I'M WATCHING YOU: EXAMINING MATE VALUE DISCREPANCY, POWER, AND

JEALOUSY IN ELECTRONIC INTRUSION OF ROMANTIC PARTNERS.

GRACE MILLETT

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Abstract

Electronic intrusion (EI), the act of monitoring a romantic partner and violating their boundaries online, has gained empirical interest as a prevalent form of digital dating abuse (DDA). The present thesis sought to explore why individuals perpetrate EI against their partners. Within the framework of evolutionary theory, prior research has revealed high mate value discrepancies (MVD) predict greater DDA perpetration. In the present research two cross-sectional correlational studies test perceived MVD as a predictor of EI perpetration, jealousy as a moderator, and desire for power as a mediator of this association. Across both studies I found that contrary to predictions, MVD did not predict EI perpetration, jealousy did not moderate this association, and desire for power did not mediate the association. These findings contribute to the literature on this new form of partner abuse and suggest that further work is needed to understand why individuals perpetrate EI towards their partners.

Keywords: electronic intrusion, digital dating abuse, mate value discrepancy, jealousy, desire for power

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Table of Contents

List of Tables

List of Figures

Introduction

The desire to develop and maintain close interpersonal relationships is a fundamental human motivation (Baumeister & Leary, 1995). Romantic relationships are of particular importance for our well-being, as research has found high quality romantic relationships to be associated with greater physical health outcomes and happiness (Gómez-López et al., 2019; Robles et al., 2014). Thus, people are often highly motivated to develop and maintain romantic relationships, and in recent years, the use of social media has played an increasingly important role in these processes.

In 2022, up to 70% of online Canadians were visiting social media sites such as Facebook daily, and one way people use social media is to connect with their romantic partners (Mai & Gruzd, 2022). Indeed, Vaterlaus and colleagues (2018) found that 67% of young adults reported technology to be an integral part of communicating with romantic partners, with some individuals estimating that 50% to 60% of communication with one's partner occurred via texting. With such high rates of technology use in romantic relationships, it is important to understand the associated benefits and drawbacks that may exist for couples.

Prior research has found more frequent communication with one's partner via phone or texting to be associated with greater intimacy and satisfaction in the relationship (Morey et al., 2013). Additionally, in dyadic research it has been found that women displaying their partner in their profile picture on Facebook is associated with greater relationship satisfaction for both partners (Papp et al., 2012). Conversely, use of technology and social media in romantic relationships may also have negative implications. For example, having increased access to a partner's personal information via the internet may blur the line between what behaviours are acceptable and unacceptable, and result in intrusion of partner's boundaries (Hertlein & Chan,

2020; Norton et al., 2018). Indeed, in a recent nationally representative survey of nearly 5000 U.S. adults, 34% reported that they have looked through their current partner's cellphone without their knowledge (Vogels & Anderson, 2020). Further, with ever growing sophistication in technology, this rate of online partner surveillance may continue to rise (Hertlein & Chan, 2020). Therefore, there is a clear need to investigate how and why individuals may use technology and social media to monitor and intrude on their romantic partners. Specifically in my thesis, I test how factors such as perceiving one's partner as higher in value than the self, relationship power, and jealousy contribute to monitoring behaviours and intruding on one's romantic partner online.

Digital Dating Abuse

Digital dating abuse (DDA) has been defined as the "control, harassment, stalking, and abuse of one's romantic partner via technology and social media" (Zweig et al., 2013, p. 1306). DDA behaviours can range from monitoring where a partner is online, to threatening to physically harm a partner (Reed et al., 2016a). Recent research has found high prevalence rates of DDA behaviours in young adults' romantic relationships, with approximately 74% reporting being a victim, and 69% perpetrating at least one DDA behaviour within their lifetime (Reed et al., 2016a). DDA behaviours most commonly reported for both perpetration and victimization include monitoring a partner's whereabouts online and looking through a partner's private information online, whereas behaviours such as threatening to physically harm a partner online are much less frequent (Ellyson et al., 2021; Reed et al., 2016a). DDA shares some commonalities with traditional in-person intimate partner violence (IPV), such that it elicits distress in victims and is most prevalent in young adult and adolescent populations (Bennett et al., 2011; Johnson et al., 2015; Temple et al., 2016). However, differing from in-person IPV, given that it exists in the online environment DDA can be perpetrated regardless of geographical

and temporal boundaries, thus allowing for increased opportunities to abuse one's partner, and less ability for victims to escape this abuse (Kiriakidis & Kavoura, 2010; Smith, 2012). Further, the online environment allows for private information to be accessed and distributed easily, publicly, and in a permanent manner unless it is removed, which could enhance the distress victims experience from DDA (Hancock et al., 2017; Tokunaga, 2011). Lastly, the lack of non-verbal cues within the online environment may contribute to perpetration of DDA. For example, the "electronic wall" between partners in the online environment may make it easier for individuals to perpetrate DDA against their partner, as they may not have to experience the emotional distress of their partner face to face (Heirman & Walrave, 2008; Johnson, 2018). Therefore, given its unique features DDA merits exploration, as it may not be as simple as traditional IPV perpetrated through technology.

Victims of DDA have been found to experience numerous negative outcomes. DDA victimization has been associated with heightened depressive symptoms and emotional distress, as well as higher alcohol and substance use (Bennett et al., 2011; Hancock et al., 2017; Zweig et al., 2014). Of concern, DDA perpetration has been associated with in-person physical, sexual, and psychological intimate partner violence perpetration (Borrajo et al., 2015). Further, in longitudinal research DDA perpetration has been found to be a precursor to psychological and physical abuse perpetration (Brem et al., 2021). Therefore, those who perpetrate DDA against their partner may escalate to perpetrate offline forms of IPV, which could further exacerbate negative outcomes for victims.

DDA encompasses a broad range of behaviours, thus prior research has categorized them into several subtypes. One such subtype, direct aggression, has been characterized by aggressive online behaviours that are intended to harm a partner, such as sending them threatening or

insulting messages (Borrajo et al., 2015). Another subtype, sexual cyber abuse has been characterized by online sexual coercion, consisting of behaviours such as pressuring a partner to send sexual or naked photo of themselves (Zweig et al., 2013). Lastly, the most prevalent subtype that has been identified in recent literature is electronic intrusion (Borrajo et al., 2015).

Electronic intrusion (EI) has been characterized as the monitoring of a romantic partner's personal information as well as violation of a partner's boundaries via social media or other technologies without permission (Doucette et al., 2021; Bennett et al., 2011). Examples of electronic intrusion behaviours include frequently calling a partner to monitor them, pressuring a partner for their social media passwords, and monitoring who a partner is talking to online (Bennett et al., 2011; Reed et al., 2015). Electronic intrusion is the most prevalent form of DDA, with some prior research finding between 30-60% of young adults experiencing at least one instance of electronic intrusion within the past year (Bennett et al., 2011; Borrajo et al., 2015; Reed et al., 2016a; Reed et al., 2017). This is of concern, as similar to what has been found for DDA broadly, EI perpetration has been associated with in-person psychological and physical abuse perpetration (Borrajo et al., 2015). Further, there is emerging evidence to suggest that EI behaviours may extend beyond younger dating couples. Recent research has found similar rates of EI perpetration (approximately 27%) in cohabiting married couples around 40 years in age (Ligman et al., 2021). Taken together, past research suggests that EI is prevalent and impacts a broad range of couples. As a result, it is imperative to investigate the interpersonal and intrapersonal factors that contribute to EI perpetration, as this knowledge can help inform scholars' understanding of EI, as well as aid in the development of prevention strategies (Ellyson et al., 2021). Thus, in the current research, I sought to explore when and why individuals

perpetrate EI against their romantic partners. To understand the social motivation processes behind EI, it is important to first look to a guiding theoretical framework.

Theoretical Framework for Electronic Intrusion Perpetration

Much prior work on DDA has examined factors associated with victimization (e.g., Bennett et al., 2011; Hancock et al., 2017; Zweig et al., 2014), however, less work has focused on perpetration (Johnson, 2018). As such, there is no widely agreed upon theoretical framework used to explain DDA or EI perpetration. Prior research has examined EI perpetration from an attachment theory lens (e.g., Reed et al., 2016b; Reed et al., 2015), from a social learning theory lens (e.g., Van Ouytsel et al., 2020), and recently, DDA perpetration has been examined using an evolutionary lens (e.g., Bhogal & Howman, 2019; Bhogal et al., 2019; Bhogal et al., 2021).

Although evolutionary theories have been applied to explain DDA perpetration broadly, research has not explored whether this theoretical framework is also relevant to EI perpetration specifically. As will be described in more detail further on, within evolutionary theories DDA behaviours have been thought of as modern mate retention strategies, and thus that individuals perpetrate DDA behaviours to retain their romantic partner (Bhogal & Wallace, 2021). Furthermore, this theoretical framework suggests that a driving factor behind the use of DDA as a mate retention strategy may be high mate value discrepancy, whereby individuals perceive their partners as higher in value than the self, and thus engage in DDA behaviours to maintain their higher value partner (Bhogal & Howman, 2019; Bhogal & Wallace, 2021). As will be discussed, there is reason to believe the construct of mate value discrepancy may be similarly important in predicting EI perpetration, as EI may serve as a modern mate retention strategy, and thus EI may be enacted when individuals feel there is a discrepancy in value between them and their partner. Therefore, in the present work I apply a relevant evolutionary construct, mate value discrepancy,

to EI perpetration to extend on prior work that has examined mate value discrepancies in relation to DDA.

Mate Retention

Prior to discussing mate value discrepancy in relation to EI, it is important to provide relevant background on the application of an evolutionary framework to DDA behaviours broadly. From an evolutionary perspective, individuals are motivated to form and maintain long-term romantic relationships, particularly when the benefits of the relationship outweigh the costs (Goetz & Maria, 2019). However, there are different routes one may take to try and maintain their relationship (Fisher, 2000). Mate retention strategies are behaviours intended to prevent one's partner from engaging in infidelity or leaving the relationship (Buss, 1988; Buss & Shackelford, 1997). Two forms of mate retention behaviours have been proposed: benefit-provisioning and cost-inflicting (Buss, 1988; Miner et al., 2009b). Benefit-provisioning mate retention strategies serve to retain a partner by increasing their partner's satisfaction in the relationship, through behaviours such as showing affection or buying gifts for a partner (Buss et al., 2008). In contrast, cost-inflicting mate retention strategies serve to make it more difficult for a partner to leave the current relationship, by deterring potential romantic rivals, or through reducing a partner's self-worth (Davis et al., 2018; Miner et al., 2009a). It has been proposed that DDA may function as a cost-inflicting mate retention strategy, with prior research finding the use of more cost-inflicting mate retention strategies to predict greater DDA perpetration (Bhogal & Wallace, 2021). Though not explicitly tested in past research, it seems sensible that EI may also serve as a cost-inflicting mate retention strategy. Indeed, existing cost-inflicting behaviours such as snooping through a partner's personal belongings and insisting a partner spend all their free time with them closely resemble EI behaviours (Shackelford et al., 2005).

Mate Value Discrepancy

One's motivation to maintain a relationship, as well the strategies they use to retain their partner may depend on several factors. One interpersonal factor that contributes to this process is the value of one's partner relative to the self. Prior research has suggested that people judge their partners based on their warmth and trustworthiness, their attractiveness and vitality, and their social status and resources (Campbell & Fletcher, 2015). Individuals who possess more of these traits (e.g., kindness, intelligence, loyalty) are considered more desirable as a mate, or of higher mate value, whereas those who possess less of these traits are thought to be less desirable as a mate, or of lower mate value (Bhogal et al., 2019; Buss & Barnes, 1986; Sidelinger & Booth-Butterfield, 2007). Prior work has found that those who have higher value partners are more likely to use cost-inflicting mate retention strategies in attempt to retain their partner (Miner et al., 2009b). Though mate value on its own can help inform the use of these behaviours, research suggests when it comes to DDA it may be more informative to consider how one's partner relates to the self in terms of value.

Mate value discrepancy (MVD) describes the difference between an individual's mate value relative to their partner's mate value, whereby high MVD represents an individual who perceives their partner to be much higher in value than themselves (Sidelinger & Booth-Butterfield, 2007; Bhogal & Howman, 2019). For example, an individual may perceive their partner to be more attractive, intelligent, and have higher social status compared to themselves, thus perceiving a high mate value discrepancy between themselves and their partner (Kirsner et al., 2003). When one has a partner of significantly higher value than them they may experience threat to the relationship as there is a risk of that partner abandoning them for a better alternative (Conroy-Beam et al., 2016). This fear may not be unwarranted as research has found that men of

higher status tend to have more affairs compared to men of lower status (Buss, 2000; Salmon, 2017). Therefore, individuals who have a high mate value discrepancy and thus perceive their partner to be higher in value than themselves may be motivated to act in ways to preserve their relationship (Bhogal & Howman, 2019; Conroy-Beam et al., 2016). Indeed, individuals have been found to engage in more mate retention behaviours when they perceive that their partner could easily replace them, but they could not easily replace their partner (Sela et al., 2017). Further, MVD may not only influence whether individuals work to retain their partner, but how they retain their partner as well. It has been proposed that individuals who have a high MVD may be motivated to act in risky ways to preserve their relationship, as a higher value partner is more difficult for a lower value partner to replace (Bhogal & Howman, 2019; Conroy-Beam et al., 2016). Indeed, this has been supported, with prior research finding that individuals with high value partners, and individuals who are lower in mate value themselves, engage in more cost-inflicting mate behaviours with their partners (Miner et al., 2009b; Miner et al., 2009a).

In applying this theoretical framework to DDA, recent research has suggested that DDA functions as a cost-inflicting mate retention strategy, as DDA resembles previously established cost-inflicting strategies such as snooping through a partner's belongings (Buss et al., 2008; Bhogal & Howman, 2019; Shackelford et al., 2005). Supporting this, research has found cost-inflicting, but not benefit-provisioning mate retention to be a significant positive predictor of DDA perpetration, suggesting that individuals may engage in DDA in attempt to retain their romantic partner (Bhogal & Wallace, 2021).

