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# **How the Dark Tetrad Predicts Responses to Infidelity Threats?**

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## ABSTRACT

This thesis explores the predictive power of the Dark Tetrad—comprising narcissism, Machiavellianism, psychopathy, and sadism—on responses to infidelity threats. Grounded in the framework of evolutionary psychology and attachment theory, the study examines how these aversive personality traits influence mate retention strategies and distress responses to emotional and sexual infidelity. Data were collected from 242 participants through an online survey, which included measures of Dark Tetrad traits (SD4), mate retention tactics (MRI-SF), responses to infidelity threats (Buss et al., 1999) and attachment styles (ECR-S). Results indicated significant gender differences in Dark Tetrad traits, with men exhibiting higher levels of psychopathy and sadism. Both men and women high in Dark Tetrad traits were more likely to use cost-inflicting mate retention strategies. Additionally, individuals with higher attachment anxiety reported greater distress in response to both emotional and sexual infidelity threats, influencing their use of mate retention tactics. The findings underscore the complex interplay between dark personality traits, attachment styles, and relationship dynamics, providing valuable insights for understanding maladaptive behaviors in romantic relationships. This research contributes to the broader discourse on the psychological mechanisms underlying infidelity responses and the role of dark personality traits in shaping interpersonal relationships.

Key Words: Dark Tetrad, Narcissism, Machiavellianism, Sadism, Mate Retention, Attachment, Sexual Infidelity, Emotional Infidelity

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# **1 Introduction**

## **1.1 Dark Tetrad**

The Dark Tetrad, also known as the Dark Quad, constitutes a psychological framework that identifies a cluster of personality traits known for their socially aversive qualities. The Dark Tetrad is a set of interrelated negative personality features: narcissism, psychopathy, Machiavellianism, and sadism. The concept was coined by Erin Buckles, Daniel Jones, and Delroy L. Paulhus in 2013. The traits comprising the Dark Tetrad are linked by common elements, which are called ‘‘dark nuclues’’, of low emotionality (Paulhus, Curtis & Jones, 2018), low agreeableness, low empathy (Book et al., 2016) and low righteousness (Lee & Ashton, 2014). Thus, it is reasonable to argue that those with high scores in Dark Tetrad traits tend to be malicious, exploitative, ruthless, and mean. They typically hold themselves in high esteem and do whatever it takes to get what they want. They might also have a competitive outlook on the world (Jonason, Wee, & Li, 2015). Generally, men score higher than women in measures of each of the Dark Tetrad traits (Jonason & Lavertu, 2017).

The term Dark Tetrad is an elaboration of the previously established construct of the Dark Triad model, which originally does not include sadism. Paulhus is also the originator of the Dark Triad construct. In the last decade, empirical investigations have demonstrated a notable correlation between sadism and Dark Triad traits, which led to the emergence of the ‘‘Dark Tetrad’’. According to a recent meta-analytic review of sadism with 128 articles in the shadow of the Dark Triad, sadism highly and significantly correlates with narcissism, Machiavellianism, and psychopathy (Bonfá-Araujo et al., 2022). They share common core features, namely callousness, manipulative tendencies, and a propensity for aggressiveness. Furthermore, it was indicated that sadism is more closely linked to the psychological traits of psychopathy and Machiavellianism than it is to narcissism; and that these characteristics represent the most extreme traits of the Dark tetrad.

The Dark tetrad traits, which include narcissism, Machiavellianism, psychopathy, and

sadism, are investigated together because of their shared moral foundations. This approach also allows for the examination of their impact on online and social behaviors as well as emotional functioning and sexual behavior.

People high in dark tetrad modify their beliefs to seek social approval and benefit (Kay, 2022). In the literature, it has been shown that dark tetrad traits have a clear link with higher levels of lying and sinning, risk-taking, pride, and greed as well as; attaching little importance to fairness (Forsyth et al., 2021; Hart et al., 2021; Jonason, Zeigler-Hill & Okan, 2017; Kapoor & Kaufman, 2021).

Dark tetrad traits have also been tied with impaired emotional functioning. People with high dark tetrad characteristics struggle with recognizing distress in others and show blunted affective empathy. They are more likely to be politically incorrect and use inadequate, dark humor. However, narcissism is slightly better than other dark tetrad traits in terms of emotional functioning. Those with high levels of narcissism are better at recognizing others' emotions even though their underlying cause is manipulation and self-interest (Pajevic et al., 2018).

Similarly, people high in narcissism regulate their aggression better compared to people high in other dark tetrad traits. Psychopathy and sadism often show various types of aggression including physical, verbal, and online (Highhouse, Nye & Zhang, 2018). In the online context people who are high in dark tetrad traits, especially sadism, are likely to cyberbully, cyber troll, and cyberstalk on social media platforms (Buckels, Trapnel & Paulhus, 2014). Studies show that different dark tetrad traits may have unique tactics in online aggression. For instance, while Machiavellianism is more strongly linked to the usage of derogatory language, psychopathy is more strongly associated with cyber trolling in dating apps (Brown, Hazraty & Palasinki, 2019; Craker & March, 2016).

The literature on dark tetrad further suggests that those with dark personality traits, particularly psychopathy and Machiavellianism, are inclined to engage in manipulative and

aggressive behaviors in pursuit of sexual relationships (Furnham, Richards & Paulhus, 2013). Psychopathy was found to be closely linked to short-term mating and hypersexuality, indicating a stronger focus on immediate sexual gratification del (Lyons et al., 2020). Individuals high in Machiavellian traits displayed a pattern of deceptive and strategic sexual behavior. These key traits contribute to a better understanding of how darker personalities interact within emotional, social, romantic, and sexual contexts.

### **1.1.1. Narcissism**

Narcissism is characterized by an inflated sense of self-importance and a deep need for excessive attention and admiration to maintain this self-image. Those who are high in narcissistic traits have a tendency to seek out experiences that show them as successful (Conroy, Elliot, & Thrash, 2009). Similar to the other dark tetrad traits, narcissism is a spectrum and it becomes pathological, or “dark” when there is a domination in the personality and an extreme need for a positive self-concept and self-enhancement with impaired regulatory capacities (Zeigler-Hill & Marcus, 2016). In DSM-5, narcissistic personality disorder is diagnosed by nine symptoms: (1) grandiose self-importance; (2) preoccupation with fantasies of power, success, brilliance, and beauty; (3) a belief that they are special and unique; (4) a need for extreme admiration; (5) a sense of entitlement; (6) interpersonally exploitative behavior; (7) a lack of empathy; (8) envy of others or a belief that others are envious of them; (9) demonstration of arrogant and haughty behaviors or attitudes (American Psychiatric Association, 2013, p. 669). Clinically, there are two subtypes of narcissism: grandiose and vulnerable. Grandiose narcissism can be defined as low neuroticism, high extraversion, and superiority complex while vulnerable narcissism reflects high neuroticism, hypersensitivity to criticism, and constant need for reassurance (Jauk et al., 2017). Therefore, it can be summarized that people with dark narcissistic traits have difficulties regulating their impulses and needs for recognition and admiration.

The self-centered demeanor observed in narcissism frequently results in interpersonal

relationship challenges, affecting not just the individuals exhibiting such traits, but also those with whom they engage. Studies like Brunnell et al. (2008) and Oltmanns et al. (2004) showed that people who are high in the narcissism spectrum have been rated as likable and attractive at the beginning of the dating phases. However, even though they attract partners successfully, they are more likely to fail to be in long-term relationships.

People with narcissistic traits approach romantic relationships as a power play. Because of the insecure nature of narcissistic traits, they are likely to show abusive patterns in their romantic relationships too such as being controlling and manipulative (Zeigler-Hill, Hicks & Brosch, 2024). Their urge to feel superior and admired in the relationship might push them to show these types of behaviors. As suggested in the 2024 article, their desire for power can lead to frequent conflicts, as the dominant partner may engage in competitive behaviors, struggle with compromise, or disregard their partner's needs and opinions in favor of asserting their own. They are likely to use game-playing behaviors to deceive their partner to maintain a sense of control or to pursue sexual opportunities. Thus, this constant battle may lead to a lack of trust between partners, and result in dissatisfaction in the relationship. Moreover, it has also been reported many times in the literature that people who are high in narcissistic traits have a strong pattern of demonstrating aggression towards their partner (King, 2012; Baumeister, Bushman, & Campbell, 2000; Stucke, & Sporer, 2002).

People with narcissistic traits may react in a certain way when faced with infidelity threats, which is indicative of their heightened feeling of entitlement and tendency toward manipulative behavior.

### **1.1.2. Machiavellianism**

The term "Machiavellianism" is derived from the observations and writings of Niccolo Machiavelli, a Renaissance-era Florentine diplomat, whose work at several European courts gave him a unique perspective on the rise and fall of monarchs. Machiavelli observed the political ups



and downs of leaders across Europe and wrote about his insights in his famous book, *The Prince*. This book was intended to impress the new ruler after Machiavelli lost his position when the government he worked for was overthrown. *The Prince* is essentially advice on how to gain and keep power, prioritizing practical success over traditional values like trust and honor. Machiavelli suggests that people tend to focus on their immediate needs, making it easy for them to be misled. Although Machiavelli's name is now linked to a way of interacting that views others only as tools for personal gain, his writings did not always reflect such a manipulative approach. In fact, he didn't manage to regain his status using the tactics he proposed. Today, the term Machiavellianism refers to a personality trait characterized by a focus on self-interest and a disregard for moral values when dealing with others.

