has begun to experiment on them. You are in the room with the five people and the doctor. He gives you two choices: either he will kill these five people, or he will release them if you help him capture the last healthy person in your village. You know the last healthy person is hiding in the adjacent room and is listening to your conversation. The one healthy person cannot escape because the only exit leads past the doctor. The doctor does not want to sacrifice you because you are the only trained cook and has been using you to cook for the soldiers.

TYPE

> ➢ Personal: You must capture and then strap the one person onto the hospital bed.

> ➢ Impersonal: You must tell the soldiers where the one person is hiding.

EMOTION

> ➢ Sadness: You feel very depressed about the choice you will have to make. You fought alongside one another to prevent the country from being occupied. You have formed a deep bond with all of them and feel heartbroken about the possibility of losing any of them. Tears swell as you think of the decision you have to make.

> ➢ Disgust: You have seen the experimental corpses lying in a dumpster behind the hospital. One person had their arms and legs cut off, and another one had those arms and legs sewn

onto their body. Another body had been cut in half at the torso causing the intestines to stretch in between the two halves.

MORAL REASONING

➢ In this situation, is it morally right or wrong to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Morally Wrong; Moderately Morally Wrong; Slightly Morally Wrong; Slightly Morally Right; Moderately Morally Right; Strongly Morally Right

➢ In this situation, is it permissible to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Not Permissible; Moderately Not Permissible; Slightly Not Permissible; Slightly Permissible; Moderately Permissible; Strongly Permissible

➢ In this situation would you sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Unlikely; Moderately Unlikely; Slightly Unlikely; Slightly Likely; Moderately Likely; Strongly Likely

16. THE Trolley Dilemma

A trolley is malfunctioning and is speeding down a track towards five workers. The workers are aware the trolley may kill them unless it is stopped or redirected. They have no way of escaping the pathway of the trolley in time because the tracks run through a deep trench that they cannot climb out of quickly.

TYPE

➢ Personal: You are in a nearby control room. If you press a button, the trolley will be switched onto a different set of tracks. This will save the five workers but will kill a different worker who is working on the other set of tracks. The worker on the different set of tracks is aware of the decision you will have to make but has no way of escaping.

➢ Impersonal: You are on a bridge. You can push a very large worker standing next to you off the bridge. This would kill the large worker but would stop the trolley and save the five workers on the tracks. The large worker is aware of the decision you will have to make and knows that they would be unable to stop you from pushing them.

EMOTION

➢ Sadness: You have worked together with all the workers for many years. If any of them would die, it would break your heart. You cannot imagine the loss their family members would feel if any of them die.

➢ Disgust: Whoever will be hit by the trolley will tumble beneath the wheels causing blood and guts to spew over the track. You imagine a skull being crushed, causing eyeballs to erupt from the sockets.

MORAL REASONING

➢ In this situation, is it morally right or wrong to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Morally Wrong; Moderately Morally Wrong; Slightly Morally Wrong; Slightly Morally Right; Moderately Morally Right; Strongly Morally Right

➢ In this situation, is it permissible to sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Not Permissible; Moderately Not Permissible; Slightly Not Permissible; Slightly Permissible; Moderately Permissible; Strongly Permissible

➢ In this situation would you sacrifice 1 person to save 5 people?

- 6-point Likert-type response options: Strongly Unlikely; Moderately Unlikely; Slightly Unlikely; Slightly Likely; Moderately Likely; Strongly Likely

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