To further understand DDA perpetration within this framework, recent research has examined MVD as a predictor of DDA perpetration. Given that DDA may serve as a modern form of cost-inflicting mate retention behaviours, it has been put forth that MVD may positively

predict DDA perpetration, as behaviours such as monitoring who a romantic partner talks to online may make it difficult for one's partner to find alternative partners, thus keeping them in their current relationship (Bhogal & Howman, 2019). Research has supported this, finding that high MVD predicts greater DDA perpetration, thus suggesting when individuals perceive their partner as being higher than them in value, they tend to perpetrate greater DDA against their partner (Bhogal & Howman, 2019; Bhogal et al., 2019). Further, when testing this relationship using varying measures of mate value, larger mate value discrepancies have still been found to predict greater DDA perpetration, contributing to the robustness of these findings (Bhogal et al., 2021).

MVD has only recently been identified as a predictor of DDA perpetration, thus there is much still unknown about this association. For one, it is of note that the prior work investigating this association has exclusively examined DDA as a single catch all construct (e.g., Bhogal & Howman, 2019; Bhogal et al., 2019; Bhogal et al., 2021). However, DDA is made up of several different types of behaviours (e.g., electronic intrusion, direct aggression, digital sexual abuse), and recent work has suggested these subtypes may be motivated by different underlying factors (Reed et al., 2021). Therefore, to better inform prevention and intervention strategies it is imperative to examine these subtypes individually (Ellyson et al., 2021). Thus, an important unanswered question is whether MVD predicts a specific subtype of DDA, namely, electronic intrusion.

Mate Value Discrepancy and Electronic Intrusion

As previously described, MVD has been found to positively predict DDA, with individuals perpetrating greater DDA against their partners when they perceive their partner to be higher than them in mate value (Bhogal & Howman, 2019; Bhogal et al., 2019). However, thus

far only a handful of studies have examined this relationship, and none have examined EI specifically.

Though it has not been directly tested to date, there is evidence to suggest that MVD would predict EI perpetration specifically, in addition to DDA broadly. Prior work has provided evidence that DDA functions as a cost-inflicting mate retention strategy, and that increased MVD has been tied to the use of cost-inflicting strategies such as DDA (Bhogal & Howman, 2019; Bhogal & Wallace, 2021). Electronic intrusion behaviours such as going through a partner's text messages without permission and excessively calling a partner to control where they are and with whom closely resembles a cost-inflicting mate retention tactic known as direct guarding, characterized by acts of vigilance and monopolization of a partner's time (Shackelford et al., 2005). Therefore, EI perpetration may serve as a modern form of direct guarding cost-inflicting mate retention behaviours, and thus have a similar relationship to MVD compared to what has been previously found regarding mate value discrepancy and DDA broadly, such that MVD should positively predict EI perpetration.

Although I expect the association between MVD and EI to be similar to what has been found for MVD and DDA broadly, it is of note that the underlying reasons why someone with high MVD may perpetrate EI compared to why they may perpetrate another subtype of DDA may differ. Indeed, recent research suggests that different DDA subtypes likely have differing underlying motivations (Reed et al., 2021). Past correlational research has found one underlying motivation behind EI perpetration to be feelings of uncertainty in one's relationship, whereas motivations for a subtype such as direct aggression could theoretically resemble that of physical intimate partner violence motivations, such as intent to intimidate a partner (Ligman et al., 2021; Makepeace, 1986). Consequently, it is important to not only examine whether MVD predicts EI

perpetration, but also why this may be the case. Therefore, in this research I also test a potential mechanism explaining the relation between MVD and EI, desire for relationship power.

Mediating Role of Desire for Relationship Power

One factor that may mediate the association between MVD and EI perpetration is the desire for power in one's relationship. MVD may tie in closely with the concept of power in close relationships, which is conceptualized as one's degree of dependence on, as well as influence within a relationship (Kelley et al., 2003; Overall et al., 2016). In a romantic relationship even though partners may mutually depend on one another, it is common for asymmetries to exist in each partner's degree of dependence, resulting in one partner possessing more power than the other (Attridge et al., 1995; Felmlee, 1994; Overall et al., 2016). The principle of least interest (Waller & Hill, 1951) states the individual who is less invested in the relationship holds greater social power to influence their partner, produce outcomes in their favour, or terminate the relationship if they are unfulfilled (Attridge et al., 1995; Overall et al., 2016). Conversely, the more invested individual who is more dependent on the relationship holds less power, as they do not have the same degree of influence over their partner's outcomes (Kelley & Thibaut, 1978; Overall et al., 2016). It then follows that in cases of high MVD, the low value individual with a high value partner would have lower power in the relationship. This is because the lower value individual possesses fewer beneficial traits or resources, and may therefore have less influence over their partner and be more dependent on their high value partner as a result of the resources and social status they gain by being with them (Goetz & Maria, 2019; Overall et al., 2016). Given that low value individuals in mate discrepant couples may hold less relational power and therefore have less control over important relationship outcomes, they may be motivated to behave in ways that can allow them to gain some power

over the trajectory of the relationship (Overall et al., 2016). EI perpetration may be one such way to achieve this, as engaging in behaviours such as sending many messages to check up on a partner may give a lower value partner a sense perceived power over the maintenance of the relationship, as it allows them to control their partners access to potential romantic rivals (Reed et al., 2016a). Indeed, previous research has found that individuals who perceive themselves to have less power in the relationship are more likely to engage in Facebook monitoring of their partner, suggesting that one reason behind why those who feel less than their partner may use electronic intrusion could be due to a desire to gain some power over the trajectory of the relationship (Samp & Palevitz, 2014). Therefore, desire for relationship power may be one mechanism underlying the association between MVD and EI perpetration.

Although desire to gain relational power may be one potential mechanism underlying the relationship between MVD and EI perpetration, there may be boundary conditions as to when the desire to gain power is experienced within value discrepant couples. Although these discrepancies may exist in a couples' relationship, in order to be motivated to engage in behaviours intended to retain a partner such as EI, one needs to experience a sense of threat to their relationship (Buss & Shackelford, 1997). These discrepancies may not be inherently threatening, as past research has found that both individuals in couples of discrepant mate value do report being satisfied in their relationship if there are no better romantic alternatives available (Conroy-Beam et al., 2016). Rather, these discrepancies may become more salient in the presence of threat, which could then contribute to a desire to gain power in the relationship, and subsequent EI perpetration. One intrapersonal factor that may heighten the feeling that one's relationship is threatened is an individual's degree of jealousy.

Moderating Role of Jealousy

  Romantic jealousy is broadly defined as a negative emotional reaction comprised of feelings such as anger or hurt, that come about when one perceives a real or imagined threat to a romantic relationship that they value (Bringle & Boebinger, 1990; Pfeiffer & Wong, 1989). Jealousy has important evolution-based functions, as it is thought to be a key emotion that drives the use of mate retention behaviours intended to prevent a partner's unfaithfulness or departure from the relationship (Buss, 1988; Davis et al., 2018; Shackelford et al., 2005). It follows then that jealousy has been found to predict DDA perpetration as well as EI perpetration, both of which may serve as cost-inflicting mate retention strategies (e.g., Deans & Bhogal, 2019; Ligman et al., 2021; Branson & March, 2021).

  Although prior research has found experiencing greater jealousy to predict increased EI perpetration, drawing the conclusion that anyone who experiences jealousy in their romantic relationship will necessarily perpetrate EI against their partner may be oversimplified. Prior work has found jealousy to predict cost-inflicting mate retention behaviours such as EI, but jealousy has also been shown to predict benefit-provisioning mate retention behaviours such as saying words of affirmation to one's partner (Davis et al., 2018; Ligman et al., 2021). Thus, similar to how MVD may not always predict increased cost-inflicting behaviours such as EI, jealousy too may not always lead to EI perpetration. Therefore, it may be more informative to examine how MVD and jealousy interact to predict EI perpetration. If a low value individual with a high value partner (i.e., high MVD) also experiences high jealousy, they perceive a threat to the relationship and are therefore motivated to engage in mate retention (Buss, 1988; Shackelford et al., 2005). Furthermore, this lower value partner may be more likely to use cost-inflicting strategies when experiencing jealousy, as they may have fewer resources (e.g., financial, emotional) required to

use benefit-provisioning strategies. However, if a low value individual with a high value partner does not experience jealousy in the relationship, they may perceive this discrepancy as less of a threat. Therefore, they would not be sufficiently motivated to gain power over the relationship's maintenance by engaging in risky cost-inflicting mate retention strategies such as EI. Further, individuals who do experience jealousy in their romantic relationships, but do not perceive their partners as being higher in value than them (i.e., low MVD), may engage in less EI perpetration, perhaps in favour of more positive partner retention strategies (Davis et al., 2018). Thus, romantic jealousy may operate as a boundary condition in the association between MVD and EI perpetration.

Overview of Research and Hypotheses

Prior research has shown MVD positively predicts DDA perpetration, however researchers do not know if MVD predicts EI specifically, nor is it known why this association may exist, and whether there are any boundary conditions to this association. These questions are important, as understanding when and why individuals perpetrate EI is imperative in developing effective prevention and intervention strategies (Ellyson et al., 2021).

Across two studies, I extend prior research that has examined MVD as a predictor of DDA in three ways. First, given the recent importance placed in the literature on distinguishing between subtypes of DDA, I investigate MVD as a predictor of a specific type of DDA, electronic intrusion. Second, I test desire for relationship power as a mechanism of the association between MVD and electronic intrusion, as understanding underlying motivations of EI behaviours may provide important knowledge to help inform prevention and intervention strategies (Ellyson et al., 2021). Lastly, I test romantic jealousy as a boundary condition of the association between MVD and EI perpetration which will provide useful information about the

nature of this association, as I hypothesize the positive association between MVD and EI will only exist when individuals are also high in jealousy.

In Study 1 I test the hypotheses that high MVD would positively predict electronic intrusion perpetration (H1); and that jealousy would moderate this association whereby when jealousy is high there would be a positive association between MVD and electronic intrusion, whereas there would be no positive association when jealousy is low (H2). In Study 2 I test the hypotheses that high MVD would positively predict electronic intrusion perpetration (H1); that jealousy would moderate this association whereby when jealousy is high there would be a positive association between MVD and electronic intrusion, but no association when jealousy is low (H2); and that desire for relationship power would mediate the moderated association of MVD and jealousy on electronic intrusion (H3).

Study 1

Hypotheses

For Study 1 I hypothesized that high MVD would positively predict electronic intrusion perpetration (H1); and that jealousy would moderate this association whereby when jealousy is high (+1 SD) there would be a positive association between MVD and electronic intrusion, but the association would not be significant when jealousy is low (-1 SD; H2).

Method

Design

Study 1 was a correlational study in which I tested the moderating effect of jealousy on the association between MVD and EI perpetration. The predictor variable was MVD, the outcome variable was EI perpetration, and the moderator variable was jealousy.

Participants

Participants for this study were 328 participants recruited from a community sample of adults. Criteria for eligibility in this study required participants to currently be in a romantic relationship that has lasted at least six months, and be able to speak, read, and write in English.

Based on an a priori power analysis using G*Power at 80% power, it was determined that approximately 222 participants were needed to detect a small effect size (Cohen's f^2 = .05; Cohen, 1988; Faul et al., 2007). We engaged in oversampling due to a typical exclusion rate of approximately 20-30% in previous studies conducted within the Social Motivation Laboratory. From the original sample of 468 participants, 140 were removed due to pre-registered exclusions[1]. 7 participants were removed due to straight line responding, 97 were removed due to significant missing data (if they stopped responding midway through the study based on a visual inspection of the data), and 36 were removed for inattentive responding determined by getting three or more of the five items incorrect using the Conscientious Responders Scale (Marjanovic et al., 2014).

The final sample of 328 participants ranged in age from 18 to 82 (M_{age} = 29.55, SD = 13.17). 35.37% of participants identified as a man, 62.5% identified as a woman, 1.83% identified as non-binary, and 0.3% preferred not to disclose their gender. 87.65% identified as straight/heterosexual, 7.71% identified as bisexual, 1.54% identified as queer, 0.93% identified as a lesbian, 0.62% identified as gay, 0.93% identified as a sexual orientation not listed, and 0.62% preferred not to disclose their sexual orientation. The majority of participants identified as White (44.51%), 15.55% identified as South Asian, 8.54% identified as Middle Eastern, 9.45%

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[1] Study 1 was pre-registered on AsPredicted #111884 https://aspredicted.org/blind.php?x=MM1_1HM. Though not specified in the pre-registration, straight line responders were also removed. Specific hypotheses and the data analytic plan for this project were not pre-registered. All studies were approved by York University's IRB certificate #STU 2022-092. The data for this study was collected in November of 2022.

identified as Black, 7.62% identified as South East Asian, 5.79% identified as East Asian, 3.66% identified as Latin American, 1.52% identified as South American, 1.22% identified as Indigenous, 0.31% identified as Polynesian, and 1.83% identified as another ethnicity not listed. The majority of participants were exclusively dating their romantic partner (60.86%), 25.69% were married to their partner, 7.03% were common law, 3.06% were engaged, 1.83% were consensually non-monogamous, and 1.53% defined their relationship status as other. On average participants were in their current romantic relationship for 8.1 years ($SD = 10.68$), and on average participants reported that their relationships were high in quality ($M = 6.07$, $SD = 0.97$ on a 7-point scale). In terms of participants' daily social media use, 41.46% spent less than 2 hours per day on social media, 20.12% spent 2-3 hours per day on social media, 23.78% spent 3-5 hours per day on social media, and 14.63% spent 5 or more hours per day on social media. Additionally, when asked how often participants use a cellphone or social media to communicate with their romantic partner, 46.34% responded "always", 37.5% responded "often", 12.8% responded "sometimes", 3.05% responded "rarely", and 0.31% responded "never".