Just like other Dark Tetrad traits, Machiavellianism's core includes callousness and manipulation (Jones & Figueredo, 2013). Machiavellian traits often align with antisocial behavior, showing a strong link with a lack of agreeableness, lower conscientiousness, reduced empathy, and a reluctance to cooperate (Jakobwitz & Egan, 2006). What is different about Machiavellianism from other dark tetrad traits is that in social situations, their main focus is other's potential thoughts and moves (Czibor & Bereczkei, 2012). Moreover, they are highly attuned to the negative emotional states of others (Ali & Chamorro-Premuzic, 2010; Bagozzi et al., 2013). Thus, they can easily and spontaneously generate predictions for the actions of others which make them masters at manipulation. Their every move becomes calculated and strategic. They adjust their opinions and behaviors depending on the situation and the person. A study by Wai and Tiliopoulos (2012) indicates that individuals with high levels of Machiavellianism tend to prioritize their own goals over maintaining relationships, employing manipulation and callousness as part of their interpersonal toolkit. We can only call people Machiavellians when they use these abilities for selfish gains without any guilt or remorse.

While these characteristics might suggest a destructive nature, not all researchers view Machiavellianism negatively. In fact, some posit that Machiavellian traits can lead to effective and practical leadership, and within certain areas such as business, a moderate expression of Machiavellian tendencies has been linked to better performance since these tactics emphasize preparation, opportunism, logic, rationality, caution, and planning (Czibor & Bereczkei, 2012). Research has found evidence that children who display Machiavellian characteristics have been found to control resources effectively, sometimes even benefiting others when their interests are aligned (Hawley, 2003; Hawley, Little, & Card, 2007). The term "amoral," as used by Christie and Geis, doesn't mean Machiavellian individuals are immoral per se, but rather that they may disregard morality if it serves their interests. Machiavellianism, therefore, often presents a balance between resourcefulness and the potential for unethical actions. While Machiavellian individuals might find ways to achieve objectives that others cannot, their fundamental focus on self-interest means that working with them carries inherent risks.

Machiavellian individuals, known for low agreeableness and empathy, enter both long-term and short-term relationships. By nature, they prefer to be in relationships that are emotionally detached from the partner which makes it hard for them to be in a committed relationship (Brewer & Abell, 2017). Previous studies suggest that those with high levels of Machiavellianism have a low level of relationship trust and affiliation (Jonason, Luevano, & Adams, 2012). Thus, they can seek partners outside of the relationship (Abell & Brewer, 2015). However, they may want to be in a serious relationship to follow social norms and these can provide them valuable opportunities to manipulate and exploit their partners (Brewer & Abell, 2015b). Ináncsi, Láng, and Bereczkei (2015) indicated that people who are high in Machiavellianism show fake symbiotic closeness to get the attention they seek (p. 139). Just like other dark tetrad traits, they like to have control, and play mind games during the relationship (Jonason & Kavanagh, 2010). They do not only show emotional abuse towards their partner with

manipulation tactics, but they are also likely to show physical abuse and aggression (Webster et al., 2014). High levels of Machiavellianism are associated with social dominance and playing games to maintain this power (Hodson, Hogg, & MacInnis, 2009). So, extreme keenness in partner control and displaying abuse of various forms are predicted in Machiavellianism.

### **1.1.3. Psychopathy**

Psychopathy is a complex personality disorder that presents a wide range of affective, interpersonal, lifestyle, and antisocial behaviors. It is a condition that, while relatively rare in the general population with an occurrence rate of approximately 1%, is disproportionately represented within criminal and forensic populations, with prevalence estimates ranging from 16% to 25% in male prisoners (Dolan & Doyle, 2007).

The diagnostic criteria were developed by Robert Hare, a researcher, in the 1970s and are characterized by distinctive affective features and behaviors including superficial charm, grandiose sense of self-worth, need for stimulation/ proneness to boredom, pathological lying, manipulation, lack of remorse or guilt, shallow affect, lack of empathy, parasitic lifestyle, poor behavioral controls, promiscuous sexual behavior, lack of realistic long-term goals, impulsivity, irresponsibility, failure to take responsibility for one's actions, many short-term relationships, and criminal versatility (Crighton, 2009). The implications of these affective traits are profound since they show that people with high scores of psychopathy are harmful to others, which they often commit to relationships without the moral inhibitions that would typically prevent such actions in individuals with lower levels of psychopathy.

The interpersonal features of psychopathy are marked by grandiosity, deceitfulness, superficial charm, and manipulation, which enables individuals with high psychopathic traits to initially present themselves as trustworthy and charismatic, only to exploit social situations to their benefit without consideration for the rights or feelings of others (Sanz-García et al., 2021).

From a lifestyle perspective, psychopathy includes a need for stimulation and a tendency

towards impulsivity. These individuals may lead parasitic lives, wherein they exploit and take from others without contributing themselves. According to Karpman's (1941) classification, psychopathy can be divided into two subtypes: primary psychopathy and secondary psychopathy. Primary psychopathy is characterized by lower anxiety and an inherent coldness, which leads to failure to learn from their mistakes or punishment. On the contrary, secondary psychopaths display high emotional volatility and impulsivity which leads to dangerous adrenaline-seeking behaviors (Zeigler-Hill & Marcus, 2016). Notably, antisocial behaviors encompass a propensity for criminality, poor behavioral controls, and early behavioral problems, which often emerge during childhood and predict the development of psychopathic behaviors in adulthood.

The concept of psychopathy does not exist as a separate diagnostic category in the DSM-V; instead, these traits can be found within the broader diagnosis of antisocial personality disorder. Antisocial personality disorder is defined by a consistent disregard for societal norms and the rights of others, with symptoms including deceitfulness, impulsivity, and aggressiveness (American Psychiatric Association, 2013). However, people with high levels of psychopathy traits lack the specificity of the affective and interpersonal dimensions that are central to the construct of psychopathy, which makes it distinct from antisocial personality disorder. People who are high in psychopathy have more adaptive functioning than sociopaths.

Psychopathy encompasses traits that some researchers describe as "fearless dominance"—a suite of characteristics that includes social dominance, impulsivity, a tendency to experience less fear, and a sense of immunity to stress. It has been shown that people with elevated levels of fearless dominance are likely to show low sensitivity to loud, aversive, and sudden stimuli (Dindo & Fowles, 2011) thanks to their heightened response threshold for fear-provoking stimuli (Lilienfeld et al., 2012). Furthermore, it is not certain whether fearless dominance is part of psychopathy or predisposes individuals to develop psychopathy.

Conversely, 'self-centered impulsivity' reflects more maladaptive elements, comprising a

lack of planning, heightened aggression, and disregard for the welfare of others. These traits have been shown to predispose individuals to engage in behaviors that come with significant personal and societal costs (De Brito et al., 2021) On the other hand, these qualities can contribute positively in certain social or occupational settings by enabling decisive and confident action. Fearless dominance, including stress tolerance, may contribute to success in certain high-risk occupations or demanding leadership roles (Zeigler-Hill & Marcus, 2016). Thus, just like other features of psychopathy, fearless dominance is two sided coin, with a dark and light side.

Psychopathy also includes a trait dimension known as 'coldheartedness,' which may manifest as a lack of sentimentality and an insensitivity to the suffering of others. This dispassionate disposition further illustrates the complex affective deficits characteristic of psychopathy—even in situations calling for compassion or emotional responsiveness, an individual with psychopathy might remain emotionally detached. In the context of romantic and sexual relationships, individuals with psychopathic tendencies may engage in promiscuous sexual activities, characterized by impulsivity and risk-taking. These behaviors not only serve their immediate desires but also reflect a broader disregard for the potential emotional, relational, or physical consequences to themselves or their partners. Hoyle, Fejfar, & Miller described their attitude in sexual interactions as a “devil-may-care” attitude (2000). The detachment and impulsivity associated with psychopathy can lead to a preference for varied and novel experiences, contributing to elevated sexual risk-taking.

#### **1.1.4. Sadism**

Sadism is characterized by a tendency to derive pleasure from other people’s pain or experience gratification when someone is suffering (Zeigler-Hill & Marcus, 2016, p. 109). Therefore, the extreme cases of sadism have been studied a lot in the literature within criminal and sexual contexts. While the most extreme forms of sadism involve criminal behavior, there are milder forms of sadism that are more commonly observed in social interactions. Sadistic

personality traits, even in their milder expressions, can have negative consequences on an individual's ability to form meaningful relationships and be accepted by others.

DSM has been debating whether sadism should be considered a personality disorder. In DSM-III, sadistic personality disorder was one of the diagnoses included and the criteria was “cruel, demeaning, and aggressive behavior, for the purpose of amusement or obtaining pleasure from the suffering of others”. In all editions of DSM, including DSM V, sexual sadism has been classified as a different disorder than a sadistic personality disorder. Specifically, sexual sadism has been characterized by domination and overpowering others (American Psychiatric Association, 1987, p. 371). However, sadistic personality disorder was later removed from DSM-IV due to a lack of evidence to distinguish between antisocial and narcissistic personality disorder.

The current conceptualization of sadism has become more complex as research has revealed different manifestations of sadistic tendencies. Sadistic fantasies and behaviors can also be expressed in everyday interactions with others. According to evolutionary psychology, sadism is an innate aspect of the human condition. Therefore, a need for a new term has emerged to define the milder and nonsexual forms of sadistic tendencies that are present in the general population (Bonfá-Araujo et al., 2022). The newly applied term in research for subclinical manifestation is “everyday sadism”, which refers to sadistic behavior without necessarily fulfilling legal or clinical criteria for a psychiatric disorder, and remaining within socially acceptable boundaries.

Subclinical manifestations of sadism can be observed in different settings. For instance, individuals who score high in everyday sadism can be seen as bullies in social interactions because they are likely to derive pleasure from cruel humor and find human or animal fights exciting. Sadistic tendencies can be also seen in how they choose to spend their time on social media platforms such as playing violent computer games, enjoying gory films, and watching

violent sports. According to the Entertainment Software Association's (2015) data, the most popular games among young males are "first-person shooter" games. In these types of games, players even get a chance to torture their virtual victims. Moreover, a recent study by Buckels, Trapnell, and Paulhus showed that frequently making harsh and disturbing comments on others which is considered "internet trolling", has a correlation with sadism (2014). In subclinical manifestations of sadism animal abuse, fire setting, vandalism and dominance via threats can be reported (Zeigler-Hill & Marcus, 2016).

