

Resisting Temptations of Infidelity in Imagined and Virtual Contexts

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Date Defended: 19 May 2020

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Date Approved: 1 June 2020

Abstract

Relationship scientists have focused on the attitudes, perceptions, motivations, and consequences of infidelity, though a framework of the decision-making process that underlies infidelity is lacking. The central aim of my dissertation was to test a novel decision-making model associated with infidelity as it unfurls. Three experiments were conducted to test the factors that underlie infidelity decisions using an imagined scenario paradigm (Studies 1 and 2) and a novel virtual reality method (Study 3). In Study 1, high temptation imagined scenarios were associated with higher sexual attraction toward the alternative, cognitive dissonance, and infidelity likelihood. Relationship satisfaction moderated the effect of dissonance on infidelity decisions, such that the relationship between dissonance and infidelity was strongest among less satisfied partners and weakest among highly satisfied couples.

In Study 2, the effect of cognitive depletion on the infidelity decision-making model was explored. Cognitive depletion did not affect the underlying processes associated with infidelity. The effects of temptation were replicated in which high temptation imagined contexts led to higher sexual attraction, cognitive dissonance, and infidelity.

In Study 3, a novel virtual reality method was used to test the infidelity decision-making model. High temptation VR contexts (compared to low temptation VR contexts) were associated with higher sexual attraction toward the alternative. Temptation did not have a direct effect on cognitive dissonance or infidelity, however findings showed support for the decision-making model. Exploratory findings revealed gender differences in all three studies, in which men (compared to women) were more likely to cheat in the imagined scenarios (Studies 1 and 2) and the VR scenario (Study 3). Together, these studies provide insight into the decision-making process that underlies infidelity in real time.

Acknowledgements

Thank you above all to my advisor Monica Biernat, who has truly left an impression on me during my graduate career. Her brilliance and dedication have greatly inspired me and helped me grow as a researcher. She has not only inspired my professional life, but also my personal life. Monica is the most honorable person that I know. I am continuously inspired by her and am very grateful to have her as my advisor. I am deeply obliged to her for spending endless hours carefully reading my papers and teaching me how to be a better writer and scholar. Her mentorship has been invaluable and I cannot express my gratitude enough for all of her support and guidance throughout my doctoral training.

I am extremely grateful for the members of my dissertation committee: Omri Gillath, Glenn Adams, Charlene Muehlenhard, and Yexin Li. Thank you for generously offering your time, guidance, and support throughout this process. Thank you sincerely for your very helpful comments and feedback on my research. Your insight has been incredibly helpful in shaping my dissertation.

I would like to express my sincerest gratitude to my parents for being incredibly supportive of my education and for always believing in me. I would not have had this opportunity if it was not for them. Thank you to my lovely sisters for their encouragement and unconditional support in times of light and dark.

Thank you to my yoga instructor, Kassandra, for keeping me grounded and sane throughout this process. Also, a special thank you to my bird, Popcorn. Thanks for singing all of your beautiful songs as I typed away at my dissertation.

I am deeply indebted to all of you and will be forever grateful. Thank you.

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Chapter 1: Introduction

Romantic relationships can be rewarding and provide many psychological benefits (e.g., Gonzaga, Keltner, Londahl, & Smith, 2001; Horwitz, White, & Howell-White, 1996; Hu & Goldman, 1990). However, maintaining them can be challenging, especially when partners are tempted by attractive alternatives (Johnson & Rusbult, 1989). Relationship scientists have focused considerable attention on infidelity or “cheating” in romantic relationships, highlighting the attitudes, perceptions, motivations, and consequences of infidelity (Feldman & Cauffman, 1999; Kruger et al., 2013; Tsapelas, Fisher, & Aron, 2011; Weis & Felton, 1987; Weiser, Lalasz, Weigel, & Evans, 2014; Yarab, Allgeier, & Sensibaugh, 1999). The majority of infidelity scholarship has focused on creating taxonomies that categorize forms of infidelity into common themes to illuminate the vast variety of behaviors that are perceived as unfaithful (e.g., Allen & Atkins, 2005; Feldman & Cauffman, 1999; Guitar et al., 2017; Wilson, Mattingly, Clark, Weidler, & Bequette, 2011; Yarab, Sensibaugh, & Allgeier, 1998). However, little work has investigated the temporal decision-making process associated with infidelity, particularly when it occurs without prior intentions for doing so. The main objective of my dissertation is to empirically test an infidelity decision-making model to understand the underlying processes associated with infidelity.

Understanding the underlying processes that give rise to infidelity is of significance given the severity of its consequences. Infidelity is associated with many adverse relational outcomes including loss of trust between partners, relationship dissatisfaction, and relationship termination such as divorce (Allen & Atkins, 2012; Amato & Previti, 2003; VanderDrift, Agnew, & Wilson, 2009; Zapien, 2016). Infidelity is also linked to many psychological consequences including feelings of guilt, betrayal, disappointment, anger, psychological distress, and with more severe

consequences such as depression, anxiety, trauma, sexually transmitted diseases, and suicide (Allen et al., 2005; Blow & Hartnett, 2005). Overall, infidelity is associated with poor outcomes and negatively affects both the cheating partner and the partner that was cheated on (DeMaris, 2009; Glass & Wright, 1985; Luo, Cartun, & Snider, 2010; Zapien, 2016).

Although scholars have attempted to uncover the components that are associated with infidelity, the methods used to assess incidents of infidelity may be limited, in that they use a post-hoc approach for assessing reasons for infidelity. For example, clinicians implement lengthy face-to-face interviews with people who report past incidents of infidelity after the behavior has already occurred (e.g., Jeanfreau, 2009) or many years after it has occurred (see Luo et al., 2010). This results in a skewed understanding of the antecedents of infidelity that is likely to be biased by socially desirable responses (e.g., reporting inaccurate frequency of past infidelity) or post-hoc rationalizations for why it occurred. Consequently, the current methodological approaches for studying infidelity have resulted in inconsistent findings. My dissertation research is designed to examine infidelity decisions as they unfold, using both imagination scenarios (Studies 1 and 2) and virtual reality (VR) techniques (Study 3).

Chapter 2: Literature Review

Monogamy is the norm for *Homo sapiens* (Fisher, 2011; Tsapelas et al., 2011), and is expected to be practiced in committed relationships (Sheppard, Nelson, & Andreoli-Mathie, 1995; Treas & Giesen, 2000). Traditional marriages in the United States are considered to be monogamous, sexual partnerships between heterosexual partners (Campbell & Wright, 2010; Cott, 2000). Infidelity is thus highly stigmatized and widely disapproved of in majority of cultures by men and women (Treas & Giesen, 2000; Tsapelas et al., 2011). Findings from a representative sample revealed that 77% of Americans perceive extramarital sex to always be wrong (Laumann, Gagnon, Michael, & Michaels, 1994). A more recent study found that 90% of Americans perceive infidelity to be immoral and 65% are unlikely to forgive their unfaithful partners (Negash, Cui, Fincham, & Pasley, 2014).

Although infidelity is a well-studied phenomenon, much of infidelity scholarship has focused on the conscious and deliberative reports of “cheaters,” provided after the fact (e.g., Jeanfreau, 2009; Zapien, 2016). Little work has investigated the temporal and on-line decision-making process associated with infidelity. Therefore, the overarching goals of my dissertation are to provide a unifying framework that incorporates findings from the literature and develop a novel method to test infidelity in real time.

Definitions of Infidelity

Infidelity has been defined as the violation of assumed or agreed upon expectations for sexual or emotional exclusivity between partners (Fincham & May, 2017; Thompson, 1984; Weeks, Gambescia, & Jenkins, 2003). Definitions of infidelity have expanded across time to include behaviors that elicit subjective feelings of betrayal, regardless of whether the cheating partner intended to betray, or perceived their behaviors as betraying to the partner (Feldman &

Cauffman, 1999; Glass, 2003; Norona, Olmstead, & Welsh, 2018). Infidelity has been commonly referred to as *cheating* (Brand, Markey, Mills, & Hodges, 2007; Wilson et al., 2011), *being unfaithful* (Roscoe, Cavanaugh, & Kennedy, 1988; Yarab et al., 1998), *having an affair* (Allen & Baucom, 2006), *stepping out* (Fincham & May, 2017), and engaging in *extra-dyadic behavior* (Allen & Baucom, 2006; Lewandowski & Ackerman, 2006; Wiederman & Hurd, 1999).

Infidelity among married partners is often referred to as *extramarital affairs*, and as *extra-dyadic behavior* among non-married, dating partners (Allen & Baucom, 2006).

Behaviors perceived to violate expectations for monogamy have evolved over time (Cossman, 2006). Historical views of infidelity construed sexual intercourse with someone other than the spouse as the determining factor that warranted labeling behaviors as unfaithful (Merkle & Richardson, 2000). More conventional views have broadened definitions of infidelity to include an array of behaviors such as kissing, petting/fondling, oral sex, holding hands, flirting, dating, developing romantic feelings, talking on the phone, and chatting online (Feldman & Cauffman, 1999; Kruger et al., 2013; Roscoe et al., 1988; Schneider, Weiss, & Samenow, 2012; Weis & Felton, 1987; Whitty, 2003; Wilson et al., 2011; Yarab et al., 1998, 1999). Behaviors that indicate infidelity do not always include a third-party member—solitary behaviors such as fantasizing, masturbating, and viewing pornography may also be regarded as betraying a relationship (Atwood, 2005; Bridges, Bergner, & Hesson-McInnis, 2003; Cossman, 2006; Hertlein & Piercy, 2006; Negy, Plaza, Reig-Ferrer, & Fernandez-Pascual, 2018; Zapien, 2017).

Infidelity behaviors can be categorized into different forms, including acts that are exclusively sexual, emotional, online, or a combination of many (Feldman & Cauffman, 1999; Fincham & May, 2017; Glass & Wright, 1992; Whitty, 2003; Wilson et al., 2011; Yarab et al., 1998, 1999). Sexual infidelity includes behaviors such as sexual intercourse, kissing, fondling,

giving or receiving oral sex, masturbating, and viewing pornography (Wilson et al., 2011).

Emotional infidelity includes non-sexual behaviors, such as holding hands, flirting, cuddling, and talking on the phone (Fincham & May, 2017; Wilson et al., 2011). Online infidelity—also referred to as *cyber-infidelity*—includes virtual behaviors such as online chatting or sending flirtatious emails unbeknownst to one's partner (Schneider et al., 2012; Vossler, 2016; Whitty, 2003). Moreover, infidelity can also be displayed as deceptive (e.g., lying, fantasizing), ambiguous (e.g., going out to dinner), or explicit behaviors (e.g., having sex; Wilson et al., 2011). Although definitions of infidelity have broadened over the years, there remains a lack of agreement in general perceptions of which behaviors are considered to violate norms of monogamy, particularly by men and women (Cossman, 2006; Wilson et al., 2011). This may explain why the majority of work has focused on *sexual* extra-dyadic behaviors (Athanasίου & Sarkin, 1974; Glass & Wright, 1985; Hunt, 1969).

Prevalence of Infidelity

Infidelity has been prevalent since at least the nineteenth century (Fincham & May, 2017; Tsapelas et al., 2011). Findings from a nationally representative sample of 4,118 married partners found infidelity to occur in 20% to 80% of all marriages (Atkins, Baucom, & Jacobson, 2001). Early estimates of extramarital affairs were found to be reported by 30% to 60% of men and 20% to 50% of women (Kinsey, Pomeroy, Martin, & Gebhard, 1953). Others have found infidelity to be reported by over 50% of spouses (Bennett & Ellison, 2010; Buss, 2016).

Infidelity reports tend to be higher among non-married, dating partners compared to married partners, with estimates revealing extra-dyadic behaviors to occur in 69% of dating relationships (Allen & Baucom, 2006; Yarab et al., 1998). Specifically, among dating partners, infidelity has been reported by approximately 75% of men and 68% of women (Hall & Fincham, 2009;

Wiederman & Hurd, 1999). A recent report on infidelity prevalence found non-married partners to report being unfaithful at least once in their relationship (Gibson, Thompson, & O'Sullivan, 2016).

The high variability in prevalence rates is most likely due to methodological inconsistencies in assessing infidelity behaviors, such as the multiple definitions and classifications of infidelity behaviors and the lack of consensus in perceptions of infidelity behaviors (see Luo et al., 2010 for a review). For example, a recent review found infidelity findings to vary as a function of three variables: the type of sample recruited (e.g., university, community, nationally representative), the relationship status of the sample (e.g., married, dating, cohabiting), and the time frame that was used to measure past infidelity behaviors (e.g., infidelity across one's lifetime, within the past x months). Consequently, patterns and trends of infidelity among married and dating partners are difficult to interpret given the considerable amount of variability in sampling methods across studies (Luo et al., 2010).

Predictors of Infidelity

Researchers have identified individual, relational, and contextual-level factors that predict infidelity. Allen et al.'s (2005) meta-analysis provides an exhaustive list of the many predictors of infidelity. Because the focus of my dissertation is on understanding the decision-making process that underlies infidelity, the review below focuses on the robust predictors that are germane to the major variables in the proposed decision-making model.

Context. Cultural norms have great power over human behavior. Festinger (1957) noted that for members of a society to get along, they must conform to group norms to avoid social consequences (e.g., ostracism). Monogamy is the norm for relationships (Tsapelas et al., 2011), and is practiced cross-culturally (Anderson, 2010; Buss & Shackelford, 1997; Caraël, 1995;

Conley, Ziegler, Moors, Matsick, & Valentine, 2013; Munsch, 2012; Ziegler, Conley, Moors, Matsick, & Rubin, 2015). Although societal norms may disapprove of extra-dyadic behaviors, being a member of a group that condones infidelity, or trivializes its significance, can facilitate desires for infidelity. Specifically, when the fear of going against cultural norms is diminished, barriers to infidelity are perceived to be negligible (Jeanfreau, 2009). Infidelity is more likely to occur when the values and standards held in one's immediate peer group favor infidelity (Atkins et al., 2001). More generally, settings that provide anonymity amplify unethical behaviors (Diener, 1976; Diener, Fraser, Beaman, & Kelem, 1976; Zimbardo, 1970). Thus, I focus on how contexts with high opportunities for infidelity (i.e., availability of attractive alternatives) influence the processes that underlie infidelity decisions.

Availability of Attractive Alternatives. It is not surprising that contexts that afford high opportunities for infidelity are reliable predictors of infidelity outcomes (Blumstein & Schwartz, 1983; Greeley, 1994; Maykovich, 1976; Træen & Stigum, 1998; Dijkstra & Buunk, 2001; Kenrick, Neuberg, Zierk, & Krones, 1994; Lydon, Meana, Sepinwall, Richards, & Mayman, 1999; Maner, Gailliot, & Miller, 2009; Rusbult, 1983). Contexts with opportunities for infidelity—also referred to as tempting situations (e.g., Wilson et al., 2011)—include a high number of *available* attractive alternatives (Bazzini & Shaffer, 1999; Lydon et al., 1999; Lydon Fitzsimons, & Naidoo, 2003; McIntyre, Barlow, & Hayward, 2015), such as college campuses and urban environments (i.e., cities; Allen et al., 2005; Anderson, 2010; Greeley, 1994). Anderson (2010) interviewed male undergraduate students and found that a majority of them reported experiencing great difficulty in their attempts to remain monogamous while in college. High levels of sexual conflict were also reported; for example, one participant said, “*It’s like*

being a kid in a candy store. There are hot girls everywhere. It would be easier to resist cheating if I were at an all-boys school or something.”

Mere attention to alternatives is related to higher rates of infidelity reports (VanderDrift, Lewandowski, & Agnew, 2011). Highly attractive alternatives are perceived as more threatening to a relationship, especially when they show interest in the partner (e.g., flirting, making advances; see Lydon et al., 1999), compared to average or below-average alternatives, due to their high perceived mate value (Rusbult, 1983). Moreover, research on *forbidden fruit* has found that people are more attracted to forbidden or taboo behaviors compared to those that are less taboo (Alberts, Mulken, Smeets, & Thewissen, 2010; Lydon, 2010; Mann & Ward, 2001; Pechmann & Shih, 1999; Plant, Kunstman, & Maner, 2010).

According to Fisher's (1992) dual human reproductive strategy, people express concurrent desires for monogamy and extra-dyadic behavior due to the evolutionary advantages that extra-dyadic behavior affords men and women. For example, phenylethylamine (PEA), a hormone creating an “in-love” experience, is naturally released when desirable mates are nearby (Staheli, 1997). Another study found higher levels of testosterone to be associated with exposure to the scent of an ovulating woman (Miller & Maner, 2010). Increases in testosterone are also associated with greater attention to attractive alternatives, referred to as sexual motivation (Rupp & Wallen, 2007). Thus, high levels of testosterone may influence extramarital involvement by increasing men's sexual attraction toward attractive female alternatives (Booth & Dabbs, 1993). Although sexual attraction in the face of attractive targets is associated with automatic appraisals of attraction or arousal, this attraction is subsequently controlled and suppressed by committed partners through increased activation in the anterior cingulate cortex and orbitofrontal cortices (Gillath & Canterberry, 2011).

Cognitive Dissonance. Given the high values that are placed on monogamy (Tsapelas et al., 2011), a situation in which infidelity is a possibility should arouse dissonance due to competing desires for monogamy and extra-dyadic behavior (Anderson, 2010; Fisher, 2011). Partners often report experiencing great distress as a consequence of infidelity (Beach, Jouriles, & O’Leary, 1985; Hall & Fincham, 2006; Previti & Amato, 2004), with women reporting higher levels of distress compared to men (van den Eijnden, Buunk, & Bosveld, 2000). According to *cognitive dissonance theory* (Festinger, 1957), cognitive elements that are contradictory to each another cause an uncomfortable tension state (dissonance), which motivates people to take action to reduce the dissonance (Aronson, 1969; Brehm & Cohen, 1962; Elliot & Devine, 1994; Harmon-Jones & Harmon-Jones, 2007). There are three primary ways of reducing cognitive dissonance: changing a cognition to be consistent with other(s), trivializing the importance of the discrepancy between the cognitions, or adding a new cognitive element that rationalizes the behavior.

Devaluation of the alternative. Cognitive dissonance can be reduced by changing a cognition, such as devaluing or derogating the alternative (e.g., “*The alternative is not attractive*”). The derogation of alternatives is a strategy commonly used by committed partners and has been found to be quite useful for maintaining commitment in the face of threatening alternatives (Johnson & Rusbult, 1989; Karremans & Verwijmeren, 2008; Lydon et al., 2003; Lydon & Karremans, 2015; Lydon et al., 1999; Lydon, 2010; Maner, Rouby, & Gonzaga, 2008; Miller, 1997; Murray, Holmes, & Collins, 2006; Neal & Lemay, 2014; Simpson, Gangestad, & Lerma, 1990). For example, committed participants rated magazine ads of attractive opposite-sex targets as less attractive compared to single participants (Simpson et al., 1990), demonstrating the devaluation dissonance-reduction strategy.

Committed partners may also implement devaluation strategies by diverting their focus away from the alternative altogether (Maner et al., 2009; Maner et al., 2008; McNulty, Meltzer, Makhanova, & Maner, 2018; Miller, 1997; Miller, Prokosch, & Maner, 2012; Ritter, Karremans, & van Schie, 2010; VanderDrift et al., 2011; Zhang, Maner, Xu, & Zheng, 2017). For example, committed partners spend significantly less time looking at photographs of highly attractive alternatives compared to single participants (e.g., Gibson, et al., 2016; Lydon et al., 2003; Maner et al., 2008; O’Sullivan & Vannier, 2013). The devaluation effect via diverting one’s attention has been replicated using eye-tracking and neuroimaging methods. For example, studies show that committed partners place their focus outside of the image parameters (Maner et al., 2009) or subsequently control initial activation in pleasure-reward brain regions after being exposed to pictures of attractive alternatives (Gillath & Canterberry, 2011; Meyer, Berkman, Karremans, & Lieberman, 2011), and report less attraction to alternatives as a result. Non-committed partners did not inhibit activation in reward regions when viewing attractive alternatives, which suggests that committed partners actively suppressed activation in pleasure areas by downplaying the alternative.

Devaluation can also include enhancing perceptions of the primary relationship by focusing on the positive qualities of the primary partner (Fishbach, Friedman, & Kruglanski, 2003; Lee & O’Sullivan, 2018; Owen, Rhoades, & Stanley, 2013; Shukusky, 2016). By reflecting on the positive aspects of the primary relationship (e.g., “*My partner makes me happy*” or “*I love my partner*”), the alternative appears less attractive, and consequently, desires for infidelity are significantly reduced. Devaluation could also work to favor the alternative: The committed partner could devalue the primary partner in favor of the alternative, such as highlighting the partner’s flaws and focusing on the partner’s dissimilarities to the self (Franiuk,

Pomerantz, & Cohen, 2004). Altogether, devaluation strategies serve the function of either downplaying or enhancing views in favor of one's dominant goal (e.g., monogamy).

Trivialization. Another strategy to reduce infidelity-related dissonance is by trivializing the importance placed on values for monogamy. One way to do this is through *motivated valuations*—altering the subjective value of a current goal that conflicts with one's motive. Within the context of infidelity, trivialization can involve minimizing the importance or significance of infidelity (e.g., “*Cheating is not a big deal*” or “*I could be doing worse things like physically harming my partner*”). In one study, married women who cheated reported trivializing the importance of infidelity (Jeanfreau, 2009). Cheating partners also deny that past infidelity predicts the likelihood of future infidelity behaviors (Zapfen, 2016). By trivializing the importance of infidelity, the magnitude and intensity of the dissonance are decreased, making desires for infidelity no longer contradictory to dominant goals (Festinger, 1957; Foster & Misra, 2013).

Rationalization. The third strategy for reducing dissonance is to add a new cognition that resolves the dissonance; the new cognition provides a rationalization. For a partner contemplating infidelity, one way to alleviate feelings of discomfort is by rationalizing or justifying infidelity-related cognitions and behavior (Allen et al., 2005; Galinsky, Stone, & Cooper, 2000; Hackathorn, 2011). For example, one may say, “*My relationship is poor and bound to fail anyway,*” or “*My partner deserves this for not giving me any attention.*” Some research documents that people perceive relational problems as acceptable justification for infidelity (Atwood & Seifer, 1997).

Glass and Wright (1992) found that partners justify their infidelity behaviors using a variety of reasons including sexual enjoyment, curiosity, and excitement, intellectual sharing,

understanding, companionship, and confidence. Allen and Baucom (2004) found similar rationalizations reported by women, such as cheating as a result of feelings of loneliness, neglect, or rejection from the partner. Other reported rationalizations include perceiving the spouse as inherently less sexual than themselves, feeling entitled to sexual satisfaction, a lack of interest in the spouse, the spouse being unworthy of loyalty, and an unwillingness to consider divorce as a solution (Jeanfreau, Jurich, & Mong, 2014; Zapien, 2016).

Overall, research on cognitive dissonance suggests that committed partners recruit cognitive processes (i.e., reflecting on evaluations of the primary relationship) that allow them to alleviate discomfort arising from simultaneous attractions to alternatives and values for monogamy.

