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THE RELATIONSHIP BETWEEN THE DARK TRIAD TRAITS, AGGRESSION, AND MALEVOLENT CREATIVITY IN MALES AND FEMALES

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Creativity, or the generation of novel and appropriate ideas (Plucker et al., 2004), is often seen as being highly valuable and socially desirable (Nakano et al., 2018). Although creativity is commonly perceived as a benevolent, pro-social construct (Bilton & Cummings, 2014), creativity can also have negative consequences. Malevolent creativity is commonly defined as creativity that is deliberately intended to harm others, oneself, objects, or processes (Cropley et al., 2014). Research has examined how various individual difference variables, such as gender and the Dark Triad traits, predict malevolent creativity. While these individual relationships have been closely examined, research exploring the relationships between all three variables has been limited, nor as aggression been considered as part of malevolent creativity.

Using a sample of 225 adults recruited via MTurk, various findings were indicated. For one, results indicated that there were no gender differences in malevolent creativity. However, gender differences were indicated in the type of aggression displayed as part of malevolent creativity, with females generating more indirectly aggressive solutions as part of malevolent creativity, whereas males generated more directly aggressive solutions. This research also examined how the Dark Triad traits influence malevolent

creativity and investigated how different types of aggression may interact with this relationship. The research also examined how gender may play a role in the relationship between the Dark Triad traits and malevolent creativity. However, these hypotheses were not supported.

Key Words: Creativity, malevolent creativity, Dark Triad traits, aggression, gender

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The Relationship Between the Dark Triad Traits, Aggression, and Malevolent Creativity in Males and Females

In reference to Al Qaeda's attack on the United States on September 11th, 2001, Benjamin and Simon (2002, p. 4000), stated,

> "Al-Qaeda has broken the mold. They are genuinely creative, and their ingenuity and desire to inflict massive casualties will continue to drive them toward the acquisition and use of weapons of mass destruction…"

Many American citizens know exactly what Al Qaeda is and can easily recall where they were at and what they were doing on September 11th, 2001. That day, when the well-known terrorist group, Al Qaeda, launched a series of planned and coordinated attacks on multiple United States landmarks, is commonly regarded as one of the deadliest terrorist attacks on U.S soil. Importantly, each of these 19 hijackers of Al Qaeda were specifically chosen by Osama Bin Laden. Each hijacker was selected due to their extensive knowledge of Western culture, which increased the terrorist group's chances for success. Resulting in close to 3,000 people dead, this attack remains a vivid memory for many Americans.

Although it may be hard to stomach, the act of 9/11 has previously been referred to as a creative act (Cropley et al., 2008). At one point in time, creativity was thought of as purely benevolent and socially desirable. Creativity is typically perceived as highly desirable, perhaps due to it often being regarded as something that is critical for organizational success (Gilson et al., 2015). Despite the fact that creativity has been perceived in a positive light, creativity can have a "dark-side", commonly known as malevolent creativity (McLaren, 1993). Previously, research on malevolent creativity has

investigated several individual difference variables. For example, the relationships between malevolent creativity and gender (Perchtold-Stefan et al., 2020), aggression (Baas et al., 2019), and the Dark Triad traits (Jia et al., 2020) have each received attention, but there is still vast room for exploration.

Thus, in order to further understand malevolent creativity, the present study examines the relationship between malevolent creativity and the Dark Triad traits and examines how gender may moderate this relationship. The present study also intends to examine the relationship between the Dark Triad traits and aggression, and how gender may moderate this relationship. By conducting research that examines these relationships, we can identify the contribution of each of these variables to the expression of malevolent creativity. Furthermore, the ability to identify the underlying factors and specific differences that may predict one's engagement in malevolent creativity, allows for the exploration of how to prevent or disrupt the malevolently creative acts.

Literature Review

Creativity

Historically, creativity has been defined as the production of something that is novel or original (Runco & Jaeger, 2012). As this concept of creativity has developed over time, definitions of creativity have expanded to include emphasis on usefulness (Runco et al., 2012). Over time, researchers have largely agreed that creativity can be defined as the production of a novel, yet useful solution, product, or idea (Amabile, 1996; Kaufman & Baer, 2012; Mumford & Gustafson, 1988; Paulus & Nijstad, 2003; Plucker et al., 2004; Runco, 2004).

Breaking down these components of creativity, novelty involves the uniqueness or originality of the idea or solution. In other words, if an idea is considered novel, this idea is likely one that only a few people could come up with (Diedrich et al., 2015). Novelty is an essential element of creativity, because without it, the remaining solution, product, or idea would be mundane or conventional (Gillebaart et al., 2013; Runco et al, 2012). The other component to creativity, usefulness, refers to the appropriateness or effectiveness of the idea. Essentially, the element of usefulness describes how plausible or effective an idea is (Long, 2014), as a proposed idea must actually be able to be implemented (Runco & Charles, 1993)**.** As both of these elements are considered critical for creativity, if either novelty or usefulness is lacking, the idea, solution, or product, may not be considered creative. For instance, if an idea is effective, or implementable, but lacks originality and uniqueness, that idea would not be considered creative. Conversely, if an idea is highly original or unique, but cannot be implemented, that idea would also not be considered creative.

Creativity is often regarded as highly valuable and there is a strong tendency to perceive creativity as being positive and beneficial (Nakano et al., 2018). For example, various lauded historical figures tend to be labeled as creative, such as Albert Einstein. Thus, to be labeled as a creative person or to yield a creative outcome, is often highly desirable and highly cherished. With that being said, there is a common misconception that all creativity is benevolent and pro-social (Bilton & Cummings, 2014).

Malevolent Creativity

Although creativity is commonly perceived in a more positive light, research has identified that various forms of creativity exist (Beaussart et al., 2013). Negative

creativity is a form of creativity defined as creativity that yields negative consequences unintentionally (Harris et al., 2013). In other words, negative creativity refers to when a negative outcome occurs without intent or expectation for it to occur (Cropley & Cropley, 2013). For example, creative advertisements that encourage children to eat healthy may unintentionally yield the negative outcome of children developing eating disorders. Opposingly, what happens when the application of a creative idea *is* backed by the intent to cause harm or destruction?

Malevolent creativity is defined as creativity that is deliberately intended to harm others, oneself, objects (e.g., buildings), or processes (e.g., public transportation) (Cropley et al., 2014; Cropley et al., 2008; Harris & Reiter-Palmon, 2015). This form of creativity happens when one acknowledges and intends for the negative consequences of creativity to occur. Negative creativity and malevolent creativity differ in the levels of intentionality. A common example of malevolent creativity is that of 9/11. Due to the effectiveness of this act of terrorism, as well as the unexpectedness, or the originality, this intentional act to cause destruction exemplifies malevolent creativity. While the relevance and importance of malevolent creativity is validated and established in the area of terrorism and crime (Cropley et al., 2008; Gill et al., 2013), malevolent creativity can also be seen in smaller scaled areas. Common smaller-scaled examples of malevolent creativity include lying, betrayal, and deception (Hao et al., 2016; Harris et al., 2015).

Research has considered both the contextual and individual differences variables in predicting malevolent creativity (Gutworth et al., 2016). One individual difference variable that has been investigated in relation to malevolent creativity is emotional intelligence. Harris et al. (2013) examined this relationship and found a negative

relationship between emotional intelligence and malevolent creativity. In other words, those with a lower emotional intelligence, or those who are less capable at identifying and managing emotions, are often more likely to produce malevolently creative ideas. Previous research has also examined how contextual cues can influence malevolent creativity, such as situational cues (Gutworth et al., 2016). While the relationships between gender and malevolent creativity, as well as the Dark Triad traits and malevolent creativity, have been closely examined, research exploring the relationships between the three constructs has lacked. Importantly, these relationships have not been explored extensively in relation to aggression.

Gender Differences in Malevolent Creativity

One individual difference variable that will be further examined in this study is gender. Previous studies have investigated the relationship between gender and malevolent creativity, indicating that gender differences may exist (Furnham & Nederstrom, 2010). For example, Lee and Dow (2011) found gender differences during their examination of the relationship between creativity and antagonistic personality. In this study, participants were asked to complete a divergent thinking task, generating the possible uses for a brick and a pencil. The responses to this task were scored by computing a proportion score, which was calculated by counting the total number of responses that each participant generated and identifying which of the responses were considered malevolent. Once this was done, the number of malevolent responses was then divided by fluency. Furthermore, in order to identify predictors of malevolent creativity, Lee et al. (2011) conducted hierarchical regressions, which included the demographic variables race and gender. Through this, a significant gender difference was

found, indicating that males generated a greater amount of malevolently creative responses than females did. Lee et al. (2011) noted that because males are prone to engage in more violence than females, this may explain why males provide more aggressive, malevolent content than females.

Similar to Lee et al. (2011), Dumas and Strickland (2018), conducted a study using the alternate uses tasks (AUT), a common measure of divergent thinking. In this study, participants were presented with ten objects in a random order (e.g., book, brick, fork, hammer, shoes, shovel, table, truck, and trumpet) and given two minutes to provide uses for each object. The participant responses were then coded for malevolent uses, originality, and fluency, and findings indicated that males generated significantly more malevolent responses than females did. It should be noted that there was no evidence to conclude that these malevolent responses were original, that is, there were no gender differences found on originality or fluency, just malevolence. Importantly, both Lee et al. (2011) and Dumas et al. (2018) did not measure malevolent creativity, rather, both studies measured the number of malevolent ideas generated.

Providing further support for gender differences in malevolent creativity, Harris and Reiter-Palmon (2015) also found significant differences in the number of malevolently creative ideas that males and females generated. During this study, participants were asked to complete a measure of aggression, and then were presented with one of two problems: (1) a malevolent-creativity provoking problem or 2) and benevolent-creativity provoking problem. Following the problems, participants were asked to "generate as many creative ways to respond to the situation." The responses were rated by quasi-experts for valence and originality. The results of this study suggest

that males generated a higher number of malevolently creative responses than females did (Harris et al., 2015). Taken together, these results provide evidence that gender differences may exist with males producing a greater amount of malevolently creative ideas than females.

Hypothesis 1*:* Males will produce more malevolently creative ideas than females.

Aggression

Aggression is highly complex and aggressive behaviors can manifest in many different forms. Various types of aggression have been identified, such as physical aggression, verbal aggression, direct aggression, and indirect aggression (Bjorkvist et al., 1992; Lagerspetz et al., 1988). Direct aggression is commonly conceptualized as verbal or physical assault and is usually motivated by a source of anger or frustration (Green et al., 1996). Indirect aggression refers to a form of social manipulation (Campbell, 1999) and often involves attempting to socially or psychologically harm someone (Bjorkvist, 2018). Common examples of indirect aggression include malicious gossiping and social exclusion (Bjorkvist et al., 1992). Because direct and indirect aggression are characterized by different behaviors, it is possible that males and females may engage in them differently.

Aggression and Malevolent Creativity

The relationship between aggression as a trait and malevolent creativity has also been investigated. Aggressive individuals are thought to be indifferent to negative consequences and may be more likely to justify bad behavior (Harris et al., 2015). Additionally, it has been suggested that aggressive individuals may process ideas or solutions taking a more malevolent perspective (Lee et al., 2011). That said, research has

indicated that aggression and malevolent creativity are positively correlated (Hao et al., 2016).

In the previously discussed study, Lee et al. (2011) found that those with high levels of aggression and low levels of conscientiousness were more likely to express malevolent creativity. Likewise, Harris et al. (2015) investigated the relationship between implicit aggression and malevolent creativity and found that participants who were high in aggression expressed more malevolently creative ideas. Overall, it should be noted that there is support suggesting that those who are more aggressive are more likely to generate malevolently creative ideas. However, previous studies have focused on aggression as a trait and have not evaluated malevolent creativity for the type of aggressive idea (direct or indirect).

Aggression and Gender

As Bjvorkvist (2018, p. 39) explains in their work on gender and aggression, "it has been regarded as self-evident that males are more aggressive than females." Bjorkvist (2018) explains that this notion may be supported due to both: (a) testosterone and (b) the tendency for males to be conditioned to act more aggressively. However, gender differences may also be based on the type of aggression.

It has been suggested that males may engage in more direct aggression than females (Baron & Richardson, 1994). In other words, males may engage in more physical violence or verbal assault than females (Buss & Perry, 1992). Additionally, Green et al. (1996), administered a questionnaire and asked participants to indicate how often they engaged in a series of actions when they were angry with friends. For example, participants were asked to indicate how many times they had "made negative comments

about someone's appearance behind their back" or how often they had "thrown an object at someone with vicious intent" (Green et al., 1996). The findings indicated that females engaged in a greater amount of indirect aggression than males, suggesting that females were more likely to spread rumors or attempt to damage one's reputation.

Various explanations have been offered as to why this gender difference in aggressive behaviors exists, such as biology (Archer, 1991) and gender stereotypes (Hurt, 2008). It is argued that biology, or testosterone, may be a cause for more physical, direct aggression. Regarding biology, testosterone has been shown to provoke hostility and violence (Carre & Archer, 2018), which may explain why males have a tendency towards direct aggression. However, it should be noted that this effect of testosterone is not consistent across the entire male population (Mims, 2019), seeing as some males may respond to increased amounts of testosterone with aggression and others may not. Ultimately, biology and testosterone may play some role in why males engage in more direct forms of aggression.

Another explanation for gender differences in aggressive behaviors may be the role that gender stereotypes play in masculinity and femininity. Masculinity may encourage direct aggression, whereas femininity may discourage it. Drawing from the social role theory, roles within society produce expected tendencies or behaviors for males and females. This theory posits that because of these social expectations, femininity may be associated with more communal, expressive traits, whereas masculinity may be more associated with agentic, instrumental traits (Archer, 2004). For example, stereotypical masculinity is often featured in society as dominant, tough, and stoic. This view of a masculine identity may provide an explanation on the relationship

between males and direct aggression, as it may be more "expected" of males. Exemplifying this, Parrot and Zeichner (2003), conducted a study investigating the relationship between hypermasculinity and physical aggression. During this study, participants were assigned to either a low or high-hypermasculinity group and asked to respond to a measure of aggression. Parrot et al. (2003) found that hypermasculine males engaged in more physical assault choices. Thus, the results of this study suggest that hypermasculinity may increase the likelihood of engaging in direct aggression. On the other hand, females may learn that directly aggressive behaviors may be an inappropriate response and out of line with typical femininity. That said, because femininity does not socially align with direct aggression, females may opt to engage in more indirect forms of aggression, as it is more in line with feminine expectancies. Thus, not only does this theory support the understanding that males may be more expected to engage in more direct aggression than females, but it also supports the understanding that males may learn that responding this way may be more acceptable or appropriate. Thus, it is thought that malevolent creativity will be expressed differently by males and females.

