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The Dark Side of Jealousy

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Graduate Program in Psychology

A thesis submitted in partial fulfillment of the requirements for the degree in Master of Science

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Abstract

A previous unpublished study found positive associations between jealousy (cognitive, emotional, behavioural) and the Dark Triad (narcissism, Machiavellianism, psychopathy) (Raheb, Atkinson, Chin, Vernon, submitted). The present study investigates whether self-esteem and entitlement mediate these positive relationships. To test this question, 453 participants (311 females, 140 males, 2 other) between the age of 17 to 81 years ($M = 33.19$, $SD = 10.32$) completed the Multidimensional Jealousy Scale, the Short-D3, the Psychological Entitlement Scale, and the Rosenberg Self-Esteem Scale. One model showed significant mediation: higher psychopathy was related to higher cognitive jealousy, and this relationship was significantly mediated by lower self-esteem. Therefore, individuals higher in psychopathy may be especially prone to cognitive jealousy if they have low self-esteem. These findings identify dimensions of the Dark Triad and other personality traits that influence the propensity to experience types of jealousy.

Keywords: jealousy, Dark Triad, narcissism, Machiavellianism, psychopathy, self-esteem, entitlement, mediation

Acknowledgments

I would like to thank my advisor, Dr. Tony Vernon (Philip A. Vernon), for his guidance and support. Not only did he give me the resources to conduct research, but he was also extremely gracious in supporting me through research assistantships and allowed me to travel to present at professional meetings. I want to thank him for allowing me the opportunity to further my education and research skills in graduate school, and for that, I have found my passion.

I would like to thank Erica Giammarco, Livia Veselka, and Sarah Stanton. All three mentors were tremendously helpful in guiding me through data analyses, editing, and academic advice. I will always look up to them.

Finally, I would like to acknowledge the contribution of the many participants who have contributed to my research. Their time and commitment are the basis of furthering the understanding of personality and romantic jealousy.

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Table 1

Table 1: Descriptive statistics and reliability for jealousy, the Dark Triad (grand mean centered), entitlement, and self-esteem.

	M	SD	Cronbach's α
Jealousy			
Cognitive	3.31	1.46	.91
Emotional	5.16	1.52	.89
Behavioural	3.50	1.77	.94
Dark Triad			
Narcissism	2.97	.52	.61
Machiavellianism	3.26	.71	.82
Psychopathy	2.83	.71	.71
Mediators			
Entitlement	4.26	1.04	.84
Self-esteem	5.76	1.31	.80

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Table 2

Table 2: Pearson correlation coefficient values between three types of jealousy, three Dark Triad dimensions, and mediators of self-esteem and entitlement.

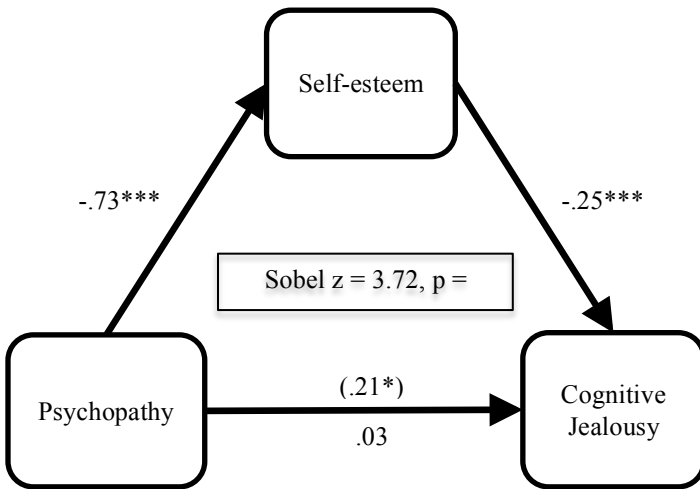
	1	2	3	4	5	6	7	8
1. Cognitive		-.24**	.16*	-.03	-.11*	.07	-.21**	-.05
2. Emotional			.20**	.10*	.24**	.04	.05	.17**
3. Behavioural				.29**	.20**	.47**	-.24**	.26**
4. Narcissism					.22**	.38**	.25**	.50**
5. Machiavellianism						.26**	.01	.41**
6. Psychopathy							-.27***	.32**
7. Self-esteem								.09
8. Entitlement								

* Correlation is significant at .01 level.

** Correlation is significant at the .05 level.

Figure 1

Figure 1: Full mediation of the association of psychopathy with cognitive jealousy. Values represent unstandardized regression coefficients. The coefficient in parentheses represents the association of psychopathy with cognitive jealousy when self-esteem is not included in the model.



- * Coefficient is significant at .05 level.
- ** Coefficient is significant at the .01 level.
- ***Coefficient is significant at .001 level.

Chapter 1: Introduction and Literature Review

1.1 Introduction

Imagine observing your partner interact with an attractive person of the opposite sex. How would your levels of self-esteem and entitlement regarding your partner and relationship influence you to feel jealous? The study of romantic relationships and factors that influence love has always been important, as recognized by the Greek philosopher, Plato, in fourth century B.C., who stated that love directs the bonds of human society. Jealousy is a worthy topic of study within the area of romantic relationships because it has been linked to interpersonal violence (Mullen & Martin, 1994) and health (Buss, 2000). Using personality models such as the Dark Triad, which has implications in violence (Pailing, Boon, & Egan, 2014), may help achieve a better understanding of jealousy and aid in dealing with consequences associated with it. To date, no published study has examined the relationship between jealousy and the Dark Triad. In the present research, we test the hypotheses that there is a positive relation between dimensions of the Dark Triad (narcissism, Machiavellianism, psychopathy) and jealousy (cognitive, emotional, behavioural), and that this relationship is mediated by low self-esteem and high entitlement.

1.2 Jealousy

Jealousy is defined as the protective reaction or negative emotion that results from threats to relationships (Clanton & Kosins, 1991; Mathes & Severa, 1981). From an evolutionary perspective, jealousy is an adaptive mechanism that aids in mate guarding and mate retention (Buss, 2000). As such, virtually all societies recognize it as an experience at some level (Mullen & Martin, 1994) – be it among siblings (Volling, McElwain, & Miller, 2002), co-workers (Buunk, Goor, & Solano, 2010), or romantic relationships (Mathes & Severa, 1981). Although the specific interpersonal circumstances influence how jealousy is experienced, the precise meaning of jealousy to the individual is more important (Hill & Davis, 2000). For instance, studies have found that receiving threatening social comparisons in areas that are important to an individual (e.g., Sally is interested in biology and feels it is important to her future career yet her grades are below average, whereas Molly's grades are above average) elicits greater feelings of jealousy and may lead to negative health outcomes such as depression and anxiety (Salovey &

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Rodin, 1999). Researchers can then postulate that social comparison in romantic contexts (e.g., receiving threats to one's partner or relationship), which should be an area important to an individual who is invested in their relationship, may elicit greater feelings of jealousy.

Jealousy has been conceptualized as a multidimensional construct with cognitive, emotional, and behavioural components. Cognitive jealousy concerns the mental processes surrounding jealousy, such as rational or irrational thoughts and worries concerning a partner's infidelity. The emotional component of jealousy concerns the feelings of distress caused by jealousy-evoking situations. For instance, an individual may feel extremely upset if their partner is flirting with another person. Lastly, behavioural jealousy represents the actions one takes when they feel jealous. For example, an individual may question their partner about their telephone calls if they feel threatened by relationship rivals (Pfeiffer & Wong, 1989).