Although sadism is typically associated with maladaptive features, it can also manifest in more constructive ways within certain everyday contexts. For instance, some professional roles may not only accommodate but also commend attributes akin to sadism. For instance, in some competitive sports, non-empathetic, and aggressive characteristics in the player are essential to be successful. Hockey players or professional boxers who to some degree enjoy causing physical pain can also channel their sadistic tendencies to become more successful in their fields. These sports environments actively reward such tendencies too. Other examples can be being a surgeon or a police officer. Surgeons need to perform invasive procedures to be able to help patients, which requires a certain level of deficit in empathy. Police officers are in a similar position, as they are permitted to use force to control others in order to enforce law and order. In conclusion, sadism is a multi-faceted construct that has both maladaptive and adaptive features.

## 1.2 Mate Retention

Mate retention strategies refer to behaviors and tactics individuals use to maintain romantic relationships and ensure their partners' fidelity and commitment. But why do we have to fight to keep the love alive? While the first spark of attraction may ignite passions, it takes effort and intentional strategies to sustain a healthy and fulfilling relationship over time. Diverse mate retention strategies, both conscious and unconscious, had to come into play to strengthen or maintain the romantic bonds. According to evolutionary psychology, humans are conditioned to seek out mates who enhance their reproductive fitness (Buss et al, 1999). However, we must balance these instinctual drives with the realities of modern relationships, often involving complex emotions, changing life circumstances, and competing demands. Even though romantic relationships are deeply rewarding, they can also be fragile and require vigilance to nurture and protect. The threat of infidelity, the perceived value of a partner, and the natural decline of passion over time all pose challenges to even the most stable partnerships. Factors such as aging, changes in social status, or the emergence of alternative partners can affect these relationships. Thus, it creates the need to use a variety of mate retention strategies.

Mate value is a comprehensive term that encapsulates the perceived desirability of an individual as a romantic partner (Buss & Schmitt, 2019; Salkičević, Stanic & Grabovac, 2014). This includes physical attractiveness, resources, status, and other qualities that enhance reproductive success. In accordance with evolutionary psychology, a woman's mate value is determined by her expected future reproduction and fertility, which can be cued by youthfulness and physical attractiveness (Buss et al., 1999). Smooth skin, a low waist-to-hip ratio, and symmetrical features are some of the universal attraction features of women that determine their mate value (Barber, 1995). Conversely, a man's ability and willingness to provide for his partner determines his mate value (Buss et al., 1999). Indicators of this include status, resources, ambition, and willingness to commit to a relationship. Therefore, there can be an inequality of mate value between partners that would directly influence the mate retention strategies in the



relationship.

In 1988, Buss created the most comprehensive taxonomy of human mate retention tactics (Buss & Schmitt, 2019). They have come up with 104 acts, and they classified them into 19 categories, from vigilance to violence. Furthermore, these categories are also divided into two broad groups, which are cost-inflicting mate retention tactics and benefit-provisioning mate retention tactics (Salkičević et al., 2014). Cost-inflicting mate retention tactics aim to reduce the partner's attractiveness to others and increase their dependence on the relationship. Benefit provisioning tactics aim to make the partner more appreciative of the relationship and more devoted to it. Each contains strategies that directly or indirectly involve manipulations to keep a partner or to punish a partner for infidelity (Babaeizad et al., 2022).

Cost-inflicting mate retention tactics contain three different types of behaviors: direct guarding, intersexual negative inducements, and intrasexual negative inducements (Buss Shackelford & McKibbin, 2008). *Direct guarding behaviors* include vigilance, concealment of mates, and monopolization of time. Vigilance in the mate retention concept is monitoring the partner's actions and interactions, and concealment of mate refers to reducing the likelihood of the partner encountering potential partners. Similarly, monopolization of time by the partner includes behaviors like limiting the partner's time and attention for themselves and not giving opportunities to others. *Intersexual negative inducements* cover the strategies used to discourage or prevent a partner from seeking or engaging in relationships outside of the current one. Intersexual negative inducements include tactics such as jealousy induction, punishing mate's infidelity threats, emotional manipulation, commitment manipulation, and derogation of competitors. Jealousy induction involves eliciting jealousy by reminding a partner of potential rivals. Punishing mate's infidelity threats refers to threatening punishment if the partner is unfaithful. Emotional manipulation like sulking, crying, or worrying about the partner is another cost-inflicting strategy. Commitment manipulation aims to keep the partner committed by

threatening to end the relationship. Derogation of competitors is giving negative statements about potential rivals. The third dimension of cost-inflicting mate retention is *intrasexual negative inducements*, which involve sabotaging the partner's relationships with same-sex friends or competitors. Derogation of mate, such as reducing the value of the partner in front of other potential competitors, and intrasexual threats which are direct acts that aim to threaten the potential rivals, can be seen in intrasexual negative inducements. Finally, violence towards rivals is another intrasexual negative inducement of mate retention. In sum, cost-inflicting tactics aim to decrease the partner's desirability to others and increase their dependence on the relationship, often through controlling and manipulative means (Babaeizad et al., 2022).

On the other hand, benefit provisioning mate retention tactics are geared towards enhancing the value of the relationship and the perceived value of the partner. This category encompasses two distinct subcategories, which are positive inducements and public signals of possession (Buss Shackelford & McKibbin, 2008). Positive inducement involves behaviors that increase the partner's satisfaction and commitment to the relationship. These behaviors include resource display, sexual inducements, appearance enhancement, love and care, and submission and debasement. Resource display includes actions that demonstrate the ability to provide resources to the partner, such as gifts, money, or material possessions. Sexual inducements are behaviors that increase the partner's sexual gratification. Appearance enhancement contains acts that aim to increase a partner's physical attractiveness, such as grooming or putting on make-up. Love and care incorporate affectionate behaviors that communicate emotional investment in the relationship. Submission and debasement involve voluntary obedience to the partner's desires. The second subcategory of benefit provisioning mate retention tactics is public signals of possession, which are behaviors that communicate to others that the partner is in a committed relationship and unavailable. These include verbal possession signals, physical possession signals, and possessive ornamentation. Verbal possession signals are simple statements that

identify the partner as "mine", while physical possession signals involve touching or standing close to the partner in public. Possessive ornamentation means wearing items that indicate relationship status, such as a wedding ring. In sum, benefit-provisioning mate retention tactics attempt to increase the partner's satisfaction and commitment to the relationship through positive and public displays (Babaeizad et al., 2022).

The clear indication of a failure in mate retention is the perception or suspicion of infidelity. The goal of mate retention strategies is to prevent the loss of a partner, as well as the loss of the resources, genetic fitness, and parental investment that the partner represents. Moreover, a woman's infidelity compromises a man's paternity certainty and jeopardizes the effort, time, and resources he has invested in his family and offspring. From a woman's perspective, even though maternal certainty is not compromised, it can result in the loss of the partner's time, energy, and resources. Thus, not only infidelity but even the threat of infidelity has high costs for the relationship.

### **1.2.1. Mate Retention Strategies of Dark Tetrad**

Although people who are high in Dark Tetrad traits are more likely to be in short-term relationships, they often engage in long-term relationships too, but for selfish reasons. Exploitative behaviors, including deception, manipulation, and disregard for others, can impact their relationships and those of their partners. This nature of theirs might lead them to use various mate retention tactics to mitigate the risk of infidelity or relationship conflicts. Examining mate retention strategies used by individuals with Dark Tetrad traits is crucial as it provides insights into the maladaptive ways these individuals navigate interpersonal relationships. The existing research suggests that individuals higher in Dark Tetrad traits might use mate retention tactics that serve their self-serving interests, often at the expense of their partner's well-being.

In the literature, mate retention tactics have been studied with the Dark Triad- narcissism, Machiavellianism, and psychopathy (Kardum, Hudek-Knezevic & Mehic, 2019; Jonason, Li, &

Buss, 2010; Chegeni, Pirkalani, & Dehshiri, 2018). Findings suggest that individuals with higher levels of Dark Triad traits often use mate retention strategies, especially cost-inflicting tactics. Aggression, appearance enhancements, and resource display are the most common ones among the Dark triad traits. Among traits, only psychopathy was associated with partner violence and jealousy induction. Psychopathy also manifests in intrasexual threats, intimidation, emotional manipulation, and mate concealment, all of which are cost-inflicting methods of mate retention. People who are high in psychopathy are also likely to use benefit provisioning tactics such as superficial charm and mimic genuine affection. Machiavellianism was associated with punishing mate's infidelity threat, monopolization of time, concealment of the mate, and inter- and intrasexual negative inducements. On the other hand, narcissism was linked with self-promotion, sexual display, signaling possession, and love and care. In sum, Dark Tetrad individuals tend to use a wide range of mate retention tactics that are self-serving and controlling in nature.

### 1.3 Distress Responses to Infidelity Threats

Infidelity has long been a subject of intense discussion and study within the field of relationship dynamics, and defining it can be a complex endeavor. There are no universally accepted terms or classifications for what is considered infidelity. One of the most common and well-accepted types of infidelity is the breaking of a contract of sexual and/or emotional exclusivity between two people who are dating, married, or otherwise in a committed relationship (Kruger et al., 2015). However, even the perceptions of what constitutes breaking the contract can vary immensely. According to Perel (2017), in addition to secrecy, infidelity must also involve sexual alchemy and emotional involvement. So, even though there is a lack of single clear and comprehensive definition, researchers and clinicians have explored the topic from various angles and come up with types of infidelity, two of which are emotional and sexual infidelity.