Measures

Mate Value Discrepancy

Mate value discrepancy was assessed using one item for partner mate value and one item for self mate value from the mate value scale (Edlund & Sagarin, 2014). In line with prior research, the mate value scale was used to assess participants' own reported self mate value, as well as their perceptions of their partner's mate value, then self value scores were subtracted from partner value scores to create the mate value discrepancy score, whereby higher scores reflect the perception that one's partner is higher in mate value than the self (e.g., Conroy-Beam et al., 2016). Self mate value was assessed using one item, "Overall, how would you rate your

level of desirability as a romantic partner?" on a 7-point scale ranging from 1 = *Very low*, 7 = *Very high*. Partner mate value was also assessed using one item, "Overall, how would you rate your romantic partner's level of desirability as a romantic partner?" on a 7-point scale ranging from 1 = *Very low*, 7 = *Very high*.

Jealousy

Jealousy was assessed using one revised item from the Chronic Jealousy Scale (White, 1984). Participants responded to the item "Overall, I think of myself as a person who easily gets jealous in my romantic relationships" on a 7-point scale with 1 = *Not at all*, 4 = *Somewhat*, and 7 = *Very much so*.

Electronic Intrusion Perpetration

Electronic intrusion perpetration was assessed using the electronic intrusion perpetration subscale from the broader digital dating abuse scale (Reed et al., 2015; Reed et al., 2016a; Reed et al., 2016b). Six items were used to assess the extent to which individuals perpetrated electronic intrusion behaviours against their partner, such as "Using the Internet or a cell phone, I monitored my romantic partner's whereabouts and activities" and "Using the Internet or a cell phone, I sent so many messages (like texts, e-mails, chats) that it made my romantic partner feel uncomfortable". Items were assessed on a 7-point scale with 1 = *Never*, 4 = *Sometimes*, and 7 = *Very often*.

Procedure

Participants were recruited using a snowballing technique in which members of the research team (graduate and undergraduate honours students in the Social Motivation Laboratory) went into four psychology classrooms at York University and asked undergraduate students to distribute URLs to two adults (18 years or older) currently in romantic relationships

for at least 6 months, preferably one man and one woman. Students were instructed to ask individuals in different romantic couples to ensure independence of the data. We wanted to give all students across the four courses (over 600 students) a chance to engage in the research process, and therefore, we obtained a larger sample than required to detect anticipated smaller effect sizes. Individuals interested in completing the study were provided with an electronic flyer that included information about the study as well as the link to the survey on Qualtrics (see Appendix A for flyer). Upon opening the link participants saw the letter of information and consent form, and those who consented to participate were prompted to complete the online survey on Qualtrics. After consenting, participants read a screen asking them to complete the study alone, to minimize distracts around them, and to turn off or put away all unnecessary electronics (e.g., TV, mobile devices). Participants completed demographic questions about themselves and their romantic relationships (e.g., relationship quality). Following this, participants completed the measures for the key variables, with all the items being presented to participants in a randomized order. As this study was conducted as part of a larger project, participants also then completed measures not relevant to the present study. Upon completion of the survey participants were shown a written debriefing form. For their participation, participants had the option to enter their email address into a draw to win one of three $100 gift cards to a major retailer store of their choice (e.g., Walmart, Loblaws, etc.).

Data Analytic Strategy

R Studio version 2022.12.0+353 was used to conduct all of the preliminary analyses, assumptions testing, and hypothesis testing in this study (R Core Team, 2020). Statistical assumptions were tested prior to conducting main analyses. To test the main hypotheses, a moderation analysis was conducted using Hayes PROCESS Model 1 (Hayes, 2018). Means were

centered for the Model 1 analysis. Interaction effects were followed up by testing the simple slopes. G*Power (Faul et al., 2007) was used to conduct the a priori power analysis as well as the post hoc sensitivity analysis. A post hoc sensitivity analysis conducted using G*Power to estimate the statistical power of this study revealed that with a sample of 328 participants we were able to detect a small effect size (f^2 = .03) with 80% power.

Results

Preliminary Analyses

Variable Construction

The composite variable for mate value discrepancy was created by subtracting participant's self mate value scores (M = 5.58, SD = 1.3) from partner mate value scores (M = 5.88, SD = 1.31), such that a score of zero reflects participants match their partner in regard to mate value, and that higher scores reflect a higher mate value discrepancy, or the perception that one's partner is higher in mate value than the self (M = 0.3, SD = 1.34). The composite variable for electronic intrusion perpetration was created by averaging the scores for all six items (M = 2.04, SD = 1.16, α = .85). See Table 1 for means, standard deviations, Cronbach's alphas, and ranges of key variables.

Descriptive Statistics

Table 2 reports the zero order correlations between key variables. As predicted the outcome variable, EI perpetration, showed a significant moderate positive association with jealousy. Unexpectedly, the predictor variable MVD showed a small significant negative correlation with EI perpetration. Jealousy was not significantly correlated with MVD, nor was it associated with self or partner mate value. EI perpetration showed a significant small negative association with perceived partner mate value, but was not associated with perceived self mate

Table 1. *Means, standard deviations, Cronbach's α and ranges of key variables in Study 1.*

Variable	M	SD	Cronbach's α	Ranges
Mate Value Discrepancy	0.30	1.34	-	-6 – 5
Partner Mate Value	5.88	1.31	-	1 – 7
Self Mate Value	5.58	1.30	-	1 – 7
Trait Jealousy	3.32	1.82	-	1 – 7
Electronic Intrusion Perpetration	2.04	1.16	.85	1 – 6.83

Table 2. *Zero order correlations with confidence intervals for key variables in Study 1.*

Variable	1	2	3	4
1. Mate Value Discrepancy				
2. Partner Mate Value	.52** [.43, .59]			
3. Self Mate Value	-.51** [-.59, -.42]	.47** [.39, .55]		
4. Trait Jealousy	-.07 [-.17, .04]	-.06 [-.17, .05]	.01 [-.10, .12]	
5. Electronic Intrusion Perpetration	-.11* [-.21, -.00]	-.14* [-.24, -.03]	-.03 [-.14, .08]	.37** [.27, .46]

Note. M and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. * indicates $p < .05$. ** indicates $p < .01$.

value. Table 3 reports the frequencies of EI perpetration by item.

Assumptions Testing

Given that this model contained multiple predictors, multicollinearity was tested for the model. Upon examining the correlation between MVD and jealousy it was found to be non-significant ($r = -.07$), indicating that the predictors were unrelated or orthogonal (see Table 2). The variance inflation factors (VIF) and tolerance values were also tested using the olsrr package in R (Hebbali, 2023). For the predictor variables, variance inflation factor (VIF) values did not exceed 10, and tolerance values were not below .1, suggesting there was no multicollinearity in the model (see Table 1B). Given that in this study students were asked to distribute two URLs to individuals in different romantic relationships, the data was presumed to be independent. Conducting the Durbin-Watson test to assess autocorrelation supported this, as it was non-significant, thus finding this data meets the assumptions of independent errors ($DW = 1.99$, $p = .46$). Regarding the assumption of normality, running Shapiro-Wilk tests for each key variable revealed them all to be significant, suggesting these variables are not normally distributed[2]. Plots of the distribution for each key variable can be found in Appendix B. Although the key variables are not normally distributed, it is important to note that the normality assumption is one of the least important assumptions in linear regressions, as only very severe normality assumption violations are thought to affect the statistical inference validity within relatively large samples (Hayes, 2013). Further, many constructs in research are not normally distributed, thus in practice the assumption of normality is rarely met (Hayes, 2013). Homoscedasticity was not an issue in the present study, as robust standard errors were used in the main analysis. An examination of a plot of the residuals and fitted values showed there were no clear nonlinear relationships

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[2] Shapiro-Wilk tests revealed MVD ($SW = .91$, $p < .001$), trait jealousy ($SW = .91$, $p < .001$), and electronic intrusion perpetration ($SW = .82$, $p < .001$) were not normally distributed.

Table 3. *Electronic intrusion scale items and the frequency of participants who reported each behaviour in Study 1.*

%(*f*)	Never (1)	2 – 3	Sometimes (4)	5 – 6	Very often (7)
EI Perpetration					
Using the Internet or a cell phone, I sent so many messages (like texts, e-mails, chats) that it made my romantic partner feel uncomfortable.	52.75%	30.18%	9.45%	5.18%	2.44%
I pressured my romantic partner for a password to access their phone or online account(s).	76.52%	12.2%	4.27%	5.18%	1.83%
I pressured my romantic partner to respond quickly to calls, texts, or other messages.	44.21%	27.13%	16.16%	9.45%	3.05%
Using the Internet or a cell phone, I monitored my romantic partner's whereabouts and activities.	51.83%	22.87%	16.46%	5.49%	3.35%
Using the Internet or a cell phone, I monitored who my romantic partner talks to and is/was friends with.	49.39%	30.18%	12.50%	5.49%	2.44%
Using the Internet or a cell phone, I looked at my romantic partner's private information (text messages, emails, etc.) to check up on them without their permission.	65.25%	21.34%	7.01%	4.57%	1.83%

present (e.g., no u-shapes), suggesting this data meets the assumption of linearity (see Figure 1B). Lastly, outliers were deemed influential and excluded if they had a Cook's distance value that exceeded .5, however no cases were found to be influential.

Main Analyses

To test the prediction that MVD would positively predict electronic intrusion perpetration (H1), and that jealousy would moderate this association whereby when jealousy is high (+1 SD) there would be a stronger positive association between MVD and electronic intrusion compared to when jealousy is low (-1 SD; H2), Hayes (2018) PROCESS Model 1 was used. Contrary to H1, a non-significant association between MVD and EI perpetration was found, $\beta = -.09$, $b = -.08$, $SE = .05$, $t = -1.56$, $p = .12$, 95% CI[-.17, .02].

Contrary to H2, a nonsignificant interaction was found between MVD and jealousy on EI perpetration, $\beta = .01$, $b = .01$, $SE = .03$, $t = .20$, $p = .84$, 95% CI[-.05, .06], adjusted $R^2 = .14$. Although nonsignificant, the interaction was probed by inspecting and testing the simple slopes. Unexpectedly, when jealousy was high (+1 SD), there was no significant association between MVD and EI perpetration, $b = -.07$, $SE = .05$, $t = -1.24$, $p = .21$, 95% CI[-.17, .04]; and as expected, when participants were low in jealousy (-1 SD), there was no significant association between MVD and EI perpetration, $b = -.09$, $SE = .07$, $t = -1.26$, $p = .21$, 95% CI[-.22, .05]. The simple slopes for those low and high in jealousy were also tested for those higher (+1 SD) and lower (-1 SD) on MVD. As predicted, for individuals higher in MVD, there was a significant positive association found between jealousy and EI perpetration, $b = .24$, $SE = .04$, $t = 5.57$, $p < .01$, 95% CI[.15, .32]; however, there was also a significant positive association found between jealousy and EI perpetration when individuals were lower in MVD, $b = .22$, $SE = .05$, $t = 4.80$, $p < .01$, 95% CI[.13, .31], suggesting individuals high in jealousy engaged in more EI perpetration

than those low in jealousy, regardless of whether they were high or low in MVD (see Table 4; see Figure 1).

Main Effects of Self and Partner Mate Value

MVD was not a significant predictor of EI perpetration in Study 1. However, one issue with the use of difference scores, as was used to create the MVD composite, is it does not account for the main effects of the two base variables. Therefore, the main effects for both partner mate value and self mate value for Study 1 are reported in Table 1C in Appendix C. Upon entering self and partner mate value as simultaneous predictors of EI perpetration, partner mate value, but not self mate value, was found to be a significant negative predictor of EI perpetration.

<div align="center">

Study 1 Discussion

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The results from Study 1 found that contrary to the study's hypotheses, MVD was not a significant positive predictor of EI perpetration. Although there is prior research that has found higher MVD to predict greater DDA perpetration (Bhogal & Howman, 2019; Bhogal et al., 2019; Bhogal et al., 2021), the current study suggests that MVD may not be an informative predictor when examining a specific subtype of DDA, electronic intrusion. However, in considering these results, it is also important to note that the operationalization of MVD was limited in the present study. The mate value scale (Edlund & Sagarin, 2014) consists of four items that can be used to assess both self mate value as well as partner mate value, however, in the present study only one item was used to assess self and partner mate value. Thus, it is possible that the use of a single item to assess self and partner mate value was not adequate to capture the construct of MVD.

It was also found that the interaction effect was non-significant, such that jealousy did not moderate the association between MVD and EI perpetration, thus failing to support the second hypothesis. Rather, jealousy significantly and positively predicted EI perpetration both when

Table 4. *Regression results for the prediction of electronic intrusion perpetration in Study 1.*

Variable	*B*	β	*SE*	*t*	*p*	95% CI LL UL
MVD	-.08	-.13	.05	-1.56	.12	[-.17, .02]
Jealousy	.23	.35	.04	6.17	< .001	[.16, .30]
MVD x Jealousy	.01	-.02	.03	.21	.84	[-.05, .06]

Note. MVD = mate value discrepancy; CI = confidence interval; LL = lower limit; UL = upper limit; Adjusted R^2 = .14.