Relationship Satisfaction. Romantic relationships are associated with many positive outcomes, including fulfilling needs to belong (Baumeister & Leary, 1995). However, when needs are not fulfilled in the relationship, evaluations of the relationship decrease, consequently leading to greater attraction to alternative options (Beach et al., 1985; Le & Agnew, 2003; Rodrigues, Lopes, & Pereira, 2016; VanderDrift et al., 2009). According to *Interdependence Theory* (Kelley & Thibaut, 1978; Rusbult & Arriaga, 1997; Rusbult & Buunk, 1993), relationship satisfaction is based on the costs versus benefits received from the primary relationship compared to an alternative relationship. If the outcome of the comparison is in favor of the alternative relationship, the partner is more likely to stray from the relationship and navigate toward the more satisfying alternative—infidelity.

Low relationship satisfaction predicts greater desires for infidelity (Atkins et al., 2001; Drigotas, Safstrom, & Gentilia, 1999; Glass & Wright, 1985; Prins, Buunk, & VanYperen, 1993; Seal, Agostinelli, & Hannett, 1994; Spanier & Margolis, 1983) and actual infidelity behaviors

(Allen & Atkins, 2012; Allen et al., 2005; Buss & Shackelford, 1997; Fan & Lui, 2004; Glass & Wright, 1985; Hunt, 1969; Le & Agnew, 2003; Maddox Shaw, Rhoades, Allen, Stanley, & Markman, 2013; Negash et al., 2014; Previti & Amato, 2004; Thompson, 1983, 1984; Zapien, 2016). Women report higher incidents of infidelity due to relationship dissatisfaction (e.g., unmet emotional needs), compared to men who cheat more when they are sexually dissatisfied (Glass & Wright, 1985). A study found that unhappy couples, compared to very happy couples, were twice as likely to have an affair over a span of twelve years, but only if they had considered divorce (Previti & Amato, 2004). Infidelity also subsequently led to decreases in relationship happiness and exacerbated risk for divorce.

Couples often report cheating as a way of alleviating unfulfilled intimacy needs (Brown, 2007; Gigy & Kelly, 1993; Omarzu, Miller, Schultz, & Timmerman, 2012), both in offline and online settings (Young, 1998). A longitudinal study found that infidelity exacerbates marital distress overtime, demonstrating the opposite pattern of the association between marital distress and infidelity reports (Hall & Fincham, 2006). Sexual conflict, such as diverging sexual interests, sexual dissatisfaction, and low sex frequency are also associated with infidelity, especially among men (Allen et al., 2008; Atkins et al., 2001; Buss, 2017; Buss & Shackelford, 1997; Glass, 2003; Knopp et al., 2017; Liu, 2000; Previti & Amato, 2004; Prins et al., 1993; Thompson, 1984; Waite & Joyner, 2001; Yucel & Gassanov, 2010), but these findings are also inconsistent. Some findings suggest sexual dissatisfaction predicts future extra-dyadic behaviors (Buss & Shackelford, 1997; Knopp et al., 2017), while others report no association (Blumstein & Schwartz; 1983; DeMaris, 2009; Hall & Fincham, 2009; Maddox Shaw et al., 2013; Spanier & Margolis, 1983). Altogether, the reported findings make it unclear whether infidelity is a precursor or consequence of poor relationship quality.

One explanation for these inconsistencies may lie in respondents' inclination to respond to direct questions about infidelity in socially desirable ways. For example, implicit measures of attraction (e.g., increased pupil dilation, Petit & Ford, 2015; activation in pleasure and reward-related brain regions, Gillath & Canterbury, 2011) and traditional self-report assessments do not necessarily coincide: Committed men, compared to non-committed men, tend to report low attraction to an alternative on self-report measures, but reveal an implicit attraction to the same alternative as shown by physiological measures. These findings suggest that use of explicit reports of infidelity may cloud understanding of whether happy couples are vulnerable to infidelity as well.

Cognitive Control. Resisting temptations of attractive alternatives is a controlled cognitive process that requires motivation and effort (Finkel, Molden, Johnson, & Eastwick, 2009; Johnson & Rusbult, 1989; Lamarche, 2017). Those with low cognitive control show a preference for more dominant, short-term goals over longer-term goals (Fisher, 1992; Ritter et al., 2010). Thus, cognitive control is needed to override sexual attraction triggered by attractive alternatives. Research on self-regulation has demonstrated that cognitive control can influence infidelity outcomes through cognitive (greater attention to alternatives) and behavioral (short-term mating strategies) routes. Tempting contexts may be particularly likely to trigger infidelity when partners are physically exhausted or intoxicated; thus, even highly satisfied partners may be unfaithful when self-control is limited (Glass & Wright, 1985; Maner et al., 2009; Simpson et al., 1990). When cognitive control is low, the capacity and motivation to execute pro-relational or socially desirable behaviors is compromised (Findley, Carvallo, Bartak, 2014; Mead, Baumeister, Gino, Schweitzer, & Ariely, 2009; Pronk & Karremans, 2014; Pronk & Righetti, 2015).

Low cognitive control has been linked to deficits in high-level cognitive processing, such as the ability to think critically about long-term consequences (Schmeichel, Vohs, & Baumeister, 2003; Smith, Mattick, & Sufani, 2015). Other behaviors that are related to low cognitive control, such as behavioral disinhibition, low empathic responding, and short-term mating strategies are also associated with higher infidelity outcomes (Bravo & Lumpkin, 2010; Imhoff & Schmidt, 2014; Schmitt, 2015). Low cognitive control also predicts greater attention paid to alternative partners (Maner et al., 2009), greater interest in meeting alternatives (De Ridder, Lensvelt-Mulders, Finkenauer, Stock, & Baumeister, 2012; Ritter et al., 2010; Simpson et al., 1990), and more infidelity behaviors, including flirting, accepting dates, and exchanging phone numbers with alternatives (Ciarocco, Echevarria, & Lewandowski, 2012; Gailliot & Baumeister, 2007; Maner et al., 2009; Pronk, Karremans, & Wigboldus, 2011). Moreover, higher levels of sexual arousal, particularly among those who are sexually deprived, reduces the ability to delay gratification (Fisher, 1992; Nordgren & Chou, 2011), heightening the likelihood of infidelity.

According to the *transformation model* of motivation (Pronk & Righetti, 2015), the ability for committed partners to remain monogamous in high-conflict contexts may be determined by their capacity and motivation to convert initial sexual desires (attraction to an alternative) to constructive, pro-relational behaviors (relationship fidelity). The capacity to alter competing goals is determined by the availability of cognitive resources (i.e., high vs. low cognitive control). The motivation to alter desires is determined by one's *willingness* to override initial impulses with long-term goals (Pronk & Righetti, 2015).

Infidelity Decision-Making Model

Figure 1 depicts the decision-making model that guides my research. A central assumption of the model is that in monogamous relationships, contemplating infidelity requires a

cognitive, affective, and behavioral regulatory system for resolving the conflict between expectations for monogamy and sexual attraction to alternatives.

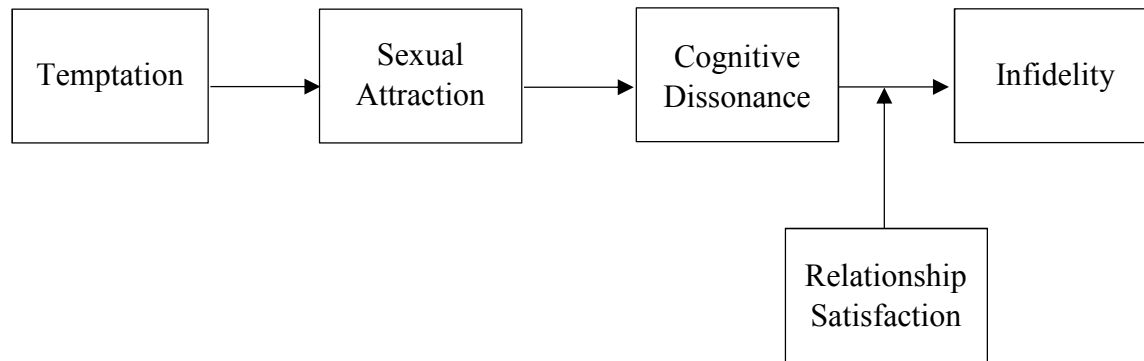


Figure 1. Proposed decision-making model.

High temptation contexts—scenarios that afford opportunities for infidelity, such as when an attractive alternative is present—activate visceral drives for fulfilling sexual needs (Nordgren & Chou, 2011). The proposed decision-making model therefore begins with the prediction that tempting contexts trigger automatic sexual attraction to alternatives. Consequently, tempted partners experience cognitive dissonance from simultaneous sexual attraction to an attractive alternative and values for monogamy and are motivated to reduce this dissonance. Compared to those who are less satisfied, highly satisfied partners are more likely to employ dissonance-reduction strategies that successfully thwart temptations of attractive alternatives. In other words, committed partners may automatically experience sexual attraction, but may deliberately downregulate the attractiveness of alternatives to exhibit behaviors consistent with norms for monogamy (Johnson & Rusbult, 1989). Research suggests that this process of devaluing alternatives requires cognitive effort and resources. Thus, the model acknowledges that to successfully override temptation, a person needs both the motivation (i.e., high relationship satisfaction) and the ability (i.e., cognitive control, either chronic or situational) to do so. Hence,

partners who use devaluation as a strategy to reduce dissonance, compared to rationalization or trivialization, are less likely to cheat in high temptation contexts. When highly satisfied partners are depleted of their resources, they lack the capacity to rely on positive relationship evaluations of their primary relationship to reduce their dissonance, ultimately making all couples vulnerable to infidelity when cognitive control is low.

The theoretical basis for each assumption of the proposed model are further explained below:

Assumption 1: Tempting contexts trigger automatic sexual attraction toward attractive alternatives.

It is well-documented that attractive alternatives compared to unattractive alternatives pose higher threats to relationship fidelity due to their high perceived mate value (Lydon et al., 1999). An attractive alternative is especially tempting when they show interest in the partner (e.g., flirting, making advances). Drawing from literatures on decision-making and self-regulation, tempting contexts are expected to automatically trigger sexual attraction that hinder the ability to resist temptations of attractive alternatives. Evidence from biological research also points to the hypothesis that contexts that offer opportunities for infidelity (i.e., high accessibility to alternatives; Lydon et al., 2003) automatically trigger sexual attraction to attractive alternatives (Staheli, 1997), regardless of one's motivation to cheat. This suggests that attraction to alternatives occurs automatically, irrespective of one's current relationship status or commitment level.

Assumption 2: Sexual attraction toward attractive alternatives increases cognitive dissonance.

Sexual attraction to someone other than the primary partner is ultimately inconsistent with cultural norms for monogamy (Fisher, 1992), and hence should create a state of cognitive dissonance—or psychological discomfort—followed by motivations to reduce this dissonance. Findings show that recalling prior acts of infidelity are associated with increased feelings of cognitive dissonance (Foster & Misra, 2013). People are motivated to resolve cognitive dissonance using dissonance-reduction strategies. In a tempting context, partners can engage in cognitive dissonance-reduction strategies that justify or rationalize infidelity, or strategies that bolster the worth of the relationship and devalue the attractive alternatives.

Assumption 3: Cognitive dissonance-reduction strategies will depend on cognitive control and relationship satisfaction.

The particular dissonance-reduction strategy that is used is determined by two key factors: the capacity to reduce dissonance, which requires cognitive control, and the motivation to maintain the relationship, as assessed by relationship satisfaction. When faced with relationship threats, partners rely on the evaluation of their relationship to determine which dissonance-reduction strategy to implement to reduce dissonance from sexual attraction to alternatives. Although partners may not have initial motivations to cheat, their motivation to remain monogamous in tempting situations is oftentimes determined by their level of relationship satisfaction in the primary relationship. Highly satisfied partners are motivated to use relationship-protective mechanisms, such as devaluing alternatives, to protect their relationship in tempting situations (Johnson & Rusbult, 1989). If the primary relationship is perceived to be less satisfying than the alternative, partners will be motivated to either trivialize or rationalize conflicting cognitions and ultimately succumb to their temptations. Foster and

Misra (2013) showed that partners with a history of infidelity trivialized their dissonance after recounting on past relationship transgressions.

My model also underscores the significance of cognitive control on the decision-making process. It is assumed that encountering an attractive alternative is automatically tempting for most people, and that this temptation must be overridden through more deliberate strategies. Thus, I reason that people with low cognitive control abilities (either dispositionally or because of situational reasons) will be unable to override automatic sexual attraction due to the inability to engage in controlled processing (Mischel et al., 2011). Tempted partners devalue alternatives when equipped with the cognitive energy to override their sexual attraction; however, when cognitive resources are depleted, committed partners respond similarly to singles or less committed partners and show high interest in attractive alternatives (McIntyre et al., 2015). These findings suggest that 1) sexual attraction is activated automatically, but overridden by those who are highly satisfied, and 2) cognitive resources are essential for controlling sexual attraction toward alternatives.

Exploration of Moderators

Gender. Studies have repeatedly found that gender predicts infidelity behaviors, with men reporting higher incident rates than women (Greeley, 1994; Laumann et al., 1994; Wiederman, 1997), perhaps due to their fewer concerns for the consequences of infidelity (Meyerling & Epling-McWherter, 1985). Compared to women, men are more accepting of infidelity (Singh, Walton, & Williams, 1976), report greater desires for infidelity, perceive greater incidents of infidelity as justified (Johnson, 1970), are more willing to engage in extra-dyadic behaviors, experience less guilt after cheating (Athanasίου, Shaver, & Tavrís, 1970; Spanier & Margolis, 1983), and seek more opportunities for infidelity (Atkins et al., 2001;

Buunk & Bakker, 1995; Johnson, 1970; Oliver & Hyde, 1993; Prins et al., 1993; Seal et al., 1994; Thompson, 1983, 1984). Men also report having short-term extra-dyadic relations (e.g., one-night stands) with little to no emotional attachment to the alternative partner (Blumstein & Schwartz, 1983; Brand et al., 2007; Lawson & Samson, 1988), compared to women who report having long-term online affairs that include emotional attachments to the alternative (Atkins et al., 2001; Glass & Wright, 1985).

Gender differences in motivations for infidelity are consistent with evolutionary theory, which suggest that men seek alternative partners for sexual variety and novelty and women for resource attainment and emotional security. For example, *The Coolidge Effect* (Dewsbury, 1981; Wilson, 1982) is the biological tendency for males to show spikes in sexual interest when presented with attractive novel alternative partners. Researchers have demonstrated this effect by exposing men and women to the same erotic film clip nine times, consecutively, and subsequently measuring their subjective and objective levels of sexual arousal (Dawson, Suschinsky, & Lalumière, 2013). Repeated exposure to the same sexual stimulus led to declines in sexual arousal across trials in both men and women, but only slightly among women (the slope of the decline in sexual arousal and repeated exposure was much steeper for men). Although men and women both showed this *habituation effect*, the specificity of the cues varied across gender: men showed greater arousal when cues were specific to sex, whereas women showed high arousal regardless of the type of cue. Others have found that women maintained high levels of arousal across trials of repeated-exposure to the same stimulus (in line with the *preparation hypothesis*; see Suschinsky & Lalumière, 2011), suggesting that habituation patterns are unique to men (e.g., Laan & Everaerd, 1995; Meuwissen & Over, 1990). An alternative stance considers these gender differences to be a function of socialization of gender roles (Penn,

Hernández, & Bermúdez, 1997; Ruble, Martin, & Berenbaum, 2006). For example, women are socialized to pursue relationships for emotional reasons and should thus show less preferences for sexual novelty, compared to men who are socialized to seek relationships for sexual purposes (Glass & Wright, 1985; Goldenberg et al., 2003; Spanier & Margolis, 1983). In any case, the effects of gender will be explored to determine whether the processes associated with infidelity differ for men and women.

Relationship Status. Perceptions of infidelity tend to vary based on relationship status. Many studies have demonstrated that infidelity behaviors committed between married partners are less accepted and perceived to be more severe than those committed between dating partners (Luo et al., 2010; Sheppard et al., 1995; Weis & Felton, 1987; Wiederman, 1997; Wiederman & Hurd, 1999; Yarab et al., 1999). As noted earlier, chances for infidelity increase over time as one's relationship progresses (Athanasίου et al., 1970; Atkins et al., 2001; Dawson et al., 2013; Forste & Tanfer, 1996; Hansen, 1987; Liu, 2000; Spanier & Margolis, 1983). Sexual infidelity is likely to first occur after seven years of marriage and even sooner for younger cohorts (Buss & Shackelford, 1997; Fisher, 1992; Lawson & Samson, 1988; Wiggins & Lederer, 1984).

Cohabitation before marriage is also associated with higher infidelity reports during the marriage (Adamopoulou, 2013; Forste & Tanfer, 1996; Treas & Giesen, 2000). These findings point to the importance of *habituation*—the process of losing interest in familiar stimuli after being repeatedly exposed to them over time (Dawson et al., 2013; Fantz, 1964). As relationships progress, interest in the primary partner may decrease, with infidelity as a possible outcome (Bravo & Lumpkin, 2010; Kamp Dush, Taylor, & Kroeger, 2008; Reissman, Aron, & Bergen, 1993). Thus, the effects of relationship status will also be explored to determine whether the processes associated with infidelity differ for dating and married partners.

Methods for Measuring Infidelity

Much of what is known about infidelity decision-making is based on recollections of infidelity events as assessed by self-reports and interview methodologies. But for several reasons, recollection of events may not be an accurate reflection of what occurred. People may deliberately misreport their motivations. Additionally, people may not have direct access to the factors that affected their decision-making in the moment (Nisbett & Wilson, 1977). Research has in fact raised questions about using self-report measures as a direct way to assess infidelity, as dissociations are found between explicit and implicit reports of attitudes of attraction to alternative partners. As mentioned earlier, research has repeatedly found that people who report high levels of commitment to their partners report attractive alternatives to be unattractive, but show evidence of attraction as assessed using indirect physiological methods (Gillath & Canterbury, 2011; Petit & Ford, 2015). Explicit assessments may be biased by social desirability and self-presentational concerns, or more generally by motivated reasoning (Kunda, 1990).

Given these concerns, an improved method is needed to fully capture the processes underlying infidelity decisions. Thus, instead of asking individuals to report on past events, the second aim of my dissertation is to develop and validate a method using virtual reality to generate simulations of real-life tempting contexts. Virtual reality (VR) is a multi-sensory technology that allows for social interaction in immersive environments, providing a fruitful avenue for infidelity research (Blascovich, Loomis, Beall, Swinth, Hoyt, & Bailenson, 2002; Yee, Bailenson, Urbanek, Chang, & Merget, 2007). Virtual simulations can be designed with high vs. low opportunities for infidelity to test the paths in the proposed model. Adopting the use of VR technology can streamline the various methods used to assess infidelity in relationship science. Virtual reality has been successful in capturing the laws of social influence and norms

(Chirico, Ferrise, Cordella, & Gaggioli, 2018; Eastwick & Gardner, 2009), thus offering an effective method to capture the nuances of infidelity with high ecological validity and less bias from socially desirable responses. This VR methodology is used in Study 3 of this dissertation. Studies 1 and 2 use an imagination scenario to simulate real-time infidelity decision-making.

Summary

Research that unpacks the “in-the-moment” decision-making process that leads to infidelity is lacking. Remaining faithful in tempting contexts is challenging, and not always successful—people may succumb to temptations of infidelity when the opportunity is afforded regardless of whether they have previously considered such behavior (Chisholm, 1999; Daly & Wilson, 2005). Previous research has mainly focused on post-hoc explanations for past infidelity behaviors. My dissertation addresses this limitation by testing the decision-making processes associated with infidelity as it unfurls in hypothetical/imagination and virtual contexts. I argue the decision-making process is as follows: Tempting contexts elicit sexual attraction, triggering dissonance and motivation to reduce it. Satisfied partners will reduce dissonance by devaluing the alternative and successfully thwart temptations compared to less satisfied partners who will trivialize or rationalize away dissonance and succumb to temptations. Partners who are depleted of their cognitive resources will be less able to override sexual attraction toward attractive alternatives and consequently more vulnerable to temptations of infidelity.

Chapter 3: Overview of Studies

I designed three studies to empirically test the proposed infidelity decision-making model among participants in romantic relationships (Figure 1) and developed a VR method designed to experimentally test the effects of temptation in virtual contexts. Each study tested a similar set of hypotheses to test the assumptions of the decision-making model using an imagined scenario paradigm (Studies 1 and 2) or a VR simulation (Study 3). The studies are described in more detail below.

In Study 1, I manipulated temptation (high temptation, low temptation) using an imagined scenario paradigm to test whether a high temptation context leads to infidelity as a result of increased sexual attraction and cognitive dissonance. In the imagined scenario paradigm, participants were asked to imagine a context in which a highly attractive (high temptation) or a highly unattractive alternative (low temptation) shows interest in them in a private setting. Participants were then asked to report whether they would engage in infidelity-related behaviors with the alternative. I predicted that participants in the high temptation condition, compared to those in the low temptation condition, would report higher levels of sexual attraction, cognitive dissonance, and infidelity likelihood. I further predicted that the positive effect of dissonance on infidelity would be strongest among less satisfied partners and non-existent among highly satisfied partners. This prediction is based on the assumption that highly satisfied partners reduce dissonance via devaluation strategies (devaluing the alternative), compared to less satisfied partners, who reduce dissonance via trivialization or rationalization strategies. In the present studies, I did not directly measure dissonance-reduction strategies but rather focused on measuring cognitive dissonance itself.

In Study 2, participants were depleted of their cognitive resources prior to imagining the high or low temptation scenario used in Study 1. I predicted that cognitive depletion would intensify the effects of high temptation, such that participants who were depleted of their resources would report higher levels of sexual attraction, cognitive dissonance, and infidelity compared to those who were not depleted. I also predicted that the effect of cognitive dissonance on infidelity would be stronger among less satisfied partners when they were depleted of their cognitive resources.

In Study 3, the effects of temptation on infidelity were tested in real time using a novel VR method that immersed participants in a high or low temptation virtual context. Participants interacted with a highly attractive avatar (high temptation) or a highly unattractive avatar (low temptation) who made a series of flirtatious advances toward the participant. I predicted that participants in the high temptation context, compared to the low temptation context, would report higher levels of sexual attraction, cognitive dissonance, and infidelity (as measured by the number of acceptances made to the avatar's advances). I also predicted that the positive effect of cognitive dissonance on infidelity would be strongest among less satisfied partners and non-existent among highly satisfied partners.

Chapter 4: Study 1

Experiment 1 was designed to test each path of the decision-making model posed in Figure 1 by manipulating levels of temptation using an imagined scenario paradigm. This study specifically focused on determining whether high vs. low temptation contexts would affect sexual attraction toward alternatives, cognitive dissonance, self-control, and infidelity likelihood, above and beyond relationship satisfaction.

The hypotheses for Study 1 are listed below:

Hypothesis 1. High temptation scenarios, compared to low temptation scenarios, will lead to greater levels of sexual attraction toward the imagined alternative partner.

Hypothesis 2. High temptation scenarios, compared to low temptation scenarios, will lead to greater levels of cognitive dissonance.