Sexual infidelity is generally considered the most clear-cut form of infidelity and seems to be the most common one (Atkins, Baucom & Jacobson, 2001). The meaning of sexual infidelity can range from sexual contact, kissing, hugging, or any other sexual activity such as penetration and oral sex with someone other than one's partner (Kruger et al., 2015). Research indicates that men are more prone to sexual infidelity (Ozkul, 2020). Unsurprisingly, even though both sexes suffer from infidelity, men are more likely to feel higher levels of distress from sexual infidelity than women. This finding is replicable with different methods such as self-report, heart rate, and skin conductance in imaginary infidelity scenarios (Buss, 2018). Therefore, sexual infidelity appears to be the most widely studied and most impactful type of infidelity, with significant gender differences (Leeker & Carlozzi, 2012).

Emotional infidelity, on the other hand, is less clear-cut and more nuanced. It generally involves a close, intimate, emotional bond with someone other than one's partner, without necessarily any sexual contact. It can also include falling in love with, being emotionally intimate

with, or sharing a special moment with someone outside of the primary relationship. Emotional infidelity can include things like confiding in someone else, sharing intimate thoughts and feelings with another person, sharing exclusive time, and giving attention (Buss & Shackelford, 1999). While the specific behaviors that constitute emotional infidelity are less clearly defined compared to sexual infidelity, research does suggest that it can be just as, if not more, distressing than sexual infidelity for some individuals, and especially women (Buss, 2018; Leeker & Carlozzi, 2014). Women appear to be more distressed by emotional infidelity, emphasizing the importance of emotional intimacy in their relationships (Leeker & Carlozzi, 2014). Therefore, emotional infidelity is an important domain of infidelity that has significant implications for relationship dynamics, especially for women.

To be able to operationalize the individual's responses to infidelity threats, researchers have often used hypothetical infidelity scenarios and self-report measures. Jealousy and distress have been identified as two of the most common emotional reactions to the threat of infidelity. Jealousy is an adaptive emotional response to perceived threats to one's romantic relationship or attachment with one's partner and can manifest in a variety of ways, such as anger, sadness, anxiety, or fear (Leeker & Carlozzi, 2014; Sabini & Green, 2004). David M. Buss (1999) developed a forced-choice dilemma questionnaire that asks participants to select whether emotional or sexual infidelity would cause them more distress, thereby assessing their jealousy responses. For further analysis, in Study 2, the researchers created six infidelity dilemmas that included both emotional and sexual infidelity. In this study, we combined all eight dilemmas to operationalize the responses to infidelity.

### **1.3.1. Distress Responses to Infidelity Threats and Its relation to Mate Retention**

Researchers have found a direct link between jealousy and engagement in specific types of mate retention behavior. Individuals who perceive their partner as more desirable and therefore at a higher risk of infidelity are more likely to engage in both benefit-provisioning

and cost-inflicting mate retention strategies (Buss & Shackelford, 1999). Higher levels of jealousy lead to more usage of cost-inflicting mate retention strategies. The literature on benefit provisioning mate retention tactics on jealousy is rather weak, especially with women. However, researchers suggest that men who are more jealous are more likely to show direct aggression towards their mate, while women who are more jealous are more likely to show indirect aggression, such as social control and derogation of their rival. Furthermore, in men, jealousy towards sexual infidelity, it is more strongly associated with various forms of intimate partner violence, sexually coercive tactics, and controlling behavior. Jealousy towards emotional infidelity, on the other hand, is more strongly associated with relational aggression, emotional abuse, and controlling behavior in women (Davis et al., 2018). In sum, the literature suggests a direction towards a relationship between jealousy and specific mate retention strategies, which differ between men and women (Buss & Shackelford, 1999; Davis et al., 2018).

## 1.4 Attachment

Attachment is an emotional bond between a newborn and their caregiver. It offers a lens for how an individual later in life will form interpersonal relationships throughout their life. Attachment theory suggests that how well caregivers meet the emotional needs of the infant during early development establishes long-lasting tendencies in how that person behaves, thinks, and feels in relationships. Attachment serves as the initial mechanism for a newborn to detach from the caregiver and investigate their surroundings. The infant establishes a cognitive image of the caregiver in their mind, which they may call upon as a soothing mental presence during challenging situations (Sullivan et al., 2011). Attachment styles are a spectrum from secure to insecure, depending on how responsive, nurturing, and emotionally available the caregiver is (Barnett & Vondra, 1999). Four distinct patterns typically categorize these styles: secure, anxious, avoidant, and disorganized. However, it is important to recognize that attachment styles are dynamic, not mutable, and can shift throughout a person's life, as well as vary between different relationships or even within a single relationship (Zhang & Labouvie-Vief, 2004).

Securely attached individuals have caregivers who are reliably responsive and sensitive to their needs, which allows the child to develop trust and feel safe exploring the world (Cassidy, Jones & Shaver, 2013). These children tend to be more curious, self-reliant, and independent as they develop. Early in life, one can notice a child with a secure attachment, displaying a warm and welcoming behavior towards their caregiver after separation. In adulthood, individuals with a secure attachment style tend to exhibit a positive view of themselves and others, allowing for healthy and adaptable relational behaviors. Furthermore, these individuals are generally comfortable with intimacy, able to seek out and provide support when necessary, and display a remarkable capacity for maintaining balanced relationships (Hong & Park, 2012).

Conversely, people with an anxious attachment style have mostly likely had an inconsistent caregiving pattern. At times, the caregiver was responsive, but at other times,

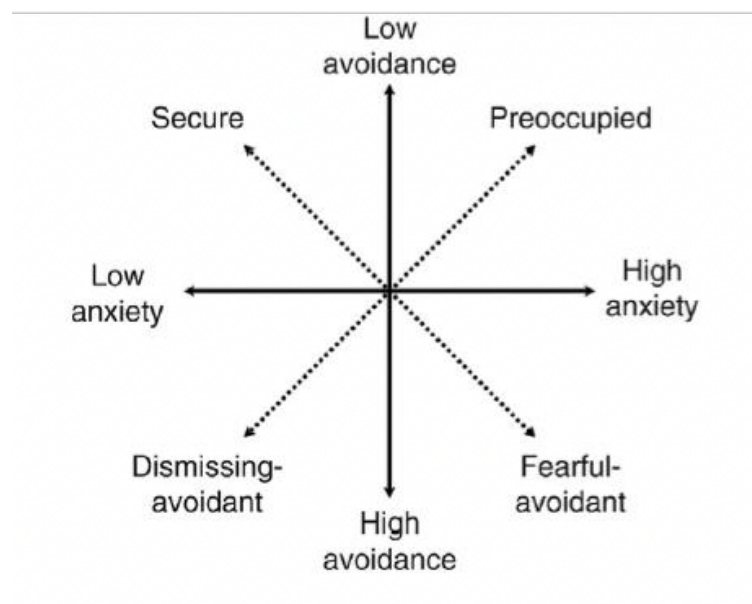


neglectful or distant from the emotional needs of the infant. In the early life of children with an anxious attachment style, they may become distressed upon separation from the caregiver and have difficulty self-soothing. In adulthood, these individuals tend to exhibit a negative view of themselves, coupled with a positive view of others. Therefore, anxiously attached individuals may exhibit clingy or dependent behaviors. They generally crave intimacy and closeness, but they will live in fear of abandonment in their relationships. Therefore, they show a heightened sensitivity to relational threats, often manifesting as a pervasive worry that leads to a constant need for seeking reassurance (Moretti & Peled, 2004).

A child with an avoidant attachment style exhibits a contradictory blend of closeness and avoidance behaviors, torn between seeking comfort from a caregiver who simultaneously causes them distress. During childhood, children with an avoidant attachment style may appear unfazed by the caregiver's absence, expressing little or no distress upon separation and return. As adults, avoidant individuals often have a positive view of themselves but a negative perception of others, consequently viewing relationships as unnecessary or even threatening. Individuals with this attachment style often maintain emotional distance, valuing self-reliance more than relational intimacy. Thus, they may avoid being in relationships that require deeper emotional connection. Even if they choose to be in relationships, this may cause potential partners to feel disconnected from their avoidant partners (Moretti & Peled, 2004).

Finally, individuals who experienced inconsistent, unpredictable, or even abusive care during childhood tend to exhibit a disorganized attachment style. These children fail to develop a coherent strategy for coping with the distress of separation from their caregiver and instead exhibit a fragmented and contradictory behavioral pattern. In early childhood, sometimes they approach their caregiver for comfort while simultaneously withdrawing in fear. In adulthood, individuals with this style may yearn for close relationships yet simultaneously harbor a fear of hurt, resulting in a conflicted approach to intimacy. Individuals with disorganized attachment

frequently perceive their emotional needs as unfulfilled in relationships, leading them to either avoid or undermine such relationships. Their relationships may be “toxic”, characterized by a lack of coherence or strategy in managing emotional closeness, leading to unpredictable and chaotic behaviors towards their partners. This can lead to relationships that undermine trust and emotional safety (Moretti & Peled, 2004).



**Figure 1.** Description of Bartholomew and Horowitz's (1991) attachment styles. Adapted from *Adult Attachment: A concise introduction to theory and research* (p. 16), by O. Gilliath, G. C. Karantzas, & R. C. Fraley, 2016, London, Academic Press.