1.3 The Dark Triad

The Dark Triad is a personality model that comprises three sub-clinical personality traits. The first trait, narcissism, is characterized by excessive self-love and superiority (Paulhus & Williams, 2002). Secondly, Machiavellianism is characterized by charm, manipulation, and a lack of morality (Christie & Geis, 1970); characteristics that can lead to behaviours intended for self-benefit (Jakobwitz & Egan, 2006). Lastly, psychopathy is characterized by impulsiveness and callousness (Paulhus & Williams, 2002). Although the traits measure distinct dimensions, all three have low to moderate correlations with each other, ranging from .25 to .50 (Jakobwitz & Egan, 2006; Paulhus & Williams, 2002). These associations between the dimensions has led to researchers questioning whether personality is best captured through the three Dark Triad dimensions or whether there is a single dark personality type. In regards to this debate, majority of research has found evidence for three related, yet independent traits (Jonason, Li, Webster, & Schmitt, 2009; Jones & Paulhus, 2010). Interestingly, there is some research that shows that the three Dark Triad dimensions are best to explore mid-level personality traits, but one single, latent-factor model (i.e., one single dark personality trait) may be best to capture higher-level personality traits (Jonason, Kavanagh, Webster, & Fitzgerald, 2011).

Narcissism, Machiavellianism, and psychopathy influence romantic relationships in various ways. To begin, individual differences in the Dark Triad have an effect on the type of

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relationship we enter, such that there is a negative correlation between both narcissism and psychopathy towards serious, long-term relationships. Instead, these individuals prefer short-term relationships: high narcissism is correlated with one-night stands and friends-with-benefits (i.e., friends who hook-up casually but who are not romantically involved), and high psychopathy is correlated with booty calls (i.e., late night hook-ups) (Jonason, Luevano, & Adams, 2012). Thus, the dimensions of the Dark Triad facilitate specific short-term relationship types. Another study investigated preferences for short- and long-term relationships between sexes by exposing participants to dating profiles with manipulated narcissism, Machiavellianism, and psychopathy traits. Both sexes prefer potential partners from the dating profiles that were low in Dark Triad dimensions for long-term relationships, and high in Dark Triad dimensions for short-term relationships (Jonason, Lyons, & Blanchard, 2015).

It is also the case that individuals who are high in certain Dark Triad dimensions are attracted to others who also display those traits (Jonason et al., 2015). Assortative mating (i.e., pairing up with similar others) is slightly negative for narcissism, marginally positive for Machiavellian individuals, and significantly positive for those high in psychopathy. Therefore, narcissistic individuals may not pair up with narcissistic others, those high in Machiavellianism may potentially date other Machiavellian individuals, and those high in psychopathy will most likely be attracted to individuals high in psychopathy.

Additionally, the negative relationship between actor effect-based psychopathy and ratings of commitment (i.e., the effect an individual's level of psychopathy has on their level of commitment) is marginally mediated by relationship satisfaction. Specifically, those who are high in psychopathy have lower relationship commitment, and this relationship is accounted for by their ratings of relationship satisfaction. In fact, six of the possible eight associations between psychopathy, relationship satisfaction, and commitment were found to be significantly negative, demonstrating psychopathy as one of the most damaging Dark Triad dimensions with respect to long-term romantic relationships (Smith, Hadden, Webster, Jonason, Gesselman, & Crysel, 2014).

The Dark Triad traits can also be detrimental to relationships because those high in narcissism, Machiavellianism, and psychopathy may have the tendency to stray from their

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partner. Mate poaching, the attempt to attract others who are already in a relationship (Schmitt & Buss, 2001), is related to high narcissism, Machiavellianism, and psychopathy. Those high in the Dark Triad dimensions will mate poach and have higher success rates (i.e., they approach others who are currently in a relationship and are also successful in soliciting them) compared to those low in narcissism, Machiavellianism, and psychopathy (Jonason, Li, & Buss, 2010).

In relation to the positive associations found between jealousy and the Dark Triad in a previous unpublished study (Raheb, Atkinson, Chin, & Vernon, submitted), there is previous research that would support this theoretical rationale. To begin, narcissistic individuals have greater negative moods in rejection-evoking situations (Besser & Priel, 2009). It is assumed that jealousy-evoking situations produce the same negative affect because jealousy is similar to rejection, in that threats to relationships may influence an individual to feel rejected from their partner. Therefore, narcissism and romantic jealousy are expected to show a positive association. Similarly, a positive association between romantic jealousy and Machiavellianism is expected because the chief importance to individuals high in Machiavellianism is the desire to control their world and others to ensure their own needs are met, and is a trait likely produces bias to threat (Bogart, Geis, Levy, & Zimbardo, 1970; Hammock & O'Hearn, 2002). Thus, Machiavellian individuals may feel a loss of control if their relationships are threatened, and for the present study high Machiavellianism is expected to be positively associated with romantic jealousy. Lastly, a positive association between romantic jealousy and psychopathy is expected because individuals high in psychopathy react defensively to mate poaching attempts on their partner (Jonason et al., 2010). Therefore, jealousy-evoking situations where psychopathic individuals feel that their relationships are threatened by mate poachers would support a positive association between romantic jealousy and psychopathy.

In general, the Dark Triad dimensions are reflective of self-serving and deceptive traits, and numerous studies have investigated the association between them and various antisocial behaviours. For example, the Dark Triad has been linked to devaluing others over oneself (Jonason, Strosser, Kroll, Duineveld, & Baruffi, 2015), aggression (Jones & Paulhus, 2010), and exploitative mating strategies (Jonason, Valentine, Li, & Harbeson, 2011). These previous studies demonstrate how important this personality model is in research, yet no published study has explored the link between the Dark Triad and jealousy. Investigating the association between

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narcissism, Machiavellianism, psychopathy, and jealousy may further advance the understanding of how darker personality traits influence intimate relationships. This is the primary contribution to the literature and research that this study provides.

1.4 Mediator Variables

A previous unpublished study factor analyzed three aspects of jealousy (cognitive, emotional, behavioural) and the Dark Triad and found high factor loadings for all variables on the first unrotated factor, indicating that that all had something in common (Raheb, Atkinson, Chin, & Vernon, submitted). In an attempt to account for and clarify the relationships between jealousy and the Dark Triad in the present study, mediator variables will be introduced. Theoretically, the independent variables (the Dark Triad dimension) will influence the mediator variables, which will then influence the dependent variables (type of jealousy).

1.4.1 Self-Esteem. Self-esteem is one of the most highly studied personality traits in relation to jealousy, and is described as the state, trait, or attitude towards the self (McCain, Jonason, Foster, & Campbell, 2014). It is our prediction that self-esteem will be an appropriate mediator variable because of its associations with both jealousy and the Dark Triad.

Evidence supporting this prediction include the findings that low self-esteem has been associated with high jealousy (Mullen & Martin, 1994). When self-esteem is conceptualized as relationship-specific (i.e., self-esteem is based on one's perceived inadequacy as a partner), an even stronger correlation between jealousy and self-esteem has been found (White & Mullen, 1989). Recently, researchers have differentiated explicit (conscious) and implicit (unconscious) self-esteem, and found that men showed a negative relationship between jealousy and explicit self-esteem, in contrast to women who had a positive relationship between jealousy and implicit self-esteem (Stieger, Preyss, & Voracek, 2012). This means that men who were high in jealousy had low self-esteem that they were able to consciously report, while women who were high in jealousy had high self-esteem that was measured through an implicit association self-esteem test. Lastly, another study investigated self-esteem as a mediator between jealousy-induced conditions and jealousy ratings. The jealousy-induced condition was associated with low implicit self-esteem, and low implicit self-esteem was associated with high self-reported jealousy. The significant positive correlation between the jealousy-induced condition and self-reported

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jealousy was reduced to non-significance when implicit self-esteem was introduced as a mediator variable (DeSteno, Valdesolo, & Bartlett, 2006).