> ***Hypothesis 2:*** There will be gender differences in the type of aggressive behavior engaged in as part of malevolent creativity. Males will engage in more direct aggression as a part of malevolent creativity, whereas females will engage in more indirect aggression as part of malevolent creativity.

The Dark Triad Traits

Another set of individual difference variables that have been commonly examined in relation to malevolent creativity are the Dark Triad personality traits. The Dark Triad is a series of three malevolent personality traits: (1) Machiavellianism, (2) psychopathy,

and (3) narcissism (Paulhus & Williams, 2002). The Dark Triad is commonly recognized as composed of distinct personality traits that share a common theme of behaviors (Jones & Paulhus, 2014). For example, the traits share behaviors such as a tendency towards self-promotion, callousness towards others, and an overall lack of empathy (Jonason & Tost, 2010; Jones et al., 2014; Paulhus et al., 2002). Individuals high in the Dark Triad traits have been indicated to engage in various acts of disregarding social norms and violating moral values, which may result in serious consequences (Lyons, 2019). For example, the Dark Triad traits have been linked to bullying (Hyland et al., 2016), sexual deception (Jonason et al., 2009), and delinquency (Chabrol et al., 2009).

With the Dark Triad traits gaining widespread interest, the way in which the Dark Triad is measured has varied. For instance, the Dark Triad traits have been studied as one, unidimensional construct. This approach assumes that the shared theme of behaviors sufficed as a singular construct, disregarding the unique distinctions of each trait. Other research has focused on studying each of the three traits as independent (Heym et al., 2019). It has been argued that Machiavellianism, psychopathy, and narcissism, should each be individually examined to investigate the specific contributions they may make (Heym et al., 2019). That said, it should be noted that for the purpose of this research, the Dark Triad traits will be treated as distinct, individual constructs. In order to investigate the Dark Triad traits in a more nuanced fashion, Machiavellianism, psychopathy, and narcissism will be evaluated individually to better understand their unique relationship with malevolent creativity and gender.

Machiavellianism

Although the Dark Triad traits may share some overlapping features, each trait has its own unique characteristics. The overarching distinction of Machiavellianism is the ability to manipulate and deceive others. Machiavellianism is commonly characterized as being highly cynical and manipulative (Jones & Paulhus, 2009). Those high in Machiavellianism are often described to be cunning, power-oriented leaders (Becker & O'Hair, 2007; Deluga, 2001; Judge et al., 2009). Additionally, those high on the trait are often emotionally-cold and display low morality (Christie & Geis, 1970**)**. Taking this a step further, those who are high on the Machiavellianism may be easily able to lie, deceive, and manipulate others in order to achieve their own, personal goals (Kowalski et al., 2018). For example, an employee who lies to management to make an employee look bad in order to get a promotion, represents a Machiavellian in the workplace.

Psychopathy

Psychopathy is typified by impulsivity, unemotional traits, and remorselessness (Hare, 1985). Individuals ranking high on psychopathy typically lack empathy and are largely antisocial (Hare, 2003; Williams et al., 2003). Additionally, psychopaths often engage in reckless behavior, such as increased alcohol consumption, physical violence, and aggressive behaviors (Neumann & Hare, 2008). It is also known that psychopaths can be highly manipulative and lack feelings of guilt (Hare, 1985), which paired with a lack of empathy and impulsivity, can be a detrimental trajectory.

Narcissism

The major distinction of narcissism includes an enhanced sense of entitlement and self-grandiosity, with large negative reactions to criticism and rejection. Narcissism

involves a high sense of entitlement and dominance (Morf & Rhodewalt, 2001). Those high in narcissism are often highly self-absorbed (Raskin & Terry, 1988), while also devaluing others (Morf et al., 2001). Those high in the trait often seek prestige high status, whether in the workplace via leadership position or socially via popularity status (Brunell et al., 2008). For example, a highly narcissistic individual is one who is an over-enhanced, attention-seeker, who believes that they are highly superior to others. Additionally, these individuals also tend to be highly sensitive to criticism (Witte et al., 2002). For example, a popular technique that narcissists employ when being criticized is to engage in passive aggressive tactics, such as shaming or humiliating the criticizer (Witte et al., 2002). While narcissists tend to possess a high sense of self-worth, this sensitivity to rejection and criticism may come from deep, internal feelings of inferiority and a low sense of self-esteem (Tylim, 2010).

The Dark Triad Traits, Malevolent Creativity, and Aggression

Previous literature has suggested a connection between the Dark Triad traits and malevolent creativity, but research on this relationship is very limited. That said, more research is needed to explore the unique relationships between Machiavellianism, psychopathy, and narcissism, and malevolent creativity.

Machiavellianism and Malevolent Creativity

Machiavellianism, or the trait associated with a lack of empathy and devious manipulation (Jonason et al., 2013), has received little direct attention in regard to malevolent creativity. Jia et al. (2020) examined the relationship between childhood neglect, the Dark Triad, and malevolent creativity. Throughout this study, the authors used the self-report Malevolent Creativity Behavior Scale (MCBS) that was developed by

Hao et al. (2016). In this scale, participants are asked to respond to a series of 13 items (e.g., “How often do you fabricate lies to simplify a problem situation”) on a 5-point Likert scale ranging from 1 (*never*) to 5 (*always*). When looking at the relationship between malevolent creativity and Machiavellianism, a significant, positive relationship was indicated. It should be noted that one concern of this study is the usage of the MCBS measure. The measure is designed to measure malevolent creativity through daily behaviors. Throughout this measure, three dimensions are identified: (1) hurting people, (2) lying, and (3) playing tricks. While these dimensions may indicate how often one engages in negative behaviors, this measure does not fully capture the extent of malevolent creativity.

In addition, Jonason et al. (2017) examined the relationship between “harm-based creativity”, or malevolent creativity, and Machiavellianism, by administering an alternate uses task, asking participants to generate possible uses for a brick, newspaper, and paperclip. Once participant responses were recorded, the responses were first rated for creativity, using the Consensual Assessment Technique (CAT) (Amabile, 1982). These ratings were then summed across all three objects, giving participants an average creativity score. Next, a fluency count was done, in which raters counted the number of responses for each participant per object. The authors then averaged the number of responses offered by each participant across the objects to create a count of creative responses. Following this, the same raters rated each responses harmfulness. The ratings were then averaged across the three objects to get a sense of the harmfulness of the responses. Although the authors measured the harmfulness of responses, it was unclear whether or not these ratings were scored alongside originality. That said, the

measurement of harm-based, or malevolent creativity, should be noted as a limitation to this study, as it is unclear whether or not harmful ideas were also original ideas. Furthermore, the authors used two different measures of the Dark Triad traits to investigate this relationship between harm-based creativity and the Dark Triad, one being the Dirty Dozen scale and the other being the Short Dark Triad scale. When looking at both scales, Machiavellianism was positively correlated with harm-based creativity.

It is thought that because Machiavellians are commonly known to manipulative and devious, individuals who are high in Machiavellianism may be likely to express creativity in devious and unique ways (Jonason et al., 2012). In other words, highly Machiavellian individuals may be more likely to creatively manipulate, lie to, or deceive others, or engage in more indirectly aggressive behaviors. Furthermore, it has been suggested that those who engage in lying, or other unethical behaviors, may be enhanced by creativity (Beaussart et al., 2013; Gino & Wiltermuth, 2014).

Machiavellianism and Aggression

As previously discussed, indirect aggression involves more socially related aggression, such as gossiping, spreading rumors, and damaging social relationships, whereas direct aggression involves more physical aggression, such as physical violence. For example, Kerig and Stellwagen (2010) conducted a study investigating the relationship between Machiavellianism and childhood aggression, indicating a positive relationship between Machiavellianism and relational aggression in children. It should be noted that relational aggression is similar to how Bjorkqvist et al. (1992) defines indirect aggression. Additionally, Jones and Paulhus (2009) found that Machiavellianism did not show a strong relationship with direct aggression. Kerig et al. (2010) further suggested

that Machiavellianism may be especially important for understanding the forms of socially-based aggression, particularly aggression that involves interpersonal power and manipulation of the social world.

Thus, the relationship between Machiavellianism and indirect aggression is predicted due to the nature of Machiavellianism being more socially based. As Wilson et al. (1996) describes, Machiavellians tend to use interpersonal, relationship manipulation in order to achieve goals. In other words, to exploit or manipulate others, in a more covert, deceitful, Machiavellian way (McIlwain, 2003), may be more in line with indirect aggression, versus the more physical, direct aggression. Thus, because malevolent creativity requires deliberate and innovative harm, and Machiavellians are often strategic and planned in their devious acts, it is hypothesized that those who are high in Machiavellianism will be more likely to engage in indirectly aggressive forms of malevolent creativity.

Hypothesis 3: Individuals who are high in Machiavellianism will be more likely to engage in indirectly aggressive forms of malevolent creativity.

Psychopathy and Malevolent Creativity

Psychopathy, known as the trait characterized as being emotionally-cold and calculated, lacking empathy, and maintaining high levels of impulsivity (Hare, 1985), has not received a lot of attention in regard to malevolent creativity. Although this relationship has not been individually examined in depth, Jia et al. (2020) found a positive relationship between psychopathy and malevolent creativity, suggesting that those who commonly violate social norms and engage in greater risk-taking may be more likely to engage in malevolent creativity (Perchtold et al., 2020). Additionally, Jonason et

al. (2017) also examined this relationship using two different Dark Triad scales, finding that when using the Dirty Dozen scale, psychopathy was positively related to malevolent creativity, but this result was not replicated with the Short Dark Triad scale.

Although research is limited, it is thought that individuals high in psychopathy are likely to generate ideas that are oriented towards harming others, so it is possible that these ideas may be creative. Thus, because psychopathy is related to these characteristics, it is likely that psychopaths may creatively plan out their acts. Additionally, due to the lack of empathy that psychopaths possess, social desirability may not serve as a boundary or constraint to their acts.

Psychopathy and Aggression

Psychopathy, which is associated with high levels of impulsivity, a lack of empathy, and engagement in thrill-seeking behaviors (Hare, 2003), has been studied the most in relation to aggression. Research has previously indicated that psychopathy is the strongest predictor of aggressive behaviors, specifically physical and premeditated aggression (Heym et al., 2019; Patrick, 2007). In 2010, Jones and Paulhus set out to evaluate how provocations trigger aggression in psychopaths. During the study, participants engaged in a competitive game and were provoked with a physical threat during their engagement. It was hypothesized that psychopaths would be especially responsive to the physical threat. Jones et al. (2010) found that those with psychopathic traits responded more when they were threatened physically, providing evidence for a relationship between psychopathy and direct aggression.

Other research has also provided evidence for a positive relationship between psychopathy and direct aggression (Klimstra et al., 2014). For example, Porter et al.

(2018) reviewed studies that investigated the nature of aggression in psychopaths. Consistent with other findings, the review of studies indicated an overall agreement that psychopaths are more likely to engage in more direct and physical aggression. Additionally, psychopathy has been linked to direct aggression seen in bullying behaviors. Baughman et al. (2012) conducted a study to directly investigate the relationships between the Dark Triad personality traits and bullying behaviors, finding that psychopathy was most strongly related to bullying. It was also noted that those high in psychopathy, particularly males, engaged in more direct forms of bullying, such as pushing, hitting, punching, etc. (Baughman et al., 2012). Given that those high in psychopathy often lack remorse and empathy, are highly impulsive, and engage in risky behavior, this may explain why psychopaths may engage in more physical aggression. Furthermore, because another key distinction of psychopathy is a difficultly in regulating and managing emotions, this may also play a role in why psychopaths may engage in more direct forms of aggression. In other words, difficulties managing emotions paired with impulsivity and engagement of risk may contribute to the engagement in physically, direct aggressive behaviors, such as physical violence. Taken together, it is expected that there will be a positive relationship between psychopathy and direct aggression.

> ***Hypothesis 4:*** Individuals who are high in psychopathy will be more likely to engage in directly aggressive forms of malevolent creativity.

Narcissism and Malevolent Creativity

Narcissism is distinguished from Machiavellianism and psychopathy as involving a high sense of self-worth and entitlement (Morf et al., 2001). This relationship has been studied the most extensively out of the three Dark Triad traits, but the findings on this

relationship are unclear and inconsistent. Similar to the above traits, Jia et al. (2020) conducted a study and found a positive relationship between narcissism and malevolent creativity, suggesting that those who are high on narcissism are more likely to be malevolently creative. In addition to this, Jonason et al. (2017) examined this relationship using the Dirty Dozen scale (Maples et al., 2014) and the Short Dark Triad scale and did not find any significant relationships between narcissism and malevolent creativity in either scale.

Although the findings are unclear, it is thought that there may be a relationship between malevolent creativity and narcissism. As discussed above, those high narcissism often possess a high sense of self-worth (Morf et al., 2001). When this self-worth is questioned, it is common for narcissists ego to be damaged, leaving the narcissist to engage in passive-aggressive tactics to protect their ego (Witte et al., 2002). Thus, it is possible that when an ego threat is present, narcissists may engage in malevolent creativity has a response tactic. Additionally, narcissists may view creative abilities as socially desirable, using creativity to build one's positive self-image (Jauk & Sordia, 2018; Lebuda et al., 2021). Furthermore, it is predicted that based on a narcissist's high self-grandiosity, narcissists may engage in more malevolent creativity as an attempt to defend their ego or to be perceived as higher status.

Narcissism and Aggression

Out of the Dark Triad traits, the relationship between narcissism and aggression has yielded the most mixed results. Narcissism is commonly characterized by an exaggerated sense of self-entitlement and superiority (Morf et al., 2001). Findings have been mixed and indicated that narcissists may engage in various forms of aggression

depending on the nature of the situation and provocation. Jones and Paulhus (2010) set out to evaluate how provocations trigger aggression in narcissists and psychopaths. During this study, participants engaged in a competitive game and were provoked during their engagement. While participating in the game, participants were provoked with an ego threat, such as a personal insult directed towards them. It was hypothesized that narcissists would be especially responsive to this ego threat. The results of this study were in line with the hypotheses, indicating that narcissists were more likely to respond aggressively after being provoked with an ego threat, versus a physical threat. While narcissists are characterized as having a high sense of self-entitlement, there is a tendency for these individuals to have a relatively low self-esteem. Thus, this sense of self-entitlement may be a defense mechanism to protect one's low sense of self-esteem. Therefore, it is possible that when narcissists feel as if their self-image is being attacked or questioned, they may respond with aggression.