Subsequent research refined the initial classification of attachment styles into two primary dimensions: attachment avoidance and attachment anxiety. This dimensional approach, pioneered by studies such as those by Brennan, Clark & Shaver (1998), offers a more nuanced understanding of attachment dynamics. Individuals with high attachment anxiety are inclined to seek excessive reassurance and closeness from their partners, often driven by a deep-seated fear of abandonment and an underlying belief that they are not inherently worthy of love. In contrast, high attachment avoidance is characterized by a reluctance to rely on others and a preference for

emotional self-sufficiency. Individuals exhibiting this style tend to distance themselves from relationships, wary of vulnerability and interdependence. In this specification, anxious attachment style corresponds to high attachment anxiety and low attachment avoidance, while avoidant attachment style corresponds to high attachment avoidance and low attachment anxiety, and disorganized attachment style is characterized by high levels of both dimensions (Figure 1). Attachment theory now recognizes these two dimensions, moving beyond the oversimplified idea of merely being "attached". This perspective highlights that people can experience varying levels of both avoidance and anxiety on a spectrum, offering a richer understanding of relationship dynamics (Nickisch, Palazova & Ziegler, 2020).

#### **1.4.1. Dark Tetrad in the context of Attachment**

When considering the dark tetrad—narcissism, Machiavellianism, psychopathy, and sadism—in the context of attachment, we see a complicated relationship. These traits may be associated with more insecure attachment styles due to their manipulative, callous, and hostile natures (Sevi, Urganci & Sakman, 2020). Understanding how dark personality characteristics and insecure attachment interact is crucial because the behavior they elicit is often automatic and emotional rather than deliberate. While the Dark Tetrad traits are relatively stable over time, attachment styles are somewhat on a spectrum and can be influenced by therapeutic interventions or positive relational experiences. Therefore, focusing on transforming insecure attachment styles may have implications for improving relationship satisfaction and stability, even in those individuals with dark personality traits.

##### **1.4.1.1. Narcissism and Attachment**

People with higher levels of narcissism tend to be in short-term or low commitment relationships, such as one-night stands or non-binding sexual relationships. Individuals with higher narcissistic traits often use romantic relationships as a way to get their need for attention and prestige met rather than for intimacy and emotional connection. Thus, they only like to be in

long-term relationships if they get constant admiration and attention from their partner (Čopková & Lörincová, 2021). We can infer that they either attach their value to the relationship or the number of sexual experiences they had in romantic relationships.

Empirical studies suggest that there is a strong association between narcissism and insecure attachment styles, but it varies. People with insecure attachment styles, including anxious, avoidant, and disorganized styles, might be more susceptible to the development of vulnerable narcissistic tendencies (Dickinson and Pincus 2003; Rohmann et al. 2012). Firstly, when we examine the anxious attachment styles in the context of narcissism, we can see that people with high levels of vulnerable narcissism are fragile and insecure, and have a constant need for validation from others (Miller et al., 2021). Thus, individuals with an anxious attachment style might be more likely to develop vulnerable narcissistic traits later in life as a means of protecting themselves against perceived threats to their self-worth. Alternatively, grandiose narcissism is more aligned with an avoidant attachment style. People with grandiose narcissism tend to have discomfort with intimacy and seek relationships that are superficial, an avoidant attachment style (Chabrol et al., 2009). Lastly, disorganized attachment style, in its simple form, is a combination of anxious and avoidant attachment styles. Therefore, individuals with a disorganized attachment style may adopt narcissistic behaviors as a defense mechanism for potential rejection in relationships (Saladino et al., 2024).

#### **1.4.1.2. Machiavellianism and Attachment.**

Individuals with high levels of Machiavellianism tend to seek out short-term, low-commitment sexual relationships. They have a tendency to use alcohol, power, and intimidation to be able to engage in sexual activities, as shown in several studies (Dussault, Hojjat & Boone, 2013; Jonason et al., 2009). When we observe the Machiavellianism trait in long-term relationships, they show elevated levels of suspicion and distrust. Furthermore, they take preventative measures just in case their partner leaves them, such as keeping an alternative

individual by their side as a backup plan (Abell & Brewer, 2016).

According to Tajmirriyahi et al. (2021), people with high levels of Machiavellianism show the worst quality of relationship with the caregiver compared to other Dark Tetrad traits. Thus, Machiavellianism is associated with both of the insecure attachment styles -attachment anxiety and avoidance- in romantic relationships (Atari & Chegeni, 2017). Individuals high in Machiavellianism, driven by a need for control and a cynical view of others, often prioritize personal gain over genuine intimacy. This manifests as emotional detachment, distrust, and a tendency to manipulate partners to achieve desired outcomes. (Ináncsi et al., 2018). Their pessimistic outlook and fear of vulnerability lead to a preference for superficial closeness, potentially masking their underlying emotional detachment as a means of self-preservation, which comes from avoidant or disorganized attachment styles they developed in childhood.

#### **1.4.1.3. Psychopathy and Attachment.**

Similar to Machiavellianism and narcissism, psychopathy trait is highly associated with low commitment and short-term relationships. They prefer to play games and devalue the kindness towards their partners. Furthermore, even if they get into committed relationships, individuals with higher levels of psychopathy traits do not see these relationships as intimate, and they seek partners outside of the relationship (Ali & Chamorro-Premuzic, 2010). Due to their non-empathetic and cruel nature, they even have the willingness to be caught cheating (Adams, Luevano & Jonason, 2014). Moreover, according to Koladich & Atkinson (2016), people with high levels of psychopathy not only abuse their partners but also choose friendships that they can abuse later to fulfill their sexual needs.

The literature strongly suggests that psychopathy has a significant correlation with avoidant attachment styles (Conradi et al., 2016; Bakermans-Kranenburg & van IJzendoorn, 2009; Frodi et al., 2001). Individuals with high levels of psychopathy traits have a lack of empathy and are less likely to develop close relationships with others (Meloy & Yakeley, 2020).

The avoidant attachment style is characterized by the desire to avoid intimacy and close relationships; thus, individuals with psychopathic traits are less likely to develop healthy attachment styles. In other words, psychopathy predicts avoidant attachment because psychopathic traits, such as a lack of empathy and callousness, make it difficult for individuals to form close emotional bonds with others.

#### **1.4.1.4. Sadism and Attachment**

Sadism presents a distinct challenge in romantic relationships. Individuals high in sadism derive pleasure from inflicting pain, making healthy relationship dynamics near impossible. The literature on sadism in romantic relationships is less developed compared to other Dark Tetrads; however, themes emerge suggesting a preference for relationships offering control and manipulation. This could manifest as seeking partners who are submissive, obedient, or easily manipulated, allowing the individual to exert their sadistic tendencies. Thus, they may choose to be in relationships where commitment is low, and they can quickly move on to a new target. Conversely, they might gravitate towards long-term relationships where they can establish a firm power dynamic and gain control over their partner over an extended period of time. Unsurprisingly, research indicated a positive correlation between everyday sadism and sexual gratification from hurting their partners during sex (Richters et al., 2008). Furthermore, the gratification from a partner's suffering can impede the development of genuine intimacy and emotional connection, potentially leading to dysfunctional and abusive relationships.

While more research is needed to fully understand the link between sadism and attachment styles, existing literature suggests a potential association with insecure attachment styles, particularly avoidant attachment (Zeigler-Hill & Marcus, 2016, p. 113). Individuals with high levels of sadism tend to be uncomfortable with intimacy, emotional closeness, and vulnerability. They may struggle to trust others and often prioritize independence and self-reliance. Thus, their characteristics suggest a pattern toward an avoidant attachment rather than

an anxious attachment. However, this study aims to contribute to the understanding of sadism and attachment styles in romantic relationships, seeking to provide further insights.

#### **1.4.2. Attachment in the context of Responses to Infidelity.**

Attachment theory provides a valuable framework for understanding how individuals perceive and respond to infidelity in romantic relationships through jealousy reactions. In a study by Guerrero (1998), they classified attachment types according to how they see themselves compared to their partners. According to their results, they discovered that individuals who have a negative self-perception (i.e., anxious and disorganized) tend to feel more jealous of their partner and show more suspicion towards them with surveillance behaviors. On the other hand, people who see their partners negatively (i.e., avoidant and disorganized) report less fear and jealousy in the relationship for infidelity threats, and they exhibit less maintenance and repair behaviors.

According to more recent research about attachment styles and responses to emotional vs. sexual infidelity threats, men and women with different attachment styles react differently to these threats. They suggest that individuals with an anxious attachment style tend to worry more about emotional infidelity, whereas those with an avoidant attachment style perceive sexual infidelity as a greater threat (Treger & Sprecher, 2011). They argue that this can be explained through their underlying attachment insecurities; anxious individuals are typically more focused on attachment figures, while avoidant individuals try to distance themselves and maintain independence in the relationship. Overall, the literature suggests that individual differences in attachment play a significant role in how people perceive and respond to infidelity in their romantic relationships. Therefore, in this study, we want to delve more into the relationship between attachment styles and how they react to sexual vs. emotional infidelity threats.

#### **1.4.3. Attachment in the context of Mate Retention Tactics.**

While the relationship between attachment styles and mate retention strategies remains

relatively understudied, existing literature suggests a strong link between using both benefit-provisioning and cost-inflicting mate retention tactics and having an insecure attachment styles compared to a secure attachment style (Barbaro et al., 2019; Barbaro, Holub & Shackelford, 2018; Nascimento et al., 2022). Individuals with a secure attachment tend to display high levels of trust, intimacy, and commitment in their romantic relationships. Conversely, people with insecure attachment style, marked by fear of abandonment and rejection, are more likely to engage in mate retention behaviors as a means of maintaining their relationship. Therefore, they resort to more pronounced and extreme measures in their attempt to retain their partner. Specifically, studies indicate that people with high levels of attachment anxiety are more likely to show both benefit-provisioning and cost-inflicting mate retention strategies (Barbaro et al., 2019; Nascimento et al., 2022). In contrast, high attachment avoidance correlates with a lower frequency of both mate retention tactics, particularly benefit provisioning (Barbaro et al., 2019). This constant negative correlation with benefit-provisioning may be attributed to the fact that these strategies involve emotional intimacy and closeness, which are the aspects that individuals with a high level of attachment avoidance tend to avoid.