In addition to the associations between jealousy and self-esteem, there is evidence that self-esteem relates to the Dark Triad. First, investigations with self-esteem and variants of narcissism show inconsistent relationships. The Narcissistic Personality Inventory differentiates between grandiose (overt) and vulnerable (covert) narcissism. Grandiose narcissism is characterized by the desire to maintain a pretentious self-image, whereas vulnerable narcissism is characterized by oscillations between feelings of superiority and inferiority. Grandiose narcissism is positively correlated with self-esteem, in contrast to vulnerable narcissism, which is negatively correlated with self-esteem (Rohmann, Neumann, Herner, & Bierhoff, 2015). On the other hand, self-esteem is negatively correlated with Machiavellianism, with lower self-esteem ratings found especially among men higher in Machiavellianism (Hunter, Boster, Gerbing, 1982; Rauthmann, 2012). Lastly, two factors of psychopathy show contrasting relationships with self-esteem. Primary psychopathy, recognized predominantly in non-clinical samples, is positively correlated with self-esteem, whereas secondary psychopathy, as seen in more criminal and clinical samples, is negatively correlated with self-esteem (Falkenbach, Howe, & Falki, 2013). Interestingly, previous research shows that the relation between psychopathy and self-esteem can differ depending on gender. Researchers studying psychopathy in terms of self-esteem and sexual behaviour outcomes have found that men higher in total psychopathy have higher self-esteem, whereas women who were higher in total psychopathy had significantly lower self-esteem (Visser, Pozzebon, Bogaert, & Ashton, 2010). Since all Dark Triad dimensions and jealousy show associations with self-esteem, it is believed that self-esteem may play an important role in governing the relationship between jealousy and the Dark Triad.

1.4.2 Entitlement. A second predicted mediator variable is entitlement, which is defined as the sense that one deserves more and is entitled to more than others (Campbell, Bonacci, Shelton, Exline, & Bushman, 2004). Entitlement is believed to be a potential mediator variable because it has shown relationships with envy, an emotion that many researchers have used interchangeably with jealousy (Salovey & Rodin, 1991). Jealousy was described earlier as the negative emotions or reactions experienced by those whose relationships have been threatened (Clanton & Kosins, 1991; Mathes & Severa, 1981), whereas envy is described as the negative

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emotions experienced when a person desires something (e.g., a relationship) that they do not have. The emotions of inferiority, hostility, and resentment in envy are similar to jealousy, but the difference is that a person fears losing something when they feel jealous, whereas envy reflects wanting something they do not have (Smith & Kim, 2007).

Past research has demonstrated an association between the Dark Triad and the proposed mediator variable, entitlement. The study proposed a model that investigated narcissism's relation to envy via entitlement and relative deprivation. Relative deprivation is closely related to envy, but instead of feelings of hostility and inferiority, it focuses on the systems that produce outcomes and the perceptions that one ought to have experienced better outcomes (Smith, Pettigrew, Pippin, & Bialosiewicz, 2012). This model showed a positive relationship between entitlement and dispositional envy (the chronic experience of envy as an individual difference), and an indirect positive relationship between entitlement and episodic envy (the experience of envy in a given situation) through relative deprivation (Neufeld & Johnson, 2012). Thus, entitlement was believed to be a mediator variable because its relationships with envy should correspond to strong relationships with jealousy.

Entitlement also relates individually to narcissism, Machiavellianism, and psychopathy. The Psychological Entitlement Scale (PES) correlates highly with narcissism, which is not surprising since the Narcissistic Personality Inventory includes entitlement as a subscale (Campbell et al., 2004). When entitlement is differentiated into non-exploitive and exploitive, researchers found that non-exploitive entitlement is positively correlated with narcissism and exploitive entitlement is positively correlated with Machiavellianism and psychopathy (Lessard, Greenberger, Chen & Farruggia, 2011). Specifically, narcissistic individuals feel that they deserve positive things but do not need to exploit others to achieve this. In comparison, individuals high in Machiavellianism and psychopathy are high in entitlement and this manifests itself through their exploitation of others.

The importance of studying entitlement as a mediator is that entitlement and the Dark Triad have implications in uncivil and disruptive behaviour in a variety of settings including academia (Chowning & Campbell, 2009), the workplace (Twenge & Campbell, 2009), and in sexual relationships (Campbell et al., 2004; Harvey & Martinko, 2009). Firstly, academic

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entitlement, defined as the feeling that one deserves to do well in school with minimal effort, is related to the Dark Triad and predicts maladaptive causal attributions (Turnipseed & Cohen, 2015). This type of entitlement can lead students to believe they can argue and demand higher grades, externalize the responsibility of their grades outside of personal effort, and to have inflexible expectations about their grades and the professor's marking (Chowning & Campbell, 2009). Academic entitlement can also lead to aggression in response to negative feedback about school work, where students engage in major confrontations in attempts to negotiate higher grades by threats and demands (Twenge & Campbell, 2009). Secondly, entitlement can produce negative consequences in the workplace. Workers who reported higher levels of entitlement also reported higher levels of turnover threat and higher levels of conflict with their supervisor (Harvey & Martinko, 2009). In general, the level of conflict and hostility is higher in those who are higher in levels of entitlement (Moller, Crocker, & Bushman, 2008). Lastly, looking at romantic relationships, entitlement can have similar aggressive, adverse effects on intimate individuals. A study conducted on college males found that those who were high in self-reported sexual aggression scores were significantly higher in entitlement as measured by the entitlement subscale of the Narcissistic Personality Inventory (NPI; Raskin & Hall, 1988), the General Entitlement measure (NPI plus author-created items), and Sexual Entitlement (Hurlbert, Apt, Gasar, Wilson, & Murphy, 1994). Other implications can be noted in the relationship between sexual aggression and entitlement: entitlement has been shown to be positively correlated with rape myths, adversarial heterosexual beliefs, exposure to pornography, and number of sexual partners, and in contrast, negatively correlated with egalitarian sex roles (Bouffard, 2010). Theoretically, since jealousy can be found in romantic as well as non-romantic domains, such as in academic settings and the workplace, it is important to study entitlement as a possible mediator because entitlement has shown a relation with both jealousy and the Dark Triad.

1.5 The Present Study

The major gap in the jealousy and personality literature is that researchers have not specifically studied the relationship between types of romantic jealousy and the Dark Triad. There is therefore a lack of empirical evidence directly addressing the question of whether, or to what degree, the dimensions of the Dark Triad associate with cognitive, emotional, and behavioural jealousy. The present study introduces mediator variables in an attempt to clarify the

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relationships previously found between romantic jealousy and the Dark Triad (Raheb, Atkinson, Chin, & Vernon, submitted), with the purpose of determining if mediators of self-esteem and entitlement account for these relationships.

If there are weak or nonexistent links between cognitive, emotional, and behavioural jealousy with narcissism, Machiavellianism, and psychopathy, then this research will demonstrate that jealousy does not relate to the Dark Triad. Specifically, non-significant intercorrelations between the types of jealousy and the Dark Triad dimensions would demonstrate that the Dark Triad does not explain individual differences in jealousy. If there are strong links between the three types of jealousy and the Dark Triad then this research will demonstrate that jealousy does relate to the Dark Triad. Specifically, significant positive intercorrelations between the types of jealousy and the Dark Triad would replicate the previous unpublished study that found positive correlations between all types of jealousy and the Dark Triad (Raheb, Atkinson, Chin, & Vernon, submitted). The present study will further our understanding of how individual differences in darker personality dimensions relate to our propensity to feel jealous, and whether these relationships are mediated by self-esteem and entitlement.

Even with significant regressions between the Dark Triad dimensions and jealousy, it is possible that self-esteem and entitlement do not significantly mediate this relationship. Specifically, if self-esteem and entitlement do not reduce the association between the Dark Triad and jealousy to non-significance, it means that they do not play a role in governing the relationship between jealousy and the Dark Triad. In contrast, if the significant regressions between the Dark Triad dimensions and jealousy are reduced to non-significance after introducing self-esteem and entitlement, it would demonstrate that these variables do produce significant mediation. If self-esteem and entitlement produce significant mediation between jealousy and the Dark Triad, it would mean that the present study has identified variables that clarify the nature of the relationship between the Dark Triad and various types of jealousy.