Figure 1. *Interaction between MVD and jealousy on electronic intrusion perpetration in Study 1.*
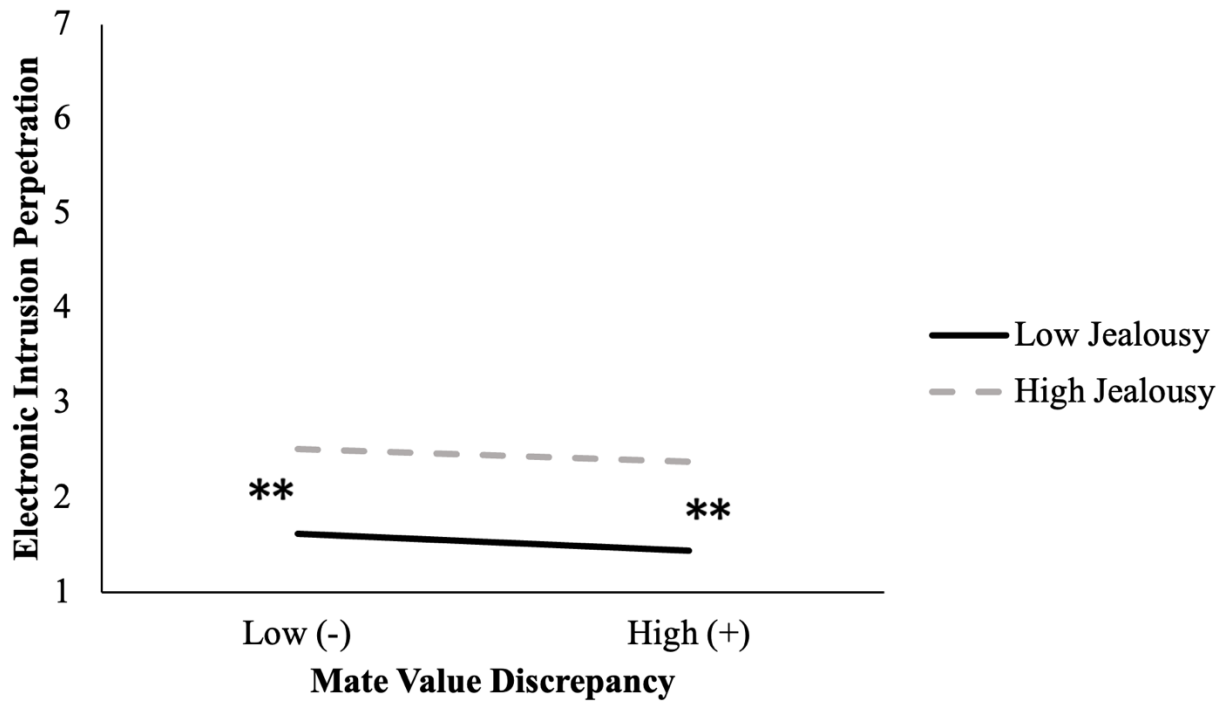
Note. ** $p < .01$

MVD was low and when MVD was high. Thus, being higher in trait jealousy was associated with greater EI perpetration, regardless of whether individuals felt they were worse in value compared to their partner, or better in value compared to their partner.

Although the interaction was found to be non-significant, it is important to note that jealousy was assessed in the present study as a trait through only a single item. The use of trait jealousy as the operationalization of jealousy may not have been ideal, given that it assesses individuals' overall tendencies towards jealousy, as opposed to their experiences of jealousy within their actual romantic relationship. Thus, from this measure it is unclear whether individuals in this study were experiencing jealousy within their current romantic relationship, which may be more informative when predicting individuals actual EI perpetration behaviours within their current relationship. Given that the construct of MVD is specific to one's actual romantic relationship, perhaps an interaction may emerge between MVD and jealousy if a more interpersonal jealousy were assessed (e.g., suspecting that your actual partner is attracted to someone else), as indeed it is logical that feeling jealous about one's partner as opposed to a broad tendency towards jealousy, may strengthen the connection between MVD and EI perpetration. In accordance with this, prior research that has explored the association between jealousy and EI perpetration has assessed cognitive jealousy (i.e., experiencing jealous thoughts in one's actual relationship) as opposed to trait jealousy (Ligman et al., 2021). Furthermore, although the trait jealousy item was thought to be face valid, given that the item is simple and concrete, there are limitations to using just a single item to assess a construct (Boateng et al., 2018). Indeed, the use of a single item to assess this construct in a cross-sectional design means we are unable to test for reliability such as internal consistency or test-retest reliability, thus this measure may be more susceptible to measurement error (Allen et al., 2022).

Although the main hypotheses were not supported in the present study, some other noteworthy associations emerged. Upon examining the main effects of partner and self mate value on EI perpetration in a regression model (see Appendix C), it was found that partner, but not self mate value negatively predicted EI perpetration. This suggests that individuals who perceive their partners to be high in value tend to perpetrate less EI against them. This is logical, as when looking only at partner mate value (as opposed to MVD), holding one's partner in a high regard is associated with more constructive as opposed to destructive relationship behaviours, such as engaging in less conflicts (Murray et al., 1996). Thus, it would make sense that perceiving one's partner in a positive light would not necessarily lead to more destructive relationship behaviours, such as EI perpetration.

As previously stated, there were limitations in the ways that MVD and jealousy were measured in the present study, which could have affected the results. Thus, in Study 2 the measurement of mate value discrepancy was improved by using the full mate value scale (Edlund & Sagarin, 2014). Furthermore, the operationalization and measurement of jealousy was improved by using a multi-item measure that tapped into a more interpersonal jealousy, as opposed to trait jealousy. Additionally, in Study 2 a potential mechanism of desire for power was explored, to examine whether high MVD coupled with high jealousy may lead to increased EI perpetration, in part due to a desire for more power within one's relationship.

Study 2

Hypotheses

For Study 2 I hypothesized that high MVD would positively predict EI perpetration (H1); that jealousy would moderate this association whereby when jealousy is high there would be a positive association between MVD and EI perpetration, but not when jealousy is low (H2); and

that desire for relationship power would mediate the moderated association of MVD and jealousy on EI perpetration (H3).

Method

Design

This study used a correlational survey design to test the moderated mediation association between MVD, desire for relationship power, jealousy, and electronic intrusion perpetration. The predictor variable was MVD, the outcome variable was electronic intrusion perpetration, the mediator variable was desire for power, and the moderator variable was jealousy.

Participants

Participants for this study were 334 individuals recruited from York University's Undergraduate Research Participant Pool (URPP). Criteria for eligibility in this study required participants be currently in a romantic relationship that has lasted at least six months (58% of the sample) or have recently been in a romantic relationship that lasted at least six months that they could recall for the study[3] (42% of the sample), and be able to speak, read, and write in English.

Based on an a priori power analysis using G*Power at 80% power, it was determined approximately 300 participants were needed to detect a small effect size (Cohen's f^2 = .05; Cohen, 1988; Faul et al., 2007). We engaged in oversampling due to a typical exclusion rate of approximately 20-30% in previous studies conducted within the Social Motivation Laboratory. From the original sample of 409 participants, 75 were removed due to pre-registered exclusions[4]. 51 participants were removed due to missing data and/or straight line responding (based on a

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[3] To test whether these samples significantly differed from one another, the main analyses were run splitting the sample by source (currently in a relationship or thinking about past relationship). Upon comparing the main analyses using each sample it was found the results did not significantly differ from the conclusions drawn when using both samples combined.

[4] Study 2 was pre-registered on AsPredicted #101977 https://aspredicted.org/blind.php?x=38N_T6B. Though not specified in the pre-registration, straight line responders were also removed. Specific hypotheses and the data analytic plan for this project were not pre-registered. Data for this study was collected between July-October 2022.

visual inspection of the data), and 24 were removed for inattentive responding determined by getting three or more of the five items incorrect using the Conscientious Responders Scale (Marjanovic et al., 2014).

The final sample of 334 participants ranged in age from 17 to 65 (M_{age} = 22.16, SD = 6.97). 21.9% of participants identified as a man, 77.8% identified as a woman, and .3% preferred not to disclose their gender. 84% of participants identified as being straight/heterosexual, 10% identified as bisexual, 2% identified as a lesbian, 1% identified as queer, and 3% did not disclose their sexual orientation. The majority of participants identified as White (25.5%), 18.6% identified as South Asian, 11.4% identified as Black, 11.4% identified as East Asian, 10.8% identified as Middle Eastern, 10.5% identified as South East Asian, 3% identified as Latin American, 1.8% identified as South American, and 7% identified as another ethnicity not listed. The majority of participants were exclusively dating their romantic partners (86.5%), 6.3% were married, 2.7% were engaged, 2.1% were common law, and 2.4% defined their relationship status as other. On average participants were in their current romantic relationship for 2.4 years (SD = 6.95), and on average participants reported their relationships as being high in quality (M = 5.74, SD = 1.15 on a 7-point scale). Additionally, when asked how often participants use a cellphone or social media to communicate with their romantic partner, 61.98% responded "always", 28.74% responded "often", 6.29% responded "sometimes", 2.69% responded "rarely", and 0.30% responded "never".

Measures

Mate Value Discrepancy

Mate value discrepancy was assessed using the mate value scale (Edlund & Sagarin, 2014). In line with prior research and Study 1, the mate value scale was used to assess both

participants own reported self mate value, as well as their perceptions of their partner's mate value, then self value scores were subtracted from partner value scores to create the mate value discrepancy score, such that higher scores reflect the perception that one's partner is higher in mate value than the self (e.g., Conroy-Beam et al., 2016). Self mate value was assessed using four items, such as "Overall, how good of a catch are you?" and "Overall, how would you rate your level of desirability as a partner on the following scale?" on a 7-point scale ranging from 1 = *Not at all/very low*, 7 = *Very much so/very high*. Partner mate value was also assessed using four items, such as "Overall, how good of a catch is your romantic partner?" and "Overall, how would you rate your romantic partner's level of desirability as a romantic partner?" on a 7-point scale ranging from 1 = *Not at all/very low*, 7 = *Very much so/very high*.

Desire for Relationship Power

Desire for relationship power was assessed using two revised items from the perceived partner power scale (Lemay & Dudley, 2009; "I wish I was more in control of my relationship than my romantic partner"; "I wish my romantic partner was more dependent on me than I am on them") on a 7-point scale ranging from 1 = *Strongly disagree*, 7 = *Strongly agree*. Higher scores on this scale indicated a greater desire for power in one's romantic relationship.

Cognitive Jealousy

Jealousy was assessed using the cognitive jealousy subscale of the multidimensional jealousy scale (Pfeiffer & Wong, 1989). Eight items were used to assess participants' degree of jealousy towards their romantic partner, such as "I suspect that my romantic partner may be attracted to someone else" and "I am worried that someone else may be chasing after my romantic partner" on a 7-point scale ranging from 1 = *Never*, 7 = *All the time*. Higher scores on this scale indicated greater jealous thoughts regarding one's romantic partner.

Electronic Intrusion

Electronic intrusion was assessed using the electronic intrusion perpetration items from the broader digital dating abuse scale (Reed et al., 2015; Reed et al., 2016a; Reed et al., 2016b). Six items were used to assess the extent to which individuals perpetrated electronic intrusion behaviours against their partner, such as "Using the Internet or a cell phone, I monitored my romantic partner's whereabouts and activities" and "Using the Internet or a cell phone, I pressured my romantic partner for a password to access their phone or online account(s)". Items were assessed on a 7-point scale with 1 = *Never*, 4 = *Sometimes*, and 7 = *Very often*.

Procedure

Participants were recruited from York University's Undergraduate Research Participant Pool (URPP). Individuals interested in completing the study were directed to a link to the letter of information and consent form, and those who consented to participate were directed to the online survey on Qualtrics. After consenting, participants read a screen asking them to complete the study alone, to minimize distracts around them, and to turn off or put away all unnecessary electronics (e.g., TV, mobile devices). Participants completed demographic questions about themselves and their romantic relationships. Following this, participants completed the measures for the key variables, with all the items being presented to participants in a randomized order. As this study was conducted as part of a larger project, participants also then completed measured not relevant to the present study. Upon completion of the survey participants were shown a written debriefing form. Participants received 0.5 credits towards their introductory psychology course for their participation in this study.

Data Analytic Strategy

R Studio version 2022.12.0+353 was used to conduct the preliminary analyses, assumptions testing, and hypotheses testing in this study (R Core Team, 2020). Statistical assumptions were tested prior to conducting main analyses. To test the main hypotheses, a moderation analysis was conducted using Hayes PROCESS Model 1, and a moderated mediation analysis was conducted using Hayes PROCESS Model 8 (Hayes, 2018). Means were centered for Model 1 and Model 8 analyses. Interaction effects were followed up by testing the simple slopes. G*Power (Faul et al., 2007) was used to conduct the a priori power analysis as well as the post hoc sensitivity analysis. A post hoc sensitivity analysis conducted using G*Power to estimate the statistical power of this study revealed that with a sample of 334 participants we were able to detect a small effect size (f^2 = .04) with 80% power.

Results

Preliminary Analyses

Variable Construction

Mate Value Discrepancy. The composite variable for mate value discrepancy was created by first averaging the four items for self mate value (*M* = 5.15, *SD* = 1.11; α = .79), and averaging the four items for partner mate value (*M* = 5.40, *SD* = 1.27; α = .84), to create a self mate value composite and a partner mate value composite, respectively. The self mate value composites were then subtracted from the partner mate value composites to create a mate value discrepancy composite, such that higher scores reflect a higher mate value discrepancy, or the perception that one's partner is higher in mate value than the self (*M* = 0.24, *SD* = 1.39).

Desire for Relationship Power. The composite variable for desire for power was assessed using an original scale of four items, consisting of two revised items from the perceived partner power scale (Lemay & Dudley, 2009; "I wish I was more in control of my relationship than my

romantic partner"; "I wish my romantic partner was more dependent on me than I am on them"),

and two items developed within the Social Motivation Laboratory ["I would like more power to

influence my romantic partner"; "I would like my romantic partner to have more power in our

relationship" (reverse coded)]. Upon examining the psychometric properties of these items, it

was found that the internal consistency was poor ($\alpha = .41$). Therefore, the zero-order correlations

between each of the items was examined, and it was found that the two revised Lemay and

Dudley (2009) items showed the strongest correlation ($r = .54$, $M = 2.95$, $SD = 1.60$). Therefore,

to assess desire for power in the present study the two items developed within the Social

Motivation Laboratory were excluded from further analyses.

Cognitive Jealousy. The composite variable for cognitive jealousy was created by

averaging the scores for all eight items of the cognitive jealousy subscale of the

multidimensional jealousy scale (Pfeiffer & Wong, 1989; $M = 2.15$, $SD = 1.24$, $\alpha = .90$).

Electronic Intrusion Perpetration. The composite variable for EI perpetration was

created by averaging the scores for all six items (Reed et al., 2016b; $M = 1.99$, $SD = 1.01$, $\alpha =$

.79). See Table 5 for means, standard deviations, alphas, and ranges of key variables.

Descriptive Statistics

Table 6 reports the zero order correlations between key variables as well as the

descriptive statistics. As predicted the outcome variable, EI perpetration, showed significant

moderate positive associations with both jealousy and desire for relationship power.