Hypothesis 3. Infidelity likelihood will be greater in the high temptation scenario compared to the low temptation scenario.

Hypothesis 4. Self-control (measured as trait self-control) will negatively predict infidelity likelihood. Though not depicted in the model, low self-control is a predictor of infidelity (Ciarocco et al., 2012; Pronk et al., 2011).

Hypothesis 5. Temptation will predict infidelity likelihood above and beyond relationship satisfaction.

Hypothesis 6. The association between temptation and infidelity likelihood will be mediated by increased sexual attraction and cognitive dissonance.

Hypothesis 7. Relationship satisfaction will moderate the association between cognitive dissonance and infidelity likelihood, such that cognitive dissonance will lead to higher infidelity likelihood when relationship satisfaction is low.

Method

Participants and Design

Two hundred and three participants (114 females; M age = 39.61, SD = 10.90) were recruited through Amazon's Mechanical Turk (MTurk) online survey platform. Participants were self-defined heterosexuals currently in a committed relationship with an average longevity of 125.08 months (SD = 145.52). Two percent of participants were casually dating, 40.6% were in a relationship, 56.9% were married, and 0.5% were engaged. The sample's ethnicity included 71.9% White or Caucasian, 7.4% Black or African American, 8.4% Asian, 7.4% Hispanic or Latinx, 1% Native American, and 3.9% Other.

A power analysis was conducted using G*Power (Faul, Erdfelder, Lang, & Buchner, 2007) to determine the minimal sample size required to detect a small effect size (ANOVA fixed effects, $f = .25$, number of groups = 2, $\alpha = .05$, $\beta - 1 = .80$), and resulted in a total sample size of 128 participants—64 participants per condition.

Procedure

After providing informed consent, participants were randomly assigned to imagine either a high or low temptation scenario. After the imagined scenario, participants were prompted to answer a series of questions regarding perceptions of the *imagined alternative partner* in the scenario as well as their *current relationship partner*. Altogether, the study took approximately 12 minutes to complete—timed questions were embedded in the survey to assure high-quality responses. Upon completion of the survey, participants were debriefed and compensated \$1.25 for their participation.

Temptation Manipulation

Given past research on what constitutes relationship threat (see Lydon et al., 1999), I reasoned that manipulating the physical attractiveness of an alternative would alter the level of relationship threat posed by the alternative. Therefore, participants in Study 1 were randomly assigned to imagine either a high temptation scenario ($n = 99$) or low temptation scenario ($n = 104$), in which a highly attractive alternative (high temptation) or unattractive alternative (low temptation) of the opposite-sex approached them in a private setting and showed interest in them. This imagined scenario paradigm has been used in past research (e.g., Bazzini & Shaffer, 1999; McIntyre et al., 2015) and is an effective method for manipulating temptation in relationships.

In the high temptation condition, participants imagined a scenario in which they had an opportunity to cheat with a *highly attractive* opposite-sex alternative who showed interest in them in a hotel bar. The scenario included an interaction with an attractive stranger who proceeded to flirt with the participant and ask them to leave the bar and go back to their hotel room. A similar imagined scenario was presented to participants in the low temptation condition, but with an imagined alternative that was described as *highly unattractive*. After imagining either scenario, participants rated the likelihood that they would engage in various forms of infidelity with the alternative in the imagined scenario. The imagined scenarios were presented as line-by-line and automatically transitioned every 5-7 seconds. The full script for high and low temptation scenarios is presented in Appendix A. This study and the subsequent studies were approved by the IRB at the University of Kansas.

Measures

Participants completed a series of questionnaires in the following order:

Sexual Attraction. Participants completed a 10-item questionnaire that assessed sexual attraction toward the alternative. Ratings were made on a scale from 1 (*strongly disagree*) to 7

(*strongly agree*). Sample items include: “*The person in the imagined scenario was irresistible*” and “*I felt tempted by the imagined partner.*” These items were adapted from McIntyre et al. (2015) to assess attraction to alternatives in imagined scenarios. The reliability of this measure was .96.

Cognitive Dissonance. Two self-report measures were used to assess cognitive dissonance. The first was adapted from Elliot and Devine (1994) and assessed negative affect associated with dissonance and psychological discomfort (e.g., bothered, agitated, angry with myself, disappointed in myself). Participants were asked to reflect on how they were feeling at the moment as they answered each of the six items. Sample items include: “*I feel disappointed in myself*” and “*I feel guilty with myself.*” Ratings were made on a scale from 1 (*not at all*) to 7 (*very much*). The reliability of this measure was .97.

Self-discrepancy was also measured as a second indicator of cognitive dissonance. Using a version of the Inclusion of Self in Other Scale (IOS; Aron, Aron, & Smollan, 1992), participants indicated how much their *immediate-self* overlapped with their *actual self*. Responses were made by selecting overlapping circles from 1 (*high self-discrepancy*) to 7 (*low self-discrepancy*). This item was reversed scored so that higher numbers reflected greater self-discrepancy.

The correlation between the cognitive dissonance and the IOS measure was $r = .42, p = .0001$, thus the two measures were combined to create an overall index of cognitive dissonance (7 items; $\alpha = .94$).

Infidelity Likelihood. I adopted a measure used in previous research to capture infidelity intentions in imagined scenarios (see Bazzini & Shaffer, 1999; McIntyre et al., 2015). Participants were prompted to answer six questions regarding the person in the imagined

scenario that included five positively scored items (e.g., “*accept the invitation, and kiss them if the opportunity arose*”) and one negatively scored item (e.g., “*Tell them that you have a partner and are not interested*”). Ratings were made on scale from 1 (*very unlikely*) to 7 (*very likely*).

The reliability of this measure was .96.

Self-Control. The Brief Self-Control Scale (Tangney, Baumeister, & Boone, 2004) was used to assess trait self-control. Participants completed 13 items in which they indicated how much each item reflected their typical behavior. Sample items include: “*I am good at resisting temptations*” and “*I am able to work effectively toward long-term goals.*” Ratings were made on a scale from 1 (*not at all*) to 5 (*extremely*). The alpha reliability of this measure was .89.

Relationship Satisfaction. A subscale of the Perceived Relationship Quality Components Inventory (PRQC; Fletcher, Simpson, & Thomas, 2000) was administered to measure relationship satisfaction (3 items; e.g., “*How satisfied are you with your relationship?*”). Ratings were made on a Likert-type scale ranging from 1 (*not at all*) to 5 (*extremely*). The reliability of this measure was .97.

Covariates. Additional measures identified in the literature as related to infidelity were also included; these were treated as covariates in all reported analyses:

Gender, age, relationship longevity, history of infidelity, sociosexuality (SOI-R; Penke & Asendorpf, 2008), attachment style (ECR-RS; Fraley, Heffernan, Vicary, & Brumbaugh, 2011), personality traits (TIPI; Gosling, Rentfrow, & Swann, 2003), sexual frequency, and sexual satisfaction are robust predictors of infidelity (Fincham & May, 2017), and were controlled for in the mediation model.

The revised Sociosexual Orientation Scale (SOI-R; Penke & Asendorpf, 2008) is a 9-item measure and was used to assess sexually permissive attitudes (e.g., “*I would have sex with*

someone who I am not committed to” or “Sex without love is OK”) on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The reliability of this measure was .85.

The Experiences in Close Relationship-Relationship Structures (ECR-RS; 9 items; Fraley et al., 2011) was used to assess the two dimensions of attachment: attachment anxiety (e.g., “I often worry that my partner will leave me”; $\alpha = .89$) and attachment avoidance (e.g., “I get uncomfortable if people get too close to me”; $\alpha = .87$). Ratings were made on a Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

The Ten Item Personality Inventory (TIPI; 10 items; Gosling et al., 2003) was used to assess the Big 5 personality traits: Openness to experience (e.g., “Open to new experiences, complex”; $\alpha = .60$), conscientiousness (e.g., “dependable, self-disciplined”; $\alpha = .70$), extraversion (e.g., “extraverted, enthusiastic”; $\alpha = .80$), agreeableness (e.g., “sympathetic, warm”; $\alpha = .51$), and emotional stability (e.g., “anxious, easily upset”; $\alpha = .81$). Ratings were made on a Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

A subscale of The PRQC (Fletcher et al., 2000) was used to measure relationship passion (3 items; e.g., “How passionate is your relationship?”). Ratings were made on a Likert-type scale ranging from 1 (*not at all*) to 5 (*extremely*). The reliability of this measure was .91. A single item was also used to assess sexual satisfaction (i.e., “How sexually satisfied are you in your current relationship?”) and was positively correlated with the subcomponent passion, $r = .73$, $p = .0001$. Thus, these items were combined to create a composite variable labeled *sexual satisfaction* ($\alpha = .93$).

The full list of the measured items is presented in Appendix B.

Results

Analyses Overview

The major goals of Study 1 were to test whether high temptation situations lead to increases in sexual attraction to alternative partners (Hypothesis 1), higher levels of cognitive dissonance (Hypothesis 2), and increased infidelity likelihood (Hypothesis 3). Self-control was also expected to negatively predict infidelity likelihood (Hypothesis 4). To address inconsistent findings regarding the order in which relationship evaluations influence infidelity decisions (i.e., low satisfaction \cong infidelity), a hierarchical regression was conducted to test whether tempting contexts lead to increases in infidelity above and beyond satisfaction levels (Hypothesis 5). The sequence of the decision-model was tested to determine whether the association between temptation and infidelity was mediated by increased sexual attraction and increased cognitive dissonance (Hypothesis 6). Finally, the moderating role of relationship satisfaction on the association between dissonance and infidelity was tested to determine whether cognitive dissonance led to increased infidelity when relationship satisfaction was low (Hypothesis 7). The following section provides the results from the analyses including independent samples *t*-tests, regression models, and moderated-mediational models.

Preliminary Analyses

Attention Check and Exclusion Criteria. A total of 11 participants were removed from the analyses due to failing to answer attention check items that were interspersed throughout the instrument (4 or more of 7 items were answered incorrectly). Participants who completed the survey in less than the minimum allotted time (10 minutes, $n = 5$), were not heterosexual ($n = 3$), or were not in a committed relationship were excluded from the analyses ($n = 10$).¹ The final sample included 203 participants.

¹ Participants were asked to imagine an attractive or unattractive member of the *opposite sex* in the imagined temptation scenarios and about their current significant other when answering the questionnaire items, and thus only heterosexual respondents in relationship were included in the final sample.

Descriptive Data. Approximately 57.6% of participants had children ($M = 1.87$, $SD = 1.55$), and the average sex frequency was 2.37 days a week ($SD = 1.24$). Approximately 30.5% of participants ($n = 62$) reported cheating on their partner in the past, 1.5% ($n = 3$) were unsure whether they have cheated, and 68% of participants ($n = 138$) reported never cheating. Moreover, 53.7% of participants ($n = 109$) reported being cheated on in the past, 10.8% of participants ($n = 22$) were unsure whether they had been cheated on, and 35.5% of participants ($n = 72$) reported never being cheated on by their partner.

Descriptive statistics for all measured variables are listed in Table 1, and Pearson correlations are presented in Table 2.

Table 1
Descriptive Statistics for Study 1 Variables

Variable	<i>N</i>	<i>M</i>	<i>SD</i>	Range	
				Potential	Actual
Sexual Attraction	203	3.71	1.97	1 – 7	1.00 – 7.00
Cognitive Dissonance	203	2.29	1.44	1 – 7	1.00 – 6.43
Relationship Satisfaction	203	3.97	1.03	1 – 5	1.00 – 5.00
Self-Control	203	3.55	.70	1 – 5	1.69 – 5.00
Infidelity Likelihood	203	2.34	1.65	1 – 7	1.00 – 6.67

Sexual attraction was positively associated with cognitive dissonance and infidelity, and negatively associated with self-control. The correlation between sexual attraction and relationship satisfaction was not significant. Cognitive dissonance was positively correlated with infidelity likelihood and negatively correlated with self-control and relationship satisfaction. Relationship satisfaction was positively related to self-control and negatively related to infidelity. That is, as relationship satisfaction increased, infidelity likelihood decreased. As predicted

(Hypothesis 4), self-control was negatively associated with infidelity likelihood, suggesting that when cognitive resources are high, infidelity is less likely.

Table 2
Pearson Correlations for Study 1 Predictor Variables and Infidelity Likelihood

Variables	1.	2.	3.	4.	5.
1. Sexual Attraction	–				
2. Cognitive Dissonance	.35**	–			
3. Relationship Satisfaction	-.11	-.17*	–		
4. Self-Control	-.22**	-.36**	.25**	–	
5. Infidelity Likelihood	.61**	.39**	-.15*	-.28**	–

Notes. $N = 203$. Temptation context was coded 0 = low temptation, 1 = high temptation.
* $p < .05$. ** $p < .01$.

Tests of Key Hypotheses

A series of independent samples t -tests and hierarchical regression models were conducted to test each hypothesis. Mean-centered interaction terms were created prior to entering variables into the model.

Independent Samples t -tests. Four independent samples t -tests were conducted to test the effect of temptation on each of the major variables posed in the model: sexual attraction, cognitive dissonance, relationship satisfaction, and infidelity likelihood. Means and standard deviations by condition appear in Table 3.

As predicted, high temptation, compared to low temptation, led to higher levels of sexual attraction, $t(201) = -18.62, p = .0001, d = 2.62, 95\% \text{ CI} [-3.47, -2.80]$, cognitive dissonance, $t(181.53) = -3.24, p = .001, d = .46, 95\% \text{ CI} [-1.04, -0.25]$, and infidelity likelihood, $t(178.56) = -4.63, p = .0001, d = .65, 95\% \text{ CI} [-1.46, -.59]$. Relationship satisfaction did not differ across temptation condition, $t(193.82) = 0.71, p = .478, d = .10, 95\% \text{ CI} [-.18, .39]$. The t -test results

provide support for Hypotheses 1-3. I also tested whether the temptation manipulation affected each individual item of the infidelity index. It did: These data are summarized in Table 4.

Table 3
Means and Standard Deviations for Study 1 Variables by Condition

Variable	<u>High Temptation</u>		<u>Low Temptation</u>		<i>t</i>	<i>d</i>
	<i>(n = 99)</i>		<i>(n = 104)</i>			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Sexual Attraction	5.32	1.24	2.19	1.15	- 18.62**	2.62
Cognitive Dissonance	2.62	1.60	1.98	1.20	- 3.24**	.46
Infidelity Likelihood	2.87	1.80	1.84	1.31	- 4.63**	.65
Relationship Satisfaction	3.92	1.10	4.02	0.96	0.71	.10

* $p < .05$. ** $p < .01$.

Table 4
Means and Standard Deviations for Infidelity Likelihood Items

Item	<u>High Temptation</u>		<u>Low Temptation</u>		<i>t</i>	<i>d</i>
	<i>(n = 99)</i>		<i>(n = 104)</i>			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
1. Accept Invitation	2.86	2.06	1.79	1.36	- 4.35**	.61
2. Kiss Partner	2.85	2.13	1.77	1.37	- 4.27**	.60
3. Stay at Bar and Flirt	3.82	2.08	2.18	1.61	- 6.25**	.88
4. Go to their Hotel	2.63	2.00	1.77	1.47	- 3.46**	.49
5. Have Sex at Hotel	2.46	2.05	1.67	1.46	- 3.16**	.44
6. Tell them Not Interested ^a	2.59	1.76	1.86	1.34	- 3.32**	.47

Note. ^a Item 6 was reversed scored: higher values equal greater infidelity likelihood.

** $p < .01$.

Hierarchical Regression: Temptation and Infidelity Likelihood Controlling for Relationship Satisfaction. A hierarchical regression was conducted to test whether temptation (low temptation = 0, high temptation = 1) predicted infidelity likelihood above and beyond relationship satisfaction. Relationship satisfaction was entered into Step 1, temptation was

entered into Step 2, and the mean-centered interaction term was entered into Step 3. Results indicated that relationship satisfaction explained 2.4% of the variance in infidelity likelihood, $F(1, 201) = 4.86, p = .029$. Temptation explained an additional 9.3% of the variance in infidelity likelihood, $F(1, 200) = 21.12, p = .0001$. Adding the mean-centered interaction term in Step 3 did not significantly improve model fit, $F(1, 199) = .769, \Delta R^2 = .00, p = .381$. However, temptation remained a significant predictor of infidelity likelihood, $B = 1.01, SE = .22, \beta = .31, t(199) = 4.60, p = .0001, 95\% CI [.57, 1.44]$, after controlling for relationship satisfaction. Consistent with Hypothesis 5, high temptation contexts promote infidelity above and beyond relationship satisfaction levels. Table 5 displays the regression coefficients for each step.

Table 5
Hierarchical Regression Model Predicting Infidelity Likelihood

Variable	Infidelity Likelihood					
	Model 1		Model 2		Model 3	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Constant	3.32**	.46	2.73**	.45	2.31**	.66
Relationship Satisfaction	-.25*	.11	-.22*	.11	-.12	.16
Temptation			1.00**	.22	1.01**	.22
Satisfaction x Temptation					-.19	.22
R^2		.02		.12		.12
F		4.86*		13.23**		9.07
ΔR^2				.09		.00
ΔF				21.12**		.77

Note. $N = 202$. B = unstandardized coefficients. SE = standard error.

* $p < .05$. ** $p < .01$.

Sequential Moderated-Mediation Modeling: Testing the Decision-Making Model. To

test the proposed decision-making model, a sequential moderated-mediation model was

conducted in PROCESS (Model 87; Hayes, 2013) to determine whether the association between

temptation and infidelity was mediated by increased sexual attraction and cognitive dissonance, when controlling for self-control, and whether relationship satisfaction moderated this effect. The model included temptation (low temptation = 0, high temptation = 1) as the independent variable (X), sexual attraction as the first mediator (M_1), cognitive dissonance as the second mediator (M_2), relationship satisfaction as the moderator (W), self-control as the covariate (cov), and infidelity likelihood as the outcome variable (Y).² All predictor variables (except temptation context) were mean-centered prior to being entered into the model.

As predicted, high temptation was associated with increased sexual attraction ($B = 1.56$, $SE = .09$, $t(200) = 18.19$, $p = .0001$, 95% CI [1.39, 1.73]) above and beyond self-control. Sexual attraction was associated with increased cognitive dissonance ($B = .38$, $SE = .11$, $t(199) = 3.64$, $p = .0003$, 95% CI [.18, .59]), when controlling for temptation and self-control. Cognitive dissonance was associated with greater infidelity likelihood ($B = .24$, $SE = .10$, $t(196) = 2.52$, $p = .012$, 95% CI [.05, .43]) after controlling for all variables in the model. Hypothesis 6, which suggested that the association between temptation and infidelity likelihood would be mediated by increased sexual attraction and cognitive dissonance, was therefore supported.

However, inconsistent with Hypothesis 7, relationship satisfaction did not moderate the path between cognitive dissonance and infidelity likelihood, $B = -.10$, $SE = .08$, $t(196) = -1.24$, $p = .217$, 95% CI [-.26, .06]. The index of moderated mediation was also not significant, $B = -.06$, $SE = .06$, 95% CI [-.19, .03]. See Table 6 for regression coefficients of the mean-centered predictor variables. The sequential moderated-mediation model is displayed in Figure 2.

² An alternative sequential moderated-mediation model was also tested with cognitive dissonance as the first mediator variable and sexual attraction as the second mediator variable. This model is depicted in Appendix E.

Table 6
 Sequential Moderated-Mediation Model Testing Each Path of the Decision-Making Model

Variable	Model 1		Model 2		Model 3		Model 4	
	Sexual Attraction		Dissonance		Infidelity		Infidelity (mod) ^a	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Constant	-.76**	.06	.13	.12	3.02**	.16	1.96**	.15
Temptation	1.56**	.09	-.26	.21	-1.42**	.28	.72**	.21
Self-Control	-.09*	.04	-.29**	.06	-.16	.09	-.21	.11
Sexual Attraction			.38**	.11	1.43**	.15		
Cognitive Dissonance					.24*	.10	.47**	.11
Satisfaction					-.04	.09	-.09	.11
Satisfaction x Dissonance					-.10	.08	-.20*	.10
<i>R</i> ²	.64		.21		.49		.24	
<i>F</i>	178.79**		17.47**		31.10**		12.33**	

Note. *N* = 203. Temptation (0 = low temptation, 1 = high temptation). *B* = unstandardized coefficients. *SE* = standard error. *CI* = confidence interval. Models 1-3 test full moderated-mediation model (Model 87; PROCESS). ^a Modified version of moderated-mediation model (Model 14; PROCESS) that removes sexual attraction as a mediator variable; i.e., temptation (*X*), dissonance (mediator), infidelity (*Y*), satisfaction (moderator), and self-control (cov). * *p* < .05. ** *p* < .01.

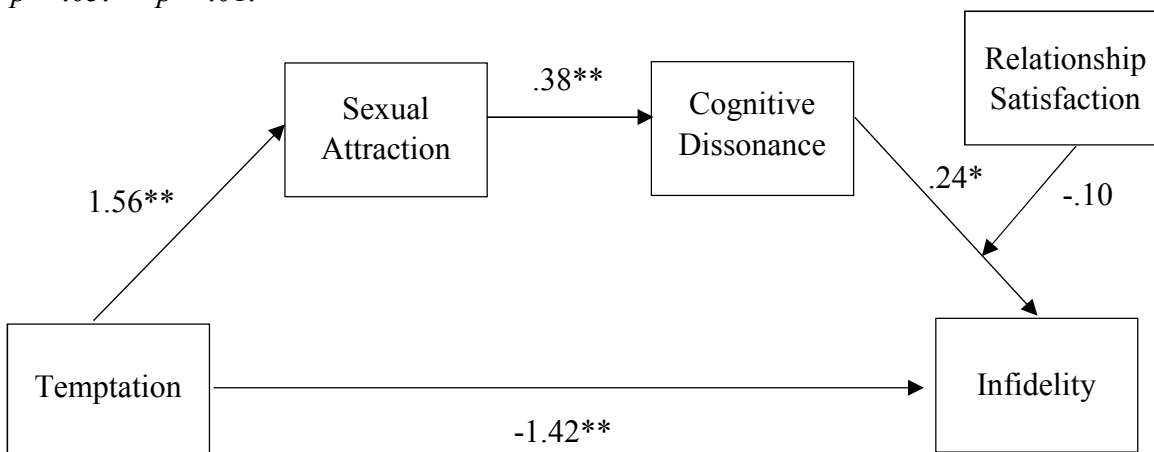


Figure 2. *N* = 203. Unstandardized regression coefficients for temptation, sexual attraction (*M*₁), cognitive dissonance (*M*₂), relationship satisfaction (*W*), and infidelity likelihood (*Y*), controlling for self-control (cov). **p* < .05. ***p* < .01.

The model remained significant when including all covariates. These findings are presented in Appendix C.