The research question asks whether three types of jealousy (cognitive, emotional, behavioural) are associated with dimensions of the Dark Triad (narcissism, Machiavellianism, psychopathy), and whether self-esteem and entitlement mediate these relationships. The general

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rationale for the present study is to further understand jealousy and how it relates to personality. The specific rationale, and possibly most important reason, for conducting the present study is because research has not yet been published on jealousy and the Dark Triad. Therefore, significant findings from this novel study may tell us what individual differences in the Dark Triad dimensions relate to various types of jealousy and whether these relationships are accounted for by self-esteem and entitlement.

In addition to filling the gap in empirical research on jealousy, there are other reasons why the present study was conducted. First and foremost, this research will enhance the understanding of jealousy for academic researchers in the field of personality and social psychology. The findings from the present study will add to the literature in romantic relationship studies, and takes a leadership role in inspiring and promoting future research in the area of relationships and personality traits. Secondly, jealousy has been found to exist in all societies, and all individuals fall somewhere along the dimensions of the Dark Triad (Mullen & Martin, 1994; Egan, Austin, Elliot, Patel, & Charlesworth, 2003). Therefore, this research impacts beyond academia: significant findings will enhance society's understanding of jealousy within oneself and within interpersonal relationships. The current study will allow us to understand which personality traits are involved with jealousy by investigating to what extent the dimensions of the Dark Triad are associated with cognitive, emotional, and behavioural jealousy, and whether self-esteem and entitlement govern this relationship. Lastly, another rationale for the present study is to help prevent harm to ourselves and others. The present study provides us with a greater understanding of which individual differences contribute to jealousy, which has been shown to be destructive in nature (Mullen & Maack, 1985). Empirical jealousy research, in general, is minimal for a number of reasons. One reason is that actions are only taken after serious consequences occur due to jealousy-provoking situations (e.g., criminal justice for assault due to jealousy). Secondly, researchers do not acknowledge jealousy as pathological (Hill & Davis, 2000). Indeed, jealousy is worth consideration as a serious research topic because jealousy can lead to devastating physical (e.g., assault, murder) and mental (e.g., anxiety, family problems) consequences, emphasizing individual maladjustment (Dutton, van Ginkel, & Landolt, 1996; Mullen & Maack, 1985). In addition, the Dark Triad is valuable to investigate with jealousy because the Dark Triad dimensions are present in both clinical and sub-clinical

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populations, and have physical (e.g., self-reported violence) and mental (e.g., aggression) consequences (Paulhus & Williams, 2002; Pailing et al., 2014; Jakobwitz & Egan, 2006).

Based on the above literature review, the goals of the present study are to investigate three hypotheses. First, it is hypothesized that there will be positive relationships between all types of jealousy and all dimensions of the Dark Triad. Second, it is hypothesized that self-esteem will mediate the relationship between jealousy and the Dark Triad with negative regressions with all types of jealousy, and negative regressions with all dimensions of the Dark Triad. Finally, it is hypothesized that entitlement will mediate the relationships between jealousy and the Dark Triad with positive regressions with all types of jealousy, and positive regressions with all dimensions of the Dark Triad.

Chapter 2 Method

2.1 Participants and Procedure

A sample of 589 individuals were recruited for this study via CrowdFlower, a platform where individuals can set up work towards any other multi-user server. Individuals did not specifically have to be in a romantic relationship to be involved in the study. Participants recruited from CrowdFlower were directed to a secure link on FluidSurvey where they read a letter of information and provided their informed consent. Next, participants completed a number of questionnaires and then were debriefed. The study took no longer than one hour to complete and participants were compensated fifty cents, USD. In the sample collected, 31 participants submitted incomplete surveys and were removed. In addition, 84 participants took less than five minutes to complete the questionnaires, and were removed due to concern of speeding through the study. Finally, 21 participants that were one standard deviation above the mean maxstring (number of times a participant inputted the same value for consecutive items) were removed due to concern of providing inaccurate information. The final sample consisted of 453 participants (311 females, 140 males, 2 unidentified) between the ages of 17 to 81 years ($M = 33.19$, $SD = 10.32$). The sample was very diverse, with 47% from Europe, 33.6% from Asia, 12.6% from South America, 3.9% from North America, and 3% from Africa.

2.2 Materials

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2.2.1 Jealousy. The Multidimensional Jealousy Scale (MJS; Pfeiffer & Wong, 1989) is a 24-item measure of jealousy. Participants rated their agreement to each item using a 7-point Likert scale for cognitive and behavioural subscales (1 = *never*, 7 = *all the time*), and emotional subscales (1 = *very pleased*, 7 = *very upset*). An example cognitive item is, “I suspect that X is secretly seeing someone of the opposite sex” (where X is their current partner), an example emotional item is, “X is flirting with someone of the opposite sex”, and an example behavioural item is, “I question X about his or her whereabouts”. The MJS has demonstrated good psychometric properties (Pfeiffer & Wong, 1989).

2.2.2 The Dark Triad. The Short D-3 (Jones & Paulhus, 2014) is a 27-item measure of the Dark Triad. Participants rated their agreement to an item on each of the Machiavellianism, narcissism, and psychopathy subscales using a 5-point Likert scale (1 = *disagree strongly*, 5 = *agree strongly*). An example item of Machiavellianism is, “It’s not wise to tell your secrets”, an example of narcissism is, “People see me as a leader”, and an example of psychopathy is, “I like to get revenge on authorities”. The Short D-3 has demonstrated good reliability and validity (Jones & Paulhus, 2014).

2.2.3 Self-Esteem. The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) is a ten-item measure of self-esteem. Participants rate their agreement to each item using a 9-point Likert scale (1 = *strongly disagree*, 9 = *strongly agree*). An example item is, “I take a positive attitude toward myself.” The RSES has demonstrated good reliability (Gray-Little, Williams, & Hancock, 1997).

2.2.4 Entitlement. The Psychological Entitlement Scale (PES; Campbell, Bonacci, Shelton, Exline, & Bushman, 2010) is a nine-item measure of entitlement. Participants rated their agreement to each item using a 7-point Likert scale (1 = *strong disagreement*, 7 = *strong agreement*). An example item is, “I honestly feel I’m just more deserving than others.” The Psychological Entitlement Scale has demonstrated good psychometric properties (Campbell et al., 2010).

Chapter 3 Results

3.1 Descriptive Statistics and Sex Differences

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Means, standard deviations, and Cronbach's alphas for the present study are reported in Table 1. All subscales reached acceptable levels of internal consistency (Kline, 2000). The independent variables (Dark Triad) were all grand mean centered. A series of independent t-tests were conducted to determine if mean scores for men and women differed significantly on any variables. Consistent with previous research, men ($M = .12$, $SD = .67$) scored significantly higher than women ($M = -.27$, $SD = .73$) on psychopathy, $t(442) = 5.51$, $p < .001$. In addition to psychopathy, men ($M = .05$, $SD = .68$) scored significantly higher than women ($M = -.12$, $SD = .76$) on Machiavellianism, $t(446) = 2.39$, $p < .05$. No significant sex differences were observed for narcissism, the three jealousy subscales, self-esteem, or entitlement.

3.2 Zero-order Correlations

For exploratory analyses, zero-order correlations among and between the Dark Triad dimensions and the three types of jealousy were computed and Pearson correlations are reported in Table 2. As expected, the Dark Triad dimensions were significantly and positively correlated with one another, and interestingly, narcissism and psychopathy demonstrated the strongest association. In addition, the three jealousy variables were strongly correlated with one another. In regards to the correlations between the three types of jealousy and the Dark Triad dimensions, cognitive jealousy was not significantly correlated with narcissism or psychopathy, but was negatively correlated with Machiavellianism. Emotional jealousy was positively correlated with narcissism and Machiavellianism, but had no significant relation to psychopathy. Lastly, behavioural jealousy had strong positive correlations with all dimensions of the Dark Triad.