Interestingly, it has also been found that physical aggression was associated with narcissism when Machiavellianism is not present (Kerig et al., 2010). The authors indicate that the self-defense mechanisms that narcissists often engage in is likely to manifest as direct aggression. However, Klimstra et al. (2014) found that narcissism was positively associated with indirect aggression. It has been indicated that narcissism may be linked to more indirect methods of aggression because narcissists may perceive the costs of direct, aggression as higher and riskier (Baughman et al. 2012). In other words, engaging in indirect forms of aggression, such as damaging one's social status or gossiping, may be perceived as more socially desirable or appropriate, than being physically violent towards someone. Thus, in terms of aggressive behaviors, it is

predicted that narcissism is positively related to both indirect and direct forms of aggression.

***Hypothesis 5*:** Individuals who are high in narcissism will be more likely to engage in both direct and indirect forms of malevolent creativity.

The Dark Triad Traits, Malevolent Creativity, and Gender

Drawing on the above findings, various relationships between the Dark Triad traits and malevolent creativity have been indicated, as well as the possible gender differences, but few studies have examined the relationship of these constructs together. Thus, research that examines whether gender impacts the relationship between the individual Dark Triad traits and malevolent creativity will provide a more robust understanding of how individual differences affect malevolent creativity.

Furthermore, based on the previous findings regarding malevolent creativity and each component of the Dark triad, the following hypotheses are defined below:

Hypothesis 6: Machiavellianism will have a positive relationship with malevolent creativity; as values of Machiavellianism increase, values of malevolent creativity will also increase. This relationship between Machiavellianism and malevolent creativity will be moderated by gender, such that for females, there will be a stronger, positive relationship between Machiavellianism and malevolent creativity (see Figure 1).

Hypothesis 7: Psychopathy will have a positive relationship with malevolent creativity; as values of Psychopathy increase, values of malevolent creativity will also increase. This relationship between Psychopathy and malevolent creativity

will be moderated by gender, such that for males, there will be a stronger positive relationship between Psychopathy and malevolent creativity (see Figure 2).

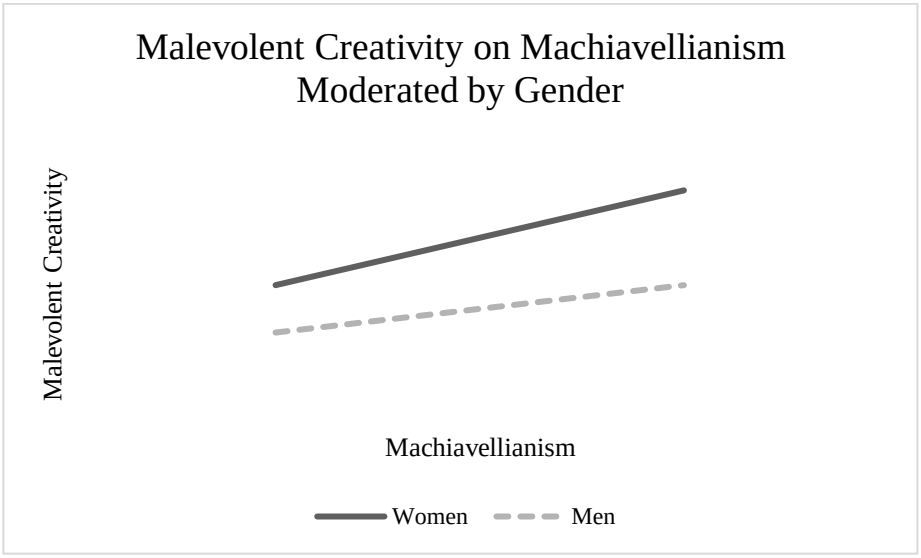

Figure 1. Hypothesized relationship between Machiavellianism and gender in predicting malevolent creativity.

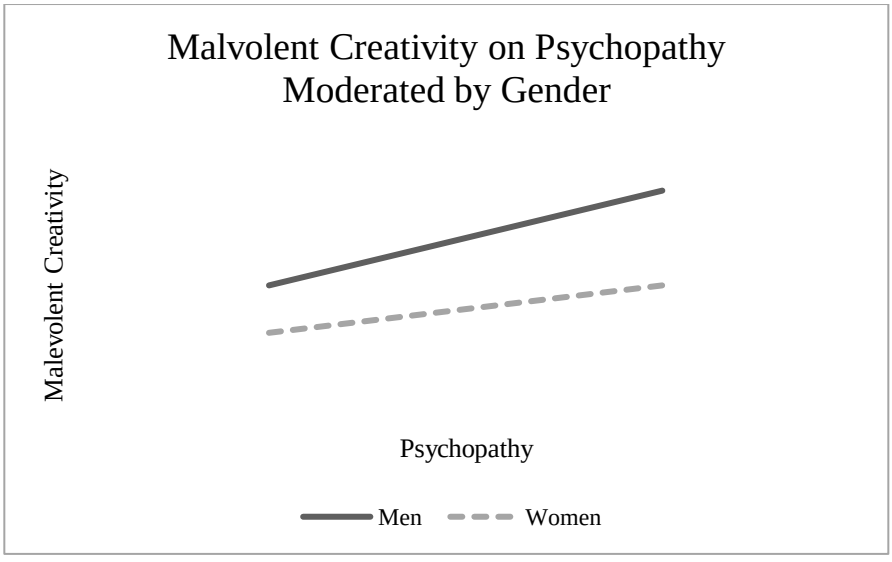

Figure 2: Hypothesized relationship between psychopathy and gender in predicting malevolent creativity.

The Dark Triad Traits, Aggression, and Gender

Additionally, the relationships between the Dark Triad traits and aggression, as well as gender differences with the two constructs, have been investigated. However, minimal research has examined the effects of this interaction. Thus, the present research intends to examine whether gender influences the relationship between the individual Dark Triad traits and aggression, which will provide a greater understanding of factors that may influence aggressive behaviors in individuals. Drawing on the above findings, the following hypotheses are defined here:

> ***Hypothesis 8:*** Machiavellianism will have a positive relationship with indirect aggression as part of malevolent creativity; as values of Machiavellianism increase, values of indirectly aggressive malevolent creativity will also increase. This relationship between Machiavellianism and indirect aggression will be moderated by gender, such that for females, there will be a stronger, positive relationship between Machiavellianism and indirect aggression as part of malevolent creativity (see Figure 3).
>
> ***Hypothesis 9:*** Psychopathy will have a positive relationship with direct aggression as part of malevolent creativity; as values of Psychopathy increase, values of directly aggressive malevolent creativity will also increase. This relationship between Psychopathy and direct aggression will be moderated by gender, such that for males, there will be a stronger, positive relationship between Psychopathy and direct aggression as part of malevolent creativity (see Figure 4).

Overall, the present study investigates the specific individual differences that may each contribute to the engagement of malevolent creativity. Identifying how factors

uniquely contribute to the expression of malevolent creativity will provide insight on how to prevent future malevolently creative acts.

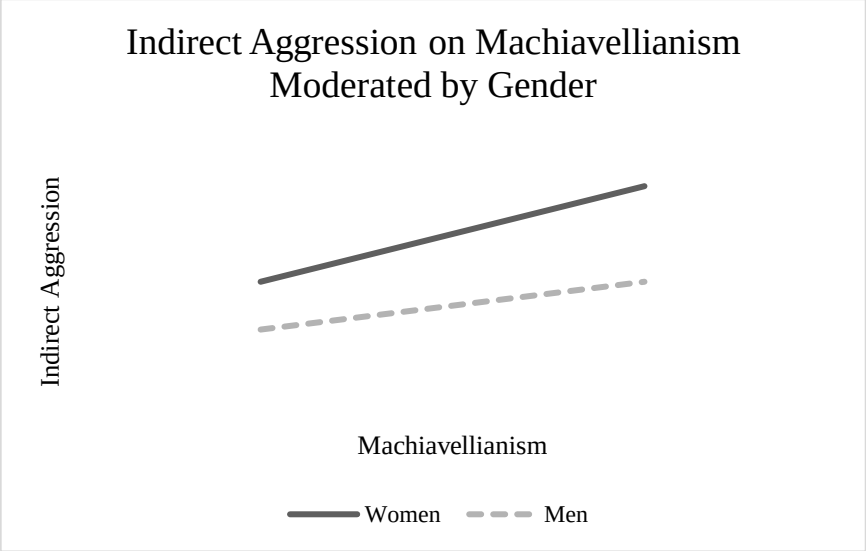

Figure 3. Hypothesized relationship between Machiavellianism and gender in predicting indirect aggression.

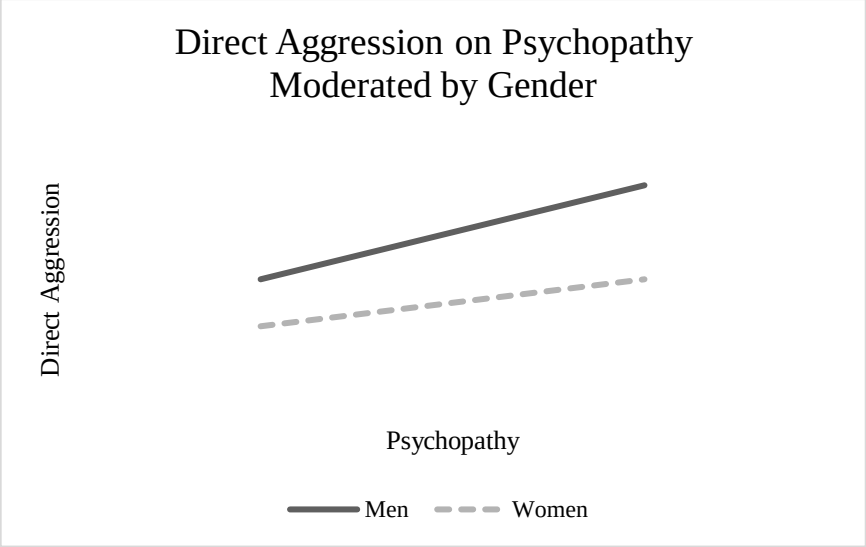

Figure 4. Hypothesized relationship between psychopathy and gender in predicting direct aggression.

Method

Participants

A total of 918 participants were recruited through an online crowdsourcing platform, Amazon Mechanical Turk (MTurk). The only inclusion criteria were that participants had to have a solid comprehension of the English language, live in the United States, and be above the age of 19 years or older. Because data were collected via MTurk, an online platform that is susceptible to careless responding and bots, various actions recommended by Aguinis et al. (2021) were taken to ensure the quality of the data. First, I increased the number of participants beyond the final sample size. Additionally, six attention checks were administered randomly throughout the study to ensure participants were paying attention. Each response was individually reviewed, such that if participants did not accurately respond to a minimum of four attention checks, the participants response was removed. Lastly, responses to open-ended questions were screened to ensure that responses provided quality data. The purpose of these steps was to ensure participants provided usable and high-quality data.

Of the 918 participants, 645 answered four of the six attention checks correctly. Upon inspecting the open-response data, 420 responses were flagged for providing repetitive responses or responses that were generated by a bot, script, or other automated answering tools. Any responses that did not accurately answer at least four of the six attention checks, as well as provided quality open-ended data, were subsequently removed from analysis. The final participant sample was 225 adults. The sample was fairly evenly split between women (n =101, 49.8%) and men (n = 96, 47.3%), with .5% reporting transgender man (n = 1), .5% reporting transgender, .5% (n = 1) reporting

intersex (*n* = 1), 1.5% reporting other (*n* = 3), and 1.5% not disclosing (*n* = 3). The mean age was 37 years old (*M* = 37.41; *SD* = 10.75). The majority of the participants identified as White (*n* = 176, 78.2%), followed by Black/African American (*n* = 15, 6.7%), Hispanic/Latino/Spanish (*n* = 15, 6.7%), Asian (*n* = 6, 2.7%), other (*n* = 10, 4.4%), and did not disclose (*n* = 3, 1.3%). Most participants reported having a bachelor's degree (*n* = 120, 53.3%) and reported working an average of 35 hours or more weekly (*n* = 180, 80%). Once participants completed the survey, they were compensated with US $2.00. See Table 1 for the full demographic breakdown.

Table 1

Demographic Breakdown of Participants

	N	**Percent**
Gender		
Female	101	49.8
Male	96	47.3
Transgender Man	1	.5
Transgender	1	.5
Intersex	1	.5
Did not disclose	3	1.5
Race/Ethnicity		
White	176	78.2
Black/African American	15	6.7
Hispanic/Latino/Spanish	15	6.7
Other	10	4.4
Did not disclose	3	1.3
Education Level		
Associate's	15	6.7
Bachelor's	120	53.3
Doctoral or Professional	4	1.8
High School	20	8.9
Master's	44	19.6
Some college but no degree	16	7.1
Did not disclose	6	2.6
Employment Status		
Full-time (35+ hours weekly)	180	80.0
Part-time (less than 35 hours)	14	6.2
Not employed	4	1.8
Retired	3	1.3
Self-employed	15	6.7
Student	1	0.4
Did not disclose	8	3.6

Procedure

Participants completed the survey via Qualtrics, an online survey website. Participants were initially presented with a cover letter for the study and were asked to read through the study information. Upon reading the cover letter, participants were informed that clicking next and continuing onto the survey would constitute as passive consent. Participants were randomly presented with the measures of interest, including that of the malevolent creativity tasks. To conclude the survey, participants responded to a series of demographic questions. Once the survey was completed, participants were compensated.

Measures

Malevolent Creativity

Perchtold-Stefans et al. (2020) malevolent creativity task (MCT) was administered to examine malevolent creativity in situations that may provoke harmful behavior in acts of daily life. During this task, the participants were presented with two open-ended problems that depict a realistic, unfair behavior. Importantly, these problems were plausible and likely to evoke some anger in the participants (Perchtold-Stefan et al., 2020). The two problems included: *(problem 1) a money related problem, where your neighbor fails to pay you for contracted work, (problem 2) a classmate spilling coffee on your expensive laptop.* These problems were counter-balanced and randomly presented throughout the survey. For more details on the vignettes, see Appendix A.