A modified model. As can be seen in Table 6, entering sexual attraction into the model affected the valence of temptation's effect on infidelity, such that high temptation negatively predicted infidelity likelihood, $B = -1.42$, $SE = .28$, $t(196) = -5.09$, $p = .001$, 95% CI [-1.97, -.87], while sexual attraction remained a positive predictor of infidelity likelihood, $B = 1.43$, $SE = .15$, $t(196) = 9.77$, $p = .00001$, 95% CI [1.14, 1.72]. The high correlation between temptation and sexual attraction ($r = .80$, $p = .0001$) suggests that the two variables are multicollinear and thus it may be redundant to include both variables in the model. Therefore, I tested a moderated mediation model (Model 14; PROCESS, Hayes, 2013) excluding sexual attraction as a mediator (see Figure 3).

In this model, temptation was positively associated with cognitive dissonance ($B = .34$, $SE = .13$, $t(200) = 2.59$, $p = .0102$, 95% CI [.08, .60]) and infidelity likelihood ($B = .72$, $SE = .21$, $t(197) = 3.39$, $p = .0008$, 95% CI [.30, 1.13]). Cognitive dissonance was also positively associated with infidelity likelihood, $B = .47$, $SE = .11$, $t(197) = 4.22$, $p = .0001$, 95% CI [.25, .69]. Consistent with Hypothesis 7, the two-way interaction between relationship satisfaction and cognitive dissonance on infidelity was significant, $B = -.20$, $SE = .10$, $t(197) = -1.96$, $p = .051$, 95% CI [-.39, .001]. Removing sexual attraction as a variable in the modified model resulted in a significant interaction between satisfaction and dissonance on infidelity, and was in line with predictions. Thus, the null effect of the two-way interaction in the previous model (Model 87)

may have been a result of the multicollinearity issue between temptation and sexual attraction.

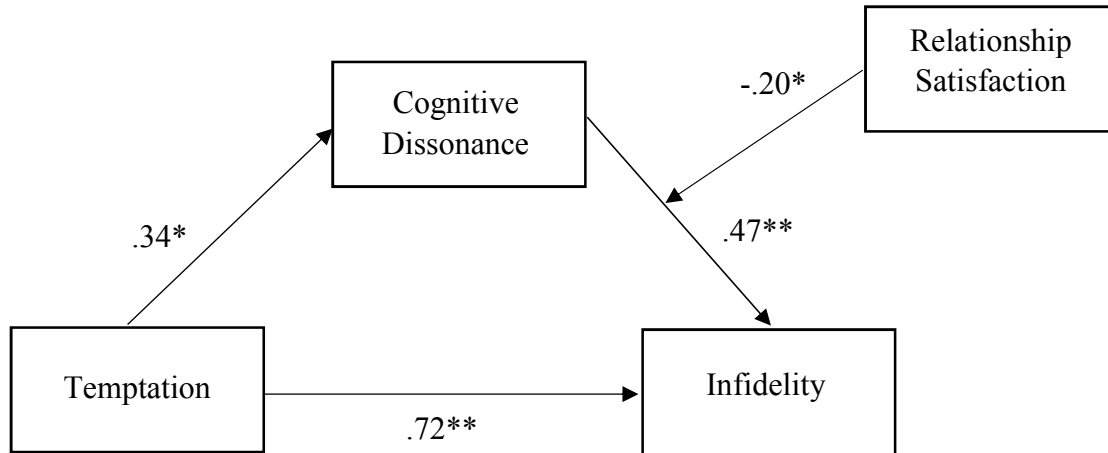


Figure 3. $N = 203$. Moderated mediation model (Model 14; PROCESS) with temptation as the predictor (X), dissonance as the mediator (M), satisfaction as the moderator (W), and infidelity as the outcome variable (Y), while controlling for self-control (cov).

* $p < .05$. ** $p < .01$.

The interaction between dissonance and infidelity was significant at low levels (-1 SD) of relationship satisfaction, $B = .66$, $SE = .15$, $t(197) = 4.40$, $p = .00001$, 95% CI [.36, .95], and at mean levels of satisfaction, $B = .47$, $SE = .11$, $t(197) = 4.17$, $p = .00001$, 95% CI [.25, .69], and approached significance at high levels (+1 SD) of relationship satisfaction, $B = .28$, $SE = .15$, $t(197) = 1.89$, $p = .06$, 95% CI [-.01, .57]. These results are consistent with predictions and suggest that as relationship satisfaction increases, the association between dissonance and infidelity weakens and is no longer significant when satisfaction is high. A graph of the two-way interaction is displayed in Figure 4.

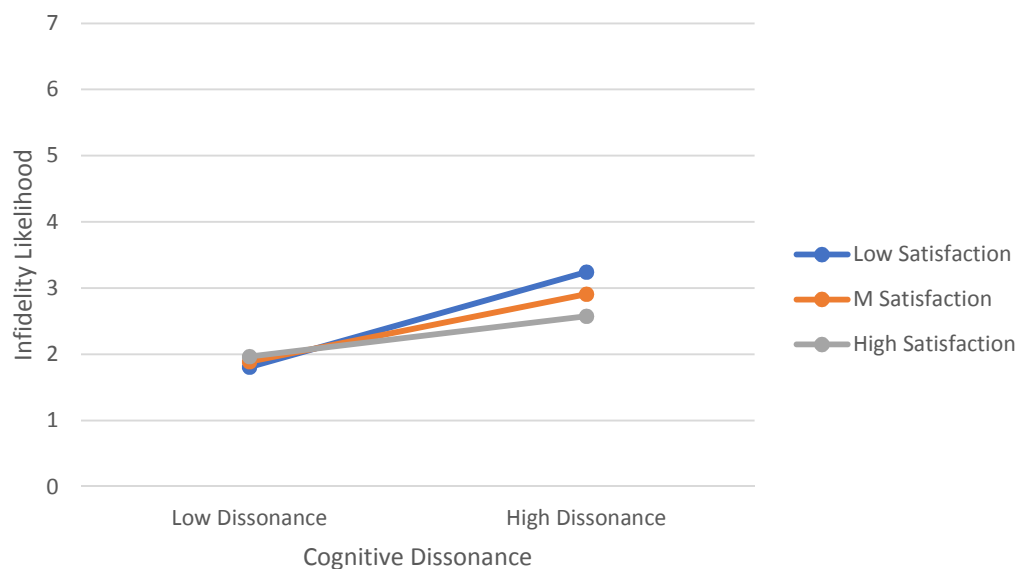


Figure 4. Interaction between cognitive dissonance and relationship satisfaction on infidelity likelihood. Low satisfaction = -1 SD, High satisfaction = +1 SD.

The index of moderated mediation was not significant, index = $-.07$, SE = $.05$, 95% CI [$-.18$, $.01$]. However, the mediational (indirect) effects show the same pattern as the moderation effects reported above: the mediated relationship between temptation and infidelity via dissonance was greatest at low and mean levels of satisfaction, and no longer significant at high levels of satisfaction.

The model remained significant when including all covariates. These findings are presented in Appendix D.

Exploratory Analyses

Exploratory analyses were conducted to test potential moderating effects of relationship satisfaction, gender, and relationship status (i.e., dating vs. married) on the major variables in the decision-making model (Figure 1).

The Role of Relationship Satisfaction in Decision-Making. The decision-making model suggests that relationship satisfaction moderates the effect of dissonance on infidelity, but

I also tested whether relationship satisfaction moderated other paths. I created interaction terms between relationship satisfaction and all major variables in the decision-making model.

Relationship satisfaction did not moderate the association between temptation and sexual attraction, $t(199) = .40, p = .69, 95\% \text{ CI} [-.27, .40]$. Relationship satisfaction also did not moderate the association between sexual attraction and cognitive dissonance, $t(199) = -1.81, p = .07, 95\% \text{ CI} [-.36, .02]$, or between temptation and cognitive dissonance, $t(199) = -.56, p = .58, 95\% \text{ CI} [-.50, .28]$. As previously described, relationship satisfaction only moderated the association between cognitive dissonance and infidelity likelihood. These findings rule out the possibility that relationship satisfaction influences the decision-making process at earlier stages in the model. In other words, these findings support the prediction that relationship satisfaction is used as an index that may determine dissonance-reduction strategies and the decision whether or not to cheat.

Gender Differences in Infidelity Likelihood. A series of independent samples t -tests was conducted to explore whether men and women differed on the major variables in the decision-making model. Men reported higher levels of sexual attraction and greater infidelity likelihood compared to women. No gender differences emerged for cognitive dissonance, self-control, or relationship satisfaction. Means and standard deviations are reported in Table 7.

Table 7
Means and Standard Deviations for Study 1 Variables by Gender

Variable	Males ($n = 89$)		Females ($n = 114$)		t	d
	M	SD	M	SD		
Sexual Attraction	4.01	1.96	3.48	1.96	1.93†	.27
Cognitive Dissonance	2.36	1.49	2.24	1.40	.58	.08
Relationship Satisfaction	4.08	0.95	3.88	1.09	1.39	.20
Self-Control	3.50	0.66	3.59	0.72	-0.92	.13
Infidelity Likelihood	2.72	1.90	2.05	1.35	2.80**	.41

Note. $N = 202$.

† $p = .06$. ** $p < .01$.

Gender differences for each item of the infidelity likelihood scale were also explored. Compared to women, men were more likely to: accept the alternative's invitation, kiss the alternative, go to their hotel, and have sex with the alternative. Men, compared to women, were less likely to tell the alternative that they had a partner and were not interested. No gender difference emerged for the item, "*Stay at the bar and flirt with them for the rest of the night, if nobody would find out.*" Means and standard deviations are reported in Table 8.

Table 8

Means and Standard Deviations for Infidelity Likelihood Items by Gender

Item	<u>Males</u> ($n = 89$)		<u>Females</u> ($n = 114$)		t	d
	M	SD	M	SD		
1. Accept Invitation	2.73	2.09	1.98	1.49	2.86**	.41
2. Kiss Partner	2.73	2.16	1.96	1.50	2.88**	.41
3. Stay at Bar and Flirt	3.19	2.09	2.82	1.96	1.31	.18
4. Go to their Hotel	2.63	2.08	1.84	1.47	3.04**	.44
5. Have Sex at Hotel	2.53	2.12	1.69	1.43	3.19**	.46
6. Tell them Not Interested*	2.48	1.71	2.00	1.47	2.16*	.30

Note. *Item 6: "*Tell them you have a partner and are not interested*" was reversed scored (scale 1-7); higher values equal greater infidelity likelihood.

* $p < .05$. ** $p < .01$.

I also tested whether gender moderated the associations in the model, using mean-centered interaction terms between gender and all major predictors. Gender did not moderate the effect of temptation on sexual attraction, $t(199) = .70$, $p = .49$, 95% CI [-.42, .89], the effect of sexual attraction on cognitive dissonance, $t(199) = .03$, $p = .98$, 95% CI [-.38, .39], or the effect of relationship satisfaction on dissonance, $t(199) = -1.28$, $p = .20$, 95% CI [-.68, .14].

However, the two-way interaction between gender and relationship satisfaction on infidelity was significant, $t(199) = -2.92, p = .004, 95\% \text{ CI} [-1.12, -.22]$. The association between relationship satisfaction and infidelity was negative for women, $B = -.71, SE = .18, t = -3.90, p = .0001, 95\% \text{ CI} [-1.07, -.35]$ and not significant for men, $B = -.04, SE = .14, t(199) = -.28, p = .78, 95\% \text{ CI} [-.31, .24]$. However, the three-way interaction between temptation, gender, and relationship satisfaction on infidelity was not significant, $t(195) = -.42, p = .67, 95\% \text{ CI} [-1.09, .71]$. Temptation remained a significant predictor in the last model, $B = .76, SE = .28, t(195) = 2.69, p = .008, 95\% \text{ CI} [.20, 1.32]$. These findings suggest that the positive effect of high temptation on infidelity is not contingent upon gender or relationship satisfaction.

The Role of Relationship Status on Infidelity Decisions. A series of independent samples t -tests were conducted to test whether dating versus married participants differed on the major variables of the model. No differences emerged for sexual attraction, dissonance, relationship satisfaction, self-control, or infidelity likelihood (all $ps > .05$). Means and standard deviations are reported in Table 9.

Table 9
Means and Standard Deviations for Study 1 Variables by Relationship Status

Variable	Married ($n = 115$)		Dating ($n = 87$)		t	p
	M	SD	M	SD		
Sexual Attraction	3.60	1.96	3.90	1.97	1.09	.28
Cognitive Dissonance	2.28	1.49	2.32	1.38	.18	.86
Relationship Satisfaction	3.99	1.05	3.94	1.01	-.31	.76
Trait Self-Control	3.57	0.69	3.54	0.72	-.32	.75
Infidelity Likelihood	2.29	1.61	2.42	1.70	.56	.58

Note. $N = 202$.

I also tested whether relationship status moderated the paths in the decision-making model: it did not. Relationship status did not moderate the link between temptation and sexual

attraction, $B = -.20$, $SE = .35$, $t(198) = -.59$, $p = .56$, 95% CI [-.88, .48], sexual attraction and dissonance, $B = -.19$, $SE = .19$, $t(198) = -.96$, $p = .34$, 95% CI [-.57, .20], satisfaction and dissonance, $B = -.22$, $SE = .20$, $t(198) = -1.07$, $p = .29$, 95% CI [-.62, .18], satisfaction and infidelity, $B = -.22$, $SE = .23$, $t(198) = -.94$, $p = .35$, 95% CI [-.68, .24], or dissonance and infidelity, $B = -.16$, $SE = .22$, $t(198) = -.74$, $p = .46$, 95% CI [-.60, .27]. These findings suggest that the underlying processes associated with infidelity are similar for married and dating partners.

Discussion

The goal of Study 1 was to provide empirical support for the proposed decision-making model that begins with a tempting context and ends with infidelity. Study 1 findings were in line with hypotheses and provided support for the underlying processes that inform infidelity decisions. Men and women who imagined highly tempting scenarios, compared to less tempting scenarios, reported being sexually attracted to the alternative partner. Hypothesis 1 was therefore supported. This is consistent with findings that perceived attractiveness increases when an alternative has higher perceived mate value than the primary partner (Johnson & Rusbult, 1989). The effect of temptation on sexual attraction was not affected by relationship satisfaction level. This finding suggests that sexual attraction to attractive alternatives may be an automatic process prompted by a tempting context.

High temptation scenarios also resulted in greater cognitive dissonance, as a result of increased sexual attraction, which is in line with the prediction that violating values for monogamy leads to heightened feelings of psychological discomfort, such as guilt and disappointment. Hypothesis 2 was therefore supported. All participants reported being in a committed relationship at the time of the study, thus when placed in the high temptation

scenario, committed partners reported greater conflict compared to those in the low temptation scenario. Although cognitive dissonance has not been measured quantitatively with respect to infidelity decisions in extant scholarship, Anderson (2010) and Lydon, Menzies-Toman, Burton, and Bell (2008) found that male committed partners reported feeling conflicted in settings where opportunities for infidelity were high (e.g., college campuses). Moreover, the effect of sexual attraction on dissonance was not moderated by relationship satisfaction, providing evidence that dissonance occurs regardless of how happy couples are. Cognitive dissonance was also associated with higher infidelity likelihood. Hypothesis 3 was therefore supported.

Given the inconsistencies in the extant literature regarding the role of relationship satisfaction in infidelity (Le & Agnew, 2003), the association between context and infidelity outcomes was tested controlling for relationship satisfaction. Tempting contexts predicted infidelity likelihood above and beyond relationship satisfaction, suggesting that attractive alternatives increase chances of infidelity regardless of satisfaction levels. This finding supported Hypothesis 5. These findings rule out alternate perspectives that infidelity occurs as a function of poor relationship satisfaction or low commitment (e.g., Previti & Amato, 2004), and are corroborated by Lydon and colleagues (1999), who found that relationship commitment may not be sufficient in diffusing the threat posed by attractive alternatives (also Lydon et al., 2008). In other words, relationship threats posed by attractive alternatives are just as tempting to committed partners, and thus partners must rely on self-control to successfully maintain monogamy when opportunities for infidelity are high.

Results from the moderated-mediation model support the assumptions of the decision-making model. Temptation was associated with increased infidelity via increased sexual attraction and increased cognitive dissonance. Hypothesis 6 was therefore supported. As

predicted, relationship satisfaction moderated the association between cognitive dissonance and infidelity likelihood, at least in the model in which sexual attraction was removed to address multicollinearity concerns. Hypothesis 7 was therefore supported. This finding suggests that partners may rely on their relationship satisfaction as motivation to mitigate the dissonance that they experience from being attracted to alternatives. Specifically, cognitive dissonance was associated with increases in infidelity when relationship satisfaction was low, which is in line with the prediction that unsatisfied partners rationalize or trivialize their dissonance to ultimately pursue the alternative. Partners with high satisfaction alleviate their dissonance by devaluing the alternative and ultimately resisting temptations of infidelity. Although dissonance-reduction strategies were not measured directly, the moderating role of satisfaction on the link between dissonance and infidelity is in line with past research on commitment and devaluation of alternatives (Johnson & Rusbult, 1989).

Findings from exploratory analyses revealed significant gender differences, such that men reported higher levels of sexual attraction and infidelity compared to women. These results corroborate past findings that men report having more sexually permissive attitudes (Schmitt, 2005) and are more sensitive to sexual stimuli compared to women (Gillath & Canterberry, 2011). Men also reported more sexually permissive attitudes than women, and these attitudes may contribute to higher levels of sexual attraction and infidelity likelihood in men compared to women. Moreover, men were less likely to tell the alternative they had a partner and were not interested compared to women. Men were also more receptive to sexual forms of infidelity in the imagined scenario, such as going back to the alternative's hotel and having sex with them. These findings are consistent with research on motivations for infidelity which show that men have a stronger desire to engage in infidelity compared to women (Lalasz & Weigel, 2011; Prins et al.,

1993). Although gender differences emerged for infidelity likelihood, the sequence in which the decision-making process unfolds did not differ. That is, temptation led to increased sexual attraction and increased cognitive dissonance for men and women equally, and both relied on their relationship satisfaction to alleviate their dissonance and resist temptations of infidelity.

Exploratory analyses also did not reveal differences in sexual attraction, dissonance, satisfaction, self-control, or infidelity as a function of relationship status. These results do not support findings that extradyadic behaviors occur more among dating partners compared to married partners (Luo et al., 2010; Treas & Giesen, 2000). Moreover, relationship status (i.e., dating vs. married) did not moderate the association between the processes that give rise to infidelity. These null effects demonstrate that the sequence in which decision-making processes unfold is similar for dating and married partners.

Altogether, Study 1 showed support for the prediction that high temptation leads to (hypothetical) infidelity as a function of increased sexual attraction and cognitive dissonance, and that high relationship satisfaction levels can disrupt the link between dissonance and infidelity. Decision-making is a deliberate and controlled process, and this suggests that self-control is likely to influence infidelity outcomes. Correlational results in this study indicated that self-control was negatively related to relationship satisfaction and infidelity likelihood. These findings suggest that devaluing alternatives to thwart temptations of infidelity may require mental effort. In order to experimentally test this assumption, participants in Study 2 were depleted of their cognitive resources prior to imagining the tempting scenario to examine whether low cognitive control leads to higher infidelity likelihood even among highly satisfied partners.

Chapter 5: Study 2

The goal of Study 2 was to test the effect of cognitive depletion on the proposed decision-making model. Participants first completed a cognitive depletion task and were then prompted to imagine either a high temptation or low temptation scenario similar to Study 1.

The hypotheses for Study 2 are listed below:

Hypotheses

Hypothesis 1. High temptation will be associated with more sexual attraction than low temptation, and cognitive depletion will intensify this pattern.

Hypothesis 2. High temptation will be associated with more cognitive dissonance than low temptation, and cognitive depletion will intensify this pattern.

Hypothesis 3. High temptation will be associated with greater infidelity likelihood than low temptation, and cognitive depletion will intensify this pattern.

Hypothesis 4. Temptation will predict infidelity likelihood above and beyond relationship satisfaction.

Hypothesis 5. The association between high temptation and infidelity likelihood will be mediated by increased sexual attraction and cognitive dissonance.

Hypothesis 6. Cognitive depletion will moderate the association between relationship satisfaction and cognitive dissonance on infidelity likelihood, such that dissonance will lead to greater infidelity when satisfaction is low and cognitive control is low.

Method

Participants and Design. A total of 286 participants were recruited from Amazon's Mechanical Turk (172 females) with an average age of 38.02 years ($SD = 11.72$; range 20-75). All participants were currently in a romantic relationship: 30.8% of participants reported being in

a committed romantic relationship ($n = 88$) and 69.2% reported being married ($n = 198$) for an average of 137.55 months ($SD = 136.69$). The sample's ethnicity included 78.3% White or Caucasian, 4.2% Black or African American, 8.7% Asian, 6.3% Hispanic or Latinx, .3% Middle Eastern, .3% Native American, and 1.7% Other. The sample's sexual orientation included 89.5% heterosexual, 3.9% homosexual, 6% bisexual, and .7% Other.

This study used a 2 (temptation: low temptation, high temptation) X 2 (depletion: low depletion, high depletion) between-subjects design. A power analysis was conducted using G*power (Faul et al., 2007) for a two-way ANOVA ($f = .25$, $\alpha = .05$, $1 - \beta = .80$, # groups = 4) and resulted in a suggested sample size of 220 participants—approximately 55 in each of the four conditions. Participants were randomly assigned to either a high temptation and high depletion condition ($n = 71$), high temptation and low depletion condition ($n = 73$), low temptation and high depletion condition ($n = 68$), or low temptation and low depletion condition ($n = 74$).

Procedure

After consenting, participants were randomly assigned to the high depletion or low depletion condition, which involved completing a series of fluid intelligence pattern recognition tasks. After the cognitive depletion manipulation, participants were randomly assigned to either the high temptation or low temptation condition using the same imagined scenario paradigm as Study 1. Participants then completed the same battery of questionnaires as Study 1 with the addition of manipulation check items. At the end of the study, participants were debriefed, thanked, and compensated for their participation.

Temptation Manipulation

The temptation manipulation was the same imagined scenario used in Study 1. However, in this study, participants were asked to imagine an alternative of the *preferred* sex, rather than one of the *opposite* sex.

Cognitive Depletion Manipulation

Participants completed a series of pattern recognition tests, similar to Raven's Progressive Matrices (RPM; Raven, Raven, & Court, 2003), as a cognitive depletion task. Pattern recognition tasks are associated with working memory and have been used as a method for depleting cognitive resources (see Dang, 2018). Participants were presented with a matrix of geometric designs and were asked to select a diagram that completed the pattern from a set of six answers. Participants in the high depletion condition completed 10 pattern recognition tests and participants in the low depletion condition completed five pattern recognition tests. Participants were told to work at their own pace. The pattern recognition stimuli are presented in Appendix F.

Measures

Participants completed a series of questionnaires in the following order:

Cognitive Depletion Manipulation Check. Three items were used to assess the effectiveness of the depletion manipulation to test the difficulty of the task (i.e., "*The task was difficult*"), how challenging the task was (i.e., "*The task was challenging*"), and the mental effort required for the task (i.e., "*The task required a lot of mental effort*"). The reliability of this measure was .81.

Sexual Attraction. The same 7-item measure in Study 1 was used to assess sexual attraction (e.g., "*The imagined partner was very attractive.*"). Ratings were made on a Likert-type scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The reliability of this measure was .95.