3.3 Mediation Analyses

Multiple regressions were performed to control for any shared variance among the Dark Triad traits as predictors of jealousy. Mediation analysis tested the hypothesis that the relationship between jealousy and the Dark Triad was due to the influence of other variables, in this case, self-esteem and entitlement. For each model we first regressed the type of jealousy (the dependent variable) onto the Dark Triad dimension (the independent variable). Next, we regressed the hypothesized mediator variables onto the Dark Triad dimension, and then regressed it on jealousy. In the model with full mediation, there was a regression of cognitive jealousy on psychopathy, $\beta = .12$, $r(439) = 2.285$, $p < .05$, a regression of self-esteem on psychopathy, $\beta = -$

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.43, $r(421) = -9.112$, $p < .001$, and a regression of cognitive jealousy on self-esteem, $\beta = -.22$, $r(416) = -4.122$, $p < .001$. Furthermore, this model revealed that the inclusion of self-esteem in the model significantly reduced the magnitude of the relationship between cognitive jealousy and psychopathy, Sobel $z = 3.72$, $p = .001$, and reduced it to non-significance, $\beta = .026$, $r(416) = .456$, *ns*, (see Fig. 1).

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Table 1. Descriptive statistics and reliability for jealousy, the Dark Triad (grand mean centered), entitlement, and self-esteem.

	<i>M</i>	<i>SD</i>	Cronbach's α
Jealousy			
Cognitive	3.31	1.46	.91
Emotional	5.16	1.52	.89
Behavioural	3.50	1.77	.94
Dark Triad			
Narcissism	2.97	.52	.61
Machiavellianism	3.26	.71	.82
Psychopathy	2.83	.71	.71
Mediators			
Entitlement	4.26	1.04	.84
Self-esteem	5.76	1.31	.80

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Table 2. Pearson correlations between three types of jealousy, three Dark Triad dimensions, and mediators of self-esteem and entitlement.

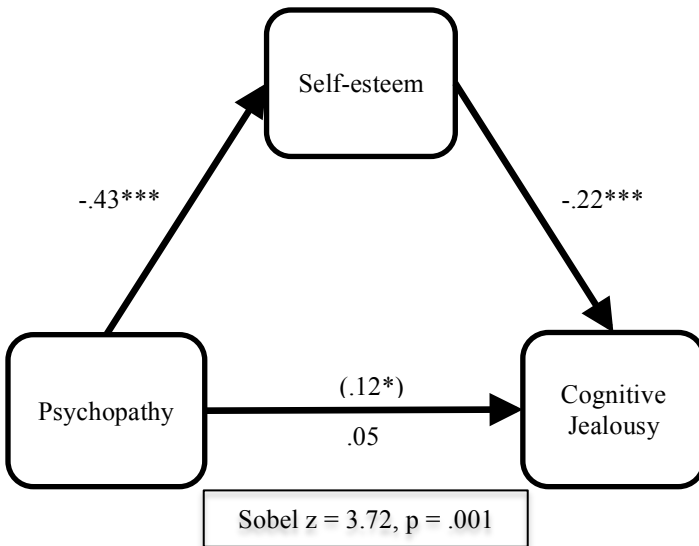
	1	2	3	4	5	6	7	8
1. Cognitive		-.24**	.16*	-.03	-.11*	.07	-.21**	-.05
2. Emotional			.20**	.10*	.24**	.04	.05	.17**
3. Behavioural				.29**	.20**	.47**	-.24**	.26**
4. Narcissism					.22**	.38**	.25**	.50**
5. Machiavellianism						.26**	.01	.41**
6. Psychopathy							-.27***	.32**
7. Self-esteem								.09
8. Entitlement								

* Correlation is significant at .01 level.

** Correlation is significant at the .05 level.

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Figure 1. Full mediation of the association of psychopathy with cognitive jealousy. Values represent standardized regression coefficients. The coefficient in parentheses represents the association of psychopathy with cognitive jealousy when self-esteem is not included in the model.



- * Coefficient is significant at .05 level.
- ** Coefficient is significant at the .01 level.
- *** Coefficient is significant at .001 level.

Chapter 4 Discussion

4.1 Major Finding

The results of the present study offer insight into individual differences in narcissism, Machiavellianism, and psychopathy, and how these contribute to cognitive, emotional, and behavioural jealousy. There were 18 potential models in which each of the three types of jealousy were analyzed with each of the three dimensions of the Dark Triad, with two different mediator variables. However, only the relationship between cognitive jealousy and psychopathy was significantly mediated by self-esteem, when all variables were in the full model. That is, individuals who had higher scores in psychopathy tended to have higher scores in cognitive jealousy, and this relationship was reduced to non-significance with lower scores in self-esteem.

Due to questions raised in a poster presentation of these findings, two different reverse models were tested. First, is it the case that individuals may have lower scores in self-esteem and higher scores in cognitive jealousy, which is then reduced to non-significance with higher scores in psychopathy? Or in another possible reverse model, is it the case that individuals may have lower scores in self-esteem and higher scores in psychopathy, which is then reduced to non-significance with higher scores in cognitive jealousy? Both reverse models were analyzed and it was found that the relationship between self-esteem and cognitive jealousy was not significantly mediated by psychopathy, and the relationship between self-esteem and psychopathy was not significantly mediated by cognitive jealousy. This lends support to the original model tested, where the association between psychopathy and cognitive jealousy is significantly mediated by self-esteem. Thus, it is fair to say that the variables in the present study do not produce mediation in any other possible way.

4.2 Importance of Major Finding

Previous research suggests that self-esteem helps assess status in social relationships (DeSteno et al., 2006), and that feelings of jealousy were reliably associated with low global self-esteem (Salovey & Rodin, 1991). These two findings support the present research: individuals who have low self-esteem, compared to those who have high self-esteem, may assess their status in their romantic relationships unfavourably and experience more jealousy. Thus, it may be

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adaptive for individuals to find ways to increase their self-esteem to avoid the experience of jealousy. In addition to how self-esteem relates to cognitive jealousy, previous research ties in self-esteem with psychopathy and jealousy. It has been demonstrated that psychopathy interacts with situational variables, such as jealousy-inducing situations, and predicts aggressive behaviour. For instance, inmates high in psychopathy had a greater tendency to react aggressively to threats to their self-esteem (Cale & Lilienfeld, 2006). Since the present study found a negative relationship between psychopathy and self-esteem, one could expect aggression in response to threats made to self-esteem stemming from jealousy. Therefore, the present study has important implications in understanding the links between human cognition and behaviour.

In past work, self-esteem has had inconsistent correlations with the Dark Triad dimensions, which might explain why it was only a significant mediator in the model with psychopathy but not with narcissism and Machiavellianism. To demonstrate such inconsistencies, a recent study found negative correlations between the Dark Triad dimensions and state (combination of performance, social, and appearance) self-esteem (McCain et al., 2014). In contrast, the present study found a significant positive correlation between narcissism and self-esteem (Table 2). Previous researchers have also found the same positive association between narcissism and multiple self-esteem scales, including the California self-evaluation scale, global self-esteem scale, the Coopersmith self-esteem, the Tennessee self-concept scale, the Adjective q-sort self-ideal correlations, and the Interpersonal Check list self-ideal correlations, with correlations ranging between .19 to .59. Similarly, self-promotion studies have found significant positive correlations in the range of .40 to .43 between narcissism and self-esteem, which led authors to believe that narcissism functions as a defense mechanism to regulate self-esteem (Gustafson & Ritzer, 1995). In addition to the opposing findings with narcissism and self-esteem in the present study compared to previous literature, the same opposing results follow with Machiavellianism and self-esteem. The present study found almost no relationship between Machiavellianism and self-esteem (Table 2), yet previous literature shows negative relationships between them (Hunter et al., 1982; Rauthmann, 2012, McCain et al., 2014). All of the inconsistencies discussed within previous literature and the present study may contribute to why self-esteem did not show significant mediation with any other models in the study.