Prior to being presented with each vignette, participants were encouraged to imagine that the situation they were about to read was actually happening to them. Once participants were presented with the vignettes, participants were instructed to think of

how they would get back or sabotage the wrongdoer and generate as many original or unique ideas as possible. The instructions that were presented to participants during this task were similar to the instructions that has been used in previous research (Harris et al., 2013; Perchtold-Stefan et al., 2020).

Once responses were collected, they were rated using a modified Consensual Assessment Technique (CAT) (Amabile, 1996). Independent teams of three trained raters rated each solution for originality and harmfulness. Each team of three was recruited from a pool of students who were familiar with creativity research and ratings and were further trained on the specific problem and rating scale. Each team was separately trained and were provided with 10% of the full dataset to rate independently. Interclass correlations (ICCs; Shrout and Fleiss, 1979**)** were assessed and once acceptable, individuals then rated the full dataset.

Harmfulness. Harmfulness was rated to determine the malevolence of the solutions. Raters responded using a 5-point, Likert-type scale, ranging from 1 *(Not at all harmful)* to 5 *(Very harmful)*. ICC's were calculated for both problems. The ICC's displayed acceptable levels of agreement for problem 1 (ICC(2, 1) = .91) and for problem 2 (ICC(2, 1) = .90). For each problem, I averaged the scores across the three judges to form a single harmfulness score for each participant. For more information on the scale, see Appendix B.

Originality. Originality refers to the extent that the solution was unexpected or novel. Originality was rated using a five-point, Likert-type scale ranging from 1 *(Not at all original)* to 5 *(Very original).* The ICC's displayed acceptable levels of agreement for problem 1 (ICC(2, 1) = .80). The ICC's for problem 2 were not sufficient after the first

training, but raters were retrained and reliability was re-assessed. After the retraining, the problem 2 ICC's displayed acceptable levels of agreement, (ICC(2, 1) = .87). A single originality score was then generated for each problem by averaging the scores across the three raters. See Appendix C for the full harmfulness scale.

Final Malevolent Creativity Score. The variable of interest in this study is malevolent creativity. For a solution to be malevolently creative, the solution must be original and harmful. To determine the malevolent creativity of solutions, a procedure similar to Harris (2013) was used. Specifically, solutions that were identified as both harmful and original were used. If a solution was rated as a 3 or higher on harmfulness, it was considered harmful. If a solution was rated as a 3 or higher on originality, this solution was considered original.

The number of solutions that are considered both harmful and original, that is, malevolently creative, was used as one dependent variable. The second way that a malevolent creativity score was computed was by computing a proportion score. The proportion was computed by dividing the number of original and harmful solutions that each participant generated by the total number of solutions that each participant generated.

Additionally, malevolently creative solutions were also categorized as either (a) indirectly aggressive, (b) directly aggressive, (c), neither, or (d) both. Two trained raters independently rated each solution and had 88% agreement on solutions. The raters then met and reached final consensus on the remaining items. See Appendix D for the scoring instructions and examples.

Aggression

An adapted version of the Direct and Indirect Aggression scale (Ruiz-Pamies et al., 2014) was used. This scale included 3 subscales, containing 4 social desirability items, 6 direct aggression items, and 10 indirect aggression items. Because self-reports of aggression can be impacted by response biases, such as social desirability and acquiescence bias, this scale is useful as it incorporates social desirability items. An example of a social desirability item is, "I have never said something bad about another person." Additionally, examples of items for direct aggression include, "When someone annoys me or pushes me, I would rather leave than fight ", whereas examples of items of indirect aggression include, "When someone bothers me, I do something to make them look stupid". Participants were administered this measure and asked to respond to each item on a five-point Likert scale, ranging from 1 *(Strongly disagree)* to 5 (*Strongly Agree).* Indirect aggression ($\alpha = .72$), direct aggression ($\alpha = .71$), and social desirability ($\alpha = .72$) all displayed levels of acceptable internal consistency. More information can be found in Appendix E.

Dark Triad Traits

The Dark Triad traits were measured using Jones and Paulhus (2014) Shortened Dark Triad scale. This scale included 9-items for each of the three malevolent personality traits: Machiavellianism, psychopathy, and narcissism. Participants were asked to respond to each item on a five-point Likert scale, ranging from 1 *(Strongly disagree)* to 5 (*Strongly Agree).* An example of an item measuring Machiavellianism includes, "I like to use clever manipulation to get my way". An example of a psychopathy item is, "People who mess with me always regret it". Lastly, an example of an item measuring narcissism

includes, “I know that I am special because everyone keeps telling me so.” Machiavellianism (α = .88), psychopathy (α = .77), and narcissism (α = .71) each displayed acceptable levels of internal consistency. See Appendix F for the full measure.

Gender Salience

Palomares (2009) nine item measure was used to measure individuals’ level of gender salience. Participants were presented with each item and were asked to respond to each item based on a 5-point Likert style scale 1 *(Strongly disagree)* to 5 (*Strongly Agree).* An example of item measuring gender salience is, “I think that my gender is central to my identity”. This scale demonstrated acceptable levels of internal consistency (α = .75). See Appendix G for the full measure.

Demographics

The survey also asked participants to respond to a series of demographic-related questions. For the full list of demographic questions, see Appendix H.

Results

Analytic Notes

As a large portion of this study contained self-report measures, it was necessary to rule out common method bias (Podsakoff et al., 2012). In order to test for common method bias, Harman’s Single Factor test was used. To do so, all self-report measure variables were loaded onto one factor. This test indicated that the total variance explained was less than the 50% threshold (23.92%), which provides evidence that common method bias is not an issue for the current study.

Additionally, it should be noted both problem 1 and problem 2 were analyzed separately across all analyses. Correlations between the ratings of harmfulness and

originality across the two problems were moderate, indicating that the two problems provided distinct information. Thus, like other studies (e.g., Arreola & Reiter-Palmon, 2016; Reiter-Palmon et al., 2009) there could be differences between the problems which indicates that these problems are not interchangeable and therefore should be analyzed separately. Lastly, for all analyses, only participants who identified as either male or female were used as there were too few for the other gender identifiers to be included.

Descriptive statistics were obtained for the study variables, which are presented in Table 2. Correlations were also observed between the study variables. For more information on correlations, see Table 3. It should be noted that prior to hypothesis testing, assumptions underlying t-tests, correlations, and regressions were tested.

Table 2

Means, Standard Deviations, Minimum and Maximum Values for Study Variables

	M	***SD***	***Min***	***Max***	***N***
Age	37.41	10.75	21.00	72.00	201
Social desirability	3.10	0.93	1.00	5.00	218
Direct aggression	3.16	0.63	1.00	4.50	217
Indirect aggression	3.04	0.66	1.20	4.70	218
Machiavellianism	3.25	0.83	1.00	4.67	216
Narcissism	3.08	0.68	1.00	4.67	219
Psychopathy	2.67	0.75	1.00	4.00	217
Gender saliency	3.23	0.74	1.00	4.89	213

Note. *M* = mean. *SD* = Standard Deviation. *Min.* = Minimum. *Max* = Maximum. *N* = number of participants.

Table 3

Correlations Between Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Fluency - MC (P1)	1																			
2. Proportion - MC (P1)	.66**	1																		
3. Fluency of direct aggression (P1)	.78**	.23**	1																	
4. Fluency of indirect aggression (P1)	-.09	-.24**	-.04	1																
5. Proportion of direct aggression (P1)	.32**	.34**	.44**	-.55**	1															
6. Proportion of indirect aggression (P1)	-.28**	-.32**	-.36**	.65**	-.86**	1														
7. Fluency – MC (P2)	.30**	.33**	.22**	-.02	.13*	-.09	1													
8. Proportion – MC (P2)	.20**	.41**	.03	-.12	.12	-.12	.69**	1												
9. Fluency of direct aggression (P2)	.32**	.18**	.38**	.07	.16*	-.12	.59**	.11	1											
10. Fluency of indirect aggression (P2)	.10	-.07	.20**	.55**	-.20**	.27**	.02	-.23**	.13*	1										
11. Proportion of direct aggression (P2)	.03	.14*	-.03	-.34**	.30**	-.33**	.15*	.25**	.31**	-.63**	1									
12. Proportion of indirect aggression (P2)	-.04	-.16*	.04	.34**	-.27**	.29**	-.16*	-.27**	-.29**	.67**	-.95**	1								
13. Direct aggression	-.11	-.19**	-.02	0.12	.06	-.09	-.20**	-.15**	-.02	-.16*	.09	-.08	1							
14. Indirect aggression	-.07	-.16*	.04	-.04	.05	-.05	-.09	-.09	.04	.02	.08	-.07	.25**	1						
15. Social desirability	.14*	.03	.12	.02	.06	-.01	.11	.09	.09	.05	-.02	.02	.11	.58**	1					
16. Machiavellianism	-.08	-.12	-.03	-.03	.05	-.06	-.13	-.09	-.03	-.09	-.16*	.-19*	.39**	.57**	.38**	1				
17. Psychopathy	-.09	-.18**	-.04	-.02	-.04	.00	-.23**	-.14*	-.08	-.16*	.06	-.08	.65**	.50**	.37**	.65**	1			
18. Gender saliency	-.11	-.05	-.08	.12	-.04	.13	-.03	-.02	-.07	.05	-.07	.07	.01	.09	.17*	.20**	.07	1		
19. Narcissism	-.09	-.11	-.04	-.10	.03	-.08	-.19**	-.18**	-.06	-.11	.08	-.09	.47**	.30**	.03	.52**	.47**	.10	1	
20. Gender	.04	.07	.00	.06	-.03	.02	.26**	.10	.19**	.10	-.03	.04	-.18*	-.15*	-.03	-.14	-.19**	.00	-.14	1

Note. *$p < .05$. **$p < .01$. Fluency = number of solutions generated. Proportion = number of specific solutions generated over total number of solutions generated. P1 = problem 1. P2 = problem 2.

Gender and Malevolent Creativity

The first set of hypotheses concerned the relationship between gender and malevolent creativity. I expected that males would generate a greater number of malevolently creative ideas than females would. Malevolent creativity was operationalized in two ways, one being the number of malevolently creative ideas generated and a proportion score comparing the number of malevolently creative ideas generated and the total number of ideas generated. Additionally, this was evaluated for both problems presented. Importantly, because hypotheses were directional, one-tailed t-tests were conducted for each analysis.

Problem 1

When examining gender and the number of malevolently creative ideas generated for problem 1, an independent samples t-test indicated that the hypothesis was not supported. There was no significant effect for gender $t(195) = .51$, $p = .30$. Additionally, there was not a significant effect for gender and the proportion score of malevolent creativity, $t(195) = .24$, $p = .41$.

Problem 2

When evaluating gender and malevolent creativity for problem 2, neither the fluency nor the proportion score was significant. There was not a significant effect of gender on the number of malevolently creative ideas generated, $t(195) = -.47$, $p = .32$. There was not a significant effect of gender on the proportion score of malevolent creativity, $t(195) = -.44$, $p = .33$.

Gender Salience and Malevolent Creativity

To further test for gender differences, an analysis of covariance (ANCOVA) was conducted across both problems, for both measurements of malevolent creativity, with gender salience as a covariate. The findings were in line with the above gender findings, such that gender salience was not a significant covariate and the findings did not change.

Gender and Direct Aggression

The next set of hypotheses involved the relationship between gender and aggression, specifically direct aggression. I expected that males would engage in more direct aggression as part of malevolent creativity than females. These analyses used a fluency count, as well as a proportion score, for both problems presented.

Problem 1

After conducting an independent samples t-test to assess the gender differences in direct aggression, it was indicated that these hypotheses were partially supported. There was no significant effect for gender and the fluency of directly aggressive solutions, $t(194) = -.04$, $p = .49$. However, when looking at the proportion score for direct aggression, there was a marginally significant effect for gender $t(194) = 1.56$, $p = .06$, with males ($M = .67$, $SD = .37$) obtaining higher scores than females ($M = .59$, $SD = .36$).

Problem 2

When examining the fluency of directly aggressive solutions generated, there was a marginally significant effect for gender $t(195) = -1.30$, $p = .09$, with females ($M = 2.45$, $SD = 1.94$) obtaining higher scores than males ($M = 2.10$, $SD = 1.74$). Although this finding was significant, this finding was not in line with what was excepted. However, when examining the proportion score, there was a significant effect for gender $t(195) =$

2.10, p = .02. Males (M = .76, SD = .34) generated a higher proportion of directly aggressive solutions as part of malevolent creativity than females did (M = .66, SD = .32).

Gender and Indirect Aggression

I also hypothesized that females would engage in more indirect aggression as part of malevolent creativity than males. These analyses were conducted using a fluency count, as well as a proportion score, for both problems presented.

Problem 1

When conducting a t-test to assess gender and the fluency of indirectly aggressive solutions generated, this hypothesis was supported. There was a significant effect indicated for gender, t(194) = -2.23, p = .01, with females (M = 1.33, SD = 1.65) generating a greater number of indirectly aggressive solutions as part of malevolent creativity than males did (M = .88, SD = 1.16). There was a marginally significant effect for gender when examining the proportion of indirectly aggressive solutions, t(194) = -1.56, p = .06, with females (M = .34, SD = .35) obtaining higher scores than males (M = .27, SD = .33).

Problem 2

As for problem 2, there was a significant effect for gender on the fluency of indirectly aggressive solutions generated, such that females (M = 1.37, SD = 1.70) generated a greater number of indirectly aggressive solutions as part of malevolent creativity than males did (M = .75, SD = 1.02), t(195) = -3.08, p = .00. When looking at the proportion score, there was a significant effect for gender, such that females (M = .31, SD = .31) had a greater proportion score of indirectly aggressive solutions as part of malevolent creativity than males did (M = .22, SD = .31), t(195) = -2.04, p = .02.

Gender Salience and Aggression

A series of ANCOVA analyses were conducted across both problems for both measurements of indirect and direct aggression, with gender salience as a covariate. All of the findings were in line with the above findings. The only change was that for problem 1, the fluency of indirectly aggressive solutions generated as part of malevolent creativity. Adding gender salience as a covariate changed this finding from significant to marginally significant, $F(4, 180) = 2.15$, $p = .07$. However, the covariate itself was not significant, suggesting that the fluency of indirectly aggressive solutions generated as part of malevolent creativity was not dependent on gender. That said, adding gender salience as a covariate removed relevant covariance.