Unexpectedly, the predictor variable, mate value discrepancy, did not significantly correlate with

jealousy, desire for relationship power, or EI perpetration. Jealousy showed a small significant

negative correlation with both partner mate value and self mate value. Desire for power showed a

Table 5. *Means, standard deviations, Cronbach's α and ranges of key variables in Study 2.*

Variable	*M*	*SD*	Cronbach's α	Ranges
Mate Value Discrepancy	0.24	1.39	-	-5.25 – 5.5
Partner Mate Value	5.40	1.27	.84	1.25 – 7
Self Mate Value	5.15	1.11	.79	1.25 – 7
Cognitive Jealousy	2.15	1.24	.90	1 – 6.62
Desire for Power	2.95	1.60	-	1 – 7
Electronic Intrusion Perpetration	1.99	1.01	.79	1 – 6

Table 6. *Zero order correlations with confidence intervals for key variables in Study 2.*

Variable	1	2	3	4	5
1. Mate Value Discrepancy					
2. Partner Mate Value	.65** [.59, .71]				
3. Self Mate Value	-.51** [-.58, -.42]	.32** [.22, .41]			
4. Cognitive Jealousy	-.07 [-.18, .04]	-.29** [-.38, -.18]	-.24** [-.34, -.14]		
5. Desire for Power	-.09 [-.19, .02]	-.25** [-.35, -.15]	-.17** [-.28, -.07]	.52** [.44, .60]	
6. Electronic Intrusion Perpetration	-.06 [-.16, .05]	-.12* [-.22, -.01]	-.06 [-.17, .05]	.46** [.37, .54]	.46** [.38, .54]

Note. M and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. * indicates $p < .05$. ** indicates $p < .01$

strong significant positive correlation with jealousy. Desire for power showed a small but significant negative association with both partner mate value and self mate value. Electronic intrusion perpetration showed a small significant negative association with partner mate value. Electronic intrusion perpetration was not significantly associated with participants' self mate value. Table 7 reports the frequencies of EI perpetration by item in Study 2.

Assumptions Testing

Given that this model contained multiple predictors, multicollinearity was tested for the model. Upon examining the correlation between the two predictor variables, MVD and jealousy, the two were not found to be significantly correlated ($r = -.07$), as was the correlation between MVD and the mediating variable, desire for power ($r = -.08$; see Table 6), indicating these variables were orthogonal (see Table 6). The correlation between jealousy and desire for power was found to be strong and significant ($r = .52$), therefore the variance inflation factors (VIF) and tolerance values were tested using the olsrr package in R (Hebbali, 2023). The VIF values did not exceed 10, and tolerance values were not below .1, suggesting there was no multicollinearity in the model (see Table 2B). Given the procedure of the present study the data was presumed to be independent. Conducting the Durbin-Watson test to assess autocorrelation supported this as it was non-significant, thus finding this data meets the assumptions of independent errors ($DW = 2.05, p = .66$). Regarding the assumption of normality, running Shapiro-Wilk tests for each key variable revealed them all to be significant, suggesting these variables are not normally distributed.[5] Plots of the distribution for each key variable can be found in Appendix B. Although the key variables were not normally distributed, given that bootstrapping of 5000 samples was used for the main analysis, normality was not an issue. Homoscedasticity was not an issue in the

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[5] Shapiro-Wilk tests revealed MVD ($SW = .97, p < .001$), interpersonal jealousy ($SW = .84, p < .001$), desire for power ($SW = .93, p < .001$), and electronic intrusion perpetration ($SW = .86, p < .001$) were not normally distributed.

Table 7. *Electronic intrusion scale items and the frequency of participants who reported each behaviour in Study 2.*

%(*f*)	Never (1)	2 – 3	Sometimes (4)	5 – 6	Very often (7)
EI Perpetration					
Using the Internet or a cell phone, I sent so many messages (like texts, e-mails, chats) that it made my romantic partner feel uncomfortable.	58.38%	30.24%	8.38%	2.10%	0.90%
Using the Internet or a cell phone, I pressured my romantic partner for a password to access their phone or online account(s).	76.35%	14.97%	5.09%	3.29%	0.30%
Using the Internet or a cell phone, I pressured my romantic partner to respond quickly to calls, texts, or other messages.	42.04%	26.13%	18.32%	9.91%	3.60%
Using the Internet or a cell phone, I monitored my romantic partner's whereabouts and activities.	50.60%	28.14%	11.38%	6.59%	3.29%
Using the Internet or a cell phone, I monitored who my romantic partner talks to and is/was friends with.	53.29%	26.05%	13.47%	4.49%	2.70%
Using the Internet or a cell phone, I looked at my romantic partner's private information (text messages, emails, etc.) to check up on them without their permission.	65.27%	21.26%	7.19%	4.49%	1.79%%

present study, as robust standard errors were used in the main analysis. An examination of a plot of the residuals and fitted values showed there were no clear nonlinear relationships present (e.g., no u-shapes), suggesting this data meets the assumption of linearity (see Figure 5B). Lastly, outliers were deemed influential and excluded if they had a Cook's distance value that exceeded .5, however no cases were found to be influential.

Main Analyses

To test the prediction that MVD would positively predict electronic intrusion perpetration (H1), and that jealousy would moderate this association whereby when jealousy is high (+1 SD) there would be a stronger positive association between MVD and electronic intrusion compared to when jealousy is low (-1 SD; H2), Hayes (2018) PROCESS Model 1 was used. Contrary to H1, a nonsignificant association between MVD and EI perpetration was found, β = -.03, b = -.02, SE = .04, t = -0.49, p = .62, 95% CI[-.09, .06].

Contrary to H2 and consistent with study 1, a nonsignificant interaction was found between MVD and jealousy on EI perpetration, β = -.03, b = .0001, SE = .03, t = .002, p = .99, 95% CI[-.06, .06], adjusted R^2 = .21. Consistent with Study 1, simple slope tests were conducted to probe the interaction. Contrary to the study's hypothesis, there was no significant association between MVD and EI perpetration when jealousy was high (+1 SD), b = -.02, SE = .04, t = -.45, p = .65, 95% CI[-.1, .06]; and as expected, when participants were low in jealousy (-1 SD), there was no significant association between MVD and EI perpetration, b = -.02, SE = .05, t = -.34, p = .74, 95% CI[-.13, .09]. The simple slopes for those high and low in jealousy were also tested for those higher (+1 SD) and lower (-1 SD) on MVD. For individuals higher in MVD, there was a significant positive association between jealousy and electronic intrusion perpetration, b = .38, SE = .05, t = 7.01, p < .01, 95% CI[.27, .48]; and there was also a significant positive association

found between jealousy and electronic intrusion perpetration for individuals lower in MVD, $b =$ .38, $SE = .05$, $t = 7.23$, $p < .01$, 95% CI[.27, .48], suggesting individuals high in jealousy engaged in more electronic intrusion than those low in jealousy, regardless of whether they were high or low in MVD (see Figure 2; see Figure 3; see Table 8).

To test the prediction that desire for relationship power would mediate the moderated association of MVD and jealousy on electronic intrusion (H3), Hayes (2018) PROCESS Model 8 for a moderated mediation analysis was conducted. The index of moderated mediation was found to be non-significant using 5000 bootstrap samples, $b = -.006$, $SE = .007$, 95% CI[-.02, .01], indicating desire for power did not act as a mediator to this moderated association. The conditional indirect effect was found to be nonsignificant for both high (+1 SD) levels of jealousy, $b = -.02$, $SE = .01$, 95% CI[-.04, .01] and low (-1 SD) levels of jealousy, $b = -.003$, $SE =$ .02, 95% CI[-.03, .03]. For the a-path there was no significant interaction found between MVD and jealousy on desire for power, $\beta = -.03$, $b = -.03$, $SE = .03$, $t = -.94$, $p = .35$, 95% CI[-.09, .03] (see Figure 4; see Table 9). The effect size for the interaction is R^2 change $= .001$, thus .1% of the variance in desire for power is explained by the interaction. The b-path from desire for power to EI perpetration was found to be significant, $\beta = .31$, $b = .19$, $SE = .04$, $t = 5.10$, $p < .001$, 95% CI[.12, .27], indicating those who had higher desire for power also perpetrated more EI. The interaction of MVD and jealousy on electronic intrusion perpetration was found to be non-significant, $\beta = .01$, $b = .006$, $SE = .03$, $t = .20$, $p = .85$, 95% CI[-.05, .06]. The effect size for the interaction is R^2 change $= .0001$, thus .01% of the variance in electronic intrusion perpetration is explained by the interaction. The direct effect between MVD and EI perpetration was non-significant, $\beta = -.01$, $b = -.01$, $SE = .03$, $t = -.26$, $p = .80$, 95% CI [-.08, .06].

Figure 2. *Interaction between MVD and jealousy on electronic intrusion perpetration in Study 2.*
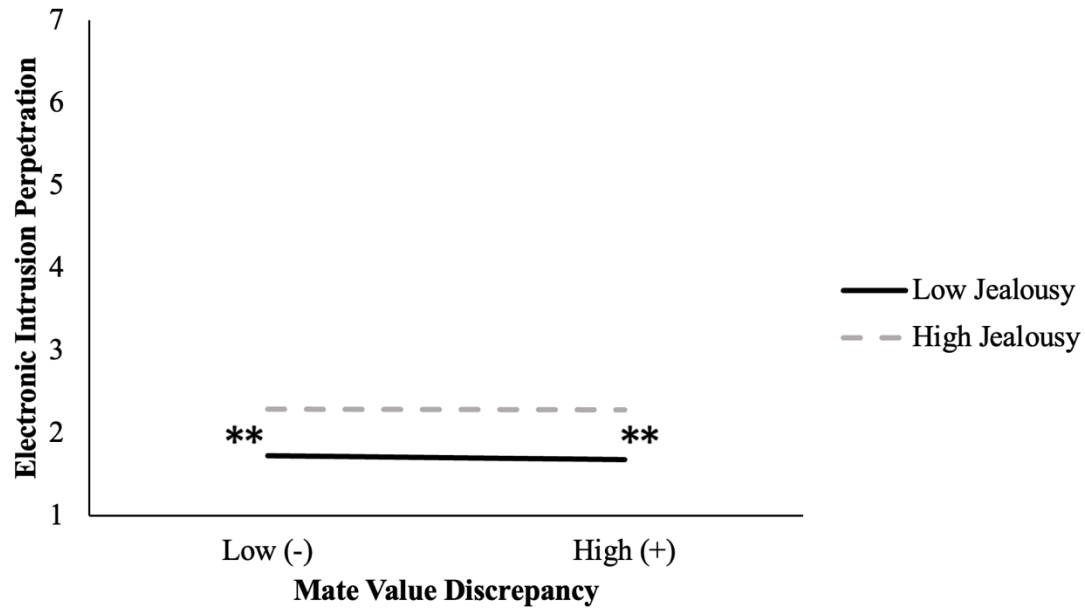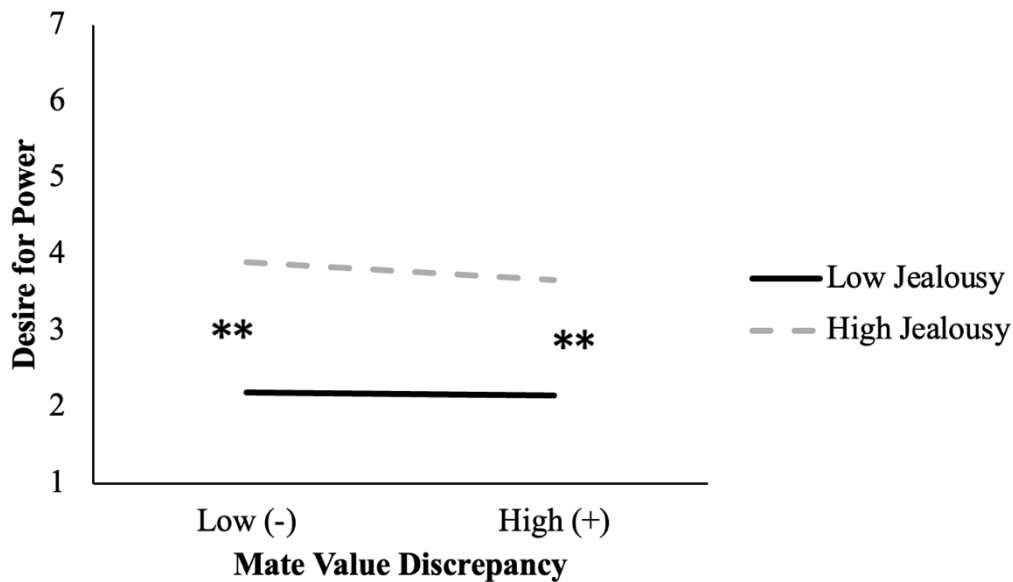

Note. ** *p* < .01

Figure 3. *Conditional direct and indirect effects of MVD and jealousy on desire for power and electronic intrusion perpetration in Study 2.*
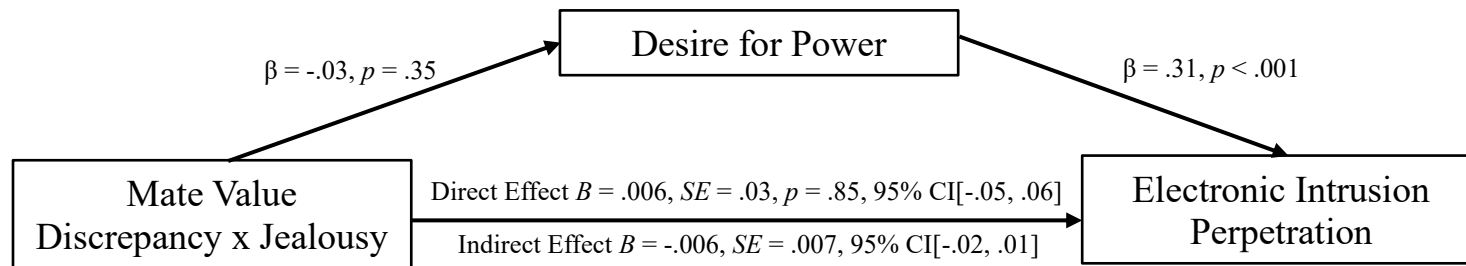
Table 8. *Regression results for the prediction of electronic intrusion perpetration in Study 2.*

Variable	B	β	SE	t	p	95% CI LL UL
MVD	-.009	-.01	.04	-.26	.7946	[-.08, 0.06]
Desire for Power	.19	.31	.04	5.096	< .001	[.12, .27]
Jealousy	.25	.30	.05	4.66	< .001	[.14, .35]
MVD x Jealousy	.006	.01	.03	.1949	.85	[-.05, .06]

Note. MVD = mate value discrepancy; CI = confidence interval; LL = lower limit; UL = upper limit; Adjusted R^2 = .27.