Cognitive Dissonance. The same cognitive dissonance measure in Study 1 (6 items; Elliot & Devine, 1994) was used to assess cognitive dissonance (e.g., “*I feel disappointed in myself.*”). Ratings were made on a Likert-type scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The reliability of this measure was .97.

Infidelity Likelihood. The same six items were used to assess infidelity likelihood (e.g., “*Accept the partner’s invitation.*”). Ratings were made on a Likert-type scale from 1 (*very unlikely*) to 7 (*very likely*). The reliability of this measure was .94.

Self-Control. The Brief Self-Control Scale (13 items; Tangney et al., 2004) was used to assess trait self-control (e.g., “*I am good at resisting temptations.*”). Ratings were made on a Likert-type scale from 1 (*not at all*) to 5 (*extremely*). The reliability of this measure was .88.

Relationship Satisfaction. Similar to Study 1, a subsection of The PRQC (Fletcher et al., 2000) was used to assess relationship satisfaction (3 items; $\alpha = .97$). Ratings were made on a Likert-type scale from 1 (*not at all*) to 5 (*extremely*).

Covariates. The same covariates in Study 1 were measured. See Appendix G for the alpha reliabilities of each measure.

Results

Analyses Overview

The major goals of Study 2 were to replicate the findings from Study 1 and test whether cognitive depletion impacted the decision-making process. Specifically, I tested whether cognitive depletion moderated the association between temptation and sexual attraction (Hypothesis 1), temptation and cognitive dissonance (Hypothesis 2), and temptation and infidelity likelihood (Hypothesis 3). I also tested whether temptation would predict infidelity likelihood above and beyond relationship satisfaction (Hypothesis 4), and whether the

association between temptation and infidelity was mediated by increased sexual attraction and cognitive dissonance (Hypothesis 5). Finally, I tested whether cognitive depletion moderated the association between relationship satisfaction and dissonance on infidelity likelihood (Hypothesis 6).

The following section provides the results from the analyses including factorial ANOVAs, regression models, and moderated-mediational models.

Preliminary Analyses

Attention Check and Exclusion Criteria. One participant was removed from the analyses due to failing the attention check items that were embedded throughout the questionnaire (i.e., 4 or more of 7 items were answered incorrectly). Six participants were also excluded from the analyses due to not being in a committed romantic relationship (e.g., single or casually dating).³

Manipulation Check. Three items were averaged to assess task difficulty, which served as a measure of cognitive depletion (Renaud & Blondin, 1997). Participants in the high depletion condition ($M = 4.47$, $SD = .51$) rated the cognitive task to be more difficult compared to participants in the low depletion condition ($M = 4.20$, $SD = .70$), $t(267.76) = -3.80$, $p = .0001$, 95% CI [-.42, -.13]. These findings suggest that the high depletion task required greater cognitive effort compared to the low depletion task.

Descriptive Data. Approximately 60.5% of participants had children and the average sex frequency was 6.81 times a month ($SD = 7.74$). Approximately 27.6% of participants ($n = 79$) reported cheating on their partner in the past, 1.4% of participants ($n = 4$) were unsure whether

³ Data were also collected using a sample of undergraduate students ($N = 13$) in an attempt to increase sample size, however these participants were dropped due to the failure of administering a manipulation check of the cognitive depletion measure.

they had cheated, and 71% of participants ($n = 203$) reported never cheating. Moreover, 49.1% of participants ($n = 140$) reported being cheated on in the past, 10.2% of participants ($n = 29$) were unsure whether they had been cheated on, and 40.7% of participants ($n = 116$) reported never being cheated on by their partner.

Descriptive statistics for all measured variables are listed in Table 10, and Pearson correlations are presented in Table 11.

Table 10
Descriptive Statistics for Study 2 Variables

Variable	<i>N</i>	<i>M</i>	<i>SD</i>	Range	
				Potential	Actual
Sexual Attraction	286	3.91	1.94	1 – 7	1.00 – 7.00
Cognitive Dissonance	286	2.41	1.61	1 – 7	1.00 – 7.00
Relationship Satisfaction	286	3.97	.98	1 – 5	1.00 – 5.00
Trait Self-Control	286	3.55	.71	1 – 5	1.00 – 5.00
Infidelity Likelihood	286	2.33	1.57	1 – 7	1.00 – 7.00

Table 11
Pearson Correlation for Study 2 Variables

Variables	1.	2.	3.	4.	5.
1. Sexual Attraction	–				
2. Cognitive Dissonance	.39**	–			
3. Relationship Satisfaction	-.12*	-.18**	–		
4. Trait Self-Control	-.19**	-.43**	.26**	–	
5. Infidelity Likelihood	.59**	.45**	-.23**	-.36**	–

Note. $N = 286$.

* $p < .05$. ** $p < .01$.

Sexual attraction was positively correlated with cognitive dissonance and infidelity likelihood and negatively correlated with relationship satisfaction and trait self-control.

Cognitive dissonance was negatively correlated with relationship satisfaction and trait self-

control and positively correlated with infidelity likelihood. Finally, relationship satisfaction and trait self-control were both negatively correlated with infidelity likelihood.

Test of Key Hypotheses

A series of factorial ANOVAs and moderated-mediation models were conducted to test each hypothesis. Mean-centered interaction terms were created before entering the variables into the model.

Two-way ANOVAs. Three 2 X 2 ANOVAs were conducted with temptation (low, high) and cognitive depletion (low, high) as the independent variables and sexual attraction, cognitive dissonance, and infidelity likelihood as the dependent variables.

The interaction between temptation and depletion was not significant for sexual attraction, $F(1, 282) = .19, p = .66, \eta_p^2 = .001$. The main effect of depletion was also not significant, $F(1, 282) = .33, p = .57, \eta_p^2 = .001$. The main effect of temptation was significant, $F(1, 282) = 304.02, p = .0001, \eta_p^2 = .52$; high temptation ($M = 5.29, SD = 1.30$) was associated with more sexual attraction compared to low temptation ($M = 2.51, SD = 1.39$). The main effect of context replicated Study 1, but the lack of moderation by depletion level was inconsistent with Hypothesis 1.

Similarly, the two-way interaction between temptation and depletion was not significant for cognitive dissonance, $F(1, 282) = 1.93, p = .17, \eta_p^2 = .007$. The main effect of depletion was also not significant, $F(1, 282) = .01, p = .93, \eta_p^2 = .00$. The main effect of temptation was significant, $F(1, 282) = 9.09, p = .003, \eta_p^2 = .03$. High temptation ($M = 2.69, SD = 1.63$) was associated with greater cognitive dissonance compared to the low temptation condition ($M = 2.12, SD = 1.55$). These findings did not support Hypothesis 2.

Infidelity likelihood was also not affected by the two-way interaction between temptation and depletion, $F(1, 282) = 1.61, p = .21, \eta_p^2 = .006$. The main effect of depletion was also not significant, $F(1, 282) = .69, p = .41, \eta_p^2 = .002$. However, the main effect of temptation on infidelity likelihood was significant, $F(1, 282) = 19.33, p = .001, \eta_p^2 = .064$, in which high temptation ($M = 2.73, SD = 1.67$) was associated with greater infidelity likelihood compared to low temptation ($M = 1.93, SD = 1.37$). These findings did not support Hypothesis 3. Overall, these findings replicate the effects of temptation context on attraction, dissonance, and infidelity reported in Study 1, but provide no evidence that cognitive depletion moderates these effects.

Means and standard deviations by condition are listed in Table 12.

Table 12

Means and Standard Deviations for Study 2 Variables by Condition

Variable	High Temptation				Low Temptation			
	High Depletion		Low Depletion		High Depletion		Low Depletion	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Sexual Attraction	5.37	1.31	5.21	1.29	2.52	1.43	2.50	1.37
Cognitive Dissonance	2.57	1.63	2.82	1.62	2.26	1.68	1.99	1.42
Relationship Satisfaction	4.10	0.96	3.75	1.03	4.12	0.89	3.92	0.99
Trait Self-Control	3.57	0.75	3.53	0.79	3.61	0.69	3.49	0.62
Infidelity Likelihood	2.54	1.61	2.92	1.72	1.97	1.43	1.89	1.31

Note. $N = 286$.

Hierarchical Regression: Temptation and Infidelity Likelihood Controlling for Relationship Satisfaction. A hierarchical regression was conducted to test whether temptation (low temptation = 0, high temptation = 1) predicted infidelity likelihood above and beyond relationship satisfaction. Relationship satisfaction was entered into Step 1, temptation was

entered into Step 2, and the mean-centered interaction term was entered into Step 3. Relationship satisfaction explained 5.5% of the variance in infidelity likelihood, $F(1, 284) = 16.40, p = .001$. Temptation explained an additional 5.9% of the variance in infidelity likelihood, $F(1, 283) = 18.90, p = .0001$. Adding the mean-centered interaction term in Step 3 did not significantly improve model fit, $F(1, 282) = .78, \Delta R^2 = .00, p = .38$, however, temptation remained a significant predictor of infidelity, $B = .77, SE = .18, \beta = .24, t(282) = 4.34, p = .0001, 95\% CI [.42, 1.11]$, after controlling for the variance accounted for by relationship satisfaction. The effect of satisfaction on infidelity decreased once temptation was entered, though it remained a significant predictor, $B = -.27, SE = .13, \beta = -.17, t(282) = -2.06, p = .04, 95\% CI [-.53, -.01]$. Consistent with Hypothesis 4, high temptation contexts promote infidelity above and beyond relationship satisfaction. Table 13 displays the regression coefficients for each step.

Table 13
Hierarchical Regression Model Predicting Infidelity Likelihood

Variable	Infidelity Likelihood					
	Model 1		Model 2		Model 3	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Constant	3.83**	.38	3.37**	.38	3.03**	.55
Relationship Satisfaction	-.38**	.09	-.36**	.09	-.27*	.13
Temptation			.77**	.18	.77**	.18
Satisfaction x Temptation					-.16	.18
R^2	.06		.11		.12	
F	16.40**		18.17**		12.36**	
ΔR^2			.06		.00	
ΔF			18.90**		.78	

Note. $N = 286$. B = unstandardized coefficients. SE = standard error.

* $p < .05$. ** $p < .01$.

Sequential Moderated-Mediation Modeling: Testing the Decision-Making Model.

To test the proposed decision-making model, a sequential moderated-mediation model was conducted in PROCESS (Model 87; Hayes, 2013) to determine whether the association between temptation and infidelity was mediated by increased sexual attraction and cognitive dissonance when controlling for cognitive depletion, and whether relationship satisfaction moderated this effect. The model included temptation (low temptation = 0, high temptation = 1) as the independent variable (X), sexual attraction as the first mediator (M₁), cognitive dissonance as the second mediator (M₂), relationship satisfaction as the moderator (W), cognitive depletion as the covariate (cov), and infidelity likelihood as the outcome variable (Y).⁴ All predictor variables (except temptation context) were mean-centered before being entered into the model.

As predicted, high temptation was associated with increased sexual attraction ($B = 1.44$, $SE = .08$, $t(283) = 17.46$, $p = .0001$, 95% CI [1.28, 1.60]) above and beyond cognitive depletion. Sexual attraction was associated with increased cognitive dissonance ($B = .54$, $SE = .08$, $t(282) = 6.83$, $p = .0001$, 95% CI [.38, .69]) after controlling for temptation and cognitive depletion. Cognitive dissonance was associated with greater infidelity likelihood ($B = .33$, $SE = .08$, $t(279) = 4.39$, $p = .0001$, 95% CI [.18, .48]) after controlling for all variables in the model. Hypothesis 5, which stated that the association between temptation and infidelity is mediated by increased sexual attraction and dissonance, was therefore supported.

However, inconsistent with Hypothesis 6, relationship satisfaction did not moderate the path between cognitive dissonance and infidelity likelihood, $B = .01$, $SE = .07$, $t(279) = .10$, $p = .92$, 95% CI [-.13, .15]. The index of moderated mediation was also not significant, $B = .01$, SE

⁴ An alternative sequential moderated-mediation model was tested with cognitive dissonance as the first mediator variable and sexual attraction as the second mediator variable. This model is shown in Appendix J.

= .07, 95% CI [-.12, .13]. See Table 14 for regression coefficients of the mean-centered predictor variables.

Table 14

Sequential Moderated-Mediation Model Testing Each Path of the Decision-Making Model

Variable	Model 1 Sexual Attraction		Model 2 Dissonance		Model 3 Infidelity		Model 4 Infidelity (mod) ^a	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Constant	-.73**	.07	.21	.11	2.86**	.14	2.09**	.14
Temptation	1.44**	.08	-.41**	.16	-.94**	.20	.58**	.17
Cognitive Depletion	.05	.08	-.02	.11	-.16	.14	-.10	.17
Sexual Attraction			.54**	.08	1.12**	.11		
Cognitive Dissonance					.33**	.08	.50**	.12
Satisfaction					-.19**	.07	-.18	.11
Dissonance x Satisfaction					.01	.07	.01	.12
Dissonance x Depletion							.23	.17
Satisfaction x Depletion							-.12	.17
Satisfaction x Depletion x Dissonance							-.02	.18
<i>R</i> ²		.52		.17		.47		.27
<i>F</i>		152.69**		19.16**		40.90**		12.71**

Note. *N* = 286. *B* = unstandardized coefficients. *SE* = standard error. *CI* = confidence interval. Models 1-3 test full moderated-mediation model (Model 87; PROCESS). ^a Modified moderated-mediation model (Model 18; PROCESS) that excludes sexual attraction as a mediator and includes depletion as a second moderator; i.e., temptation (*X*), dissonance (mediator), infidelity (*Y*), satisfaction (*W*), and cognitive depletion (*Z*).

* *p* < .05. ** *p* < .01.

The same issue of multicollinearity in Study 1 occurred when including both temptation and sexual attraction in the model, such that temptation negatively predicted infidelity likelihood when the variance of sexual attraction was accounted for in the model. The sequential moderated-mediation model is displayed in Figure 5.

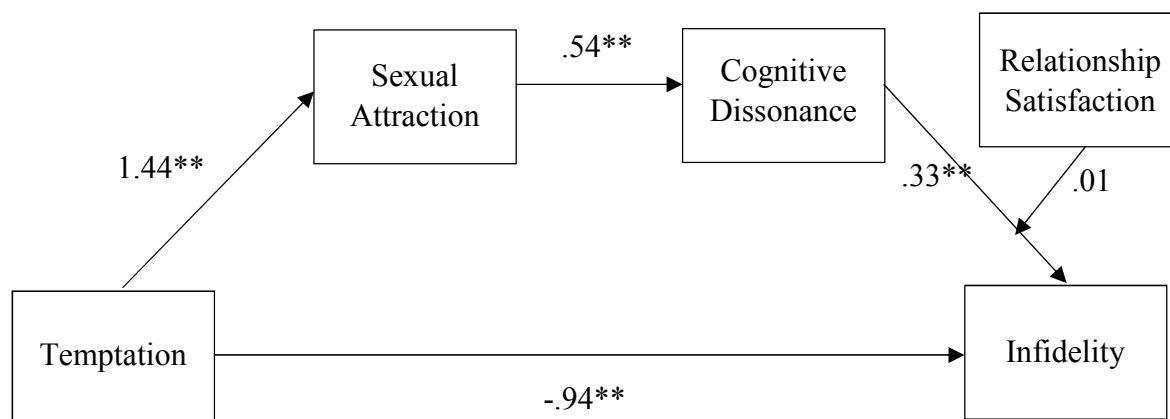


Figure 5. $N = 286$. Unstandardized regression coefficients for temptation, sexual attraction (M_1), cognitive dissonance (M_2), relationship satisfaction (W), and infidelity likelihood (Y), controlling for cognitive depletion (cov).

** $p < .01$.

The model remained significant when including all covariates. These findings are presented in Appendix H.

A modified model. As can be seen in Table 14, entering sexual attraction into the model affected the valence of temptation's effect on infidelity, such that high temptation negatively predicted infidelity likelihood, $B = -.94$, $SE = .20$, $t(279) = -4.69$, $p = .0001$, 95% CI [-1.34, -.55], while sexual attraction remained a positive predictor of infidelity, $B = 1.12$, $SE = .11$, $t(279) = 10.42$, $p = .0001$, 95% CI [.91, 1.33]. The high correlation between temptation and sexual attraction ($r = .72$, $p = .0001$) raises concerns about multicollinearity and thus it may be redundant to include both variables in the model. This pattern was also found in Study 1 when testing the sequential moderated-mediation model (Model 87). Therefore, I tested a moderated-mediation model (Model 18; PROCESS, Hayes, 2013) excluding sexual attraction as a mediator. In this modified model, I entered cognitive depletion as a second moderator to test Hypothesis 6 (see Figure 6). Specifically, Model 18 (PROCESS) allowed a test of the prediction that cognitive

depletion moderates the association between relationship satisfaction and cognitive dissonance on infidelity outcomes.

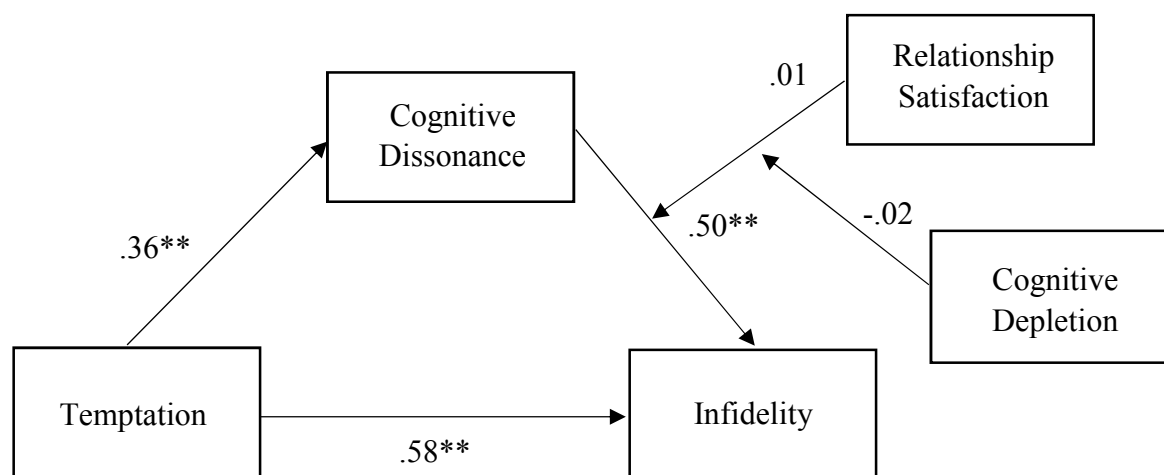


Figure 6. $N = 286$. Moderated mediation model (Model 18; PROCESS) with temptation as the predictor variable (X), dissonance as the mediator (M), satisfaction as the first moderator (W), cognitive depletion as the second moderator (Z), and infidelity as the outcome variable (Y).
 $** p < .01$.

In this model, temptation was positively associated with cognitive dissonance ($B = .36$, $SE = .12$, $t(284) = 3.06$, $p = .002$, 95% CI [.13, .59]) and infidelity likelihood ($B = .58$, $SE = .17$, $t(277) = 3.52$, $p = .001$, 95% CI [.26, .91]). Cognitive dissonance was also positively associated with infidelity likelihood, $B = .50$, $SE = .12$, $t(277) = 4.11$, $p = .0001$, 95% CI [.26, .74]. Inconsistent with Hypothesis 6, the three-way interaction between cognitive depletion, relationship satisfaction, and cognitive dissonance on infidelity was not significant, $B = -.02$, $SE = .18$, $t(277) = -.11$, $p = .909$, 95% CI [-.37, .32]. No other interactions were significant. These results do not support my prediction that relationship satisfaction would moderate the link between cognitive dissonance and infidelity likelihood when cognitive control is low. The index of moderated-mediation was also not significant, index = $-.01$, $SE = .08$, 95% CI [-.20, .14].

The inclusion of covariates did not affect the findings of the modified model. These findings are presented in Appendix I.

Exploratory Analyses

Exploratory analyses were conducted to test potential moderating effects of cognitive depletion and relationship satisfaction on the major variables in the decision-making model. I also explored whether gender and relationship status (i.e., dating vs. married) moderated these effects.

The Role of Cognitive Depletion and Satisfaction in Decision-Making. Although I did not find that relationship satisfaction moderated the effect of dissonance on infidelity, I tested whether the interaction between relationship satisfaction and cognitive depletion moderated other model paths. I created interaction terms between relationship satisfaction, cognitive depletion, and all major variables in the decision-making model. Model 12 (PROCESS; Hayes, 2013) was tested with temptation as the predictor variable (X), dissonance as the mediator (M), infidelity as the outcome (Y), and relationship satisfaction (W) and cognitive depletion (Z) as moderators. The moderated-mediation model is displayed in Figure 7.

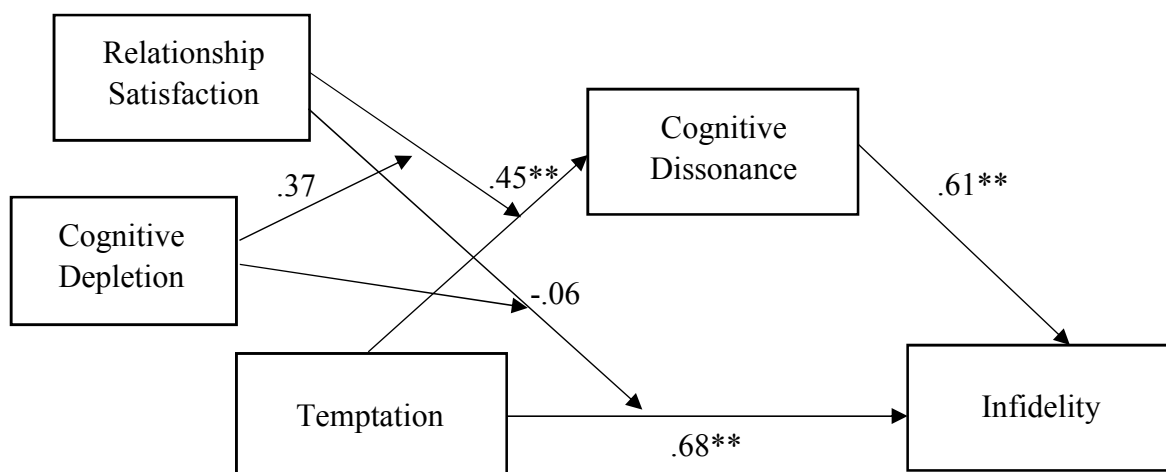


Figure 7. $N = 286$. Moderated mediation model (Model 12; PROCESS) with temptation as the predictor variable (X), dissonance as the mediator (M), satisfaction as the first moderator (W), cognitive depletion as the second moderator (Z), and infidelity as the outcome variable (Y).
** $p < .01$.

Cognitive depletion and relationship satisfaction did not moderate the association between temptation and cognitive dissonance, $B = .37$, $SE = .24$, $t(278) = 1.57$, $p = .12$, 95% CI [-.09, .84], or temptation and infidelity likelihood, $B = -.06$, $SE = .33$, $t(277) = -.19$, $p = .85$, 95% CI [-.72, .60]. These findings rule out the possibility that the interaction between cognitive depletion and relationship satisfaction influence the decision-making process at earlier stages in the model.