Gender and Self-Report Aggression Measure

Independent samples t-tests were also conducted to evaluate gender and aggression using Ruiz et al. (2014) self-report aggression measure. The results were partially in line with the hypotheses, which suggested that males were more likely to report more direct aggression $t(188) = 2.02$, $p = .02$. Males ($M = 2.79$, $SD = .67$) demonstrating significantly higher direct aggression scores than females ($M = 2.58$, $SD = .71$). However, there was no significant gender differences on indirect aggression, $t(191) = -.21$, $p = .42$.

Social Desirability and Self-Report Aggression Measure

Social desirability was added as a covariate in these analyses between gender and direct aggression, as well as gender and indirect aggression. The purpose of this was to remove any effect of social desirability. Social desirability was not a significant covariate for either of the analyses and it did not change any of the results.

Dark Triad Traits and Aggression of Solutions

The next set of hypotheses addressed the relationship between Machiavellianism and aggression as part of malevolent creativity, as well as psychopathy and both direct and indirect aggression of solutions as part of malevolent creativity. A correlation matrix was observed to identify any possible relationships. It was expected that Machiavellianism was significantly, positively related to indirect aggression of the solutions, such that those who score higher on Machiavellianism would generate more indirectly aggressive solutions as part of malevolent creativity. Additionally, I expected that individuals who scored higher on psychopathy would generate more directly aggressive solutions as part of malevolent creativity.

Machiavellianism and Indirect Aggression

In problem 1, Machiavellianism was not significantly related to the number of indirectly aggressive solutions generated as part of malevolent creativity (r = -.03, p = .62) or the proportion of indirectly aggressive solutions generated over the total number of solutions generated (r = -.06, p = .39). In problem 2, Machiavellianism was not significantly related to the number of indirectly aggressive solutions generated (r = -.09, p = .21). Machiavellianism was significantly, negatively related to the proportion of indirectly aggressive solutions over the total number of solutions generated (r = -.16, p < .001), indicating that those who scored higher on Machiavellianism had a lower proportion score. While this finding was significant, these results were not in the expected direction. Thus, this hypothesis was not supported.

Machiavellianism and Direct Aggression

In problem 1, Machiavellianism was not significantly related to the number of directly aggressive solutions generated as part of malevolent creativity (r = -.03, p = .62) or the proportion of indirectly aggressive solutions generated over the total number of solutions generated (r = .05, p = .39). In problem 2, Machiavellianism was not significantly related to the number of directly aggressive solutions generated (r = -.03, p = .70). However, Machiavellianism was significantly positively related to the proportion of directly aggressive solutions generated (r = .16, p < .001). This indicates that those who scored higher on Machiavellianism generated a higher proportion of directly aggressive solutions as part of malevolent creativity, providing partial support for this hypothesis.

Psychopathy and Indirect Aggression

In problem 1, psychopathy was not significantly related to either the fluency of indirectly aggressive solutions generated as part of malevolent creativity (r = -.02, p = .77) or the proportion score (r = .00, p = .99). In problem 2, psychopathy was not significantly related to the fluency (r = -.08, p = .24) or the proportion score (r = .06, p = .36).

Psychopathy and Direct Aggression

In problem 1, psychopathy was not significantly related to either the fluency of directly aggressive solutions generated as part of malevolent creativity (r = -.04, p = .57) or the proportion score (r = -.04, p = .56). In problem 2, psychopathy was not significantly related to either the fluency of directly aggressive solutions generated as part

of malevolent creativity (r = -.08, p = .24) or the proportion score (r = .06, p = .36). Thus, this hypothesis was not supported.

Narcissism and Indirect Aggression

I expected narcissism to be positively related to indirect aggression. The results indicated via a correlation matrix were not in line with the hypotheses. In problem 1, narcissism was not significantly related to either the fluency of indirectly aggressive solutions generated as part of malevolent creativity (r = -.10, p = .14) or the proportion score (r = -.08, p = .26). In problem 2, narcissism was marginally significantly related to the fluency of indirectly aggressive solutions generated as part of malevolent creativity (r = -.11, p = .10). However, narcissism was not significantly related to the proportion score in problem 2 (r = -.09, p = .18).

Narcissism and Direct Aggression

I expected that narcissism would be positively related to direct aggression, meaning that those who scored higher on narcissism would generate more directly aggressive solutions as part of malevolent creativity. The results were not in line with the hypotheses. In problem 1, narcissism was not significantly related to either the fluency of directly aggressive solutions generated as part of malevolent creativity (r = -.04, p = .57) or the proportion score (r = .03, p = .68). In problem 2, narcissism was not significantly related to either the fluency of directly aggressive solutions generated as part of malevolent creativity (r = -.06, p = .34) or the proportion score (r = .08, p = .25).

Dark Triad Traits and Self-Report Aggression Measure

As another method of assessing the relationship between the Dark Triad traits and aggression, Ruiz-Pamies et al. (2014) self-report aggression measure was used to assess

the relationships between Machiavellianism and indirect aggression, as well as psychopathy and indirect aggression. Using a correlation matrix, the results were in line with the hypotheses that Machiavellianism would be positively related to indirect aggression and psychopathy would be positively related to direct aggression. Machiavellianism was significantly positively related to indirect aggression ($r = .57$, $p < .001$). This finding indicated that those who were higher on Machiavellianism were more likely to be indirectly aggressive. Additionally, Machiavellianism was significantly positively related to direct aggression ($r = .39$, $p < .001$), suggesting that those who are high in Machiavellianism reported engaging in more directly aggressive behaviors. However, the relationship between Machiavellianism and indirect aggression is stronger than that of direct aggression.

Psychopathy was significantly positively related to direct aggression ($r = .65$, $p < .001$), meaning that those who were higher on psychopathy were more likely to be directly aggressive. Additionally, psychopathy was significantly positively correlated with indirect aggression ($r = .50$, $p < .001$), indicating that those who scored higher on psychopathy reported engaging in more indirect aggression. However, it should be noted that the relationship between psychopathy and direct aggression is stronger than that of indirect aggression.

The hypothesis that narcissism would be positively related to both indirect and direct aggression was supported. Narcissism was significantly positively related to both indirect aggression ($r = .30$, $p < .001$) and direct aggression ($r = .47$, $p < .001$), meaning those who were higher on narcissism were more likely to be indirectly aggressive, as well as directly aggressive.

Dark Triad Traits, Malevolent Creativity, and Gender

I conducted a series of categorical by continuous moderation analyses to determine if the relationship between the Machiavellianism and malevolent creativity was moderated by gender. I also set to determine if the relationship between psychopathy and malevolent creativity was moderated by gender. Using hierarchical regression, the independent variable and the moderator were entered on the first step and the interaction variable was added on the second step. Prior to running the analyses, the independent variables (e.g., Machiavellianism and psychopathy) were centered. The following analyses were conducted using both measurements of malevolent creativity (e.g., fluency and proportion score) for both problems.

Machiavellianism, Malevolent Creativity, and Gender

Problem 1. A continuous by categorical moderation analysis was run, with Machiavellianism as the independent variable, the number of malevolently creative solutions as the dependent variable and gender as the moderator. I expected that gender would moderate the relationship between Machiavellianism and malevolent creativity, such that for females, there will be a stronger more positive relationship between Machiavellianism and malevolent creativity.

The increment in variance accounted for in the interaction term was not significant, $\Delta R^2 = .01$, $\Delta F = 0.92$, $p = .51$. This indicates that the interaction was not a significant predictor of the number of malevolently creative solutions generated above and beyond Machiavellianism and gender. For more information on this analysis, see Table 4.

Table 4

Fluency of Malevolent Creativity on Machiavellianism Moderated by Gender – Problem 1

Model	*B*	*SE*	*t*	β	*F*	R^2	Δ*F*	ΔR^2	95% CI
Step 1									
Constant	1.10	0.36	3.10**		0.67	.01			[0.40, 1.81]
Machiavellianism	-0.14	0.13	-1.04	-.08					[-0.40, 0.12]
Gender	-0.11	0.22	-0.48	-.04					[-0.54, 0.33]
Step 2									
Constant	1.30	0.41	3.17**		0.76	.01	.92	.005	[0.49, 2.11]
Machiavellianism	-0.51	0.41	-1.25	-.28					[-1.32, 0.30]
Gender	-0.26	0.27	-0.95	-.09					[-0.80, 0.28]
Interaction	0.26	0.27	0.96	.22					[-0.27, 0.79]

Note. $N = 188$. CI = confidence interval. *$p < .05$. **$p < .01$.

The proportion score of malevolent creativity regressed on Machiavellianism, gender, and the interaction indicated that the interaction was not significant. The increment in variance accounted for the interaction was not significant, $\Delta R^2 = .005$, $\Delta F = 2.28$, $p = .13$, meaning that there was no evidence found for an interaction. For more information on this analysis, see Table 5.

Table 5

Proportion of Malevolent Creativity on Machiavellianism Moderated by Gender – Problem 1

Model	*B*	*SE*	*t*	β	*F*	R^2	Δ*F*	ΔR^2	95% CI
Step 1									
Constant	0.25	0.08	3.35**		1.09	.01			[0.10, 0.40]
Machiavellianism	-0.04	0.03	-1.46	-.11					[-0.10, 0.02]
Gender	-0.01	0.05	-0.21	-.02					[-0.10, 0.08]
Step 2									
Constant	0.32	0.09	3.67**		1.49	.02	2.28	.02	[0.15, 0.49]
Machiavellianism	-0.17	0.09	-1.90	-.43					[-0.34, 0.01]
Gender	-0.06	0.06	-1.05	-.09					[-0.17, 0.05]
Interaction	0.09	0.06	0.35	.35					[0.03. 0.20]

Note. N = 188. CI = confidence interval. *p < .05. **p < .01.

Problem 2. The same continuous by categorical moderation analyses were conducted for problem 2, for the fluency of malevolent creativity on Machiavellianism, moderated by gender. The increment in variance accounted for in the interaction was not significant, ΔR^2 = .02, ΔF = 0.08, p = .78, which indicates that there is no evidence for an interaction to occur. For more information on this analysis, see Table 6.

Table 6

Fluency of Malevolent Creativity on Machiavellianism Moderated by Gender – Problem 2

Model	*SE*	*t*	β	*F*	R^2	Δ*F*	ΔR^2	95% CI
Step 1								
Constant	0.31	3.24**		1.64	.02			[0.39, 1.61]
Machiavellianism	0.12	-1.75	-.13					[-0.43, 0.03]
Gender	0.19	0.49	.04					[-0.28, 0.47]
Step 2								
Constant	0.36	2.68*		1.12	.02	.08	.00	[0.25, 1.65]
Machiavellianism	0.36	-0.30	-.07					[-0.81, 0.59]
Gender	0.23	0.56	.05					[-0.33, 0.59]
Interaction	0.23	-0.28	-.05					[-0.53, 0.40]

Note. $N = 194$. CI = confidence interval. *$p < .05$. **$p < .01$.

For the proportion score of malevolent creativity regressed on Machiavellianism, gender, and the interaction, the increment in variance accounted for in the interaction term was not significant, $\Delta R^2 = .00$, $\Delta F = 0.21$, $p = .65$. This means that the relationship between the proportion score and Machiavellianism was not significantly moderated by gender. For more information on this analysis, see Table 7.

Table 7

Proportion of Malevolent Creativity on Machiavellianism Moderated by Gender – Problem 2

Model	*B*	*SE*	*t*	β	*F*	R^2	Δ*F*	ΔR^2	95% CI
Step 1									
Constant	0.29	0.09	3.38**		0.98	.01			[0.12, 0.47]
Machiavellianism	-0.04	0.03	-1.33	-.10					[-0.11, 0.02]
Gender	0.03	0.05	0.46	.03					[-0.08, 0.13]
Step 2									
Constant	0.27	0.10	2.71*		0.72	.01	.21	.00	[0.07, 0.47]
Machiavellianism	0.01	0.10	0.01	.00					[-0.20, 0.20]
Gender	0.04	0.07	0.64	.06					[-0.09, 0.17]
Interaction	-0.03	0.07	-0.46	-.11					[-0.16, 0.10]

Note. $N = 194$. CI = confidence interval. *$p < .05$. **$p < .01$.

Gender Salience, Machiavellianism, Malevolent Creativity, and Gender

Gender salience was added as a covariate in this analysis between gender, Machiavellianism, and malevolent creativity. The purpose of this was to remove the effect of gender salience in the possible gender differences. Gender salience was not a significant covariate for any of the analyses and it did not change any of the results.

Psychopathy, Malevolent Creativity, and Gender

Problem 1. A continuous by categorical moderation analysis was run, with psychopathy as the predictor, the number of malevolently creative solutions generated as the dependent variable and gender as the moderator. I expected that gender would moderate the relationship between psychopathy and malevolent creativity, such that for

males, there would be a stronger more positive relationship between psychopathy and malevolent creativity.

The interaction between psychopathy and gender was not a significant predictor of the number of malevolently creative solutions generated. The increment in variance accounted for in the interaction was marginally significant, $\Delta R^2 = .02$, $\Delta F = 2.87$, $p = .09$, indicating that the relationship between the number of malevolently creative solutions generated and psychopathy may be dependent on gender. For more information on this analysis, see Table 8.

Table 8

Fluency of Malevolent Creativity on Psychopathy Moderated by Gender – Problem 1

Model	*B*	*SE*	*t*	β	*F*	R^2	Δ*F*	ΔR^2	95% CI
Step 1									
Constant	0.98	0.35	2.79*		0.99	.01			[0.29, 1.67]
Gender	-0.14	0.22	-0.64	-.05					[-0.57, 0.29]
Psychopathy	-0.20	0.15	-1.32	-.10					[-0.49, 0.09]
Step 2									
Constant	0.61	0.41	1.48		1.63	.03	2.87+	.02+	[-0.21, 1.42]
Gender	0.11	0.27	0.42	.04					[-0.21, 0.63]
Psychopathy	-0.97	0.48	-2.02	-.48					[-1.91, -0.02]
Interaction	0.50	0.30	1.69	.41					[-0.08, 1.09]

Note. $N = 189$. CI = confidence interval. + = $p < .10$. *$p < .05$. **$p < .01$.

As the above moderation analysis indicated evidence for a marginally significant interaction, this interaction was probed to identify the nature and direction of this interaction. To probe this interaction, the simple slopes were plotted. Probing this interaction indicated non-significant relationships for both males and females. For more information on this interaction, see Table 9. For a visual representation of this model, see Figure 5.