Figure 4. *Interaction between MVD and jealousy on desire for power in Study 2.*

Note. ** $p < .01$.

Table 9. *Regression results for the prediction of desire for power (mediator) in Study 2.*

Variable	B	β	SE	t	p	95% CI LL UL
MVD	-.05	-.04	.06	-.76	.45	[-.17, .08]
Jealousy	0.68	.52	.06	10.81	<.001	[.55, .80]
MVD x Jealousy	-.03	-.03	.03	-.94	.35	[-.09, .03]

Note. MVD = mate value discrepancy; CI = confidence interval; LL = lower limit; UL = upper limit; Adjusted R^2 = .27.

Main Effects of Self and Partner Mate Value

Consistent with Study 1, partner and self mate value were entered as simultaneous predictors of EI perpetration in Study 2, with the main effects reported in Table 2C in Appendix C. Unlike in Study 1, it was found that neither partner mate value nor self mate value were significant predictors of EI perpetration.

Exploratory Analysis

After running all the planned analyses, I also tested an exploratory model to gain a better understanding of what predicts EI perpetration. Although the primary predictor, MVD, was not associated with the key variables of interest, strong positive associations emerged between jealousy, desire for power, and EI perpetration (see Table 6). Given that past research has established the positive relation between jealousy and EI perpetration (e.g., Ligman et al., 2021), I decided to explore whether desire for power would mediate the association between jealousy and EI perpetration.

To test the exploratory prediction that desire for relationship power would mediate the association between jealousy and EI perpetration, Hayes (2018) PROCESS Model 4 for a mediation analysis was conducted. The indirect effect was found to be significant using 5000 bootstrap samples, unstandardized effect = .13, SE = .03, 95% CI[.08, .19]; standardized effect = .16, SE = .33, 95% CI[.10, .23].The a-path was found to be significant, with jealousy being a significant positive predictor of desire for power, β = .52, b = .68, SE = .06, t = 11.23, $p < .001$, 95% CI[.56, .80]. The b-path was found to be significant, with desire for power being a significant positive predictor of electronic intrusion perpetration, controlling for jealousy, β = .31, b = .19, SE = .04, t = 5.59, $p < .001$, 95% CI[.13, .26]. The direct effect (c' path) was found to be significant, with jealousy being a significant positive predictor of electronic intrusion

perpetration, $\beta = .30$, $b = .25$, $SE = .05$, $t = 5.50$, $p < .001$, 95% CI[.16, .34]. There was a significant total effect, whereby jealousy was a significant positive predictor of EI perpetration without the mediator, $\beta = .46$, $b = .38$, $SE = .04$, $t = 9.49$, $p < .001$, 95% CI[.30, .46]. Thus, the results for the exploratory mediation analysis provide support for a partial mediation.

Study 2 Discussion

In Study 2 it was found that MVD did not positively predict EI perpetration, thus failing to support the first hypothesis. Additionally, the second hypothesis was not supported in Study 2, as jealousy was not a moderator of the association between MVD and EI perpetration, as predicted. Thus, the results from Study 2 provide further support for the findings in Study 1: that MVD does not significantly predict EI, and that jealousy does not moderate this association but rather, higher jealousy significantly predicts increased EI perpetration, regardless of whether or not value discrepancies exist between the individual and their partner. This is consistent with prior research that has found jealousy to positively predict DDA perpetration broadly, as well as EI perpetration specifically (Branson & March, 2021; Ligman et al., 2021).

Upon testing desire for power as a mechanism to the proposed moderated association, desire for power was found to not be a significant mediator, thereby failing to support the third hypothesis as well. However, moderate to strong positive associations were found to emerge between jealousy, desire for relationship power, and EI perpetration, suggesting that jealousy and desire for power may both be important in predicting EI perpetration. Thus, although not part of the main analyses, an exploratory mediation model was tested to examine whether desire for power mediated the positive association between jealousy and EI perpetration. Indeed, upon testing desire for power as a mediator of the association between jealousy and EI perpetration, a significant partial mediation emerged. These exploratory results suggest that jealousy predicts

heightened EI perpetration in part due to the perpetrators desire to gain more power within their relationship. This is consistent with recent theorizing which has proposed that DDA behaviours may operate to challenge or maintain the power hierarchy within one's romantic relationship (Reed et al., 2016a). These findings contribute to the growing literature that has examined potential mechanisms underlying the association between jealousy and EI and electronic monitoring behaviours (Ligman et al., 2021; Muise et al., 2014).

Although the main hypotheses were not supported, some interesting associations emerged between the variables of interest. Inconsistent with Study 1, when the main effects of partner and self mate value were tested in a regression model (see Appendix C), neither partner nor self mate value were significant predictors of EI perpetration. Thus, similar to the findings for MVD, there is little support for the role of the main effects of partner and self mate value on EI perpetration.

Overall, Study 2 demonstrated that consistent with Study 1, feeling inferior in value to one's partner did not predict engaging in more EI behaviours, and that experiencing higher jealousy in one's relationship did not strengthen this relationship. Study 2 also found that having a greater desire for power in one's romantic relationship did not explain this association. However, the exploratory finding that desire for power mediated the association between jealousy and EI perpetration provides important insights into these types of behaviours. Potential explanations for these results, as well as implications and future directions are to be discussed.

General Discussion

In this thesis, I sought to explore what motivates individuals to engage in electronic intrusion towards their romantic partner. Specifically, given that digital dating abuse perpetration has been proposed to be a cost-inflicting mate retention strategy, and that prior research has found mate value discrepancy positively predicts the perpetration of DDA behaviours broadly

(Bhogal & Howman, 2019; Bhogal et al., 2019; Bhogal et al., 2021), it was hypothesized that MVD would positively predict EI perpetration specifically. Additionally, it was hypothesized that this association would be moderated by jealousy, as experiencing this relational threat would trigger the use of EI behaviours in a lower value individual to try to maintain their high value partner (Buss, 1988; Shackelford et al., 2005). Lastly, given prior work that has found electronic monitoring behaviours may be connected to power within couple's relationships (Reed et al., 2016a; Samp & Palevitz, 2014), it was hypothesized that desire for relationship power would mediate this moderated association.

Across two studies, I found that MVD was not a significant positive predictor of EI perpetration. Further, jealousy did not moderate the association between MVD and EI perpetration, and instead jealousy positively predicted EI perpetration regardless of MVD level. Lastly, in Study 2, desire for power was not a significant mediator of this moderated association. Thus, none of the main hypotheses were supported in the present research. Several possible explanations can be applied to attempt to understand these results.

One explanation as to why MVD did not positively predict EI perpetration as expected is perhaps that MVD is not predictive of all DDA behaviours, but rather only certain types. Recent research has emphasized the importance of breaking down DDA into its subtypes (e.g., direct aggression, sexual cyber abuse, electronic intrusion), as it is becoming increasingly clear that while these behaviours share similarities, they may be motivated by different underlying factors (Reed et al., 2021). EI is distinct from other subtypes of DDA, given that it is more covert and some victims report it to be less distressing as compared to other forms of DDA (Bennett et al., 2011). Therefore, it may be the case that MVD positively predicts the more overt forms of DDA such as direct aggression or sexual cyber abuse, but is less informative in predicting more covert

DDA behaviours, such as EI. For example, in operationalizing DDA, Bhogal and colleagues

(2019), Bhogal and Howman (2019), and Bhogal and colleagues (2021) all utilized the DDA

perpetration measure developed by Reed and colleagues (2016a). This measure includes a broad

range of DDA behaviours, some of which would be categorized as EI, some that would be

categorized as direct aggression, and some of which would be categorized as sexual cyber abuse.

Thus, their findings that MVD positively predicts DDA may largely be driven by some of the

more overt and aggressive behaviours. For example, the construct of MVD may apply

particularly well to sexual cyber abuse, given that perceiving one's partner as being more

valuable than the self has particular risks in that their higher value partner could be unfaithful.

Thus, perhaps high MVD triggers the use of sexual cyber abuse towards one's partner, as

behaviours such as pressuring a partner to take sexually suggestive photos could use this as

evidence to reaffirm to a lower value partner that their higher value partner loves them. However,

this is mere speculation, as other DDA behaviours such as direct aggression and sexual cyber

abuse were not assessed within the present research. This research provides the first step in

examining how MVD relates to specific subtypes of DDA and given that these results did not

replicate previous findings that MVD positively predicts DDA, future research should

empirically test how MVD relates to the various subtypes of DDA individually.

Though it may be the case that perhaps MVD simply does not predict EI perpetration as

speculated above, this idea should not yet be ruled out completely. In the present research EI

perpetration was assessed on a more trait level, however, perhaps it would be more informative

to examine EI perpetration as a state. It was hypothesized in the current project that while there

would be a positive association between MVD and EI, this would be strengthened for those who

reported higher feelings of jealousy in their relationships. Although it was hypothesized that

jealousy may signal a threat to the relationship, thus activating the salience of high MVD and contributing to higher EI perpetration, it may be the case that overall feelings of jealousy in one's relationship is too broad and not a specific enough threat to trigger a lower value individual with a high value partner to engage in EI. Perhaps instead if individual's actual EI perpetration was assessed in the context of a specific threatening event (e.g., a conflict), then we may have seen MVD predict EI behaviours. Indeed, research by Samp & Palevitz (2014) was conducted in the context of priming participants with a relationship transgression, finding that after a partner committed a transgression against them, individuals who were more dependent on their romantic partner and had less available alternatives were more likely to monitor their romantic partners' behaviour on Facebook. This suggests that when individuals have partners who could more easily leave the relationship, such is the case with lower value individuals with higher value partners (i.e., high MVD), the more dependent partners tend to avoid confrontation after conflict in order to maintain the relationship, and instead engage in more electronic monitoring (Samp & Palevitz, 2014; Solomon & Samp, 1998). Perhaps after a transgression is committed, which signals devaluation of the relationship and may lead to its dissolution (Niehuis et al., 2019), this may activate the salience of one's partner being difficult to replace, which may subsequently trigger the use of cost-inflicting maintenance strategies such as EI. Thus, although MVD was not a significant predictor of EI in the present study and jealousy did not act as a boundary condition, future research may wish to explore the role of transgressions, and whether these conflicts may trigger lower value individuals with higher value partners to perpetrate more EI at the state level.

In addition to MVD not predicting EI perpetration, nor interacting with jealousy to predict EI, MVD also showed no association with desire for power. This finding was unexpected, as past research has found individuals with low power to engage in increased electronic partner

monitoring as opposed to confronting their partners after a conflict (Samp & Palevitz, 2014).

Thus, it was thought that individuals with partners higher in value than the self would have less

power in the relationship, and thus desire more power, and subsequently perpetrate more EI

However, recent research may shed some light on these findings. Overall et al. (2023) found low

actor power to be associated with more behavioural inhibition (i.e., suppressing emotional

expressions to prevent negative outcomes). Although EI behaviours involve monitoring one's

partner which may be considered behavioural inhibition, EI also involves more overt and

controlling behaviours such as pressuring a partner to respond to their messages. Considering

that some of these more controlling EI behaviours involves having some degree of influence over

the other partner, perhaps it is not low power individuals such as those high in MVD who engage

in EI perpetration, but perhaps it is those with higher power. Indeed, this is consistent with prior

research that has used age differences as a proxy for power differences, and found when

adolescent boys had romantic partners who were younger than them (thus, it was inferred they

may have more power over their partners), adolescent boys perpetrated more EI behaviours

towards their younger partner (Reed et al., 2016b).

      The role of MVD in EI perpetration remains unclear, however this research demonstrates

the importance of jealousy as a strong positive predictor of EI perpetration across both studies.

Although the interaction between MVD and jealousy was not significant, it was found that

jealousy positively predicted EI perpetration regardless of whether MVD was high or low.

Therefore, jealousy remained a positive predictor of EI perpetration when participants felt they

were lower in value compared to their partners, when participants felt they and their partners

were similar in value, and when participants felt they were higher in value than their romantic

partners. This was true regardless of whether jealousy was assessed as a trait (Study 1) or

regarding their level of jealousy in their actual romantic relationship (Study 2). This is consistent with prior research that has found increased jealousy predicts increased DDA perpetration, as well as increased EI perpetration (e.g., Ligman et al., 2021; Deans & Bhogal, 2019).

Although desire for power did not mediate the proposed moderated association as hypothesized, desire for power was found to be important in predicting EI perpetration. Specifically, exploratory findings revealed desire for power partially mediated the association between jealousy and EI perpetration. Therefore, one reason why individuals who experience jealousy in their relationships may perpetrate increased EI perpetration towards their partner may be to gain or maintain power within their romantic relationship. This is logical, as individuals who are high in jealousy experience a sense of threat to their romantic relationship, which is distressing as such threats may lead to the relationship's dissolution (Pfeiffer & Wong, 1989). Therefore, jealous individuals may wish to regain some power over their relationship, to ensure the relationship does not end. Indeed, having more power in one's relationship allows for a better ability to produce relationship outcomes in one's favour (Overall et al., 2016). Perpetrating EI can achieve this goal, as behaviours such as monitoring a partner's behaviours and keeping in consistent contact with them allows for individuals to control their partner to some extent. Supporting this, prior theorizing has suggested that EI may serve to exercise power and control over one's partner (Reed et al., 2016b). Therefore, in line with our original theorizing it was found that desire for power was associated with increased EI perpetration, but as opposed to examining desire for power in the context of MVD, a better explanation may be that individuals higher in jealousy may experience a greater desire for power, and subsequently engage in more EI behaviours. Thus, these exploratory results provide insight into the previously established positive association between jealousy and EI perpetration and suggests that desire for power may

be an informative area for future researchers who are interested in the topic. To my knowledge, this research provides the first empirical test of how EI perpetration relates to power within romantic relationships, and these findings highlight the role of desire for power in EI perpetration as a fruitful direction for future research.