Gender Differences. A series of independent samples t -tests were conducted to explore whether men and women differed on the major variables in the decision-making model. Compared to women, men reported higher levels of sexual attraction, $t(256.42) = -3.80$, $p = .0001$, 95% CI [-1.29, -.41], cognitive dissonance, $t(197.95) = -3.64$, $p = .0001$, 95% CI [-1.13, -.34], and infidelity likelihood, $t(181.53) = -5.07$, $p = .0001$, 95% CI [-1.38, -.61]. Men also reported lower trait self-control compared to women, $t(281) = 2.56$, $p = .011$, 95% CI [.05, .39]. No gender differences emerged for relationship satisfaction, $t(280) = -1.21$, $p = .229$, 95% CI [-.35, .08]. Means and standard deviations are reported in Table 15.

Table 15
Means and Standard Deviations for Study 2 Variables by Gender

Variable	Males ($n = 111$)		Females ($n = 172$)		t	d
	M	SD	M	SD		
Sexual Attraction	4.44	1.74	3.59	1.99	-3.80**	.45
Cognitive Dissonance	2.87	1.79	2.13	1.43	-3.64**	.46
Relationship Satisfaction	4.04	0.75	3.91	1.10	-1.21	.14
Trait Self-Control	3.42	0.75	3.64	0.68	2.56*	.31
Infidelity Likelihood	2.95	1.80	1.95	1.28	-5.07**	.64

Note. $N = 283$.

* $p < .05$. ** $p < .01$.

Gender differences for each item of the infidelity likelihood scale were also explored. Similar to Study 1, men were more likely to accept the alternative partner's invitation, kiss the alternative, stay at the bar and flirt with the alternative, go to their hotel, and have sex with alternative compared to women. Also consistent with Study 1, men were less likely to tell the alternative that they had a partner and were not interested compared to women. Means and standard deviations are reported in Table 16.

Table 16

Means and Standard Deviations for Infidelity Likelihood Items by Gender

Item	<u>Males</u> (<i>n</i> = 111)		<u>Females</u> (<i>n</i> = 172)		<i>t</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
1. Accept Invitation	3.02	2.08	1.84	1.46	5.22**	.66
2. Kiss Partner	2.87	2.10	1.80	1.42	4.73**	.60
3. Stay at Bar and Flirt	3.31	2.00	2.76	1.93	2.29*	.28
4. Go to their Hotel	2.94	2.09	1.69	1.35	5.56**	.71
5. Have Sex at Hotel	2.85	2.16	1.63	1.33	3.28**	.68
6. Tell them Not Interested*	2.70	1.92	2.01	1.43	2.16*	.41

Note. *Item 6: "Tell them you have a partner and are not interested" was reversed scored (scale 1-7); higher values equal greater infidelity likelihood.

* $p < .05$. ** $p < .01$.

I also tested whether gender moderated the associations in the model using mean-centered interaction terms between gender and all major predictors. Gender did not moderate the effect of temptation on sexual attraction, $B = -.47$, $SE = .31$, $t(279) = -1.51$, $p = .13$, 95% CI [-1.08, .14], sexual attraction on dissonance, $B = -.07$, $SE = .19$, $t(279) = -.37$, $p = .71$, 95% CI [-.45, .31], satisfaction on dissonance, $B = -.03$, $SE = .22$, $t(279) = -.15$, $p = .88$, 95% CI [-.47, .40], or dissonance on infidelity, $B = -.32$, $SE = .17$, $t(279) = -1.91$, $p = .06$, 95% CI [-.64, .01].

I also tested whether gender moderated the effect of depletion and satisfaction on dissonance. The three-way interaction between gender, cognitive depletion, and satisfaction on dissonance was not significant, $B = .24$, $SE = .45$, $t(279) = .54$, $p = .59$, 95% CI [-.64, 1.12]. No other interactions were significant. These findings suggest that the processes in the decision-making model are the same for men and women.

The Role of Relationship Status on Infidelity Decisions. I conducted a series of independent samples t -tests to test whether dating versus married participants differed on the major variables of the model. No differences emerged for sexual attraction, dissonance, relationship satisfaction, self-control, or infidelity likelihood (all $ps > .05$). Means and standard deviations are reported in Table 17.

Table 17
Means and Standard Deviations for Study 2 Variables by Relationship Status

Variable	Married ($n = 198$)		Dating ($n = 88$)		t	p
	M	SD	M	SD		
Sexual Attraction	3.94	1.95	3.83	1.92	-.45	.65
Cognitive Dissonance	2.39	1.58	2.45	1.69	.31	.76
Relationship Satisfaction	3.91	1.04	4.11	0.82	1.62	.11
Trait Self-Control	3.57	0.71	3.50	0.73	-.82	.41
Infidelity Likelihood	2.34	1.58	2.31	1.57	-.16	.87

Note. $N = 286$.

I also tested whether relationship status moderated the paths in the decision-making model: it did not. Relationship status did not moderate the link between temptation and sexual attraction, $B = -.16$, $SE = .35$, $t(282) = -.47$, $p = .64$, 95% CI [-.84, .52], sexual attraction and dissonance, $B = .18$, $SE = .19$, $t(282) = .92$, $p = .36$, 95% CI [-.20, .56], satisfaction and dissonance, $B = -.09$, $SE = .23$, $t(282) = -.38$, $p = .70$, 95% CI [-.54, .37], or dissonance and

infidelity, $B = .20$, $SE = .18$, $t(282) = 1.12$, $p = .27$, 95% CI $[-.15, .54]$. These findings suggest that the processes in the decision-making model are the same for married and dating partners.

Discussion

The goal of Study 2 was to test the effect of cognitive depletion on infidelity decisions. Resisting temptations of infidelity is a deliberate cognitive process that requires cognitive resources (Finkel et al., 2009; Johnson & Rusbult, 1989). Thus, I reasoned that depleting participants of their cognitive resources would affect the decision-making process that precedes infidelity outcomes.

Inconsistent with predictions, cognitive depletion did not affect sexual attraction to the alternative, cognitive dissonance, or infidelity likelihood. These findings did not support Hypotheses 1-3. Specifically, findings did not replicate McIntyre et al.'s (2015) result that highly satisfied partners show high interest in attractive alternatives when depleted of their cognitive resources. Findings were also inconsistent with past work that shows that depletion is associated with more infidelity behaviors (Ciarocco et al., 2012; Gailliot & Baumeister, 2007; Maner et al., 2009). These null effects could be due to the cognitive depletion task used. Although working memory tasks have been used as a method for inducing ego depletion in many studies, findings from a recent meta-analysis suggest that the effectiveness of these measures on subsequent self-control is indistinguishable from zero (see Dang, 2018). Though participants felt that the high depletion task was more difficult and challenging, they may not have been truly depleted as they moved on to the infidelity task, and therefore were not lower in self-control as a result. Perhaps a task that had induced effort during the infidelity task itself would have been more effective in creating a state of depletion that may enhance the likelihood of infidelity.

Nonetheless, the significant main effects of temptation context were consistent with the decision-making model and replicated Study 1 findings. High temptation scenarios were associated with increased sexual attraction, cognitive dissonance, and infidelity likelihood. Temptation also predicted infidelity likelihood above and beyond relationship satisfaction. This finding showed support for Hypothesis 4. Relationship satisfaction remained a significant predictor of infidelity the final model (unlike in Study 1 which it was *ns*), however, its negative effect on infidelity was greatly reduced. This finding suggests that a high temptation context is a stronger predictor of infidelity than how satisfied partners are in their relationship.

Hypothesis 5 was supported as shown by the significant mediation between temptation and infidelity via increased sexual attraction and dissonance. Finally, Hypothesis 6 was not supported. There was no evidence that cognitive depletion and satisfaction affected dissonance and infidelity outcomes. These findings are inconsistent with Study 1, which showed support for the moderation prediction between satisfaction and dissonance, in which dissonance was associated with greater infidelity among partners with low levels of relationship satisfaction. I did not find this basic moderation effect or the predicted three-way interaction with cognitive depletion in Study 2. Additionally, findings from exploratory analyses did not reveal a significant effect of depletion and satisfaction at any other path in the decision-making model.

Findings from exploratory analyses revealed significant gender differences, such that men reported higher levels of sexual attraction, dissonance, and infidelity compared to women. These findings are consistent with Study 1 and corroborate past findings that men have higher sex drives and greater sensitivity to sexual content compared to women (Baumeister, Catanese, & Vohs, 2001; Schmitt, 2005). Men also reported higher levels of cognitive dissonance in general compared to women. These findings are similar to Anderson's (2010) findings that men

experience high levels of dissonance when opportunities for infidelity are high. Men also reported lower trait self-control compared to women, which was not seen in Study 1. Some work suggests that women tend to have higher self-control than men, and may explain why men commit greater risky and delinquent behaviors (Gibson, Ward, Wright, Beaver, & Delisi, 2010). Finally, men (compared to women) were more receptive to sexual forms of infidelity in the imagined scenario, such as going back to the alternative's hotel and having sex with them, and were less likely to tell the alternative they were not interested. Although gender differences emerged for infidelity likelihood, the sequence in which the decision-making process unfolds was the same for men and women.

Exploratory results also showed no differences between dating and married participants on levels of sexual attraction, dissonance, satisfaction, self-control, or infidelity. Moreover, relationship status did not moderate the associations of the decision-making model. These results also replicate findings in Study 1 and demonstrate that the sequence in which decision-making processes unfold does not differ as a function of relationship status.

Study 2 supports the general decision-making model, in which the association between high temptation and infidelity is mediated by increased sexual attraction and cognitive dissonance. However, inconsistent with Study 1, the prediction that high relationship satisfaction levels can disrupt the link between dissonance and infidelity was not supported. The effect of cognitive depletion on the decision-making process in general was also not supported. These results replicate Study 1 findings of temptation's effect on infidelity decision-making, but show no support for intensification when cognitive resources are depleted. In Study 3, I returned to tests of the main effects of temptation context (without a manipulation of cognitive depletion)

using a novel VR method to determine whether the effects of temptation on infidelity can be replicated in a virtual environment.

Chapter 6: Study 3

Although Studies 1 and 2 provided initial evidence for the decision-making model, they relied on using an imagined scenario paradigm. The goal of Study 3 was to improve this method by testing the effects of temptation in an immersive virtual environment. Virtual reality has the potential to elicit emotional reactions similar to real-life experiences and allows for the possibility to track participants' behaviors in real-time (Chirico et al., 2018). VR techniques have been successfully used in relationship research as a method for assessing interpersonal behavior. For example, Lydon et al. (2008) found that committed partners deliberately avoid attractive alternatives in a virtual environment, which is in line with theoretical perspectives on relationship commitment. Moreover, Schönbrodt and Asendorpf (2011) showed that partners interact similarly with a virtual spouse as compared with their actual spouse, demonstrating the validity of assessing relationship-related behaviors using VR. Therefore, in Study 3, I used VR to design a high and low temptation scenario to test the processes associated with infidelity as it unfurls.

The hypotheses for Study 3 are listed below:

Hypothesis 1. The high temptation virtual scenario, compared to the low temptation virtual scenario, will lead to greater levels of sexual attraction.

Hypothesis 2. The high temptation virtual scenario, compared to the low temptation virtual scenario, will lead to greater levels of cognitive dissonance.

Hypothesis 3. Infidelity likelihood will be greater in the high temptation virtual scenario compared to the low temptation virtual scenario.

Hypothesis 4. The association between temptation and infidelity likelihood will be mediated by increased sexual attraction and cognitive dissonance.

Hypothesis 5. Relationship satisfaction will moderate the association between cognitive dissonance and infidelity likelihood, such that cognitive dissonance will lead to higher infidelity likelihood when relationship satisfaction is low.

Method

Participants and Design

A total of 155 undergraduate students (109 females) were recruited from the University of Kansas with an average age of 18.76 years ($SD = 1.62$; range 18-35). The majority of participants reported being in a committed relationship (98.7%), one participant was married (.6%), and one was engaged (.6%); the average relationship length was 17.94 months ($SD = 15.35$). The sample's ethnicity included 77.4% White or Caucasian, 3.2% Black or African American, 7.7% Hispanic or Latinx, 7.1% Asian, .6 % Hawaiian or Pacific Islander, .6% Middle Eastern, and 3.2% Other. The sample's sexual orientation included 92.2% heterosexual, 1.2% homosexual, 6% bisexual, and .6% Other.

The experiment consisted of a 2 (temptation: high temptation, low temptation) X 2 (avatar gender: male, female) between-subjects factorial design. A power analysis recommended a total sample of 220 participants (F-tests; $1 - \beta = .80$, # of groups = 4). Participants were assigned to either a high temptation scenario ($n = 73$; $n = 50$ female participants) or a low temptation scenario ($n = 82$; $n = 59$ female participants).⁵ Because I focused on heterosexual participants, the avatar gender was completely confounded with participant gender (male participants were randomly assigned to the female avatar and female participants to the male avatar conditions).

⁵ The recommended sample size for 80% power ($N = 220$) was not achieved because data collection was forced to stop because of COVID-19.

Temptation Manipulation. Four games were created in Unity 3D (a game engine software described in more detail below) to accommodate the experimental design: high temptation female avatar, high temptation male avatar, low temptation female avatar, and low temptation male avatar. Temptation was manipulated by altering the avatar's level of physical attractiveness and tone of voice. In the high temptation scenario, the male and female avatars were *highly attractive* and spoke in a highly seductive tone; in the low temptation scenario, the male and female avatars were *highly unattractive* and spoke in a neutral tone (images of the avatars and text of their statements appear in the appendix). Participants were assigned to an avatar that was of the opposite sex. Given the nature of the design, only heterosexual and bisexual participants were included in the analyses.

Procedure

After providing consent, the experimenter ascertained that participants had no medical conditions that disqualified them from participating in the simulation (e.g., epilepsy, dizziness). The experimenter then read a cover story aloud to the participants. The participants were told that they would go on a virtual house tour with another participant in the study, with whom they believed would have the opportunity to meet after the study. They were told that one participant would serve as the “host of the house” and would give a tour of the virtual house. The other participant would serve as the “guest of the house” and would respond to questions posed by the host throughout the simulation. The participant was always assigned to the guest role and was told to follow the lead of the host. The full cover story is presented in Appendix K.

This study used deception—participants were led to believe they were interacting with a real other participant whom they would meet later, rather than a pre-programmed avatar. This

was done to reduce the likelihood that participants would treat the VR experience as an inconsequential game. Full debriefing was done at the end of the study.⁶

Prior to the simulation, participants were trained on how to navigate the virtual environment (via headset and controllers) and were encouraged to behave as they would in a real interaction. The experimenter then started the VR simulation and left the room until the simulation was over (approximately 6 minutes). During the virtual house tour, the avatar (“Alex”) initiated a conversation with the participant via a pre-programmed audio-recorded dialogue. Throughout the simulation, Alex made a series of flirtatious advances toward the participant. The participant was prompted at each point to respond using their wireless hand controllers by either accepting or rejecting the avatar’s advances. The avatar registered the responses to facilitate a seamless dialogue that reflected the participant’s input during the interaction. The same dialogue was delivered by the avatar in both temptation scenarios, but the tone was more seductive in the high temptation context. The full dialogue between the avatar and participant is presented in Appendix L.

After the simulation, participants completed a battery of questionnaires that assessed the same major variables of interest as in Studies 1 and 2. Participants were then fully debriefed on the nature of the study and were given credit for their participation.

VR Equipment. I developed the VR games in Unity 3D Game Engine—a cross-platform game engine developed by Unity Technologies (2019) that is used to create 3D video games and simulations. The Unity Asset Store was used to download 3D environments (e.g., sky, ground),

⁶ In debriefing, participants were notified that the avatar in the VR simulation was not an actual participant in the study, and the pre-programmed nature of the interaction was described. No participants reported feeling distressed during this process. Nonetheless, exposure to unsolicited flirtatious advances has the potential to cause distress and anxiety, perhaps particularly in participants with a history of sexual harassment. In the future, to reduce this potential risk, researchers doing studies of this sort might be advised to include screening for past experiences of sexual harassment prior to beginning the VR simulation, and to more explicitly describe the nature of the VR simulation in the consent process.

humanoids (e.g., avatars), and other game objects (e.g., table, plants) to design the simulation. I also coded all avatar animations (i.e., movement), audio recordings (i.e., background sounds, avatar's voice), dialogue system (i.e., interactive conversation), and responses (i.e., user's selected answers) using C # (a computer programming language) to execute the game.

I rendered the simulations using the Oculus Rift—a multi-sensory VR head mounted display (HMD) with a display pixel resolution of 960 x 1080 and stereoscopic 3D capability to create a three-dimensional image of the scene. The Oculus Rift is a lightweight headset (440 g) that includes a 360-degree head rotation to view the virtual world, haptic controllers to reach out and touch virtual stimuli, and camera sensors that tracks the user's movement. The headset has a 10' detachable cable that was connected to a Windows desktop via HDMI 1.4b input and a USB 3.0 port. The hand controllers and body sensors were connected to the computer separately, each using 2.0 USB ports. The Oculus controllers were paired and configured to interact with user interface (UI) in Steam VR (Davis, Bryla, & Benton, 2015). The Unity game was played through Steam VR and data was collected and saved in a .csv file after the game was over.

Measures

The order in which participants completed measures in Study 3 differed from Studies 1 and 2. Given the nature of the temptation manipulation, infidelity was measured first—during the VR simulation—prior to the major variables in the model. Participants completed a series of questionnaires in the following order:

Infidelity Likelihood. Infidelity was assessed by totaling the number of acceptances made to the avatar's flirtatious advances by the participant. A total of 12 items were scored to measure infidelity likelihood (0 = reject flirtatious advance, 1 = accept flirtatious advance). The reliability of this measure was .76. The full list of infidelity items is presented in Table 18.

Table 18

Infidelity Likelihood Items and Responses.

Item	Response A	Response B
1. Hi my name is Alex, welcome to my place! It's so nice to meet you!	<i>"The pleasure is all mine"</i>	<i>"Nice to meet you too"</i>
2. You're cute. I want to get to know you better. What do you want to talk about?	<i>"Personal Topic"</i>	<i>"Random Topic"</i>
3. So, what's your view on dating? Are you more the short-term or long-term type?	<i>"I prefer short-term relationships"</i>	<i>"I prefer long-term relationships"</i>
4. Let's flip a coin! Heads, I'm yours. Tails, you're mine. Hehe.	<i>"Alright, sure!"</i>	<i>"No, thanks"</i>
5. Cuddling with you would be perfect right now. Don't you agree?	<i>"Yes, totally!"</i>	<i>"No, not really"</i>
6. I hope I'm not making you uncomfortable by flirting with you. I just can't help it!	<i>"No, you're fine"</i>	<i>"Yes, you are"</i>
7. Hey, would it be alright if I slipped into something more comfortable?	<i>"Sure, that's ok"</i>	<i>"I don't care"</i>
8. Which outfit do you prefer me to wear?	<i>"Something sexy"</i>	<i>"Something casual"</i>
9. Would you mind if I changed in front of you? I can go to the other room if it will make you uncomfortable.	<i>"Change clothes here"</i>	<i>"Change clothes in other room"</i>
10. Wanna close the door from some privacy? Hehe.	<i>"Close door"</i>	<i>"Do not close door"</i>
11. How about dimming the lights down a little...to set the mood, if you know what I mean...	<i>"Dim lights"</i>	<i>"Do not dim lights"</i>
12. Ok, it's getting kinda late, and nothing good happens after midnight. Would you like to stay the night with me?	<i>"Stay the night"</i>	<i>"Leave house"</i>

Note. Response A = accept flirtatious advance, Response B = reject flirtatious advance.

Sexual Attraction. Similar to Studies 1 and 2, participants completed a 7-item questionnaire that assessed sexual attraction toward the virtual partner. Ratings were made on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Sample items include: “*Alex was irresistible*” and “*Alex was sexually alluring*.” The reliability of this measure was .92.

Cognitive Dissonance. Cognitive dissonance was assessed using Elliot and Devine’s (1994) measure of dissonance and psychological discomfort ($\alpha = .94$) along with a single item measure of self-discrepancy using the IOS (Aron et al., 1992). All ratings were made on a scale from 1 (*not at all*) to 7 (*very much*). The correlation between the cognitive dissonance and IOS measure was $r = .31, p = .0001$; thus, the two measures were combined to create an overall index of cognitive dissonance (7 items; $\alpha = .91$).

Self-Control. The Brief Self-Control Scale (13 items; Tangney et al., 2004) was used to assess trait self-control. Ratings were made on a scale from 1 (*not at all*) to 5 (*extremely*). The reliability of this measure was .81.

Relationship Satisfaction. As in the prior studies, a subsection of The PRQC (Fletcher et al., 2000) was administered to measure relationship satisfaction (3 items; $\alpha = .93$). Ratings were made on a Likert scale ranging from 1 (*not at all*) to 5 (*extremely*).

Covariates. The same covariates in Studies 1 and 2 were measured. See Appendix M for measure reliabilities.

Virtual Reality Presence. An adapted version of the ITC-Sense of Presence Inventory (7 items; Lessiter, Freeman, Keogh, & Davidoff, 2001) was used to assess perceived sense of presence in the virtual environment. Ratings were made on a Likert-type scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Sample items include: “*I was immersed in the virtual environment*” and “*Interacting in the virtual environment felt natural*.” The reliability of this

measure was .68. This instrument was added after data collection had begun, and was administered to only 28 participants.

Results

Analyses Overview

The major goals of Study 3 were to test whether high temptation virtual scenarios lead to higher levels of sexual attraction (Hypothesis 1), cognitive dissonance (Hypothesis 2), and infidelity likelihood (Hypothesis 3). The sequence of the decision-model was also tested to determine whether the association between temptation and infidelity was mediated by increased sexual attraction and increased cognitive dissonance (Hypothesis 4). Finally, the moderating role of relationship satisfaction on the association between dissonance and infidelity was tested to determine whether cognitive dissonance led to greater infidelity when satisfaction was low (Hypothesis 5). The following section provides the results from the analyses including factorial ANOVAs, logistic regression models, and moderated-mediational models.

Preliminary Analyses

Attention Check and Exclusion Criteria. Participants were excluded if they failed a minimum of four out of six attention checks that were imbedded in measures throughout the questionnaire. Two participants were removed for failing the attention check and 26 participants were removed because they were not in a heterosexual committed relationship ($n = 16$ single, $n = 5$ casually dating, $n = 5$ gay/lesbian sexual orientation). The final sample included 155 participants.

VR Presence Check. The seven items were averaged to assess perceptions of presence in the virtual environment. Ratings for overall VR presence were average ($M = 3.94$, $SD = .93$). I also tested whether perceptions differed across temptation condition: they did not. Participants in

the high temptation context ($M = 3.64$, $SD = .94$) rated their VR experience similarly to those in the low temptation context ($M = 4.10$, $SD = .91$), $t(26) = 1.27$, $p = .22$, 95% CI [-.28, 1.20].

Participants who interacted with the male avatar ($M = 4.10$, $SD = .91$) also rated their VR experience similarly to those who interacted with the female avatar ($M = 3.78$, $SD = .95$), $t(26) = .93$, $p = .36$, 95% CI [-.40, 1.05].