Table 9

Simple Slopes Model to Probe Fluency of Malevolent Creativity on Psychopathy Moderated by Gender – Problem 1

Model	*B*	*SE*	*t*	β	*F*	R^2
Male						
Constant	1.51	0.78	1.95			
Psychopathy	-0.22	0.27	-0.82	-.09	.67	.01
Female						
Constant	0.11	0.45	2.21			
Psychopathy	-0.97	0.16	-0.49	-.05	.24	.00

Note. Males (*N* = 91), Females (*N* = 99).

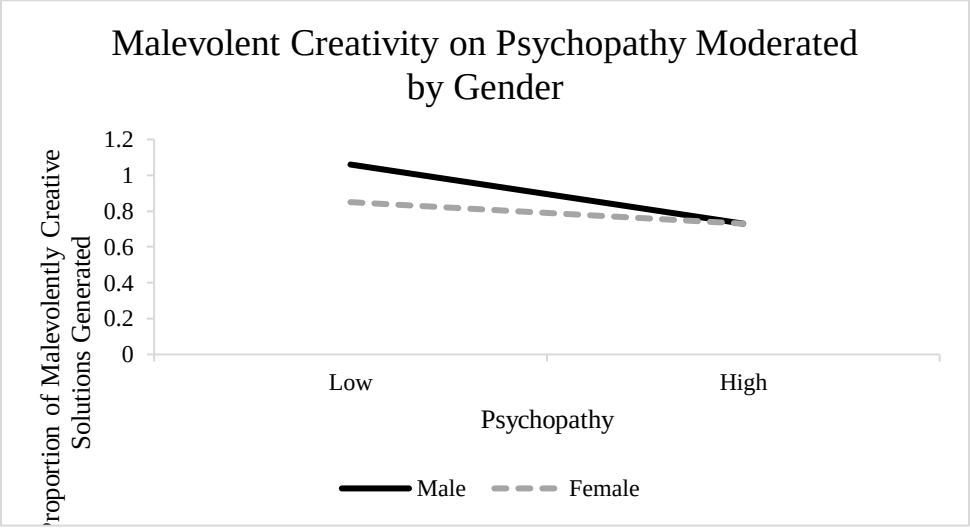

Figure 5. Interaction between psychopathy and gender in predicting the number of malevolently creative solutions in problem 1.

A continuous by categorical moderation analysis was conducted with psychopathy as the independent variable, the proportion score of the number of malevolently creative solutions generated over the total number of solutions generated as the dependent variable, and gender as the moderator. The increment in variance accounted for in the interaction was significant, $\Delta R^2 = .02$, $\Delta F = 3.63$, $p = .05$, indicating that there was evidence for an interaction. For more information on this analysis, see Table 10.

Table 10

Proportion of Malevolent Creativity on Psychopathy Moderated by Gender – Problem 1

Model	*B*	*SE*	*t*	β	*F*	R^2	Δ*F*	ΔR^2	95% CI
Step 1									
Constant	0.21	0.07	2.85*		3.17*	.03			[0.07, 0.36]
Gender	-0.02	0.05	-0.49	-.04					[-0.11, 0.07]
Psychopathy	-0.08	0.03	-2.51*	-.18					[-0.14, -0.02]
Step 2									
Constant	0.12	0.09	1.41		3.35*	.05	3.63*	.02*	[-0.05, 0.29]
Gender	0.04	0.06	0.66	.06					[-0.07, 0.15]
Psychopathy	-0.26	0.10	-2.59*	-.60					[-0.46, -0.06]
Interaction	0.12	0.06	1.91	.46					[0.00, 0.24]

Note. $N = 189$. CI = confidence interval. *$p < .05$. **$p < .01$.

As the above moderation analysis indicated a significant interaction, this interaction was probed to identify the nature and direction of this interaction. This interaction was probed by analyzing the simple slopes. Probing this interaction indicated a significant negative effect for males and a non-significant effect for females. This means that males higher on psychopathy generated a lower proportion score of malevolent creativity. For females, psychopathy did not make a difference in the proportion score of malevolent creativity. In other words, for females high and low on psychopathy, the proportion score is not significantly different. Although this interaction was significant, the relationship was not in the expected direction. Thus, this hypothesis

was not supported. For more information on this interaction, see Table 11. For a visual description of this interaction, see Figure 6.

Table 11

Simple Slopes Model to Probe Proportion of Malevolent Creativity on Psychopathy Moderated by Gender – Problem 1

Model	*B*	*SE*	*t*	β	*F*	R^2
Male						
Constant	0.16	0.04	4.06			
Psychopathy	-0.12	0.05	-2.35	-.24	5.51	.06
Female						
Constant	0.17	0.04	4.50			
Psychopathy	-0.04	0.04	-0.90	-.09	.81	.01

Note. Males (*N* = 91), Females (*N* = 99).

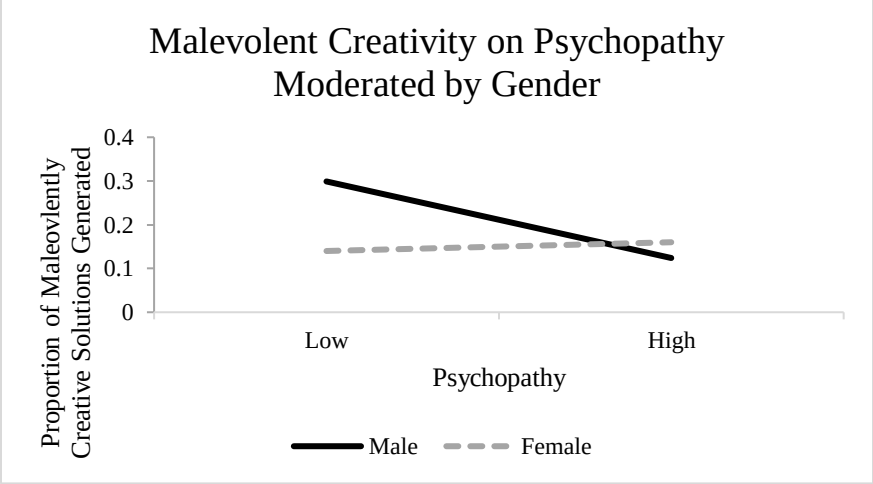

Figure 6. Interaction between psychopathy and gender in predicting the proportion score of malevolent creativity in problem 1.

Problem 2. The same continuous by categorical moderation analyses were conducted for problem 2. The interaction between psychopathy and gender was not a significant predictor of the number of malevolently creative solutions generated, as suggested by the increment in variance accounted for in the interaction $\Delta R^2 = .01$, $\Delta F = 1.16$, $p = .28$. For more information on this analysis, see Table 12.

Table 12

Fluency of Malevolent Creativity on Psychopathy Moderated by Gender – Problem 2

Model	*B*	*SE*	*t*	β	*F*	R^2	Δ*F*	ΔR^2	95% CI
Step 1									
Constant	0.78	0.30	2.63**		5.01**	.05			[0.20, 1.38]
Gender	0.03	0.19	0.15	.01					[-0.34, 0.40]
Psychopathy	-0.40	0.13	-3.13*	-.22					[-0.65, -0.15]
Step 2									
Constant	0.59	0.35	1.67		3.73**	.06	1.16	.01	[-0.11, 1.28]
Gender	0.17	0.23	0.73	.06					[-0.28, 0.61]
Psychopathy	-0.81	0.41	-1.99*	-.46					[-1.62, -0.01]
Interaction	0.27	0.25	1.08	.26					[-0.23, 0.77]

Note. $N = 189$. CI = confidence interval. *$p < .05$. **$p < .01$.

A continuous by categorical moderation analysis was conducted with psychopathy as the predictor, the proportion score of the number of malevolently creative solutions generated over the total number of solutions generated, and gender as the moderator. The increment in variance accounted for in the interaction was not significant, $\Delta R^2 = .01$, $\Delta F = .25$, $p = .62$, indicating that there was no evidence for an interaction. For more information on this analysis, see Table 13.

Table 13

Proportion of Malevolent Creativity on Psychopathy Moderated by Gender – Problem 2

Model	*B*	*SE*	*t*	β	*F*	R^2	Δ*F*	ΔR^2	95% CI
Step 1									
Constant	0.25	0.09	2.96**		1.88	.02			[0.09, 0.42]
Gender	0.01	0.05	0.25	.02					[-0.09, 0.12]
Psychopathy	-0.07	0.04	-1.89	-.14					[-0.14, 0.00]
Step 2									
Constant	0.23	0.10	2.24*		1.33	.02	.25	.00	[0.03, 0.43]
Gender	0.03	0.07	0.48	.04					[-0.10, 0.16]
Psychopathy	-0.12	0.12	-1.06	-.25					[-0.36, 0.11]
Interaction	0.04	0.07	0.50	-.12					[-0.11, 0.18]

Note. $N = 189$. CI = confidence interval. *$p < .05$. **$p < .01$.

Gender Salience, Psychopathy, Malevolent Creativity, and Gender

Gender salience was added as a covariate in this analysis between gender, psychopathy, and malevolent creativity. The purpose of this was to remove the effect of gender salience in the possible gender differences. Gender salience was not a significant covariate for any of the analyses and did not change any of the results.

Dark Triad Traits, Aggression, and Gender

The next set of hypotheses focused on the relationship between the Dark Triad traits, gender, and aggression. Specifically, I expected that Machiavellianism would have a positive relationship with indirect aggression as part of malevolent creativity. I expected that as values of Machiavellianism increases, values of indirect aggression would also increase, and I expected that this relationship would be moderated by gender,

such that for females, there would be a stronger positive relationship between Machiavellianism and indirectly aggressive solutions. Additionally, I expected that gender would moderate the relationship between psychopathy and direct aggression, such that for males, the relationship between psychopathy and direct aggression as part of malevolent creativity would be stronger and more positive. Through a series of continuous by categorical moderations, these hypotheses were tested. The variables were prepared the same way as previous moderation analyses. The following analyses were ran using both a fluency count of aggressive responses as well as a proportion score for the number of indirect or direct solutions generated over the total number of solutions generated, for both problems presented.

Machiavellianism, Indirect Aggression, and Gender

Problem 1. A categorical by continuous moderation analysis was conducted regressing the number of indirectly aggressive solutions generated on Machiavellianism, gender, and the interaction between these two variables. The increment in variance accounted for in the interaction was not significant, $\Delta R^2 = .01$, $\Delta F = 1.08$, $p = .30$, failing to provide evidence for an interaction. This means that the relationship between Machiavellianism and the number of indirectly aggressive solutions generated does not depend on gender. For more information on this analysis, see Table 14.

Table 14

Fluency of Indirect Aggression on Machiavellianism Moderated by Gender – Problem 1

Model	*B*	*SE*	*t*	β	*F*	R^2	Δ*F*	ΔR^2	95% CI
Step 1									
Constant	0.49	0.34	1.42		2.50	.03			[-0.19, 1.17]
Gender	0.46	0.21	2.19*	.16					[0.05, 0.88]
Machiavellianism	-0.07	0.13	-0.51	-.04					[-0.32, 0.19]
Step 2									
Constant	0.69	0.40	1.75		2.02	.03	1.08	.01	[-0.09, 1.47]
Gender	0.31	0.26	1.18	.11					[-0.21, 0.82]
Machiavellianism	-0.45	0.40	-1.15	-.26					[-1.23, 0.33]
Interaction	0.27	0.26	1.04	.24					[-0.24, 0.78]

Note. $N = 187$. CI = confidence interval. *$p < .05$. **$p < .01$.

A moderation analysis was conducted regressing the proportion of indirectly aggressive solutions generated over the total number of solutions generated on Machiavellianism, gender, and the interaction of these two variables. The increment in variance accounted for in the interaction was not significant, $\Delta R^2 = .01$, $\Delta F = .09$, $p = .76$, failing to provide evidence for an interaction to occur. This means that the relationship between Machiavellianism and the proportion of indirect aggression was not dependent on gender. For more information on this analysis, see Table 15.

Table 15

Proportion of Indirect Aggression on Machiavellianism Moderated by Gender – Problem 1

Model	*B*	*SE*	*t*	β	*F*	R^2	Δ*F*	ΔR^2	95% CI
Step 1									
Constant	0.22	0.08	2.65**		1.52	.02			[0.06, 0.38]
Gender	0.08	0.05	1.54	.11					[-0.02, 0.18]
Machiavellianism	-0.03	0.03	-0.83	-.06					[-0.09, 0.04]
Step 2									
Constant	0.23	0.10	2.45**		1.04	.02	.09	.01	[0.05, 0.42]
Gender	0.07	0.06	1.08	.10					[-0.06, 0.19]
Machiavellianism	-0.05	0.10	-0.56	-.13					[-0.24, 0.13]
Interaction	0.02	0.06	0.31	.07					[-0.10, 0.14]

Note. $N = 187$. CI = confidence interval. $*p < .05$. $**p < .01$.

Problem 2. The same series of continuous by categorical moderation analyses were conducted for problem 2. The interaction between Machiavellianism and gender was not significant when regressed on the number of indirectly aggressive solutions generated indicated by the increment in variance accounted for in the interaction, $\Delta R^2 = .01$, $\Delta F = 1.44$, $p = .23$. This means that there is no evidence for an interaction to occur, such that gender was not a significant predictor of the relationship between Machiavellianism and gender. For more information on this analysis, see Table 16.

Table 16

Fluency of Indirect Aggression on Machiavellianism Moderated by Gender – Problem 2

Model	*B*	*SE*	*t*	β	*F*	R^2	Δ*F*	ΔR^2	95% CI
Step 1									
Constant	0.23	0.33	0.70		5.33	.05			[-0.42, 0.88]
Gender	0.62	0.20	3.04**	.22					[0.22, 1.02]
Machiavellianism	-0.15	0.12	-1.25	-.09					[-0.40, 0.09]
Step 2									
Constant	0.01	0.38	0.14		4.04	.06	1.44	.01	[-0.75, 0.76]
Gender	0.80	0.25	3.17**	.28					[0.30, 1.29]
Machiavellianism	0.28	0.39	0.73	.16					[-0.47, 1.03]
Interaction	-0.30	0.25	-1.20	-.27					[-0.79, 0.19]

Note. $N = 188$. CI = confidence interval. $^*p < .05$. $^{**}p < .01$.

The interaction between Machiavellianism and gender was not a significant predictor of the proportion of indirectly aggressive solutions generated over the total number of solutions generated above and beyond Machiavellianism and gender. The increment in variance accounted for in the interaction was significant, $\Delta R^2 = .00$, $\Delta F = .34$, $p = .56$, indicating that the relationship between the proportion of indirect aggression and Machiavellianism was not dependent on gender. For more information on this analysis, see Table 17.