The present research aims to further investigate the correlations between the Dark Tetrad traits, attachment styles and mate retention strategies, with a particular focus on exploring potential gender differences. Firstly, literature suggests that men are more likely to have higher levels of Dark Tetrad traits, especially in psychopathy, and sadism compared to women. Thus, our hypothesis is presented below accordingly.

*Hypothesis 1.* Men will have higher levels of Dark Tetrad traits.

To our knowledge, while research exists on the Dark Triad and mate retention, studies haven't specifically examined the Dark Tetrad, including sadism, in this context. Therefore, we



want to investigate this relationship further. (Jonason, Li & Buss, 2010). Literature suggests that individuals high in Dark Tetrad traits use more mate retention strategies, particularly cost-inflicting tactics, which are controlling and manipulative, to prevent partner departure. Traits have been linked to direct or indirect partner violence, manipulation, and threats, especially in men. Thus, we formulated our hypothesis accordingly.

*Hypothesis 2.* Men will be more likely to use mate retention strategies.

*Hypothesis 3.* The higher the Dark Tetrad, (narcissism, Machiavellianism, psychopathy, and sadism) scores, the more likely mate retention tactics will be used, especially cost-inflicting tactics.

Furthermore, to our knowledge, no research has examined the Dark Tetrad in relation to responses to infidelity threats. This study aims to address this gap by investigating how jealousy, specifically in response to emotional and sexual infidelity scenarios, might influence the use of mate retention tactics among individuals high in Dark Tetrad traits. While literature suggests that individuals high in these traits experience heightened jealousy, potentially increasing their likelihood of employing mate retention strategies, further exploration is needed to understand the specific mechanisms at play. Therefore, we formulated our hypotheses accordingly.

*Hypothesis 4.* Elevated stress levels in both types of infidelity scenarios will be associated with higher use of mate retention strategies.

*Hypothesis 5.* The more stress levels heightened in both type of infidelity scenarios, the more they will use mate retention strategies.

Finally, attachment styles are known to significantly influence behaviors, relationships,

and emotional responses. Research suggests a link between the Dark Tetrad and insecure attachment, particularly attachment avoidance (Bartholomew & Horowitz, 1991). However, findings regarding narcissism remain inconclusive (Nickisch, Palazova & Ziegler, 2020).

Therefore, we propose the following hypotheses:

*Hypothesis 6.* Machiavellianism, psychopathy, and sadism traits will have higher levels of attachment avoidance, while narcissism will have higher levels of both attachment avoidance and attachment anxiety.

*Hypothesis 7.* The higher the individual have attachment anxiety; the more mate retention strategies they will use.

## 2 Method

### 2.1 Participants and Procedure

This research was conducted after obtaining approval from Ihsan Dogramaci Bilkent University's Ethical Committee. Participants were notified that their participation was voluntary, and they had the right to withdraw from the research at any time or request the deletion of their data. They were also informed that there would be no right or wrong answers, and anonymity and confidential treatment of the data was guaranteed. Participants were recruited through Bilkent University, social media platforms (e.g., Facebook, Instagram, WhatsApp, Facebook), and brochures. The Bilkent University responders have been compensated for their participation with five points for the course credit upon their request. Participants completed an online Qualtrics survey and gave their informed consent via tick-box to participate. All the measures were presented in a randomized order and the survey took approximately 10 minutes to complete. After the completion of the survey, all the participants were debriefed.

Seven hundred individuals started the study. A hundred and thirty-eight participants who did not fit into the criteria, which were currently having a serious committed romantic relationship, or being part of a serious committed romantic relationship in the last year, were not directed to the test. Furthermore, the primary analysis only included participants who self-identify as a heterosexual male or female. This constraint is due, in part, to an assumption within evolutionary psychology models that typically center on heterosexual individuals. Additionally, the sample size was insufficient to facilitate a comparative analysis across different sexual orientations. Thereby, 89 people had to be dropped out of the study. Due to incomplete data and failed attention checks, 369 more participants had to be eliminated. These resulted in a sample size of 242 participants aged between 18 to 36 years old. The gender distribution of the final sample was as follows: 62% female ( $n = 151$ ), and 38% male ( $n = 91$ ).

A hundred and sixty-nine of the participants were currently in a serious committed romantic relationship while 73 of them had a relationship during the last year.

### 2.3 Measures

***Infidelity Responses.*** To be able to assess how participants react to sexual vs. emotional infidelity, we adapted the ‘‘Responses to Infidelity Scale’’ of Buss et al. (1999) and turned the dilemmas they created into a Likert-style questionnaire. Participants were prompted to imagine a serious committed romantic relationship that they have had in the past, that they currently have, or that they would like to have a relationship and indicate how much distress they feel in the given eight scenarios ranging from (*0 = Not stressed at all; 6 = Extremely stressed*). The given scenarios were;

1. Imagining your partner forming a deep emotional attachment to that person.
2. Imagining your partner enjoying passionate sexual intercourse with that other person.
3. Imagining your partner having sexual intercourse with a person, but you are certain that they will not form a deep emotional attachment.
4. Imagining your partner having a deep emotional attachment with a person, but you are certain that they will not have a sexual intercourse.
5. Imagining that your partner is still sexually interested in the former lover, but no longer in love with this person.
6. Imagining that your partner is still emotionally involved with the former lover, but is no longer sexually interested in this person.
7. Imagining your partner having sexual intercourse for just one night with another person, with no chance of any further involvement.
8. Imagining your partner becoming emotionally involved with another person, with no chance of any sexual involvement.

**Mate Retention.** In this study, we used the Mate Retention Inventory-Short Form (MRI-SF; Buss, Shackelford & McKibbin, 2008) which is a 38-item tool. This scale assesses mate retention behaviors, specifically capturing both benefit-provisioning and cost-inflicting strategies that consist of two items per tactic. Benefit-provisioning tactics measured by the scale include resource display (“Bought my partner an expensive gift”), appearance enhancement (“Made myself extra attractive for my partner”), and signaling physical possession (“Put my arm around my partner in front of other”), whereas cost-inflicting tactics involve jealousy induction (“Talked to another man at a party to make my partner jealous”), employing diverse manipulations (“Pleaded that I could not live without my partner”), and exerting violence against rivals (“Slapped a man who made a pass at my partner”). Participants were asked to reflect on the frequency ( $0 = \textit{Never}$ ;  $3 = \textit{Often}$ ) of such acts over the past year to indicate prevalence.

**Dark Tetrad.** To assess individual differences in the Dark Tetrad traits we used the Short Dark Tetrad (SD4; Paulhus et al., 2020). The scale is composed of seven items measuring Machiavellianism (e.g., “Manipulating the situation takes planning.”), seven measuring narcissism (e.g., “I know that I am special because people keep telling me so.”), seven measuring psychopathy (e.g., “I tend to fight against authorities and their rules.”), and seven measuring sadism (e.g., “I know how to hurt someone with words alone.”). Participants were instructed to indicate their level of agreement ( $1 = \textit{Strongly Disagree}$ ,  $5 = \textit{Strongly Agree}$ ). To compute individual scores for each personality trait—Machiavellianism, narcissism, psychopathy, and sadism—scores on items measuring the same construct were averaged.

**Attachment.** Experiences in close relationships scale-short form (Wei et al., 2007) have been used to determine their attachment style in the relationships. To see their

anxiety and avoidance levels they were asked questions such as ‘‘I get frustrated if my romantic partner is not available when I need them’’ and each item required participants to express their level of agreement with each statement ( $1 = \textit{Strongly Disagree}$ ;  $7 = \textit{Strongly Agree}$ ).

### 3 Results

Table 1.

Descriptive statistics and sex differences among the Dark Tetrad traits, attachment patterns, and responses to infidelity.

	<i>M</i> ( <i>SD</i> )			<i>t</i>	<i>d</i>
	<b>Overall</b>	<b>Men</b>	<b>Women</b>		
<b>Dark Tetrad</b>					
Narcissism	3.14 (0.76)	3.21 (0.66)	3.10 (0.81)	1.00	0.13
Machiavellianism	3.37 (0.67)	3.51 (0.65)	3.29 (0.68)	2.42*	0.32
Psychopathy	2.28 (0.64)	2.50 (0.67)	2.16 (0.59)	4.11**	0.55
Sadism	2.61 (0.82)	3.14 (0.76)	2.29 (0.67)	9.09**	1.21
<b>Attachment</b>					
Anxious	4.03 (1.29)	3.78 (1.21)	4.18 (1.31)	-2.39*	-0.32
Avoidant	2.51 (1.01)	2.53 (0.99)	2.50 (1.01)	0.23	0.03
<b>Mate Retention</b>					
Cost-inflicting	1.76 (0.42)	1.81 (0.36)	1.73 (0.45)	1.45	0.19
Benefit Provisioning	2.63 (0.41)	2.71 (0.38)	2.58 (0.41)	2.44*	0.32
<b>Responses to Infidelity</b>					
Emotional Infidelity	6.30 (1.06)	6.11 (1.30)	6.44 (0.86)	-2.34*	-0.31
Sexual Infidelity	6.15 (1.14)	6.21 (1.28)	6.14 (1.04)	0.49	0.06

\*  $p < .05$ , \*\*  $p < .01$

We began with four mixed model ANOVAs (see Table 1 for descriptives) where participant’s sex was treated as a between-subjects factor and (1) the Dark Tetrad traits, (2) attachment, (3) mate retention, and (4) responses to infidelity were treated as within-subjects factors.