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4.3 Gender, Age, and Cultural Differences

Sex differences in jealousy were first hypothesized by evolutionary psychologists such as David Buss, who believed women would be more upset by emotional infidelity and men would be more upset by sexual infidelity due to their separate evolutionary pressures. This belief was constructed as the Jealousy as a Specific Innate Model (JSIM). Simply, males are concerned with paternity uncertainty and would therefore be more upset by a partner who commits sexual infidelity because of their investment in reproduction and passing along their genes. In comparison, females are concerned with obtaining resources and would therefore be more upset by a partner who commits emotional infidelity because it may signal that their resources will be withdrawn (Buss et al., 1992). Researchers since then have tested the JSIM and have found inconsistent responses between genders and types of jealousy (Shackelford, Voracek, Schmitt, Buss, & Weekes-Shackelford, 2004; Green & Sabini, 2006). Therefore, it may be of interest to study the differences in jealousy and the Dark Triad between genders.

Alongside gender differences, researchers have questioned whether there are age differences in jealousy. It has been found that the responses of jealousy in regards to sexual infidelity do not differ significantly in younger and older men. In contrast, older women, in comparison to younger women, were significantly more distressed by sexual infidelity than emotional infidelity, and younger women were more distressed by emotional infidelity (Shackelford, Voracek, Schmitt, Buss, & Weekes-Shackelford, 2004). These results might demonstrate that age effects do not occur in men because their ability to reproduce does not decline with age, and therefore they do not experience declines in sexual jealousy with age. It may also mean that older women, who are more likely to be stable financially and thus capable of providing their own resources, are more upset by sexual than emotional infidelity, whereas younger women who are in the midst of procreating are more upset by emotional infidelity because they need a partner who is invested and provides resources. Past research demonstrates that jealousy may differ in regards to life stages and it would be of interest to investigate jealousy in younger and older samples and the possible factors that influence these individual differences.

Along with the discussion of how jealousy differs between genders and ages, there are important differences in attitudes, norms, and values of cultures that are worth studying in

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relation to jealousy. The previous discussion of the JSIM model (i.e., men experience more jealousy to sexual infidelity and women experience more jealousy to emotional infidelity) was compared across countries, with the largest magnitude of sex differences in the United States, and moderate magnitude of sex differences in Germany and the Netherlands (Buunk, Angleitner, Oubaid, & Buss, 1996). Therefore, although sex differences in jealousy to sexual or emotional infidelity were comparable across countries, the magnitude of the difference may reflect liberal and conservative attitudes endorsed by the country. For instance, a more sexually liberal country where individuals have many sexual partners may not experience high jealousy because they devote less investment to partners. It would be interesting for future researchers to replicate the previous study and include other major countries to investigate the cross-cultural aspects of jealousy. The present study has been able to gather an extremely diverse sample, and was able to compare the association between jealousy and the Dark Triad across cultures. To date, there has been very little research on cross-cultural jealousy studies, and it would be of interest for future researchers to test this if they were to support evolution-based hypotheses.

4.4 Relationship Satisfaction and Violence

Although there is room to delve further into self-esteem and why it did not significantly mediate narcissism and Machiavellianism, the present study provides valuable insights to the scientific and public community. One area that has received scientific investigation and lends great importance to the community is the relationship between satisfaction and violence. Indeed, jealousy has been viewed as an undesirable trait because it has been negatively related to partner's ratings of relationship satisfaction and has been linked to relationship violence (Guerrero, 2014; Dutton et al., 1996). Additionally, previous research has demonstrated that cognitive jealousy, more so than emotional jealousy, is associated with lower ratings of relationship satisfaction (Andersen, Eloy, Guerrero, & Spitzberg, 1995; Elphinston, Feeney, Noller, Connor, & Fitzgerald, 2013). The inverse relationship between cognitive jealousy and relational satisfaction may mean that unhappy marriages include more jealousy, as greater cognitive jealousy has been associated with lower relational satisfaction among married couples (Guerrero & Eloy, 1992). The present study indicates that higher psychopathy is associated with higher cognitive jealousy, and previous research seems to indicate that higher cognitive jealousy is associated with lower relationship satisfaction. It would be interesting to investigate how the

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Dark Triad plays a role in this relationship – specifically, future studies could see if the association between higher cognitive jealousy and lower relationship satisfaction is mediated by higher psychopathy. Thus, the present study promotes future research on the Dark Triad personality model and relationship processes.

In addition to jealousy and relationship satisfaction, jealousy is also positively correlated with both verbal and physical aggression (Wigman, Graham-Keevan, & Archer, 2008). In fact, a recent report listed sexual jealousy as one of the 39 risk factors for domestic violence and death (“Domestic Violence Death Report Committee”, 2015). Indeed, jealousy may influence violent behaviours, and therefore, the study of jealousy as a worthy topic in research. Between the sexes, men experience more cognitive jealousy than women (Aylor & Dainton, 2001). Further, men who are more physically abusive in their relationships over time, also known as batterers, are more jealous than happily married men who are not physically abusive (Barnett, Martinez, & Bluestein, 1995). The association between jealousy and violence is not just exclusive to community samples, but is also replicated in clinical samples of males (Babcock, Costa, Green & Eckhardt, 2004). Again, the previous research seems to indicate that higher cognitive jealousy is associated with relationship violence in men. It would be interesting to investigate how the Dark Triad plays a role in this relationship – specifically, future studies could see if there is an association between higher cognitive jealousy and dimensions of the Dark Triad in male batterers.

4.5 Positive Views of Jealousy

Although jealousy has been associated with lower relationship satisfaction and intimate partner violence, some research demonstrates prosocial outcomes of jealousy. Individuals with greater relationship commitment, compared to those who have lower commitment, report greater jealousy when they receive negative information about their relationship compatibility (Rydell, McConnell, & Bringle, 2004). In other words, receiving threatening information about a relationship that you are committed to (i.e., that you and your partner are ill-suited together) is associated with feelings of jealousy. In such cases, jealousy could be interpreted as prosocial because it is associated with highly committed individuals. Additionally, jealousy could communicate to one’s partner that they are committed to the relationship and potentially increase

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relationship satisfaction. A past study demonstrated that men believed that “jealousy shows love”, regardless of whether jealousy was expressed in a healthy or detrimental manner (Knox, Breed, & Zusman, 2007). When jealousy is expressed in a healthy manner, where partners use integrative communication (i.e., positive affect, agreement, humour, validation, involvement, negotiation), they were more likely to be satisfied in their relationship (Andersen et al., 1995). Feeling jealous is a natural emotion when you are protective of your relationship, and communicating that you are jealous in a healthy manner can express care and commitment towards your partner. The links between a healthy expression of jealousy and relationship satisfaction provides another reason why jealousy is an important area of study.

4.6 Health Implications

In addition to the present study extending to outcomes such as relationship satisfaction and violence, it also extends to areas of personal health. The present study found that lower self-esteem relates to higher cognitive jealousy, and both lower self-esteem and higher cognitive jealousy have been separately linked to consequences in alcohol consumption. Previous studies have found that lower relationship contingent self-esteem (RCSE; self-esteem that is based on events in one’s romantic relationship) is related to greater drinking behaviour, and this association is mediated by cognitive jealousy (DiBello, Rodriguez, Hadden, & Neighbors, 2015). Therefore, events in one’s romantic relationship may cause lower self-esteem, and individuals’ lower relationship contingent self-esteem may be especially prone to greater alcohol consumption if they are higher in cognitive jealousy. Researchers also measured the propensity to drink to cope with jealousy, which was related to further drinking problems (DiBello, Neighbors, Rodriguez, & Lindren, 2014). Additionally, men are more likely to drink in response to jealousy compared to women (Knox et al., 2007). Drinking is common and socially acceptable (in moderation), but there may be physiological and relational consequences when it is related to lowered self-esteem and experiences of cognitive jealousy. The present study has important implications in health and society because cognitive jealousy and variants of self-esteem have been related to drinking behaviour. It would again be interesting to investigate how the Dark Triad plays a role in this relationship – specifically, future studies could see if the association between lower relationship contingent self-esteem and greater drinking behaviour is further explained by individual differences in the Dark Triad.