Implications, Limitations, and Future Directions

The aim of the present research was to explore predictors of EI perpetration to better understand when and why individuals inflict these behaviours towards their partner. Findings from this research emphasize the importance of doing so, as approximately 24% of participants in both studies reported engaging in even the least frequent EI item at least once, and up to 56-58% reported engaging in the most frequent EI item at least once. Although the main hypotheses were not supported in the present research, these null findings do still contribute to our knowledge on EI perpetration. Past research has generalized that high MVD predicts increased DDA perpetration (e.g., Bhogal et al., 2019), however, the present research finds across two studies that when we break DDA down into its subtypes this association may not hold, as MVD was not a significant predictor of EI perpetration. Given the threat of publication bias in that statistically significant findings are more likely to be made public compared to insignificant findings, it is thus important to highlight these null findings in order to gain a fuller understanding of the predictors of DDA perpetration (Kepes et al., 2014).

It was originally hypothesized that high MVD would predict increased EI perpetration, given that having a partner of higher value could signal a threat to the relationship, as there may be a risk of their partner abandoning them for a better alternative (Conroy-Beam et al., 2016). However, the results of the present research suggest that perceiving one's partner as better than the self is not necessarily important in predicting EI behaviours. Perhaps instead it is not about

whether one's partner is of higher value than the self, but rather whether one feels inferior to their partner, such as in the case of attachment anxiety. Anxious attachment in romantic relationships is characterized by worry and rumination about abandonment or rejection, as well as craving closeness and reassurance from romantic partners (Hazan & Shaver, 1987; Campbell et al., 2005). As the results of the present research suggest, one can have a partner who they perceive as better than the self, but not necessarily perpetrate EI towards them, perhaps because even though they perceive their partner as better, they don't necessarily feel inferior as a result. Therefore, maybe when predicting EI perpetration, it matters less about actual differences in value between partners, and more about partners feelings of worry over the relationship and feeling inferior, such as in the case of anxiously attached individuals. Indeed, prior research has found attachment anxiety to be a positive predictor of EI perpetration (Reed et al., 2015; Reed et al., 2016b). Thus, future research should continue to explore attachment anxiety in regard to EI perpetration, as well as explore potential mediators and moderators to this association.

Although the main hypotheses were not supported, some interesting results arose within the present research. In particular, the findings from an exploratory mediation analysis that desire for power partially mediates the association between jealousy and EI perpetration has important implications. Although past research has already established that higher jealousy predicts increased EI perpetration (e.g., Ligman et al., 2021), the present research extends this by finding one reason why jealous individuals may be motivated to turn to EI perpetration may be to maintain power within their romantic relationships. This is important, as prior research has shown that DDA perpetration may escalate to in-person psychological and physical abuse in romantic couples (Brem et al., 2021). Thus, understanding why individuals perpetrate EI against their partners is important, as intervening at these stages may prevent further distress and abuse

down the road. Indeed, recent research has emphasized that DDA prevention and intervention efforts should focus on underlying issues driving DDA perpetration (Ellyson et al., 2021). Thus, the knowledge gained from this research could be incorporated into DDA prevention and intervention strategies that have begun to emerge (e.g., Van Ouytsel et al., 2016).

This research had several limitations that are of note. First, both Studies 1 and 2 were cross-sectional rather than longitudinal, thus we are unable to determine the direction of the associations found in the present research. Thus, while it was found that desire for power mediated the positive association between jealousy and EI perpetration, we cannot establish that it is high jealousy that then leads to a greater desire for power, which subsequently leads to greater EI perpetration. Indeed, qualitative research suggests the association between jealousy and seeking information about a partner online may be bi-directional, such that jealous individuals may seek out information about their partner online, and what they find may further contribute to feelings of jealousy (Muise et al., 2009). Further, both studies in the current research were non-experimental, therefore we are unable to claim causality among these variables. Past experimental evidence has found that in women, evoking feelings of jealousy led to increased time spent monitoring one's partner on Facebook (Muise et al., 2014). However, given that the present study was correlational, we are unable to determine whether this extends to EI perpetration as well, which involves seeking out information about a partner that may not be publicly available on their social media pages. Thus, exploring the associations between jealousy, desire for power, and EI perpetration longitudinally and experimentally is an important next step for future research.

Additionally, although the present research utilized two different samples, a community sample of adults and an undergraduate sample, one should take caution in generalizing the

findings of this research to other populations. In particular, the finding that desire for power mediated the association between jealousy and EI perpetration requires further investigation, as it was only tested using an undergraduate sample. Further, in both samples participants reported their romantic relationships as being very high in quality, with mean relationship quality scores of approximately 6 out of a possible 7 across both studies. Given these individuals were so highly satisfied in their relationships, this may have explained why we saw such little variability in MVD scores, as well as relatively low means for EI perpetration. Therefore, prior to ruling out any possible associations between MVD and EI, it would be important for future work to examine these associations using samples that are more diverse in reported relationship quality.

It is also important to note that there are some potential limitations in the way that key variables were measured in the present research. For one, the way that MVD was operationalized in present study may not have optimal. For the present research, the mate value scale (Edlund & Sagarin, 2014) was used to assess MVD, as it is a more holistic measure of mate value that may be less influenced by cultural and environmental factors as compared to other component based measures of MVD that assess individuals' specific traits (e.g., kindness, intelligence, loyalty, etc.; Kirsner et al., 2003). Although the mate value scale (Edlund & Sagarin, 2014) has been shown to have good psychometric properties and perform similarly to other mate value measures (e.g., Bhogal et al., 2021) there may be differences in the results obtained between holistic measures of mate value versus component or trait-based measures. For example, prior research has found individuals may be overly positive in their global evaluations of their partner, but be more realistic when assessing a partner's specific traits (Neff & Karney, 2005; Solomon & Vazire, 2014). Therefore, this measure may not have been as effective at capturing MVD, and future research should attempt to replicate the present findings using additional measures of mate value.

Moreover, it is important to consider the issues with using difference scores to operationalize MVD in the present studies. One critique of difference scores is that it is argued they are often less reliable than the two component measures used to create them (Edwards, 2002; Thomas & Zumbo, 2012). Another critique of difference scores is that given they collapse distinct constructs into one score, these scores may be ambiguous and thus difficult to interpret (Edwards, 2002). Indeed, although MVD is operationalized in the present research as the perception that one's partner is higher in value than the self, we are unable to determine whether participants actually feel this way based on our measurement. Thus, results of the present research should be interpreted with caution, as the use of difference scores may not have wholly and reliably captured the construct of MVD. Although no such measure exists in the literature to date, it may be beneficial to develop a measure that does not require the use of difference scores, and that instead assesses subjective perceptions of value discrepancies between participants and their partners (Conroy-Beam et al., 2016; e.g., asking participants directly whether they feel their partner is higher on desirable traits than they are).

Another limitation to the use of difference scores to operationalize MVD in the present research is that in this case MVD can only tell us the extent to which an individual perceives their partner as higher in value than the self, however it cannot tell us where the individual places themselves and their partner on the spectrum of mate value. Indeed, a difference score of three on MVD could potentially differentially predict EI depending on whether the participant perceives themselves as a 4 and their partner a 7, compared to whether they perceive themselves as a 1 and their partner as a 4. Further, we also cannot test whether matching at different levels of MVD (low, moderate, low) is predictive of EI perpetration. Indeed, rather than perceiving one's partner as better in value than the self predicting EI perpetration, perhaps perceiving both the self

and one's partner as lower in value could be predictive of EI perpetration, which could partially explain why in Study 1 lower partner mate value was associated with increased EI perpetration. Future researchers interested in this construct may consider the use of response surface analysis, which can allow for the test of whether matching or mismatching on mate value at different levels matters (Barranti et al., 2017).

Further, there may also be limitations in how EI perpetration was measured in the present studies. To date there are upwards of 15 measures of DDA in the literature, each with their own benefits and drawbacks (Brown & Hegarty, 2018; Ellyson et al., 2021). The scale used to assess EI perpetration in the present studies was developed as part of a broader DDA scale by consulting national surveys about cellphone and social media use, as well as from measures of psychological maltreatment (e.g., Picard, 2007; Reed et al., 2016a; Tolman, 1999). While this measure is commonly used in DDA research and has consistently shown acceptable internal consistency for both EI specifically and DDA broadly (e.g., Reed et al., 2016a; Reed et al., 2016b; Reed et al., 2021; Ellyson et al., 2021), it has been criticized for lack of tests of the scales' validity and psychometric properties (Johnson, 2018). Additionally, the items on the EI perpetration scale used in the present research do not take into account that some of these behaviours may be consensual. Indeed, prior research has found that mutual sharing of one's location on devices in romantic relationships to be a common occurrence, which could be interpreted as intrusive, but could also be a way to consensually check on a partner for safety purposes (Ellyson et al., 2021). Thus, conclusions from the present studies are limited by how EI perpetration was operationalized, and this reflects a larger need in the literature for more work in developing reliable and valid measures of EI, and DDA as a whole.

Another limitation of note is that both studies in this research relied solely on self-report, which is susceptible to inaccurate information through biases such as social desirability, whereby participants respond in a way that make them appear more positively (Paulhus & Vazire, 2007). Given the nature of this topic, it is feasible that individuals may have downplayed their use of EI behaviours towards their romantic partner to appear more favourably. Indeed, research has found that internal consistency is lower for self-reports of DDA perpetration as compared to victimization, suggesting these items may be affected by social desirability bias (Ellyson et al., 2021). Thus, this limitation should be considered when interpreting the results of the present research.

Lastly, there are undoubtedly aspects of EI that were not assessed in the present research but would benefit from investigation in the future. For example, the present study only assessed perpetration of EI behaviours, as this was the focus of the research question. However, DDA perpetration and victimization are often reciprocal in nature, such that those who perpetrate DDA tend to also be victims of DDA in their relationships (Temple et al., 2016). Thus, solely examining EI perpetration as opposed to both EI perpetration and victimization in the present research may have caused us to overlook crucial information (Brown & Hegarty, 2018). Thus, future research would benefit from attempting to replicate the results of the present study, while also exploring how EI victimization comes into play.

Conclusion

In conclusion, across two studies the current research investigated predictors of a new way individuals are monitoring and intruding on their romantic partners boundaries online, electronic intrusion. Contrary to prior research finding mate value discrepancy positively predicts digital dating abuse perpetration broadly, the present work suggests that perceiving one's partner

as higher in value than the self does not predict electronic intrusion perpetration. Further, although jealousy did not moderate and desire for power did not mediate the association between mate value discrepancy and electronic intrusion perpetration as proposed, these two constructs were found to be important in predicting electronic intrusion perpetration, offering a potentially informative avenue for future research to explore.

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Appendices
Appendix A: Recruitment Flyer for Study 1

Close Relationships Study (Student Instructions)

Thank you for your interest in helping with our research! For this study we would like you to contact two individuals who are currently in different romantic relationships to complete an online survey that takes approximately 30 minutes to complete. These individuals could be a parent, a friend, another relative, etc. Note that we would like you to recruit individuals who are not enrolled in this course.

The only requirement for these two individuals is that they must be in an exclusive romantic relationship that has lasted at least 6 months **AND** they must **not** be partners in the same relationship (e.g., if Alex participates in the study and Alex's partner is Rowan, Rowan cannot participate in the study). The individuals could be in a dating relationship, be married, engaged, etc., but, once again, not with each other. While not required, it would be ideal if the two individuals you ask could be a woman and a man.

They must also meet the following requirements:

- **An ability to speak, read, and write in English**
- **Understand how to use a computer and internet browser ▪ Be aged 18+**
- **Able to commit 30 minutes of their time**

The two participants must complete the survey by November 29, 2022 at 11:59pm.

In this document below, there is an instruction sheet containing the website address of the online survey for you to pass along to individuals who are interested in participating.