Descriptive Data

Approximately 11.6% of participants ($n = 18$) reported cheating on their partner in the past, 1.3% ($n = 2$) were unsure whether they had cheated, and 87.1% of participants ($n = 135$) reported never cheating. Moreover, 40.6% of participants ($n = 63$) reported being cheated on in the past, 5.2% of participants ($n = 8$) were unsure whether they had been cheated on, and 54.2% of participants ($n = 84$) reported never being cheated on by their partner. The average sex frequency was 2.21 days a week ($SD = 1.26$). No participants reported having children.

Descriptive statistics for all measured variables are listed in Table 19, and Pearson correlations are presented in Table 20.

Table 19
Descriptive Statistics for Study 3 Variables

Variable	<i>N</i>	<i>M</i>	<i>SD</i>	Range	
				Potential	Actual
Sexual Attraction	155	2.70	1.36	1 – 7	1.00 – 6.00
Cognitive Dissonance	155	2.33	1.07	1 – 7	1.29 – 6.86
Relationship Satisfaction	155	4.38	.74	1 – 5	1.00 – 5.00
Self-Control	155	3.42	.55	1 – 5	1.85 – 4.62
Infidelity Likelihood	155	2.59	2.46	0 – 12	0 – 11

Note. Infidelity likelihood is a frequency count of the total number of infidelity-related responses made in the VR game.

Table 20
Pearson Correlations for Study 3 Variables

Variables	1.	2.	3.	4.	5.
1. Sexual Attraction	–				
2. Cognitive Dissonance	.33**	–			
3. Relationship Satisfaction	-.13	-.37**	–		
4. Self-Control	-.14†	-.35**	.36**	–	
5. Infidelity Likelihood	.50**	.34**	-.14†	-.21**	–

Notes. $N = 155$. † $p = .08$. ** $p < .01$.

As in Studies 1 and 2, sexual attraction was positively correlated with cognitive dissonance and infidelity likelihood, and negatively correlated with self-control, although this was marginally significant. Cognitive dissonance was negatively associated with relationship satisfaction and self-control, and positively associated with infidelity likelihood. Relationship satisfaction was positively associated with self-control and negatively associated with infidelity likelihood, although this was only marginally significant. Self-control was negatively associated with infidelity likelihood.

Test of Key Hypotheses

A series of ANOVAs, regression models, and moderated-mediation models were conducted to test each hypothesis. Mean-centered interaction terms were created prior to entering variables into the model.

Two-way ANOVAs. Three 2 X 2 ANOVAs were conducted to test the effect of temptation (low temptation = 0, high temptation = 1) and avatar gender (female = 0, male = 1) on each of the major variables posed in the model: sexual attraction, cognitive dissonance, and

infidelity likelihood. Of course, avatar gender is completely confounded with participant gender in these analyses.

The main effect of temptation on sexual attraction was significant, $F(1, 151) = 28.14, p = .0001, \eta_p^2 = .16$, such that participants in the high temptation context reported more sexual attraction ($M = 3.05, SD = 1.39$) compared to participants in the low temptation context ($M = 2.55, SD = 1.33$). This finding shows support for Hypothesis 1. The main effect of avatar gender on sexual attraction was also significant, $F(1, 151) = 4.33, p = .039, \eta_p^2 = .03$, such that (male) participants who interacted with the female avatar reported more sexual attraction ($M = 3.05, SD = 1.39$) compared to (female) participants who interacted with the male avatar ($M = 2.55, SD = 1.33$). The two-way interaction between temptation and avatar gender was marginally significant, $F(1, 151) = 3.01, p = .085, \eta_p^2 = .02$, and suggested that the effect of temptation on sexual attraction was stronger for male participants, $B = 1.47, SE = .23, t(151) = 6.45, p = .0001, 95\% \text{ CI } [1.02, 1.92]$, compared to female participants, $B = .75, SE = .35, t(151) = 2.13, p = .03, 95\% \text{ CI } [.05, 1.44]$.

The main effect of temptation on cognitive dissonance was not significant, $F(1, 151) = .28, p = .60, \eta_p^2 = .00$, and did not support Hypothesis 2. The main effect of avatar gender on dissonance was not significant, $F(1, 151) = .21, p = .65, \eta_p^2 = .00$, nor was the interaction between temptation and avatar gender, $F(1, 151) = .20, p = .66, \eta_p^2 = .00$.

The main effect of temptation on infidelity likelihood was not significant, $F(1, 151) = 1.50, p = .22, \eta_p^2 = .01$, and did not support Hypothesis 3. However, the main effect of avatar gender on infidelity likelihood was significant, $F(1, 151) = 16.04, p = .0001, \eta_p^2 = .10$, such that (male) participants who interacted with the female avatar reported greater infidelity likelihood ($M = 3.76, SD = 3.02$) compared to (female) participants that interacted with the male avatar (M

= 2.09, $SD = 2.00$). The two-way interaction between temptation and avatar gender was also not significant, $F(1, 151) = .32, p = .58, \eta_p^2 = .00$.⁷

Means and standard deviations by temptation context and avatar gender are listed in Table 21.

Table 21

Means and Standard Deviations for Study 3 Variables by Condition

Variable	High Temptation				Low Temptation			
	Female Avatar ($n = 23$)		Male Avatar ($n = 50$)		Female Avatar ($n = 23$)		Male Avatar ($n = 59$)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Sexual Attraction	3.42	1.36	3.35	1.22	2.68	1.34	1.88	1.02
Cognitive Dissonance	2.48	0.83	2.31	0.90	2.30	1.04	2.30	1.30
Relationship Satisfaction	4.45	0.66	4.45	0.68	4.09	0.96	4.41	0.72
Trait Self-Control	3.35	0.58	3.46	0.60	3.30	0.62	3.46	0.46
Infidelity Likelihood ^a	4.13	3.08	2.24	1.91	3.39	2.98	1.97	2.08

Note. $N = 155$. ^a Infidelity likelihood is the average number of acceptances made in the game (i.e., average of frequencies). Male participants interacted with the female avatar and female participants interacted with the male avatar. Thus, averages reflect responses made by participants of the opposite sex of the avatar (e.g., male participants' average sexual attraction in high temptation scenario = 3.42, $SD = 1.36$).

In the analyses reported above, infidelity likelihood was the count of number of responses to the twelve flirtatious comments. However, each of the 12 choice points can also be treated as a dichotomous variable (coded as reject = 0, accept = 1). I conducted a series of two-way logistic

⁷ The average score for infidelity likelihood was positively skewed (skewness = 1.06, Kolmogorov-Smirnov = .17, $p = .0001$, Shapiro-Wilk = .88, $p = .0001$), so I conducted a data transformation using natural log and square root transformation to normalize the variable. Because the variable included a 0 value, I added a constant of 1 to the variable before transforming the data (because computing the log of 0 is not possible). However, transforming the data did not alter the findings.

regressions with temptation (low temptation = 0, high temptation = 1) and participant gender (female = 0, male = 1) as the predictor variables and infidelity response (reject, accept) as the outcome variable to each item.

Male participants were .32 times as likely as female participants (i.e., less likely) to report feeling uncomfortable with the avatar's flirtatious advances, $B = -1.15$, $SE = .51$, $Wald = 4.99$, $p = .025$, 95% CI [.12, .87]. Male participants were also (a) 4.85 times more likely to prefer the avatar to change clothes in the bedroom, $B = 1.58$, $SE = .70$, $Wald = 5.05$, $p = .025$, 95% CI [1.22, 19.23], (b) 2.96 times more likely to dim the bedroom lights, $B = 1.09$, $SE = .57$, $Wald = 3.66$, $p = .056$, 95% CI [.97, 9.02], (c) and 37.29 times more likely to stay the night, $B = 3.62$, $SE = 1.10$, $Wald = 10.91$, $p = .001$, 95% CI [4.36, 319.08],⁸ compared to female participants. Male participants were also 3.93 times more likely to prefer the avatar to wear a sexy outfit compared to female participants, $B = 1.37$, $SE = .81$, $Wald = 2.87$, $p = .09$, 95% CI [.81, 19.17], although this finding was marginally significant.

Participants in the high temptation condition were 6.44 times more likely to stay the night compared to those in the low temptation condition, $B = 1.86$, $SE = 1.11$, $Wald = 2.80$, $p = .09$, 95% CI [.73, 57.13], although this was also marginally significant. No interaction effects between temptation and participant gender were significant on any of the items. Frequency and percentage of accept responses by temptation context and participant gender appear in Table 22.

⁸ The inflated odds ratio and confidence interval is due to a "sparse data problem," which occurred because of the low frequency of *staying the night* reported by women in the low temptation context ($n = 1$). Because this value is close to zero, the maximum cannot be established, and consequently resulted in estimation difficulties (see Siddarth, 2018).

Table 22
Observed Frequencies and Percentages for Accepted Infidelity Items by Condition

Infidelity Item	High Temptation		Low Temptation	
	Males	Females	Males	Females
1. Pleasure to meet you greeting	7 (30.4%)	2 (4%)	0 (0%)	2 (3.4%)
2. Personal topic conversation	12 (52.2%)	19 (38%)	8 (34.8%)	15 (25.4%)
3. Short-term dating preference	2 (8.7%)	5 (10%)	3 (13%)	3 (5.1%)
4. Agreed to play flirtatious game	9 (39.1%)	18 (36%)	9 (39.1%)	16 (27.1%)
5. Agreed to cuddle	5 (21.7%)	5 (10%)	4 (17.4%)	4 (6.8%)
6. Was not uncomfortable with flirting	13 (56.5%)	25 (50%)	15 (65.2%)	22 (37.3%)
7. Preferred avatar to change outfit	7 (30.4%)	11 (22%)	4 (17.4%)	13 (22%)
8. Sexy outfit preference	4 (17.4%)	1 (2%)	4 (17.4%)	3 (5.1%)
9. Preferred avatar to change in bedroom	9 (39.1%)	2 (4%)	6 (26.1%)	4 (6.8%)
10. Closed bedroom door	8 (34.8%)	12 (24%)	8 (34.8%)	24 (40.7%)
11. Dimmed bedroom lights	10 (43.5%)	7 (14%)	8 (34.8%)	9 (15.3%)
12. Stayed the night	9 (39.1%)	5 (10%)	9 (39.1%)	1 (1.7%)

Note. Percentages are calculated separately for high temptation ($n = 23$ male participants, $n = 50$ female participants) and low temptation ($n = 23$ male participants, $n = 59$ female participants).

Sequential Moderated-Mediation Modeling: Testing the Decision-Making Model. To

test the proposed decision-making model, a sequential moderated-mediation model was conducted in PROCESS (Model 87; Hayes, 2013) to determine whether the association between temptation and infidelity was mediated by increased sexual attraction and cognitive dissonance, when controlling for self-control, and whether relationship satisfaction moderated this effect. Mediation testing is still possible even though the temptation context did not directly affect infidelity (Rucker, Preacher, Tormala, & Petty, 2011). The model included temptation (low temptation = 0, high temptation = 1) as the independent variable (X), sexual attraction as the first mediator (M_1), cognitive dissonance as the second mediator (M_2), relationship satisfaction as the moderator (W), self-control as a covariate (cov), and infidelity likelihood as the outcome

variable (Y).⁹ All predictor variables were mean-centered (except temptation context) prior to being entered into the model.

As predicted, high temptation was associated with increased sexual attraction ($B = .94$, $SE = .14$, $t(150) = 6.61$, $p = .0001$, 95% CI [.66, 1.22]) above and beyond self-control. Sexual attraction was associated with increased cognitive dissonance ($B = .34$, $SE = .08$, $t(149) = 4.20$, $p = .0001$, 95% CI [.18, .50]), when controlling for temptation and self-control. Cognitive dissonance was associated with greater infidelity likelihood ($B = .51$, $SE = .23$, $t(146) = 2.19$, $p = .03$, 95% CI [.05, .96]) after controlling for all variables in the model. Hypothesis 4, which stated that the association between temptation and infidelity is mediated by increased sexual attraction and cognitive dissonance, was therefore supported.

However, inconsistent with Hypothesis 5, relationship satisfaction did not moderate the path between cognitive dissonance and infidelity likelihood, $B = .18$, $SE = .14$, $t(146) = 1.27$, $p = .21$, 95% CI [-.10, .45]. Regression coefficients of the mean-centered predictor variables are listed in Table 23.

Table 23
Sequential Moderated-Mediation Model Testing Each Path of the Decision-Making Model

Variable	Model I Sexual Attraction		Model II Dissonance		Model III Infidelity	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Constant	-.40**	.10	.06	.10	2.96**	.25
Temptation	.94**	.14	-.22	.16	-.65	.39
Self-Control	-.16*	.08	-.31**	.08	-.27	.20
Sexual Attraction			.34**	.08	1.14**	.22
Cognitive Dissonance					.51*	.23
Relationship Satisfaction					.01	.20
Dissonance x Satisfaction					.18	.14

⁹ An alternative sequential moderated-mediation model was tested with cognitive dissonance as the first mediator variable and sexual attraction as the second mediator variable. This model is shown in Appendix O.

R^2	.24	.22	.31
F	23.97**	13.79**	11.17**

Note. $N = 153$. Temptation (0 = low temptation, 1 = high temptation). B = unstandardized coefficients. SE = standard error. CI = confidence interval.

* $p < .05$. ** $p < .01$.

The index of moderated mediation was not significant, $B = .06$, $SE = .05$, 95% CI [-0.05, .16], therefore satisfaction did not moderate the mediational paths. The sequential moderated-mediation model is displayed in Figure 8.¹⁰

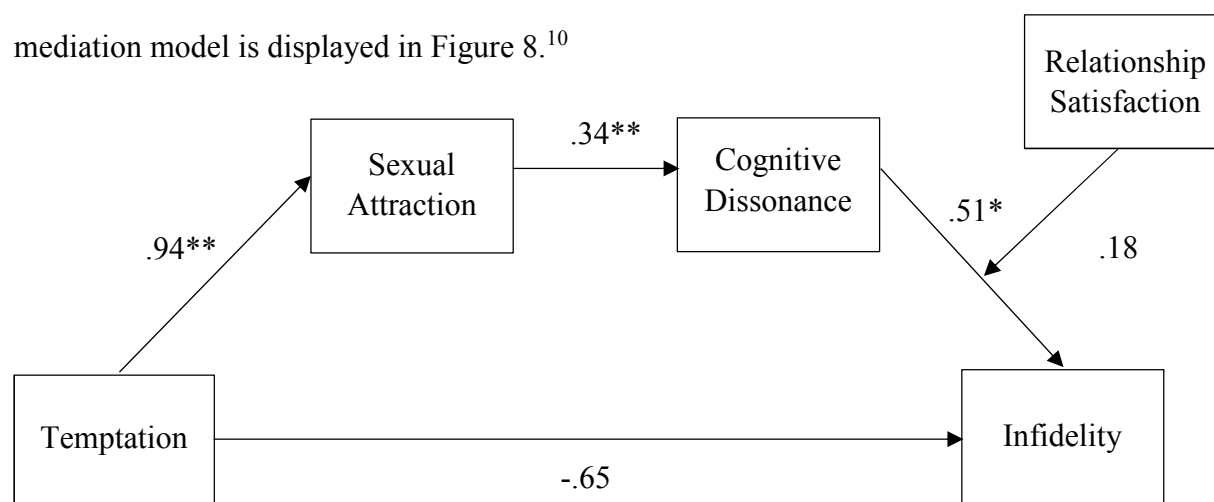


Figure 8. $N = 153$. Unstandardized regression coefficients for temptation (X), sexual attraction (M_1), cognitive dissonance (M_2), relationship satisfaction (W), and infidelity likelihood (Y), controlling for self-control (cov).

* $p < .05$. ** $p < .01$.

The model showed similar patterns when including all covariates. However, cognitive dissonance did not significantly predict infidelity likelihood in the final model after controlling for the covariates, $B = .31$, $SE = .25$, $t(122) = 1.25$, $p = .21$, 95% CI [-0.18, .80]. These findings are presented in Appendix N.

¹⁰ The modified version of this model (i.e., Model 14; PROCESS), in which sexual attraction is removed as a mediator, was not conducted because the negative effect of temptation on infidelity in the last step of the model was not significant ($B = -.65$, $p > .05$). Additionally, because temptation did not directly predict cognitive dissonance (i.e., the mediator), the modified version of model could not be conducted.

Discussion

The objective of Study 3 was to use a newly-developed VR method to examine the effects of temptation on sexual attraction, dissonance, and infidelity likelihood. This provided a novel method for assessing infidelity in a less invasive way to reduce socially desirable responses (Whisman & Snyder, 2007).

High temptation (compared to low temptation) was associated with increases in sexual attraction to the alternative partner, and supported Hypothesis 1. This temptation effect was also shown in Studies 1 and 2 with the imagined scenarios and replicated past findings (Bazzini & Shaffer, 1999; Johnson & Rusbult, 1989; Lydon et al., 1999). However, unlike in Studies 1 and 2, there was no direct effect of temptation on cognitive dissonance or infidelity likelihood. These findings were inconsistent with Hypotheses 2 and 3. One reason for this null effect may be a result of low statistical power. Results from a power analysis suggested a minimum sample size of 220 participants, but due to unforeseen circumstances (i.e., stopping data collection because of COVID-19), data was only collected from 155 participants. This may explain why the context manipulation did not affect infidelity scores. Another reason for the null effect may be due to the nature of the VR simulation. The flirtatious advances in the VR scenario were less subtle and highly sexual compared to those in the imagined scenario paradigm in Studies 1 and 2. This may have negatively influenced the way participants responded to the situation (particularly women). However, the effect of sexual attraction on the major variables replicated the effects of temptation found in Studies 1 and 2, in which temptation was positively associated with cognitive dissonance and infidelity, negatively associated with self-control (Study 2 was *ns*), and not associated with relationship satisfaction. These findings suggest that sexual attraction toward

an alternative partner heightens feelings of dissonance and the likelihood of infidelity, and are consistent with the assumptions of the decision-making model.

Findings from the moderated-mediation model supported Hypothesis 4, in which the association between temptation and infidelity was mediated by increased sexual attraction and cognitive dissonance. These results directly replicate findings in Studies 1 and 2, and provide support for the sequence in which infidelity decisions unfold. However, inconsistent with Hypothesis 5, relationship satisfaction did not moderate the effect of dissonance on infidelity. In other words, cognitive dissonance did not lead to greater infidelity when relationship satisfaction was low. This moderation effect was only found in Study 1. One shortcoming of the present research was that I attempted to measure participant's experience of dissonance, rather than the dissonance-reduction strategy they employed. Measuring dissonance-reduction strategies would have allowed a better examination of the moderating role of relationship satisfaction, by testing the prediction that satisfied partners use devaluation strategies to resolve dissonance, compared to less satisfied partners who use rationalization or trivialization strategies.

Male participants reported higher levels of sexual attraction and infidelity in the virtual environment compared to female participants. Because gender of the avatar was confounded with gender of the participant, this effect could be reframed in terms of the effect of the avatar: The female avatars generated more infidelity than the male avatar. But these findings replicate results in Studies 1 and 2 as well as the broader literature showing that men report greater infidelity desires and behaviors (typically involving heterosexual relationship with women; Blow & Hartnett, 2005). Male participants were also more likely to prefer that the avatar wear a sexy outfit, requested the avatar to change in front of them, dim the bedroom lights, and stay the night. These findings are consistent with findings in Studies 1 and 2, and in line with findings showing

that men have more sexually permissive attitudes (Schmitt, 2005), stronger sex drives (Baumeister et al., 2001), and higher sensitivity to sexual stimuli compared to women (Gillath & Canterbury, 2011). Men endorsed sexually permissive attitudes more so than women as well ($r = .29, p = .0001$), and these attitudes may contribute to higher levels of sexual attraction and infidelity likelihood in men compared to women. Finally, male participants were less likely to report feeling uncomfortable with the alternative's flirtatious advances compared to female participants. This result is consistent with findings in Studies 1 and 2, in which men were less likely to tell the alternative that they were in a committed relationship and were not interested compared to women.

Study 3 used a novel VR method and showed support for the infidelity decision-making model. Though the high temptation context did not directly increase infidelity, the hypothesized indirect effects held: Temptation led to (virtual) infidelity as a function of increased sexual attraction and cognitive dissonance. Temptation may not have directly impacted infidelity because the flirtatious advances made by the avatar were abrupt and highly sexual (compared to the imagined scenarios in Studies 1 and 2), and may have led participants to respond negatively. Infidelity rates were low overall, and given that participants were under the impression that they would meet the alternative after the study may have caused more restraint. Inconsistent with predictions, high satisfaction levels did not disrupt the link between dissonance and infidelity. In the future, dissonance-reduction strategies should be assessed to test whether satisfaction influences the route that partners take to reduce dissonance.

Chapter 7: General Discussion, Limitations, and Conclusion

Across three studies, I tested whether a high temptation context would increase sexual attraction toward an alternative, cognitive dissonance, self-control, and infidelity likelihood in members of romantic couples, above and beyond relationship satisfaction. In Studies 1 and 2, temptation was manipulated using an imagined scenario paradigm (Bazzini & Shaffer, 1999). In Study 3, temptation was manipulated using a novel VR paradigm that immersed participants in an interactive virtual scenario with an attractive alternative.

Temptation and Sexual Attraction. Studies 1-3 supported the assumption that a high temptation context would lead to greater sexual attraction toward an attractive alternative. This effect is consistent with Bazzini and Shaffer's (1999) findings that committed partners evaluate alternatives that pose high threats more favorably (i.e., by showing interest in the participant) compared to alternatives who are less threatening (i.e., by showing no interest in the participant).

Temptation and Cognitive Dissonance. Studies 1 and 2 supported the assumption that a high temptation context heightens feelings of cognitive dissonance. Little work has been done on cognitive dissonance and infidelity, and the research that has been done has been primarily qualitative in nature. One study revealed that men report experiencing high levels of dissonance when opportunities for infidelity are high (Anderson, 2010). Another study examined dissonance as a product of infidelity among married women and showed that women with a history of infidelity reported experiencing high levels of dissonance after engaging in an affair (Jeanfreau, 2009). In Studies 1 and 2, high temptation contexts also generated more dissonance than low temptation contexts. This direct effect was not evident in Study 3, but even in this study, dissonance increased with the experience of sexual attraction.

Temptation and Infidelity Likelihood. In Studies 1 and 2, the high temptation context led to greater infidelity likelihood than the low temptation context. Temptation context did not have a direct impact on infidelity likelihood in the VR environment (Study 3), but it had an indirect effect via its impact on heightened sexual attraction. One reason for the null effect of temptation on infidelity may be due to a lack of statistical power. The nature of the design in Study 3 also differed from the previous studies such that participants were under the impression that they would meet the alterative after the study, which may have caused greater restraint. Infidelity likelihood was generally low in all three studies—the average was 2.34 out of 7 in Studies 1 and 2, and 2.59 out of 12 in Study 3. The overall low rate of infidelity in Study 3, in particular, suggests that participants treated the VR simulation as a real-life scenario as opposed to selecting responses out of curiosity or as part of a game. Participants were under the impression that they would meet the “avatar” at the end of the study, which likely heightened potential consequences of infidelity and caused some restraint, given that the avatar may have been a friend or fellow classmate of the participant.