For the first analysis, the results revealed a significant main effect of Dark Tetrad ( $F [3, 720] = 170.14, p < .001, \eta_p^2 = 0.25$ ), significant main effect of sex ( $F [1, 240] = 32.33, p < .001, \eta_p^2 = 0.07$ ), and an interaction ( $F [3, 720] = 20.56, p < .001, \eta_p^2 = .04$ ) suggesting that sex differences were largest for sadism, weaker for psychopathy, weaker still for Machiavellianism, and absent for narcissism; there was an overall difference ( $F [1, 240] = 32.33, p < .001, \eta_p^2 =$

.07) between men ( $M = 3.21$ ,  $SE = 0.66$ ) and women ( $M = 3.10$ ,  $SE = 0.81$ ). We also found that among the Dark Tetrad traits ( $F [3, 720] = 170.14$ ,  $p < .001$ ,  $\eta_p^2 = .25$ ) suggesting that men more likely show psychopathy ( $p = .02$ ) and sadisms ( $p < .001$ ) traits than women even though men scored higher in all Dark Tetrad traits than women. Moreover, men and women who were higher on narcissism, also scored higher in psychopathy. Women showed a significant relationship between narcissism and sadism whereas men did not. Men and women who were high in Machiavellianism also scored higher in sadism, and psychopathy.

In the case of mate retention, the results revealed a significant main effect of mate retention strategies ( $F [1, 240] = 1041.98$ ,  $p < .001$ ,  $\eta_p^2 = 0.52$ ), and a main effect for gender ( $F = 4.97$ ,  $p = .027$ ,  $\eta_p^2 = 0.02$ ). We detected no interaction but people reported using more benefit provisioning than cost inflicting mate retention tactics ( $F [1, 240] = 1041.98$ ,  $p < .001$ ,  $\eta_p^2 = .52$ ) and men ( $M = 2.71$ ,  $SE = 0.38$ ) and were more likely ( $F [1, 240] = 4.97$ ,  $p < .03$ ,  $\eta_p^2 = .02$ ) than women ( $M = 2.58$ ,  $SE = 0.41$ ) to use either mate retention tactic. Moreover, men and women who used cost-inflicting strategies also used benefit provisioning strategies.

As for responses to infidelity, the results revealed that there was no main effect of responses to infidelity ( $F [1, 240] = 3.30$ ,  $p = .070$ ,  $\eta_p^2 = 0.00$ ), and no main effect of gender ( $F [1, 240] = 0.88$ ,  $p = .350$ ,  $\eta_p^2 = 0.00$ ), but we detected an interaction ( $F [1, 240] = 13.93$ ,  $p < .001$ ,  $\eta_p^2 = .01$ ) suggesting that men and women only differed on their responses to emotional infidelity. Moreover, women who report higher levels of distress in emotional infidelity, also report higher levels of distress in sexual infidelity.

Finally, for attachment, the results revealed a significant main effect of attachment styles ( $F [1, 240] = 184.66$ ,  $p < .001$ ,  $\eta_p^2 = 0.28$ ), but there was no main effect of gender ( $F [1, 240] = 3.01$ ,  $p = .084$ ,  $\eta_p^2 = 0.01$ ). We detected an interaction ( $F [1, 240] = 4.06$ ,  $p < .05$ ,  $\eta_p^2 = .01$ ) suggesting that women were more anxious than men were but the sexes were equally

avoidant and men ( $p < .001$ ) and women ( $p < .001$ ) are more likely to be anxious. In general people were more anxious than they were avoidant ( $F [1,240] = 184.66, p < .001, \eta_p^2 = .28$ ).

Next, we examined the correlations between the responses to both kinds of infidelity with the Dark Tetrad, attachment, and mate retention overall and in men and women (Table 2) and between types of infidelity (Table 3).

We conducted a Fisher's  $z$  test to assess the significance of the correlation coefficients between the variables. Fisher's  $z$  test was chosen to compare the strength of correlations across different pairs of variables while accounting for the dependency among correlations. The Fisher's  $z$  test only revealed a significant difference between cost-inflicting mate retention strategies for responses to emotional ( $Z = 3.20, p = .001$ ) and sexual infidelity ( $Z = 2.74, p = .006$  scenarios).

Next to that, we conducted Steiger's  $z$  tests comparing correlations between responses to infidelity threats and each trait overall and within each sex. We have found that, out of all overall variables, only overall attachment anxiety significantly correlated with responses to infidelity ( $z = 2.12, p = .035$ ). While in men, only Machiavellianism ( $z = 2.20, p = .028$ ) significantly correlated with responses to infidelity, in women only narcissism ( $z = 2.16, p = .031$ ) showed significant correlation.

Table 2.

Correlations between responses to infidelity and the Dark Tetrad traits, attachment patterns, and mate retention overall and in men and women.

	Emotional Infidelity				Sexual Infidelity			
	Overall	Men	Women	$z$	Overall	Men	Women	$z$
Narcissism	.02	.01	.04	-0.22	-.06	.01	-.11	0.90
Machiavellianism	-.04	.03	-.06	0.67	-.07	-.11	-.05	-0.45
Psychopathy	-.14*	-.09	-.12	0.23	-.13*	-.12	-.17*	0.38
Sadism	-.10	.04	-.12	1.19	-.03	-.04	-.07	0.22
Anxious	.24**	.35**	.14	1.67	.14*	.24*	.08	1.22
Avoidant	-.33**	-.44**	-.25**	-1.61	-.34**	-.45**	-.26**	-1.62
Cost-inflicting	.04	.30**	-.12	3.20**	.07	.29**	-.07	2.74**
Benefit provisioning	.19**	.30**	.15	1.18	.22**	.28**	.17*	0.86

Note.  $z$  is Fisher's  $z$  test comparing the correlations in men and women per calculations online



(<http://quantpsy.org/corrtest/corrtest.htm>)

\*  $p < .05$ , \*\*  $p < .01$

The Dark Tetrad traits proved rather useless at predicting variance in responses to either types of infidelity with only two; potentially aberrant correlations for psychopathy, suggesting that overall psychopathy was associated with a less strong response to emotional infidelity and sexual infidelity (which might be localized to women).

In contrast, attachment was far more informative. There was a significant correlation between attachment and responses to infidelity threats. Those who were anxiously attached (men slightly more) were more bothered by sexual and emotional infidelity whereas those who were avoidant reported not being bothered much at all by infidelity.

In addition, men who experienced stronger distress levels to infidelity of either kind were more likely to use cost-inflicting mate retention than women were. And responses to both kinds of infidelity were associated with more benefit provisioning mate retention in men but only did sexual infidelity responses associate with women's use of benefit provisioning.

Generally speaking, there was little moderation by sex or by the type of infidelity (see Table 2 and 3).

Table 3.

Steiger's  $z$  tests comparing correlations between responses to infidelity and each trait overall and within each sex.

	Overall	Men	Women
Narcissism	1.66	<0.01	2.16*
Machiavellianism	0.62	2.20*	-0.14
Psychopathy	-0.21	0.47	0.73
Sadism	-1.45	1.25	-0.72
Anxious	2.12*	1.82	0.87
Avoidant	0.22	0.18	0.15
Cost-inflicting	-0.62	0.16	-0.72
Benefit provisioning	-0.64	0.33	-0.29

*Note.* Steiger's  $z$  test calculated online (<http://quantpsy.org/corrtest/corrtest2.htm>); responses to emotional and sexual infidelity were correlated overall (.72), in men (.82), and in women (.64), which differs in by sex (Fisher's  $z = 2.96$ ).

\*  $p < .05$ , \*\*  $p < .01$

In Table 4, we report the correlations between the Dark Tetrad, attachment styles, and mate retention.

Results showed that all Dark Tetrad traits significantly correlated with each other. Narcissism, psychopathy, and sadism did not show any significant correlation with any of the attachment patterns. However, Machiavellianism has a strong positive correlation with attachment anxiety ( $r = .25, p < .001$ ). Furthermore, attachment patterns also did not show any significant correlation with each other. However, attachment patterns have shown some significant correlations with mate retention strategies. Attachment anxiety has a strong positive correlation with cost-inflicting tactics ( $r = .30, p < .001$ ), and benefit provisioning ( $r = .18, p < .005$ ) tactics. On the other hand, attachment avoidance has only strong negative correlation with benefit provisioning ( $r = -.26, p < .001$ ) tactics, and does not show any correlation with cost-inflicting tactics.

In mate retention strategies, cost-inflicting tactics showed strong positive correlations with narcissism ( $r = .29, p < .001$ ), Machiavellianism ( $r = .33, p < .001$ ), psychopathy ( $r = .47, p < .001$ ), sadism ( $r = .40, p < .001$ ). Same pattern was also available for benefit provisioning tactics, it has strong positive correlations with narcissism ( $r = .27, p < .001$ ), Machiavellianism ( $r = .34, p < .001$ ), and sadism ( $r = .23, p < .001$ ), while having positive correlations with psychopathy ( $r = .15, p < .017$ ).

Table 4.  
Correlations between the Dark Tetrad traits, attachment patterns, and mate retention.