Table 17

Proportion of Indirect Aggression on Machiavellianism Moderated by Gender – Problem 2

Model	*B*	*SE*	*t*	β	*F*	R^2	Δ*F*	ΔR^2	95% CI
Step 1									
Constant	0.17	0.07	2.27*		4.69*	.05			[0.02, 0.31]
Gender	0.09	0.05	2.06*	.15					[0.00, 0.18]
Machiavellianism	-0.06	0.03	-2.30*	-.17					[-0.12, -0.01]
Step 2									
Constant	0.14	0.08	1.68		3.23*	.05	.34	.00	[-0.03, 0.31]
Gender	0.11	0.06	2.01*	.18					[0.00, 0.22]
Machiavellianism	-0.02	0.08	-0.19	-.04					[-0.18, 0.15]
Interaction	-0.03	0.06	-0.59	-.13					[-0.14, 0.08]

Note. $N = 194$. CI = confidence interval. *$p < .05$. **$p < .01$.

Gender Salience, Machiavellianism, Indirect Aggression, and Gender

Gender salience was added as a covariate in this analysis between gender, Machiavellianism, and indirect aggression as part of malevolent creativity. The purpose of this was to remove the effect of gender salience in the possible gender differences. Gender salience was not a significant covariate for any of the analyses conducted and did not change any of the results.

Psychopathy, Direct Aggression, and Gender

Problem 1. A categorical by continuous moderation analysis was conducted regressing the number of directly aggressive solutions generated on psychopathy, gender, and the interaction between these two variables. The increment in variance accounted for

in the interaction was not significant, $\Delta R^2 = .00$, $\Delta F = .04$, $p = .84$, providing no evidence for an interaction to exist. This means that the relationship between psychopathy and the number of directly aggressive solutions generated did not depend on gender. For more information on this analysis, see Table 18.

Table 18

Fluency of Direct Aggression on Psychopathy Moderated by Gender – Problem 1

Model	*B*	*SE*	*t*	β	*F*	R^2	Δ*F*	ΔR^2	95% CI
Step 1									
Constant	2.31	0.63	3.64**		0.15	.00			[1.06, 3.56]
Gender	-0.04	0.40	-0.09	-.01					[-0.82, 0.75]
Psychopathy	-0.15	0.27	-0.55	-.04					[-0.68, 0.38]
Step 2									
Constant	2.39	0.75	3.19*		0.12	.00	.04	.00	[0.91, 3.87]
Gender	-0.09	0.48	-0.19	-.02					[-1.04, 0.86]
Psychopathy	0.02	0.87	0.03	.01					[-1.69, 1.74]
Interaction	-0.11	0.54	-0.21	-.05					[-1.18, 0.95]

Note. $N = 188$. CI = confidence interval. *$p < .05$. **$p < .01$.

A moderation was conducted regressing the proportion of directly aggressive solutions generated over the total number of solutions generated on psychopathy, gender, and the interaction of these two variables. The increment in variance accounted for in the interaction was not significant, $\Delta R^2 = .00$, $\Delta F = .30$, $p = .58$, failing to provide evidence for an interaction to occur. This means that gender was not a significant moderator of the relationship between psychopathy and direct aggression. For more information on this analysis, see Table 19.

Table 19

Proportion of Direct Aggression on Psychopathy Moderated by Gender – Problem 1

Model	*B*	*SE*	*t*	β	*F*	R^2	Δ*F*	ΔR^2	95% CI
Step 1									
Constant	0.73	0.09	8.54**		1.42	.02			[0.56, 0.89]
Gender	-0.09	0.05	-1.59	-.12					[-0.19, 0.02]
Psychopathy	-0.03	0.04	-0.71	-.05					[-0.10, 0.05]
Step 2									
Constant	0.70	0.10	6.93**		1.04	.00	.30	.00	[0.50, 0.90]
Gender	-0.07	0.06	-1.01	-.09					[-0.19, 0.06]
Psychopathy	-0.09	0.12	-0.74	-.18					[-0.32, 0.14]
Interaction	0.04	0.07	0.55	.14					[-0.10, 0.18]

Note. $N = 189$. CI = confidence interval. $^*p < .05$. $^{**}p < .01$.

Problem 2. The same series of continuous by categorical moderation analyses were conducted for problem 2. The increment in variance accounted for in the interaction was not significant, $\Delta R^2 = .00$, $\Delta F = .08$, $p = .78$, indicating that there is no evidence for an interaction to occur. This means that gender was not a significant predictor of the relationship between psychopathy and the number of directly aggressive solutions generated. For more information on this analysis, see Table 20.

Table 20

Fluency of Direct Aggression on Psychopathy Moderated by Gender – Problem 2

Model	*B*	*SE*	*t*	β	*F*	R^2	Δ*F*	ΔR^2	95% CI
Step 1									
Constant	1.76	0.43	4.08**		1.31	.01			[0.91, 2.61]
Gender	0.32	0.27	1.17	.09					[-0.22, 0.85]
Psychopathy	-0.18	0.18	-0.99	-.07					[-0.54, 0.18]
Step 2									
Constant	1.68	0.51	3.30**		0.89	.01	.08	.00	[0.68, 2.67]
Gender	0.37	0.33	1.12	.10					[-0.28, 1.01]
Psychopathy	-0.34	0.59	-0.57	-.13					[-1.50, 0.83]
Interaction	0.10	0.37	0.28	-.07					[-0.62, 0.82]

Note. $N = 189$. CI = confidence interval. $^*p < .05$. $^{**}p < .01$.

The interaction between psychopathy and gender was not a significant predictor of the proportion of directly aggressive solutions generated over the total number of solutions generated above and beyond psychopathy and gender, indicated by the increment in variance accounted for in the interaction, $\Delta R^2 = .01$, $\Delta F = 1.97$, $p = .16$. This means that the relationship between the proportion of direct aggression and psychopathy was not dependent on gender. For more information on this analysis, see Table 21.

Table 21

Proportion of Direct Aggression on Psychopathy Moderated by Gender – Problem 2

Model	*B*	*SE*	*t*	β	*F*	R^2	Δ*F*	ΔR^2	95% CI
Step 1									
Constant	0.86	0.08	11.17**		2.34	.02			[0.71, 1.01]
Gender	-0.10	0.05	-1.98*	-.14					[-0.19, 0.00]
Psychopathy	0.02	0.03	0.67	.05					[-0.04, 0.09]
Step 2									
Constant	0.79	0.09	8.75**		2.22	.04	1.97	.01	[0.61, 0.97]
Gender	-0.05	0.06	-0.86	-.08					[-0.16, 0.07]
Psychopathy	-0.12	0.12	-1.13	-.26					[-0.32, 0.09]
Interaction	-0.09	0.07	1.40	.34					[-0.04, 0.22]

Note. $N = 189$. CI = confidence interval. *$p < .05$. **$p < .01$.

Gender Salience, Psychopathy, Direct Aggression, and Gender

Gender salience was added as a covariate in this analysis between gender, psychopathy, and direct aggression as part of malevolent creativity. The purpose of this was to remove the effect of gender salience in the possible gender differences. Gender salience was not a significant covariate for any of the analyses conducted and did not change any of the results.

Summary of Results

All of the hypotheses and corresponding findings are summarized across both problem 1 and problem 2, for each unit of measurement (e.g., fluency and proportion score). This summary is presented in Table 22 below.

Table 22

Summary of all Findings

Hypothesis 1 – Males will generate more malevolently creative ideas than females		
	Fluency	*Proportion Score*
Problem 1	Not supported	Not supported
Problem 2	Not supported	Not supported
Overall: Hypothesis not supported		
Hypothesis 2a – Males will engage in more direct aggression as part of malevolent creativity		
	Fluency	*Proportion Score*
Problem 1	Not supported	Marginally supported
Problem 2	Not supported	Supported
Overall: Hypothesis partially supported		
Hypothesis 2b – Females will engage in more indirect aggression as part of malevolent creativity		
	Fluency	*Proportion Score*
Problem 1	Supported	Marginally supported
Problem 2	Supported	Supported
Overall: Hypothesis partially supported		
Hypothesis 3 – Machiavellianism will be positively associated with indirect aggression as part of malevolent creativity		
	Fluency	*Proportion Score*
Problem 1	Not supported	Not supported
Problem 2	Not supported	Not supported

Overall: Hypothesis not supported		
Hypothesis 4 – Psychopathy will be positively associated with direct aggression as part of malevolent creativity		
	Fluency	*Proportion Score*
Problem 1	Not supported	Not supported
Problem 2	Not supported	Not supported
Overall: Hypothesis not supported		
Hypothesis 5 – Psychopathy will be positively associated with both direct and indirect aggression as part of malevolent creativity		
	Fluency	*Proportion Score*
Problem 1	Not supported	Not supported
Problem 2	Marginally supported	Not supported
Overall: Hypothesis not supported		
Hypothesis 6 – Gender will moderate the relationship between Machiavellianism and malevolent creativity		
	Fluency	*Proportion Score*
Problem 1	Not supported	Not supported
Problem 2	Not supported	Not supported
Overall: Hypothesis not supported		
Hypothesis 7 – Gender will moderate the relationship between psychopathy and malevolent creativity		
	Fluency	*Proportion Score*
Problem 1	Marginally supported	Supported
Problem 2	Not supported	Not supported

Overall: Hypothesis not supported		
Hypothesis 8 – Gender will moderate the relationship between Machiavellianism and indirect aggression as part of malevolent creativity		
	Fluency	*Proportion Score*
Problem 1	Not supported	Not supported
Problem 2	Not supported	Not supported
Overall: Hypothesis not supported		
Hypothesis 9 – Gender will moderate the relationship between psychopathy and direct aggression as part of malevolent creativity		
	Fluency	*Proportion Score*
Problem 1	Not supported	Not supported
Problem 2	Not supported	Not supported
Overall: Hypothesis not supported		

Discussion

The present study investigated the relationship between malevolent creativity, the Dark Triad traits, aggression and examined possible gender differences within these relationships. Despite previous findings, this study did not find any gender differences in malevolent creativity overall. Using two measurements of creativity, a fluency count and a proportion score, this hypothesis was not supported.

However, when looking at possible gender differences in aggression type as part of malevolent creativity, the findings were fascinating. Overall, males provided more directly aggressive solutions to problems, whereas females generated more indirectly aggressive solutions. For example, males were more likely to respond to the prompt with "I would strangle my neighbor and dump their body in a vat of sulfuric acid to get rid of the evidence.." whereas females were more likely to respond with "I would lie about my neighbor cheating on his wife and spread this rumor around town." These findings are supported by recent research by Perchtold-Stefan et al. (2023) which investigated gender differences in brain activation in relation to malevolent creativity. More specifically, their research found that men and women achieve similar creative outcomes through different neurocognitive processes. Additionally, the authors found that males malevolently creative ideas were rated as significantly more harmful than females' ideas, often being centered around physical punishment. Similar to the current study, responses that were generated by males were significantly more physically aggressive. Additionally, the findings surrounding aggressive responses as part of malevolent creativity were strengthened when looking at the self-report aggression measure. Although these findings

were distinct from malevolent creativity, males self-reported engaging in more directly aggressive behaviors, such as being physically violent, compared to females.

Another set of variables that was considered in this study was that of the Dark Triad traits, or Machiavellianism, psychopathy, and narcissism. Each trait was significant, positively related to both indirect aggression and direct aggression measured as self-report, however, the relationships were stronger between that of Machiavellianism and indirect aggression, and for psychopathy and direct aggression. However, hypotheses regarding the relationship between the Dark Triad traits and aggression as part of malevolent creativity solutions were not supported. Although the interaction between psychopathy, malevolent creativity, and gender was significant, upon probing this interaction, the relationship was in the opposite direction of what was hypothesized. This finding indicated that males who were higher in psychopathy generated a lower proportion score of malevolent creativity. As malevolent creativity has been consistently positively linked to antagonistic personality traits, such as the Dark Triad traits, I am uncertain why these findings were not consistent with previous research when including aggression as part of malevolent creativity. Future research should consider replicating this finding to clarify this relationship, as there is great potential with connecting exploitative personality traits with aggression and malevolent creativity. Additionally, it should be noted that the rest of the hypotheses were not supported across both problems and both measurements of malevolent creativity and aggression.

Theoretical Implications

The purpose of this research was to investigate the factors and individual differences that may contribute to the generation of malevolently creative ideas, such as

gender and personality. Theoretically, this research expands on existing research by looking at direct and indirect aggression as part of malevolently creative responses. To my knowledge, no existing research has taken this approach to looking at malevolent creativity. Thus, this research adds to current theory by providing evidence for gender differences existing within indirect and direct aggression as part of malevolent creativity. More specifically, when individuals are generating malevolently creative responses, males may be more likely to engage in directly aggressive behaviors, such as physical violence, whereas females may be more likely to engage in indirectly aggressive behaviors, such as gossiping. Moreover, as this finding fits our theory on gender differences in aggression as part of malevolent creativity, this suggests that researchers should consider indirect and direct aggression as part of malevolent creativity measurement moving forward, particularly when looking at gender differences. Overall, this finding is theoretically important, not only because it allows for a more nuanced way of studying malevolent creativity, but it also provides further insight into what kind of malevolent ideation and potential behaviors both males and females will engage in.

Contrary to previous research, this study found no significant gender differences in malevolent creativity overall. Previous research has found significant gender differences in malevolent creativity, with males generating more malevolently creative responses than females (Lee et al., 2011), however, many of these studies did not incorporate originality into their measurement of malevolent creativity (Dumas et al., 2018; Lee et al., 2011). It is possible that including both harmfulness and originality results in lower likelihood of gender differences. Thus, this makes a theoretical

contribution by measuring malevolent creativity using all the essential components of malevolent creativity.

Further, this research adds to existing theory on the Dark Triad traits and aggression by replicating previous findings. For starters, the finding that the Dark Triad traits are related to aggressive behaviors has been consistently found in previous literature. As the current research chose to focus on two specific types of aggression, indirect and direct, the findings yielded here were similar to both Baughman et al. (2012) and Spierings (2014). Baughman et al. (2012) found that each trait was significantly, positively related to both indirect and direct aggression, specifically through the lens of bullying. However, Spierings (2014) conducted a study, which used the same measures as the current study, and yielded the same results as the current study. That said, these findings support various theoretical underpinnings and offer insight into how malevolent personality traits may influence engagement in aggressive behaviors. Moreover, delineating the types of aggression that these antagonistic personality traits are linked to is important in terms of their theoretical implications, such that it is important to understand which types of personality traits may drive different forms of aggression.