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4.7 Limitations and Future Research

There may be possible limitations of the moderately low reliabilities of the narcissism subscale in the Short Dark Triad measure (Table 1). It may be that the subscale itself is outdated in terms of measuring narcissism, since the item-total statistics show that deleting any one item from the narcissism subscale would not increase the Cronbach's alpha to a higher reliability. Previous research show that the narcissism subscale has a Cronbach's alpha of .68 which is similar to the present study (Paulhus & Williams, 2014). Examining the Short Dark Triad measure and its subscale of narcissism would be valuable for future research in test construction and validation.

In relation to the reliabilities of one of the Dark Triad dimensions, the present study found some surprising associations between the dimensions. Typically, the strongest intercorrelations within the Dark Triad are between Machiavellianism and psychopathy (Webster & Jonason, 2013), but the present study reported the strongest correlation between narcissism and psychopathy. This association is puzzling and may have to do with the sample where data were collected. The present study recruited participants through CrowdFlower, which sourced individuals from all over the world and from all different age ranges. This particular sample may differ from typical university samples, and may reflect relationships between the Dark Triad dimensions that are worth studying longitudinally and geographically. As with any type of recruitment methods or research designs, CrowdFlower and online data sourcing has its pros and cons. For instance, a major advantage of online data sourcing is the fast and cheap data collection that may benefit smaller study budgets, but a major disadvantage is that there is no way to control the environment and ensure that participants read the questions, understood them, and answered them honestly. One study that investigated CrowdFlower as a platform for recruiting participants found that only twenty percent of participants answered an attentiveness question correctly, which may reflect a small amount of the sample answering the survey correctly (Renkema-Padmos, Volkamer, & Renaud, 2014). Such attentiveness questions are used to exclude participants who may not be taking the time to read questions thoroughly and answer items truthfully, but it could have been that at that time, participants had a minor slip in attention and does not necessarily mean that the rest of the items were answered incorrectly. Other researchers who investigate the effectiveness of online data sourcing have found that

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CrowdFlower is an effective way to reduce costs without sacrificing quality based on their comparison of online non-expert and non-online expert participants (Bentivogli, Federico, Moretti, & Paul, 2011). Personally, CrowdFlower has been used in the present study and in previous studies within the lab with no major problems. In addition, CrowdFlower has control mechanisms, such as their gold-based data quality control that evaluates workers on the specific task, and because it is a platform that works across multiple crowdsourcing services it allows recruitment of non-US (i.e., non-North American workers) and provides a general sample that can be used for cross-cultural studies. In conclusion with regards to online studies, it may be better to focus energy on replicating the study across multiple online platforms and non-online platforms to determine if the findings remain the same.

The present study assessed jealousy in response to hypothetical statements using the Multidimensional Jealousy Scale. This scale measures three types of jealousy that cover emotional experiences, mental processes, and behaviours, and allows us to standardize jealousy across participants. In addition, each type of jealousy has its own distinct antecedents, manifestations, and outcomes, which may allow researchers to account for some of the mixed findings in the literature. However, actual distress caused by jealousy could add value to measuring the association between jealousy and the Dark Triad, and future studies could benefit from inducing and measuring jealousy in hypothetical or real life scenarios.

The present study did not specifically recruit only single or romantically involved individuals, and did not measure whether participants were in a relationship or not. In previous research, jealousy was measured through psychophysiological responses, and women in committed sexual relationships showed greater reactivity in blood pressure compared to women who were not in committed sexual relationships (Harris, 2000). This previous finding demonstrates that, particularly for women, there may be differences between single and committed individuals. In contrast, a later study that compared emotional reactions to emotional or sexual infidelity found that excluding single individuals in their sample did not change the results significantly (Sabini & Green, 2004). Therefore, single and romantically or sexually involved individuals may not have different experiences of cognitive, emotional, and/or behavioural jealousy, and it would be interesting for future studies to explore these differences.

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If future studies were to recruit romantically involved participants, it would be interesting to explore how relationship type influences the experience of jealousy. Previous studies show that married individuals express the least amount of jealousy and casual daters experience the most cognitive jealousy (Aylor & Dainton, 2001), yet other studies show that casual daters experience less cognitive jealousy than serious daters, engaged couples, and married couples (Bevan, 2008). Future research could address these conflicting findings as well as investigate whether the association between types of jealousy and the Dark Triad are mediated by type of relationship.

In addition, it would be interesting to explore jealousy in couples, and future studies could recruit both partners to investigate how individual differences in partners interact to influence the experience of jealousy. Having both partners in the study would allow researchers to investigate how actor and partner effects of self-esteem influence the Dark Triad and jealousy, using real or hypothetical jealousy-inducing situations. For example, it could be worth investigating whether individuals low in self-esteem show a positive relationship between psychopathy and jealousy (an actor effect), but if their partner is high in self-esteem, they may show a negative relationship between psychopathy and jealousy (a partner effect).

4.8 Conclusion

In conclusion, the present research not only replicated the finding that most types of jealousy are positively correlated with the dimensions of the Dark Triad, but also established the novel finding that individuals higher in psychopathy tend to be higher in cognitive jealousy, which is significantly mediated by self-esteem. The present study represents an important extension to Raheb and colleagues' research by (a) introducing mediator variables to account for some of the relationship between the Dark Triad and jealousy, and (b) recruiting a more general, diverse sample. The present findings raise interesting questions regarding personality traits that influence jealousy, and to date, this is the only study to demonstrate the link between the Dark Triad, jealousy, and self-esteem. Uncovering relationships between individual differences in the Dark Triad and self-esteem increases our knowledge of jealousy, which can enhance our understanding of intimate relationships.

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Appendix A

Multidimensional Jealousy Scale (Pfeiffer & Wong, 1989)

Instructions: Please think of a person with whom you are having or have had a strong romantic/love relationship. This person is referred to as X in this questionnaire. Please rate your response to the following questions by circling the appropriate number beside each item.

Cognitive:

How often do you have the following thoughts about X?

- | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|--|---|---|---|---|---|--------------|
| All the
time | | | | | | Never |
| 1. I suspect that X is secretly seeing someone of the opposite sex. | | | | | | |
| 2. I am worried that some member of the opposite sex may be chasing after X. | | | | | | |
| 3. I suspect that X may be attracted to someone else. | | | | | | |
| 4. I suspect that X may be physically intimate with another member of the opposite sex behind my back. | | | | | | |
| 5. I think that some members of the opposite sex may be romantically interested in X. | | | | | | |
| 6. I am worried that someone of the opposite sex is trying to seduce X. | | | | | | |
| 7. I think that X is secretly developing an intimate relationship with someone of the opposite sex. | | | | | | |
| 8. I suspect that X is crazy about members of the opposite sex. | | | | | | |

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Emotional:

How would you emotionally react to the following situations?

1 2 3 4 5 6 7

**Very
pleased**

**Very
upset**

1. X comments to you on how great looking a particular member of the opposite sex is.
2. X shows a great deal of interest or excitement in talking to someone of the opposite sex.
3. X smiles in a very friendly manner to someone of the opposite sex.
4. A member of the opposite sex is trying to get close to X all the time.
5. X is flirting with someone of the opposite sex.
6. Someone of the opposite sex is dating X.
7. X hugs and kisses someone of the opposite sex.
8. X works very closely with a member of the opposite sex (in school or office).

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Behavioural:

How often do you engage in the following behaviours?