	1	2	3	4	5	6	7	8
1. Narcissism	--							
2. Machiavellianism	.36**	--						
3. Psychopathy	.39**	.27**	--					
4. Sadism	.31**	.42**	.54**	--				
5. Anxious attachment	.11	.25**	.09	.08	--			

6. Avoidant attachment	-.04	.09	.06	.05	-.01	--		
7. Cost-inflicting	.29**	.33**	.47**	.40**	.30**	<-.01	--	
8. Benefit provisioning	.27**	.34**	.15*	.23**	.18**	-.26**	.51**	--

\*  $p < .05$ , \*\*  $p < .01$

## 4 Discussion

We have designed our current project to delve deeper into the relationship between the Dark Tetrad traits and various aspects of personality, behavior, and interpersonal dynamics. With the addition of sadism to the Dark Triad, the Dark Tetrad has emerged as a more comprehensive model for understanding the "dark side" of human nature. Researchers have found a range of undesirable outcomes associated with the Dark Tetrad traits, such as aggression, manipulative behavior, a lack of empathy, and the pursuit of short-term mating strategies. Narcissism is defined by grandiosity, entitlement, and a strong need for admiration, while Machiavellianism is characterized by manipulation, cynicism, and a strategic approach to interpersonal relationships. Psychopathy is marked by a lack of empathy, impulsivity, and thrill-seeking behavior, while sadism involves deriving pleasure from the suffering of others (Jonason et al., 2009). Their core is classified as a socially malevolent character with tendencies toward self-promotion, emotional coldness, duplicity, and aggressiveness (Paulhus, Curtis & Jones, 2018). Literature indicates that there is gender variation in the expression of these traits, with men generally scoring higher on dark traits compared to women (Jonason et al., 2009). Therefore, our first hypothesis was that men would score higher on measures of the Dark Tetrad compared to women. Even though our results support this hypothesis for Machiavellianism, psychopathy, and sadism with small to moderate effect sizes, surprisingly, we did not find significant gender differences in narcissism. This may be due to the increased prevalence of narcissistic traits in modern society, which may be reducing the traditional gender gap (Rogoza & Ciecuch, 2020).

Dark tetrad traits significantly impact relationships. For example, individuals high in Dark Tetrad traits tend to have more short-term mating strategies, as they may be manipulative and callous in their pursuit of sexual partners (Jonason, Luevano & Adams, 2012). Additionally, they often display aggression, a lack of empathy, and a willingness to exploit others for personal gain, which can negatively impact their interpersonal relationships (Jonason et al., 2009). However, they can choose to be in committed relationships, which are often characterized by distrust, a lack of emotional intimacy, and a general disinterest in their partner's needs. These behaviors result in poorer-quality relationships and higher rates of relationship dissolution (Jonason et al., 2009; Jonason, Luevano & Adams, 2012). Thus, they need to use tactics to attract and maintain mates who are vulnerable to their manipulative tactics. The current study also aims to investigate the mate retention strategies and their distinct tactics in relation to Dark Tetrad.

Mate retention strategies are divided into two categories: cost-inflicting and benefit provisioning. Cost-inflicting strategies aim to reduce the chances that the partner will leave the relationship, whereas benefit provisioning strategies aim to increase the partner's dependence on the relationship to reduce the chances of partner infidelity or defection (Jonason, Li & Buss, 2010). Literature emphasizes a distinction between genders. Men were reported to be more likely to use mate retention strategies in their relationships (Nascimento et al., 2022). Therefore, in our second hypothesis, we predicted that men would report using more mate retention strategies. Our results supported the literature and our hypothesis.

Moreover, individuals high in the Dark Tetrad traits are more likely to use cost-inflicting mate retention tactics, such as jealousy induction, emotional manipulation, and violence, to maintain their partners through coercive and exploitative means (Jonason, Li & Buss, 2010). Thus, in our third hypothesis, we predicted that the Dark Tetrad traits would be positively associated with the use of mate retention strategies, and we expected a stronger

relationship for cost-inflicting tactics. Our results indicated the predicted pattern with the Dark Tetrad traits. People who have high Dark Tetrad traits use mate retention strategies to maintain their relationships. However, there was no preference for the cost-inflicting mate retention strategy. People who are high in the Dark Tetrad traits engaged in more mate retention in general, meaning they used a combination of both benefit provisioning and cost-inflicting strategies. Overall, our findings contribute to the understanding of the complex relationship between the Dark Tetrad and relationship dynamics.

Next, we were curious about the differences in sexual and emotional infidelity experiences and how they impact the mate retention strategies of people who have high levels of the Dark Tetrad traits. However, there was a gap in the literature exploring this potential link. Therefore, we decided to explore the role of infidelity in more detail.

Moreover, people who experience intense jealousy are more likely to engage in mate retention behaviors in an attempt to prevent their partner from abandoning themselves. Studies specifically link high levels of jealousy to cost-inflicting mate retention strategies (Buss et al., 1999; Buss, Shackelford & McKibbin, 2008). Researchers explain this link with the understanding that individuals experiencing intense jealousy may perceive their relationship as threatened, leading them to use more aggressive tactics in an attempt to maintain it (Nascimento et al., 2022). Therefore, as a fifth hypothesis, we predicted that people who feel more distress in response to hypothetical infidelity scenarios will report using more mate retention strategies. Our results did not show this pattern. We found that people with high levels of distress response to both types of infidelity are more likely to use benefit provisioning tactics rather than cost-inflicting ones. However, we can say that men who have shown high levels of stress in both infidelity scenarios are also likely to use both mate retention strategies, according to our findings. This may be due to the evolutionary pressures on men regarding paternity uncertainty. You could explore the idea that men might be more likely to use both

types of mate retention strategies, whether consciously or unconsciously, as a way to secure their position and ensure their offspring's lineage (Buss et al., 1999).

Another component we wanted to further analyze was the role of attachment style when it comes to infidelity and mate retention strategies in people high in Dark Tetrad. Attachment theory proposes that individuals develop internal representations of relationships based on their early experiences with primary caregivers (Nickisch, Palazova & Ziegler, 2020). Attachment styles are categorized as secure, anxious, avoidant, and disorganized. However, recent research has focused more on the dimensional approach, such as attachment anxiety and attachment avoidance (Ozkul, 2020). Therefore, we wanted to examine the interplay between attachment dimensions, the Dark Tetrad traits, infidelity distress, and mate retention tactics.

Researchers have extensively studied the Dark Tetrad traits and their attachment styles. Research shows that there are different patterns associated with each trait. Narcissism has been linked to both high attachment anxiety and avoidance, indicating a sense of entitlement and difficulty trusting others. Psychopathy is related to avoidant attachment, characterized by a lack of emotional investment and an unwillingness to depend on others. Machiavellianism is associated with disorganized attachment, a combination of high anxiety and avoidance, suggesting a distrust of others coupled with a desire for closeness. Lastly, sadism has been linked to anxious attachment, reflecting a strong need for approval and an eagerness to engage in interpersonal dominance (Nickisch, Palazova & Ziegler, 2020). Given the differences in attachment styles associated with each Dark Tetrad trait, as a sixth hypothesis, we predicted that people with high levels of Machiavellianism, psychopathy, and sadism will be more likely to have attachment avoidance, while narcissism will have higher levels in both attachment dimensions. However, surprisingly, our results only indicate anxious attachment in people with high levels of Machiavellianism, and there is no relation between other traits and attachment styles. The development of attachment styles and the complexity of the Dark Tetrad traits may

account for this (Nickisch, Palazova & Ziegler, 2020). It needs further investigation.

Moreover, literature suggests that individuals high in attachment anxiety are more likely to engage in mate retention behaviors, because they aim to prevent partner defection, as they are motivated to maintain closeness and prevent abandonment (Davis et al., 2018). On the other hand, individuals high in attachment avoidance may be less likely to use mate retention tactics, as they tend to be uncomfortable with intimacy and prefer to maintain distance in their relationships. People with an anxious attachment style have a strong desire for closeness and a fear of abandonment, which may lead them to engage in more mate retention behaviors, especially cost-inflicting tactics, in an attempt to prevent their partner from leaving (Davis et al., 2018). As a result, we expected to find that attachment anxiety would be positively associated with overall mate retention, whereas attachment avoidance would be negatively associated with mate retention strategies. Our findings support our seventh hypothesis: anxious people used both of the mate retention tactics, while avoidant people did not.

In conclusion, this study highlighted the complex interplay between Dark Tetrad traits, attachment styles, responses to emotional and sexual infidelity, and mate retention strategies.

#### **4.1. Limitations**

This thesis presents a novel and significant contribution to the field by being the first to investigate the relationship between the Dark Tetrad traits and responses to infidelity. This exploration of a relatively unexplored area holds great promise for advancing our understanding of how personality influences reactions to infidelity and mate retention tactics. The study's strong theoretical grounding in established psychological frameworks, coupled with its controlled methodology using hypothetical scenarios, further strengthens its potential to yield valuable insights. Furthermore, the findings have practical implications for relationship counseling and interventions, potentially informing strategies for addressing infidelity and promoting healthier relationship dynamics.

While the study design offers valuable insights, it's crucial to acknowledge potential limitations. One key aspect is the generalizability of the findings. The study sample, consisting of individuals who are mostly Turkish and aged 18 to 36 and who have experienced a committed relationship within the past year, might not fully represent the broader population. Cultural and demographic factors could significantly influence relationship dynamics and infidelity perceptions, potentially limiting the applicability of the findings to diverse groups.

Furthermore, the study relies on self-reported data collected through an online questionnaire. While this method allows for efficient data collection, it's important to consider the potential for self-report bias. Participants might provide socially desirable responses, or their recollections of past events might be influenced by current emotional states. This is particularly relevant when addressing sensitive topics like infidelity, where individuals might downplay or exaggerate their experiences.

Additionally, the use of imaginary jealousy scenarios, while helpful in controlling for extraneous variables, might not fully capture the complexity of real-life infidelity experiences. The artificiality of these scenarios could influence participants' responses, potentially impacting the ecological validity of the findings.

Lastly, while the study aims to uncover relationships between the Dark Tetrad traits, mate retention tactics, and responses to infidelity threats, it's essential to remember that correlation does not equal causation. Other unmeasured variables, such as individual relationship histories or external stressors, could contribute to the observed associations.

This research opens up several promising avenues for future exploration. Future research could further explore the nuanced ways in which attachment style might moderate or mediate the link between Dark Tetrad traits and responses to infidelity. Examining these potential moderating or mediating pathways could provide a more comprehensive



understanding of the complex interplay between personality, attachment, and relationship behaviors in the context of infidelity.

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