An additional theoretical implication involves that of task effects and malevolent creativity. Along with previous research (e.g., Reiter-Palmon et al., 2019), this research provides evidence for task effects. As there were differences in findings based on the two vignettes that participants received as part of the malevolent creativity tasks, this research indicates that the specific information that is provided in the vignette may influence results. In other words, different vignettes may provide different contextual information to the problem solver that may influence how one solves a problem. Importantly, these

tasks effects have been found in creativity research (Reiter-Palmon et al., 2019), however, the current research indicates that these task effects are also present in malevolent creativity research. Theoretically, this is critical, such that if researchers are using a singular problem in a malevolent creativity study, they should be aware of the potential task effects that are related to this. Furthermore, this provides additional evidence for both 1) the need to use multiple problems in a malevolent creativity task or 2) awareness on how the structure of a problem may influence results.

Practical Implications

Practically speaking, understanding general malevolent creativity in the workplace is important. Because malevolent creativity can result in great harm to individuals, organizations, and society, it is essential that the individual characteristics that might predict this malevolence be investigated.

More specifically, this research helps to provide a more targeted identification of potential malevolent creativity. For example, if specific individuals have a greater propensity towards specific aggressive behaviors when engaging in malevolently creative ideation, this has the potential to cause severe damage to the organization if implemented. Without knowledge about the specific types of behaviors that one will malevolently engage in, we cannot do anything about prevention. That said, more knowledge about the specific behaviors that males and females engage in may allow for a more nuanced understanding of the various different ways in which malevolent creativity may occur. Knowing that males may have a greater propensity to engage in directly aggressive forms of malevolent creativity, whereas females may be more likely to engage in indirectly aggressive forms of malevolent creativity, may enable organization to take a more

targeted approach to preventing situations where malevolent creativity may arise. For example, by knowing the types of people that may engage in specific kinds of malevolent creativity, we may be able to develop interventions that can help stop these behaviors.

Limitations and Future Directions

The goal of this research was to investigate the individual differences in malevolent creativity. However, there were various limitations to this study. When presenting participants with the malevolent creativity task, participants were instructed to generate as many *original* ways of revenge as possible. Because the study instructions explicitly probed for creative responses, it is possible that this may have attenuated the chances of gender differences. Future research should consider studying malevolent creativity without such explicit instructions. Not encouraging participants to generate creative and harmful solutions may decrease the frequency of malevolently creative responses but will allow for a more accurate and more realistic insight into potential gender differences in malevolent creativity.

Another limitation of the current research is that of ecological validity. As the current research encouraged participants to generate creative, malevolent responses as part of the malevolent creativity activity, it also reminded participants to generate items that might disregard social desirability. While this was done to increase the frequency of malevolently creative responses, ecological validity may have been compromised. It may be one thing to anonymously generate malevolently creative responses in an anonymous survey, whereas this is much more complicated to engage in in the real world. Thus, future research should examine malevolent behaviors or implementation, rather than being limited to malevolent ideation.

It should be noted that the power analysis indicated a sample of 250 participants needed. As the final sample was short of the number of participants required, this may limit the findings. Due to the smaller sample size in this study, future research should replicate this study with a sufficient number of participants.

With these limitations in mind, future research should consider different formats for studying malevolent creativity. Future research could explore other instructions and vignettes, such as instructions that avoid probing for original and harmful responses. By exploring different instructions, research may be able to investigate malevolent creativity through a more realistic lens. Furthermore, as a limitation of this study includes the exclusion of contextual variables, exploring different contexts through vignettes may be of value. Additionally, by exploring other vignettes, future research can identify how different vignettes may influence the frequency of malevolently creative responses. Because task effects were identified in this research, this provides further evidence that the type of vignette used in this research is important. That said, further research should identify the domains of which participants might generate more malevolently creative responses without being explicitly asked to do so, as this would contribute greatly to future malevolent creativity research.

Additionally, related to the findings on gender differences, future research should consider investigating how masculinity and femininity may play a role in the gender differences in malevolent creativity. Rather than looking at gender through the lens of a male and female dichotomy, research should consider how gender expression may play a role in the generation of malevolently creative ideas. For example, if one identifies as a

female, but expresses more masculine traits, how would this differ from that of a female who possesses greater feminine traits?

Furthermore, research should consider other types of aggression as part of malevolent creativity. By being more detailed in the type of aggressive behavior engaged in as part of malevolent creativity could provide more information on what kind of behaviors male and females are more likely to engage in. For example, by parsing the malevolent responses into additional categories, such as threat-related, property damage, etc., could allow for additional gender differences to be identified.

Future research should also consider how participants perceive the gender of the perpetrator in a vignette, when not given gender indicators. For example, given no indication of gender, do gender stereotypes that currently perpetuate society, motivate participants to assume a specific gender is the perpetrator and a specific gender is the victim? In sum, as malevolent creativity research has continued to grow over the years, research should consider the current findings, as well as the existing limitations, and continue to add to the literature.

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Appendix A

Malevolent Creativity Task

Citation: Perchtold-Stefan, C. M., Fink, A., Rominger, C., & Papousek, I. (2020). Creative, antagonistic, and angry? Exploring the roots of malevolent creativity with a real-world idea generation task. *Journal of Creative Behavior, 55*(3), 710-722. https://doi.org/10.1002/jocb.484

Situation 1

Your neighbor asks you to help them with renovations in their home and offers to pay you for your troubles. Since you are currently low on money, you agree. After the work is done, you ask them for the payment they promised. However, your neighbor insists that such an agreement never took place and you just imagined the whole thing. You decide not to take this.

Example answer:

"I will post my neighbors phone number online with the title "Free Computer, please only call at night"

"I will release countless cockroaches into their home"

Situation 2

You have saved up for a while to be finally able to buy yourself a very expensive science book. Just as you are about to enter the lecture hall at the university, a colleague of yours bump into you hard and spills all her coffee on your new book. Instead of apologizing, that colleague berates you to pay more attention next time and marches on, leaving you and your book completely drenched. You want to teach that colleague a lesson.

Example answers:

"At the next chance, I will empty an entire cup of coffee into their purse when they aren't looking"

"I will make a scene in front of the class, so everyone knows what a horrible person they are and they lose their reputation"

Appendix B

Harmfulness Scale

Solutions should be rated on a 5 point scale based on the following criteria:

Harmfulness - Does the solution represent a relatively unique approach to the problem (relative to other solutions)?

1 Not at all harmful – Solution is not at all harmful. There is absolutely nothing harmful in this solution.

2 Slightly not harmful- Solution is mostly benevolent, but might have a little bit of malevolence in it.

3. Neutral (neither harmful nor unharmful) – Solution is averagely harmful. It could be conveyed as both harmful and not harmful.

4. Harmful – Solution is harmful. It is not the most extreme case, but it is still malevolent.

5. Very harmful – Solution is extremely harmful. There is nothing benevolent about this solution.

Appendix C

Originality Scale

Solutions should be rated on a 5 point scale based on the following criteria:

Novelty - Does the solution represent a relatively unique approach to the problem (relative to other solutions)?

Imagination - Does the solution present an imaginative or humorous approach?

Structure - Is the solution structured and limited by the problem as presented? Does the problem solver question the assumptions presented in the problem? Does the solution show thinking outside the box?

1. Very unoriginal - simple solution, minimum effort, no more than one idea.

2. Unoriginal- Simple but complete solution. One that is not novel, not imaginative, and is structured by the problem.

3. Neutral (neither unoriginal nor original) - Solution shows limited novelty or imagination, is still structured by the problem.

4. Original - Solution shows some novelty and imagination and is less structured by the problem.

5. Very original - Solution is unique and novel, imaginative, and not structured by the problem.

Appendix D

Aggression Rating Criteria + Examples

Direct Aggression (1): Includes behaviors that are directly targeted at a person, object, etc. This includes behaviors such as verbal or physical assault and threats of harm

Examples:

- "I would pour water on his face"
- "I would damage his vehicle"
- "I would scold them"

Indirect Aggression (0): Includes behaviors that are more roundabout and more socially based. This includes behaviors such as gossiping, social exclusion, criticizing someone's appearance, and spreading rumors

Examples:

- "I would post anonymous messages online about them"
- "I would distance myself from them"
- "I would contact the police and complain about them"

Neutral (-1): Neither directly aggressive nor indirectly aggressive

Examples:

- "I would forgive them"

Both (2): Both directly and indirectly aggressive

Examples:

- "I would punch them in the face and then gaslight them about it"

Appendix E

Direct and Indirect Aggression Measure

Citation: Ruiz-Pamies, M., Lorenzo-Seva, U., Morales-Vives, F., Cosi, S., & Vigil-Colet, A. (2014). I-DAQ: A new test to assess direct and indirect aggression free of response bias. *Spanish Journal of Psychology, 17,* 1-8. doi: 10.1017/sjp.2014.43

Instructions: Using the scale below, please indicate the degree to which you agree or disagree with each statement.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

Social Desirability Markers:

1. Have I ever said something bad about another person
2. Sometimes I leave for tomorrow what I have to do today.
3. Have I ever taken advantage of someone.
4. Have I ever taken something that was not mine.

Direct Aggression

1. As much as they provoke me, I avoid fighting with others.
2. If I have to resort to violence to protect my rights, I do it.
3. When someone annoys me or pushes me, I would rather leave than fight.
4. When someone tries to fight me I turn around and leave
5. There are people who incite me to such an extent that we hit each other.
6. I am an aggressive person

Indirect Aggression

1. I love making secret plans when I want to screw someone up.
2. When someone bothers me, I do something to make it look stupid.
3. I hardly take advantage of the feelings of others to coerce them.
4. When I get angry with an acquaintance, I expressly exclude him from activities.
5. If an acquaintance picks on me, I avoid turning other people against them.
6. Even if I dislike someone in a group, I avoid excluding them
7. If I get angry with a friend, I make others stop talking to him.
8. When I get angry with someone, I spread unpleasant rumors about him / her.
9. Rarely do I purposely exclude people I dislike from conversations.
10. Even if he was angry with someone he would never make false accusations about his person.

Appendix F

Dark Triad Measure

Citation: Jones, D. N. & Paulhus, D. L. (2014). Introducing the Short Dark Triad (SD3): A brief measure of dark personality traits. *American Psychological Association, 21*(1), 28-41. https://doi.org/10.1177/1073191113514105

Instructions: Please indicate how much you agree with each of the following statements.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

Machiavellianism items

1. It's not wise to tell your secrets.
2. I like to use clever manipulation to get my way.
3. Whatever it takes, you must get the important people on your side.
4. Avoid direct conflict with others because they may be useful in the future.
5. It's wise to keep track of information that you can use against people later.
6. You should wait for the right time to get back at people.
7. There are things you should hide from other people to preserve your reputation.
8. Make sure your plans benefit yourself, not others.
9. Most people can be manipulated.

Narcissism items

1. People see me as a natural leader.
2. I hate being the center of attention *
3. Many group activities tend to be dull without me.
4. I know that I am special because everyone keeps telling me so.
5. I like to get acquainted with important people.
6. I feel embarrassed if someone compliments me. *
7. I have been compared to famous people.
8. I am an average person. *
9. I insist on getting the respect I deserve.

Psychopathy items

1. I like to get revenge on authorities.
2. I avoid dangerous situations. *
3. Payback needs to be quick and nasty.
4. People often say I'm out of control.
5. It's true that I can be mean to others.
6. People who mess with me always regret it.
7. I have never gotten into trouble with the law. *
8. I enjoy having sex with people I hardly know.
9. I'll say anything to get what I want.

Appendix G

Gender Salience Measure

Citation: Palomares, N. A. (2009). Women are sort of more tentative than men, aren't they? How men and women use tentative language differently, similarly, and counterstereotypically as a function of gender salience. *Communication Research, 36*(4), 538 – 560. doi: 10.1177/0093650209333034

Instructions: Please indicate how much you agree with each of the following statements.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

1. I think about myself in terms of my gender
2. I evaluate myself, positively or negatively, in terms of my gender
3. I think my gender is central to my identity
4. I am unaware of my gender
5. I think my gender is important
6. I think my gender comes into play with things
7. I think my gender matters to others
8. I think others focus on my gender
9. I think others ignore my gender

Appendix H

Demographics Questionnaire

1. What is your age (in years)?
2. What is your gender?
    a. Male/Man
    b. Female/Woman
    c. Transgender Man
    d. Transgender Woman
    e. Transgender
    f. Intersex
    g. Non-Binary
    h. I use different words (please share below)
    i. I do not want to disclose
3. What is your race?
    a. White
    b. Hispanic/Latino/Spanish
    c. Black/African American
    d. Asian
    e. American Indian/Alaska Native
    f. Middle Eastern/North African
    g. Native Hawaiian/Other Pacific Islander
    h. More than one race [will be able to select multiple options if necessary]
    i. Some other race
    j. I don't want to disclose
4. What is your employment status?
    a. Employed full-time (35 hours or more on average)
    b. Employed part-time (less than 35 hours on average)
    c. Self-employed
    d. Not employed
    e. Retired
    f. Student
    g. Other
        i. If other, please specify _____
5. What is your current job position title?
    a. _____
6. What is your current job position level?
    a. Entry-level
    b. Intermediate or Experienced
    c. Middle-level management
    d. Top-Level Management
7. How long have you been in your current job position (in years)?
    a. _____
8. How long have you been with your current organization (in years)?
    a. _____
9. Which category best describes the industry you primarily work in (regardless of current job position)?

a. Agriculture, forestry, fishing, and hunting
b. Construction
c. Education and health services
d. Financial activities
e. Information
f. Leisure and hospitality
g. Manufacturing
h. Mining, quarrying, and oil and gas extraction
i. Professional and business services
j. Public administration
k. Transportation and utilities
l. Wholesale and retail trade
m. Other services
    i. If other, please specify _____

10. What is the highest level of school you have completed or highest degree you have received?
    a. Less than high school
    b. High school degree or equivalent (e.g., GED)
    c. Some college but no degree
    d. Associate degree
    e. Bachelor's degree
    f. Master's degree
    g. Doctoral or Professional degree (e.g., JD, MD, PhD)
    h. Other
        i. If other, please specify _____