1	2	3	4	5	6	7	
Never							All the time

1. I look through X's drawers, handbag, or pockets.
2. I call X unexpectedly, just to see if s/he is there.
3. I question X about previous or present romantic relationships.
4. I say something nasty about someone of the opposite sex if X shows an interest in that person.
5. I question X about his/her telephone calls.
6. I question X about his/her whereabouts.
7. I join in whenever I see X talking to a member of the opposite sex.
8. I pay X a surprise visit just to see who is with him/her.

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Appendix B**The Short Dark Triad (Paulhus, 2013)**

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

Machiavellianism

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

Narcissism

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

Psychopathy

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

Appendix C

Rosenberg Self-Esteem Scale (Rosenberg, 1965)

Instructions: Please indicate the answer that best represents how you feel right now. Using the 9-point scale provided below enter the appropriate number in the box beside the question.

- | | | | | | | | | | |
|--|--------------------------|----------|----------------------------|----------|----------|-------------------------|----------|-----------------------|----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | strongly disagree | | moderately disagree | | | moderately agree | | strongly agree | |
1. I take a positive attitude toward myself.
 2. On the whole, I am satisfied with myself.
 3. All in all, I am inclined to think that I am a failure.
 4. I am able to do things as well as most other people.
 5. I feel that I do not have much to be proud of.
 6. I feel that I'm a person of worth, at least on an equal basis with others.
 7. At times I think I am no good at all.
 8. I wish I could have more respect for myself.
 9. I feel that I have a number of good qualities.
 10. I certainly feel useless at times.

Appendix D**Psychological Entitlement Scale** (Campbell, Bonacci, Shelton, Exline, & Bushman, 2010)

Please respond to the following items using the number that best reflects your own beliefs. Please use the following 7-point scale:

1 2 3 4 5 6 7

**Strong
disagreement**

**Neither
agreement nor
disagreement**

**Strong
agreement**

1. I honestly feel I'm just more deserving than others.
2. Great things should come to me.
3. If I were on the Titanic, I would deserve to be on the *first* lifeboat!
4. I demand the best because I'm worth it.
5. I do not necessarily deserve special treatment.
6. I deserve more things in my life.
7. People like me deserve an extra break now and then.
8. Things should go my way.
9. I feel entitled to more of everything.

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EDUCATION

- 2014- 2016 M.Sc., Personality and Measurement Psychology, Western University
2014 B.Sc., Honors Specialization in Psychology, Western University

PROFESSIONAL SERVICE

- 2016 Journal Article Reviewer for the Journal of Social and Personal Relationships

HONORS, AWARDS, AND SCHOLARSHIP

- 2014-present Western Graduate Research Scholarship – Master’s; CDN \$25,730
2015-present Colloquium Committee member
2015-present Volunteer Reviewer for Western Undergraduate Psychology Journal
2013 Culture Works Volunteer, Community Service Learning Network, Western University
2013 Dean’s Honor List, Western University
2012 Letter of Accomplishment in Individual Leadership, Western University
2011 Peer Mentor, Leadership and Mentorship Program, Western University
2011 First Year Representative, Western University Psychology Association
2010 Dean’s Honor List, Western University

TEACHING

- 2015-present Teaching Assistant, Statistics in Psychology (distant studies, full year course)
2015 Teaching Assistant, Statistics in Psychology (distant studies, summer course)
2014-2015 Teaching Assistant, Statistics in Psychology (full year course)

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RESEARCH EXPERIENCE

- 2013-present Research Assistant, Dr. Lorne Campbell's Love and Relationships Lab, Western University
- 2013-2014 Undergraduate Honors Thesis (Advisor: Dr. Lorne Campbell)
- 2012-2013 Independent Study Project (Advisor: Dr. Mike Atkinson)
- 2012-2013 Research Assistant, Dr. David Dozois' Mood and Anxiety Research Lab, Western University

PUBLICATIONS

Chin, K. (In press). A book review of Schizotypy: New dimensions. *Personality and Individual Differences*.

Chin, K. (2016). A book review of Personality and Control. *Personality and Individual Differences*, 96, 280.

Azizli, N., Atkinson, B., Veselka, L., Baughman, H. M., **Chin, K.**, & Vernon, P. A. (2016). Lies and crimes: Dark Triad, misconduct, and high-stakes deception. *Personality and Individual Differences*, 89, 34-39.

Campbell, L., **Chin, K.** & Stanton, S. C. E. (2016). Initial evidence that individuals form new relationships with partners that more closely match their ideal preferences. *Collabra*, 2, 1-7, doi: <http://dx.doi.org/10.1525/collabra.24>.

Chin, K., & Stanton, S. C. E. (2015). Self-regulation. In B. Carducci (Ed.), *The Wiley Encyclopedia of Personality and Individual Differences* (Vol. 3). Hoboken, NJ: Wiley-Blackwell. (Invited paper).

Chin, K. (2015). Neuroticism. In B. Carducci (Ed.), *The Wiley Encyclopedia of Personality and Individual Differences* (Vol. 3). Hoboken, NJ: Wiley-Blackwell. (Invited paper).

Chin, K. (2015). Guilt. In B. Carducci (Ed.), *The Wiley Encyclopedia of Personality and Individual Differences* (Vol. 3). Hoboken, NJ: Wiley-Blackwell. (Invited paper).

Rehab, H., Atkinson, B., **Chin, K.**, & Vernon, P. (In prep). Relationships between jealousy and the Dark Triad. Paper to be submitted to *Personality and Individual Differences*.

POSTERS AND PRESENTATIONS

Chin, K. (2016). Attached to dating apps. Poster to be presented at the meeting of the International Association of Relationship Researchers, Toronto, ON, July 20-24, 2016.

Chin, K. (2016). The dark side of jealousy. Poster to be presented at the meeting of the Canadian Psychology Association, Victoria, BC, June 9-11, 2016.

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Chin, K. (2016). Anxiously swiping right, avoidantly swiping left: attachment styles and the use of dating apps. Talk presented at the meeting of the Western-Waterloo-Wilfred Laurier Social Psychology Conference, Waterloo, CA, May 17, 2016.

Chin, K. (2016). Humor styles and borderline personality. Symposium presented at the meeting of Society for Personality and Social Psychology, San Diego, CA, January 29, 2016.

Chin, K. (2016). Jealousy and the Dark Triad. Data Blitz presented at the meeting of Society for Personality and Social Psychology, San Diego, CA, January 28, 2016.

Chin, K., & Campbell, L. (2015). Ideal mate preferences and relationship initiation. Poster presented at the meeting of SEXposium, Toronto, ON, July 18, 2015.

Chin, K., & Campbell, L. (2015). Ideal mate preferences and relationship initiation. Poster presented at the meeting of the International Society for the Study of Individual Differences, London, ON, July 27-31, 2015.

Chin, K., & Vernon, P. (2015). The dark side of jealousy. Poster presented at the meeting of the International Society for the Study of Individual Differences, London, ON, July 27-31, 2015.

RESEARCH INTERESTS

I am interested in the motivations behind love, the personality traits to which people are attracted to, and the behaviours and interactions that influence relationship processes. I like to examine relationship processes through relevant theoretical frames, such as attachment theory. With my theoretically-driven, dyadic, multi-method approach to studying romantic relationships, I aspire to enhance society's knowledge regarding the physical and psychological components of love.

UNDERGRADUATE HONORS THESIS

Ideal Mate Preferences and Relationship Initiation

- This thesis explores the extent to which individuals initiate romantic relationships with others who more closely match their ideal mate preferences. Comparisons between the original participant's ideal mate preferences and their partner's self-perceptions were analyzed, and results show a positive and significant association.

MASTER'S THESIS

The Dark Side of Jealousy

- This thesis explores whether there are significant associations between jealousy (cognitive, emotional, behavioural) and dimensions of the Dark Triad (narcissism, Machiavellianism, psychopathy). In addition, the study introduced self-esteem and entitlement as mediator variables. One model showed significant mediation: psychopathy was related to higher cognitive jealousy, and this relationship was significantly mediated by lower self-esteem.

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REFERENCES

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