York U Study Instructions
(Participant instructions)

Thank you for your interest in participating in this research studying romantic relationships. You will be asked to complete a survey that should take approximately 30 minutes to complete. More information regarding the study will be provided when you open up the link below, at which point you can decide whether you would or would not like to participate. **For your participation, you will have the choice to be entered into a random draw for one of three $100 gift cards to a major retailer (e.g., Walmart, Loblaws, etc.). Note: You have until November 29th at 11:59pm to complete this survey.**

To access the survey, please go to the following website:

https://yorkufoh.ca1.qualtrics.com/jfe/form/SV_8oWyEgDLqrN5KF8

If you have any questions about the study or your participation, please feel free to contact Grace Millett (gmillett@yorku.ca).
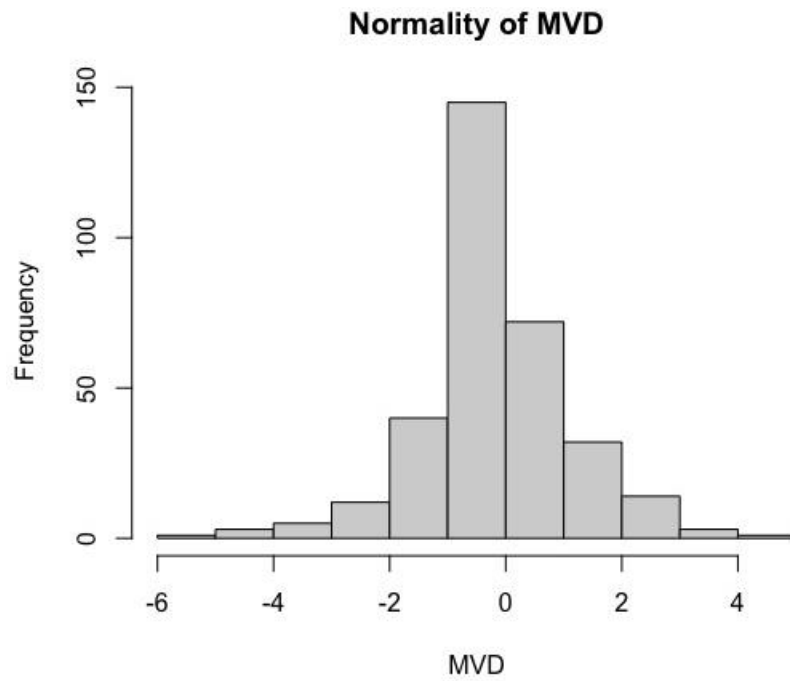
Appendix B: Assumptions Testing

Table 1B. *Variance inflation factor (VIF) and tolerance values for key variables in Study 1.*

Variables	Tolerance	VIF
Mate Value Discrepancy	0.21	4.79
Jealousy	0.92	1.09

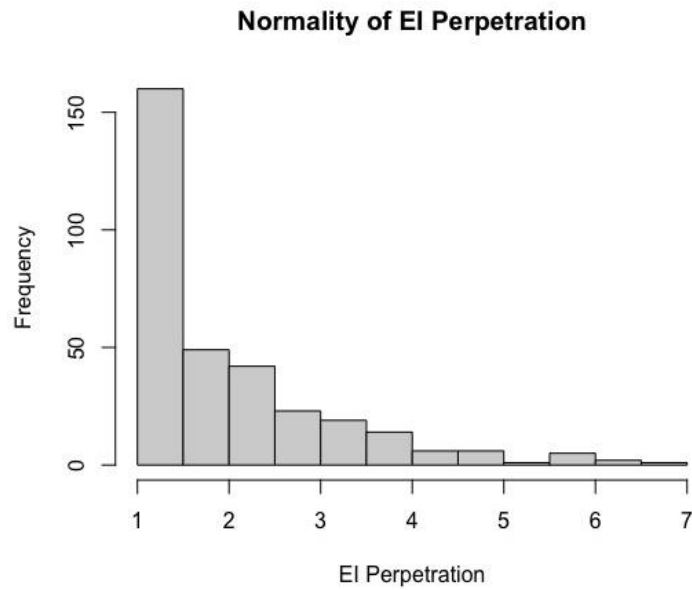**Figure 1B.** *Plot of residuals and fitted values for key variables in Study 1.*
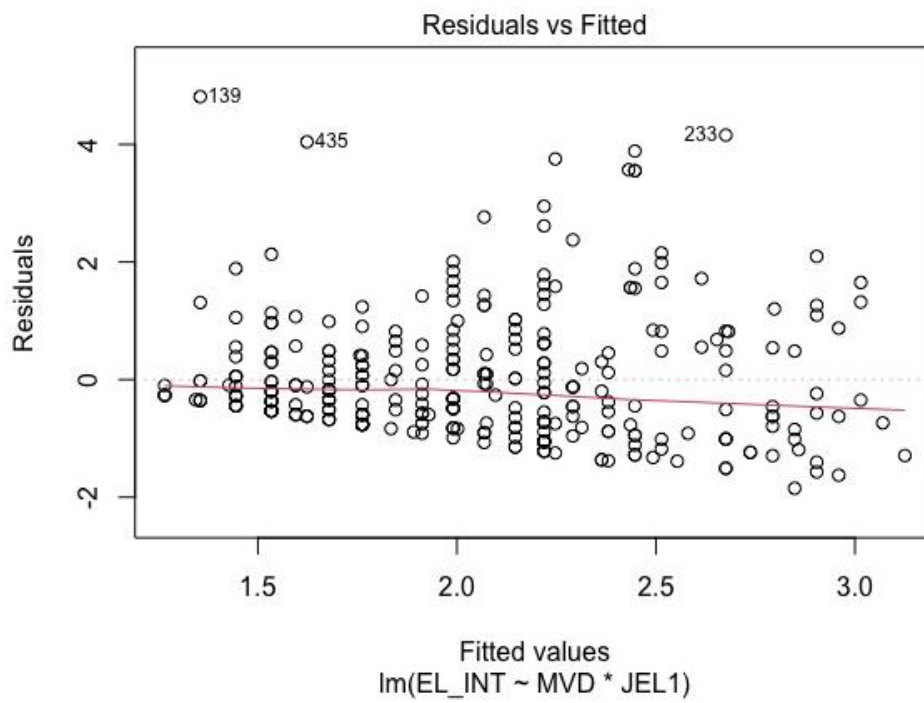
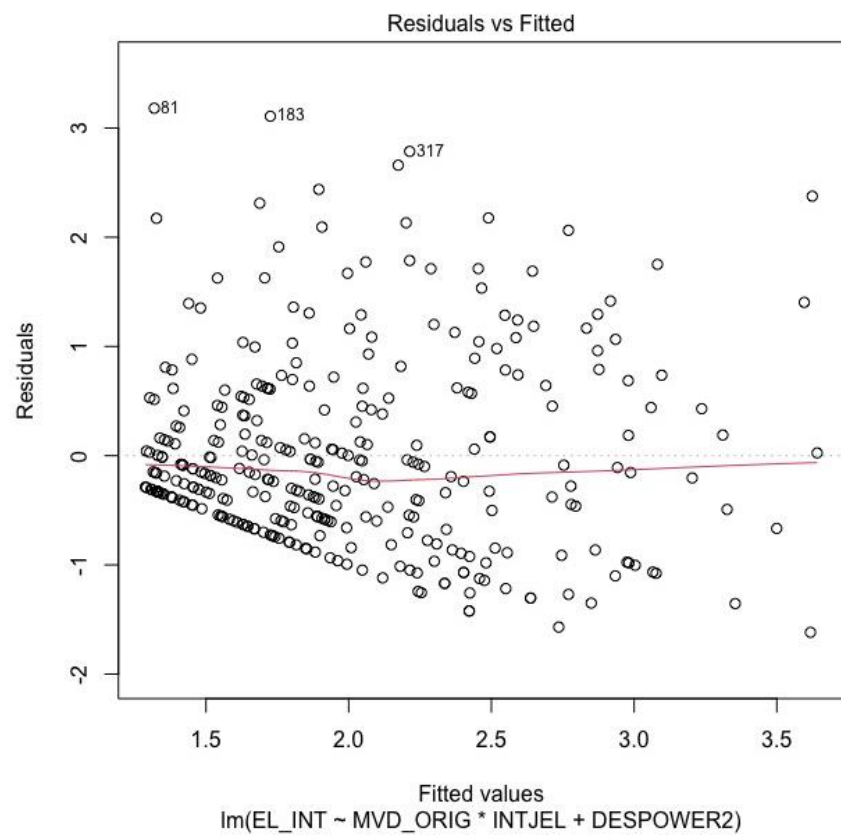**Figure 2B.** *Histogram of distribution of MVD in Study 1.*

Figure 3B. *Histogram of distribution of trait jealousy in Study 1.*
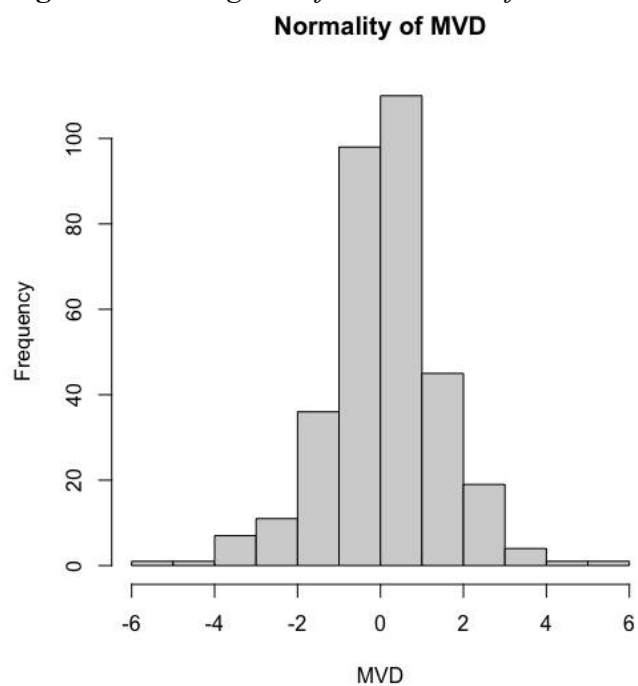
Figure 4B. *Histogram of distribution of electronic intrusion perpetration in Study 1.*

Table 2B. *Variance inflation factor (VIF) and tolerance values for key variables in Study 2.*

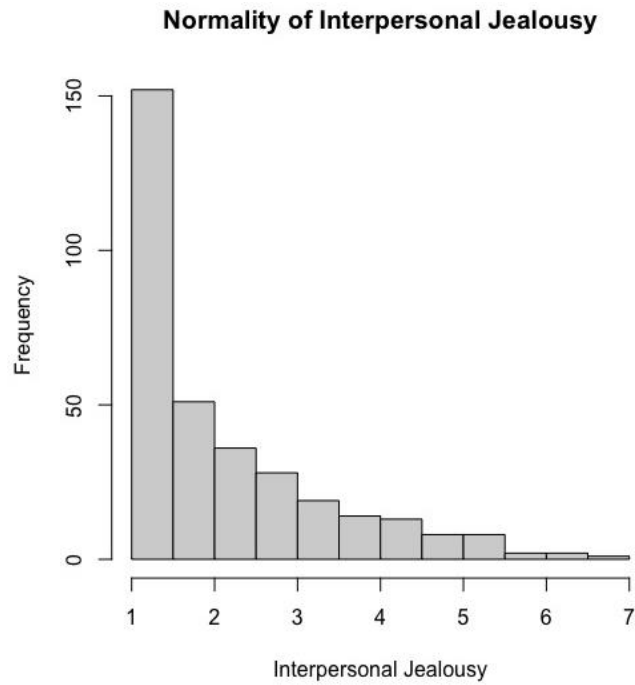| Variables	Tolerance	VIF
Mate Value Discrepancy	0.24	4.24
Jealousy	0.71	1.40
Desire for Power	0.72	1.39

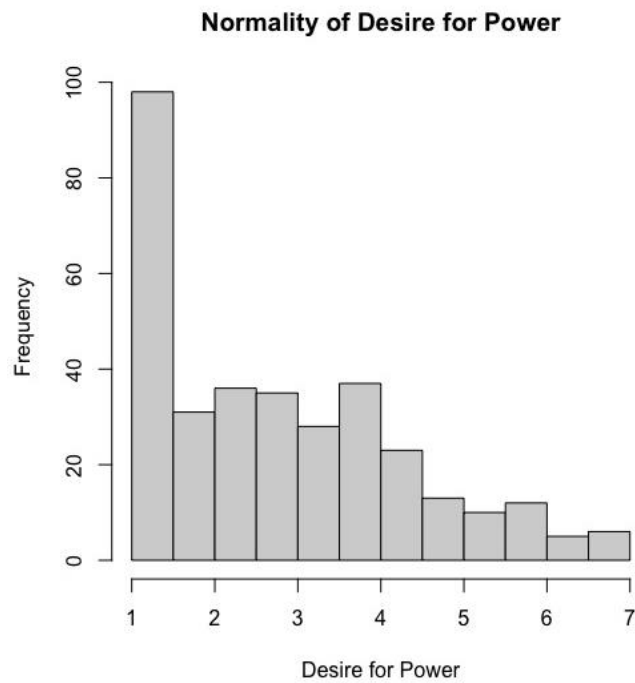**Figure 5B.** *Plot of residuals and fitted values for key variables in Study 2.*

**Figure 6B.** *Histogram of distribution of MVD in Study 2.*

Figure 7B. *Histogram of distribution of jealousy in Study 2.*

Normality of Interpersonal Jealousy

Figure 8B. *Histogram of distribution of desire for power in Study 2.*

Normality of Desire for Power

Figure 9B. *Histogram of distribution of electronic intrusion perpetration in Study 2.*

Normality of EI Perpetration
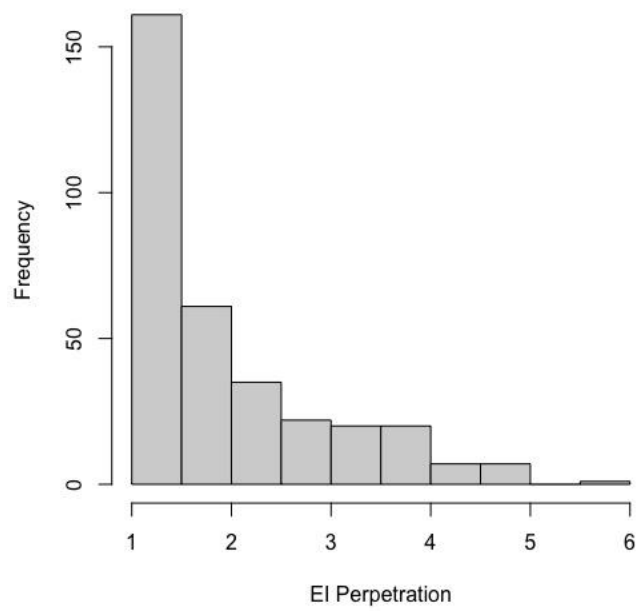
Appendix C: Main Effects of Partner and Self Mate Value for Studies 1 and 2

Table 1C. *Regression results for the main effects of partner and self mate value on electronic intrusion perpetration in Study 1.*

Variable	*B*	β	*SE*	*t*	*p*	95% CI LL UL
Partner MV	-.14	-.16	.06	-2.62	.009	[-.25, -.04]
Self MV	.04	.05	.06	.79	.43	[-.07, .15]

Note. MV = mate value; CI = confidence interval; LL = lower limit; UL = upper limit; Adjusted R^2 = .02.

Table 2C. *Regression results for the main effects of partner and self mate value on electronic intrusion perpetration in Study 2.*

Variable	*B*	β	*SE*	*t*	*p*	95% CI LL UL
Partner MV	-.09	-.11	.05	-1.877	.06	[-.18, .004]
Self MV	-.03	-.03	.05	-.47	.64	[-.13, .08]

Note. MV = mate value; CI = confidence interval; LL = lower limit; UL = upper limit; Adjusted R^2 = .01.