Given the novelty of this method, I included a measure of VR presence (immersiveness and naturalness) as a manipulation check to test whether participants believed they were interacting with another person in the virtual environment. Ratings for VR presence were roughly at the mean and did not differ across temptation or gender conditions. More data are necessary to fully understand how the VR environment was experienced, but these data point to the ecological validity of the new VR method for assessing infidelity in a lab setting.

Infidelity Decision-Making Model

The infidelity decision-making model was tested via a sequential moderated-mediation model to determine whether high temptation leads to infidelity as a result of increased sexual

attraction and cognitive dissonance. The mediational prediction was supported in all three studies: Temptation leads to infidelity as a function of increased sexual attraction toward alternatives followed by increased cognitive dissonance. These findings suggest that a high temptation context automatically triggers sexual attraction toward attractive alternatives, even in committed partners. The automaticity of this process was not directly tested in this research, but the results are in line with evolutionary and socio-cultural perspectives on mating strategies and attraction toward novelty and variety (Fisher, 1992).

An alternative decision-making model was also tested to examine whether high temptation contexts lead to infidelity as a function of increased cognitive dissonance (M_1) and then increased sexual attraction (M_2). This alternative model was supported: Temptation was associated with infidelity via increased cognitive dissonance and increased sexual attraction. Relationship satisfaction did not moderate the association between dissonance and sexual attraction or between attraction and infidelity. The alternative moderated-mediation models for each study are shown in Appendix E (Study 1), Appendix J (Study 2), and Appendix O (Study 3). Although this alternative sequencing cannot be ruled out, the theoretical basis for the original infidelity decision-making model suggests that sexual attraction is primary and precedes cognitive dissonance. The sequence of the variables posed in the initial decision-making model are consistent with findings that a tempting context triggers automatic sexual attraction toward attractive alternatives (e.g., Staheli, 1997), which would arouse cognitive dissonance and motives to reduce dissonance (Festinger, 1957).

Cognitive dissonance theory (Festinger, 1957) suggests that experiencing sexual attraction to an alternative while in a committed relationship is inconsistent with norms or personal values for monogamy and hence should arouse psychological discomfort. This effect

was demonstrated in all three studies, such that higher levels of sexual attraction were associated with heightened cognitive dissonance. As predicted, increased dissonance was associated with higher infidelity likelihood; the more conflict a partner felt in response to their attraction toward an alternative, the more vulnerable they were to succumbing to temptations of infidelity.

Although prior studies have not examined the link between attraction to an alternative “in-the-moment” and immediate feelings of dissonance, Foster and Misra (2013) and Allen and Baucom (2006) showed that recounting past incidents of infidelity led to increased feelings of dissonance among committed partners.

In Studies 1 and 2, cognitive dissonance was measured prior to infidelity; in Study 3, it was measured after infidelity decisions, but prior to an anticipated meeting with the “avatar.” One might expect that making dissonance salient would reduce infidelity, especially in these samples, where participants reported relatively high levels of relationship satisfaction. If attraction to an alternative causes personal conflict and distress, i.e., dissonance, then why did dissonance not prevent infidelity (via devaluation of the alternative)? One explanation may be due to psychological reactance. Reactance theory (Brehm, 1966; Miron & Brehm, 2006) suggests that when a person’s ability to act freely is restricted, eliminated, or threatened, they are motivated to re-establish their freedom. For example, when a freedom is restricted by social pressure (e.g., social norm), the magnitude of reactance heightens and the person resists that pressure. Thus, when norms for monogamy restrict a committed partner from pursuing an alternative, they may act in a way that re-establishes their freedom by trivializing/rationalizing dissonance and pursuing the alternative. However, because dissonance-reduction strategies were not measured directly, it is unclear whether all partners trivialized or rationalized dissonance in the high temptation context.

A variety of models may explain infidelity decisions, and my dissertation focused on a single account of the decision-making process as a starting point. The sequence of processes associated with infidelity may operate in a different order than I have suggested. For example, Conroy-Beam, Goetz, and Buss(2015) found that mere exposure to a high-quality alternative decreases relationship satisfaction in the primary relationship, especially among partners that are higher in mate value compared to their primary partner. This finding suggests that a high temptation context has a direct influence on relationship satisfaction, unlike in the proposed model (Figure 1) which suggests that relationship satisfaction influences infidelity later in the decision-making process. Partners may also experience dissonance at various points in their decision-making and not necessarily in the order presented in the proposed model (Figure 1). Future work should consider the order in which underlying processes affect infidelity and whether particular variables (e.g., satisfaction) serve as mediators rather than moderators in the decision-making model.

The Role of Relationship Satisfaction in Decision-Making

Relationship satisfaction was expected to moderate the link between cognitive dissonance and infidelity in the decision-making model, such that highly satisfied partners would reduce dissonance by devaluing the alternative and thus reduce the likelihood of infidelity, compared to less satisfied partners who would more likely rationalize or trivialize dissonance and hence more inclined to cheat. Evidence of moderation of the link between dissonance and infidelity was found in Study 1: High levels of dissonance led to increased infidelity among partners with low levels of relationship satisfaction, but did not affect highly satisfied partners. However, Studies 2 and 3 did not support this prediction. Some research has shown that not all highly committed or satisfied partners devalue attractive alternatives. For example, Bazzini and Shaffer (1999) found

that highly committed partners did not devalue the attractiveness of an interested and available alternative, counter to Johnson and Rusbult's (1989) theory of devaluation of alternatives. The average score for relationship satisfaction was high in all studies (approximately 4 out of 5), and therefore the null moderating effects could be a result of a ceiling effect.

The studies were limited by the fact that I did not explicitly measure the type of dissonance-reduction strategy participants implemented. I predicted that highly satisfied partners would reduce dissonance via *devaluation of the alternative*, whereas less satisfied partners would reduce dissonance via *rationalization* or *trivialization*, but I did not directly measure this process. The positive relationship between dissonance and infidelity across all three studies suggests that rationalization or trivialization of the dissonance created by sexual attraction to an alternative may be a "default" strategy, even for relatively satisfied partners. Additional research is needed in which dissonance-reduction strategies are measured in the moment, to assess whether these strategies a) differ based on satisfaction level, and b) differentially predict infidelity (e.g., "*The alternative is not that attractive anyway*" negatively predicts infidelity; "*Cheating is not a big deal*" positively does so).

I also tested the effect of relationship satisfaction at each decision point in the model to determine whether it played a role earlier in the decision-making process. For example, an alternative hypothesis is that highly satisfied partners do not report feelings of attraction toward alternatives. Relationship satisfaction did not moderate any other path in the model. Previous research has shown that exposure to attractive alternatives decreases perceptions of satisfaction among committed partners (e.g., Kenrick et al., 1989). However, exposure to attractive alternatives did not have an effect on levels of relationship satisfaction, and Studies 1 and 2 showed that both highly satisfied and less satisfied partners reported experiencing similar levels

of sexual attraction in the high temptation context. Highly tempting contexts also led to greater infidelity in Studies 1 and 2, above and beyond relationship satisfaction levels. This suggests that contexts that afford opportunities to cheat are alluring to even highly satisfied partners. This finding corroborates the broader assumption that a tempting context automatically triggers sexual attraction toward an alternative partner, and that any role of relationship satisfaction occurs later in the process. Altogether, these results rule out the possibility that relationship satisfaction influences the decision-making process at earlier stages.

The Role of Cognitive Depletion in Decision-Making

Cognitive depletion was expected to intensify the effects of temptation on the processes associated with infidelity by reducing the ability to override immediate urges (i.e., sexual attraction toward an alternative) to act in accordance with long-term goals (i.e., monogamy). In Study 2, I tested this assumption, however, inconsistent with predictions, cognitive depletion did not moderate the effects of temptation on the major variables in the model. This finding is inconsistent with work showing that depleted partners engage in more extradyadic behaviors, compared to non-depleted partners (Gailliot & Baumeister, 2007; McIntyre et al., 2015). Although participants in Study 2 reported that the high depletion task was significantly more challenging than the low depletion task, this does not necessarily ensure that high depletion participants felt truly depleted as they considered the infidelity scenario. In other words, the null effect of the manipulation may have been due to a poor methodological choice. I elaborate on this point further in the limitations section.

The effect of cognitive depletion on sexual desires and infidelity is robust and has been replicated in several studies. However, some studies show that depletion on its own does not influence infidelity outcomes; depletion effects were only related to infidelity among those with

strong sexual desires (Gailliot & Baumeister, 2007; McIntyre et al., 2015). For example, McIntyre et al. (2015) found that cognitive depletion was associated with flirting and sitting closer to an attractive alternative only among partners with permissive sexual attitudes. These findings suggest that large individual differences exist in how partners behave when cognitive control is low (Gailliot & Baumeister, 2007; Muraven, Collins, & Neinhuis, 2002).

Gender Differences

Compared to women, men reported experiencing more sexual attraction toward the alternative and had a higher likelihood for infidelity in all three studies. In the VR setting of Study 3, men (compared to women) were also more responsive to overtures from the (female) avatar, and were less likely to tell the alternative that they were not interested in them. This is consistent with findings that men report having more desires for infidelity (Atkins et al., 2001) and incidents of infidelity (Blow & Hartnett, 2005) compared to women, as well as research indicating that men have stronger sex drives and more sexually permissive attitudes compared to women (Baumeister et al., 2001). Sociosexual orientation—also known as a person’s willingness to engage in non-committal sex—has been shown to positively predict attention to alternatives (Maner, Gailliot, Rouby, & Miller, 2007) and future infidelity behaviors (Gangestad & Simpson, 2000). Those who are high in sociosexuality have permissive sexual attitudes and tend to report greater desires for infidelity compared to those with more conservative sexual attitudes (Arnocky, Woodruff, & Schmitt, 2016; Barta & Kiene, 2005; Hackathorn & Brantley, 2014; Wilson et al., 2011). Men, compared to women, are more sensation-seeking (Lalasz & Weigel, 2011), hold more permissive sexual attitudes (Hendrick, Hendrick, Slapion-Foote, & Foote, 1985), and report higher incidents of sexual infidelity (Seal et al., 1994). Thus, the gender effects

found in Studies 1-3 could also be a result of higher levels of sociosexuality in men (Schmitt, 2005).

In Study 2, men also reported experiencing higher levels of cognitive dissonance compared to women, though this effect did not hold in the other two studies. Little research has measured the degree of cognitive dissonance experienced by committed partners to determine whether the effect is stronger for men or women, though one qualitative study (Anderson, 2010), discussed the high levels of dissonance men experience when surrounded by attractive alternatives (Anderson, 2010). More data are needed, including measurement of dissonance experiences and resolutions in real time in tempting contexts, to determine the reliability of gender effects.

Relationship Status Differences

Infidelity occurs more often between dating partners compared to married partners (Allen & Baucom, 2006; Hall & Fincham, 2009; Wiederman & Hurd, 1999), therefore, I examined whether relationship status (i.e., dating vs. married partners) affected the processes associated with infidelity. Exploratory results from Studies 1 and 2 showed that relationship status did not influence any variable in the decision-making model, nor the mediational process. The processes that lead to infidelity seem to be similar for dating and married partners. These findings suggest that a person's relationship status does not always predict extradyadic behavior (Bazzini & Shaffer, 1999; Blow & Hartnett, 2005).

Virtual Reality Method for Assessing Infidelity

The second aim of my dissertation was to develop and validate a VR method to render highly realistic and reproducible simulations that have the capacity to capture acts of infidelity "in-the-moment." Although imagined scenario paradigms have been successfully used in the past

(e.g., Garcia, Weaver, Moskowitz, & Darley, 2002), hypothetical scenarios and self-report responses of intended behaviors can be flawed (Nisbett & Wilson, 1977). Immersing participants in a virtual scenario improves previous methods by affording participants the opportunity to interact with an alternative in a back and forth dynamic. The interactive capability along with the high ecological validity of the VR simulation provides a novel way to study how partners behave in seemingly real situations and reduces potential biases in participant responses.

Imagined Scenario vs. Virtual Reality Method

The VR simulation was expected to serve as an improved measure of infidelity compared to the imagine scenario paradigm because of the combination of both mundane realism and experimental control that is afforded with VR (Blascovich et al., 2002). Some have questioned whether virtual behaviors predict actual behaviors and whether behaviors in VR are arbitrary or even inaccurate with behaviors in the real world. However, much research shows that virtual behaviors are correlated with real life motives, attitudes, emotions, and behavioral tendencies (e.g., Blascovich et al., 2002; Chirico et al., 2018; Pertaub, Slater, & Barker, 2001; Schönbrodt & Asendorpf, 2011). For example, Schönbrodt and Asendorpf (2011) found that participants interacted with a virtual spouse similarly to how they would interact with their real spouse. Additionally, participants' interpersonal motives and personality traits were correlated with their behavior in a virtual environment (i.e., participants treated the avatar similarly to how they would treat others in a real-life scenario).

The high temptation VR context was successful in increasing sexual attraction toward the avatar and replicated findings that a tempting context triggers automatic attraction toward an alternative (Bazzini & Shaffer, 1999). This finding demonstrates that VR techniques have the capacity to induce emotions similar to real-life scenarios. Although the high temptation context

led to greater sexual attraction in both the imagined scenario (Studies 1 and 2) and the VR scenario (Study 3), the direct effect of temptation on infidelity was only found in the imagined scenarios. There are a number of differences between the imagined infidelity scenario of Studies 1 and 2 and the VR scenario. In the imagined scenario, participants are asked to think about going on a trip without their significant other, and are left to conjure up precisely how the interaction with the alternative would unfold (presumably in the most ideal way possible). Thus, the likelihood of the primary partner learning about their infidelity was lower in the imagined setting compared to the VR study, in which the alternative was a fellow student at the same university. Concern about the primary partner, and some uncertainty about how the interaction with the avatar would develop may have produced lower incidents of infidelity in Study 3. Future work should consider manipulating the risks/barriers to infidelity, such as whether the alternative is a familiar other vs. stranger, to better understand how infidelity decisions are made across various contexts.

Although findings from the manipulation check showed that participants rated their VR experience as fairly realistic, the null direct effect of temptation on infidelity poses some concern about the validity of the VR method. During the debriefing, female participants, in particular, reported feeling uncomfortable and sometimes disturbed by the flirtatious advances made by the avatar. Other participants mentioned that they were surprised at the avatar's speed of response in the dialogue, and therefore I increased the lag between the avatar's responses toward the end of data collection ($n = 28$ participants). The manipulation check measure was also added at this time to assess VR experience. Thus, it is possible that some participants did not perceive the interaction as realistic prior to adjusting the timing of the avatar's responses. Without a clear

manipulation check criterion for excluding participants, all were maintained in the current data set, but future research should better assure that the VR interaction was experienced as intended.

Moreover, infidelity in VR was measured prior to the major predictor variables. Thus, the measure of cognitive dissonance reflects feelings after infidelity has occurred or been avoided. The VR method can be improved to better test the decision-making model by embedding measures of cognitive dissonance and sexual attraction throughout the simulation to assess these variables in the moment, over time, rather than after the scenario.

Limitations and Future Directions

One limitation of this dissertation is that majority of the analyses included only heterosexual participants—only Study 2 included partners of all sexual orientations, who were asked to imagine a romantic alternative of their “preferred” gender. In Study 1, participants were asked to imagine a tempting situation with a member of the opposite sex, and in Study 3, participants were assigned to interact with an avatar of the opposite sex. Although these findings are obtained from samples of predominantly heterosexual participants, the decision-making model is predicted to broadly apply to relationships in general—including homosexual relationships (see Harris, 2002; Kurdek, 1991). Nonetheless, the nature of the study design poses a limitation on the generalizability of the findings, and the confound between participant and romantic alternative gender cannot be untangled. In the future, sexual orientation should be assessed prior to the studies through a pre-screen measure to assure that participants are matched with an alternative partner of the preferred gender.

In Study 2, the cognitive depletion task was not effective in inducing cognitive depletion. Although participants in the high depletion condition rated the pattern recognition task as more challenging compared to those in the low depletion condition, perhaps the pattern recognition

task was not a strong manipulation for cognitive depletion. McIntyre et al. (2015) used a cognitive functioning task to induce ego-depletion, in which participants crossed out every *e* on a page for five minutes. This task has been used in previous work and has shown to be successful in depleting cognitive resources (Baumeister et al., 1998; Job, Dweck, & Walton, 2010; Tice, Baumeister, Shmueli, & Muraven, 2007). Other methods have also shown to be an effective way to induce low cognitive control, including food/water deprivation or alcohol consumption (Ciarocco et al., 2012; Fromme, D'Amico, & Katz, 1999; Lamarche, 2017; Nordgren & Chou, 2011). For example, alcohol consumption was associated with more risky sexual behaviors and lower perceptions of risk (Fromme et al., 1999). Future studies should explore alternative methods for cognitive depletion to test whether low cognitive control impacts the underlying processes associated with infidelity.

In Study 3, the context manipulation affected sexual attraction but had no effect on cognitive dissonance and infidelity. Study 3's method differed in several ways compared to Studies 1 and 2 such that: (a) the content of the temptation manipulation was more sexualized and abrupt, (b) the participants were under the impression that they would meet the alternative, and (c) infidelity decisions and behaviors were already executed prior to assessing the other major variables in the model (sexual attraction and dissonance). Each of these differences may explain why Study 3 findings were not completely consistent with those of Studies 1 and 2. The temptation manipulation in Study 3 virtually placed the participant in a dynamic scenario in which they had to interact with an alternative rather than imagining how they (and the alternative) would behave in such a scenario. The participants were also told that they would meet the alternative after the simulation, which may have reduced the likelihood of accepting the

avatar's flirtatious advances given the higher stakes involved (e.g., potentially knowing the alternative, the alternative potentially telling the participant's partner).

The content of the VR simulation was also highly sexual and less subtle compared to the imagined scenario used in Studies 1 and 2. For example, in the VR simulation, the avatar asks the participant to engage in physical acts such as cuddling, staying the night, changing clothes, compared to the imagined scenario in which the alternative only verbally communicates interest in the participant and only at the end asks whether they would like to leave the bar. This may explain why men responded more favorably to the avatar's flirtatious advances compared to women. It could be an issue of safety for women as well, given the intimate situation with a stranger who persists in making flirtatious advances in a private setting. In the future, the simulation should integrate more subtle advances that communicate emotional interest to test whether women are responsive to less aggressive advances. The avatar's dimensions were also not equated on every attribute (e.g., age), such that the avatars in the low temptation context were significantly older than the avatars in the high temptation context. Equating the physical characteristics of the avatars in the VR simulation should also be considered in future work.

The design in Study 3 was also limited such that responses to cognitive dissonance and satisfaction were recorded after the infidelity decisions were made. Thus, the measure of cognitive dissonance reflects feelings after infidelity has occurred. This may be why temptation did not affect feelings of dissonance or infidelity likelihood, because participants may have already reduced their dissonance during the simulation, resulting in a null effect across condition. In the future, the VR simulation should be improved by embedding measures of cognitive dissonance and dissonance-reduction strategies at various points in the simulation to assess these variables in the moment, over time, rather than after the scenario.

Conclusion

The goal of this dissertation was to empirically test a proposed decision-making model associated with infidelity. Across three studies, I tested the processes that underlie infidelity decisions in virtual contexts. In Study 1, I tested the infidelity decision-making model using an imagined scenario paradigm and showed that a high temptation context (compared to low temptation context) was associated with increased sexual attraction, cognitive dissonance, and infidelity likelihood. Partners with high relationship satisfaction reduced dissonance in favor of the primary relationship and were less likely to cheat compared to less satisfied partners. In Study 2, I examined how cognitive depletion affects the decision-making process using the same imagined scenarios. Although the effect of depletion was not significant, Study 2 replicated the effects of high temptation on sexual attraction, dissonance, and infidelity likelihood. In Study 3, I tested the decision-making model using a novel VR method to examine the effects of temptation on infidelity in a virtual context and showed overall support for the temporal decision-making process associated with infidelity. Gender differences were found in all three studies and showed that men were more likely to cheat compared to women. No differences were found as a function of relationship status: the effects of temptation on infidelity is similar for dating and married partners.

These findings contribute to the understanding of how infidelity decisions unfurl and introduces a novel VR method for assessing infidelity in real-time. The decision-making model extends the current work on infidelity by integrating theory and findings from a number of fields to propose a coherent model that offers an integrative framework for future research on the decision-making processes associated with infidelity. Clearly more research is necessary to understand the role of cognitive depletion, relationship satisfaction, and other variables in the

decision-making process, but these studies provide initial tests of how tempting contexts prompt infidelity even in satisfied relationship partners.

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Appendix A: Study 1 Temptation Manipulation

Imagined Temptation Scenarios (adapted from Bazzini & Shaffer, 1999; McIntyre, Barlow, & Hayward, 2015).

High Temptation Imaginary Scenario (Experimental Condition)

Instructions: To begin, we would like you to imagine a scenario where you are interacting with an attractive member of the opposite sex.

“Imagine that you are away on a trip with your friends, without your significant other... During your night out, you happen to notice a highly attractive individual attempting to catch your attention from across the room. Your eyes meet and they smile and wink at you... As the night progresses, this person makes their way toward you and introduces themselves. They begin flirting with you and tell you that they find you very attractive... You two are hitting it off and without notice you realize that your friends have left to go to another bar... The two of you are now alone and continue to enjoy each other’s company in a more private setting... After some time, the attractive partner leans in and whispers in your ear that their hotel room is across the street and asks if you would like to “get out of here.” After all, nobody would know...”

Low Temptation Imaginary Scenario (Control Condition)

Instructions: To begin, we would like you to imagine a scenario where you are interacting with an attractive member of the opposite sex.

“Imagine that you are away on a trip with your friends, without your significant other... During your night out, you happen to notice an unattractive individual attempting to catch your attention from across the room. Your eyes meet and they smile and wink at you... This person is not very attractive, especially compared to your significant other... As the night progresses, this person makes their way toward you and introduces themselves. They spark a conversation with you and tell you that they are interested in getting to know you better... You realize that your friends have left to go to another bar and now the two of you are alone... After some time, the unattractive partner leans in and whispers in your ear that their hotel room is across the street and asks if you would like to “get out of here.” After all, nobody would know...”

Appendix B: Questionnaire Items

Sexual Attraction Measure (McIntyre, Barlow, & Hayward, 2015)

Instructions: Please think about the person in the imagined scenario when answering the below questions.

- 1 = Strongly Disagree**
- 2 = Disagree**
- 3 = Somewhat Disagree**
- 4 = Neither Agree nor Disagree**
- 5 = Somewhat Agree**
- 6 = Agree**
- 7 = Strongly Agree**

1. The imagined partner was very attractive.
2. The imagined partner was sexually alluring.
3. The imagined partner was hard to resist.
4. I felt tempted by the imagined partner.
5. I enjoyed imagining being alone with the imagined partner.
6. I enjoyed that the partner was showing interest in me.
7. I enjoy the possibility of leaving and going to their hotel room.

Cognitive Dissonance Measure (Elliot & Devine, 1992)

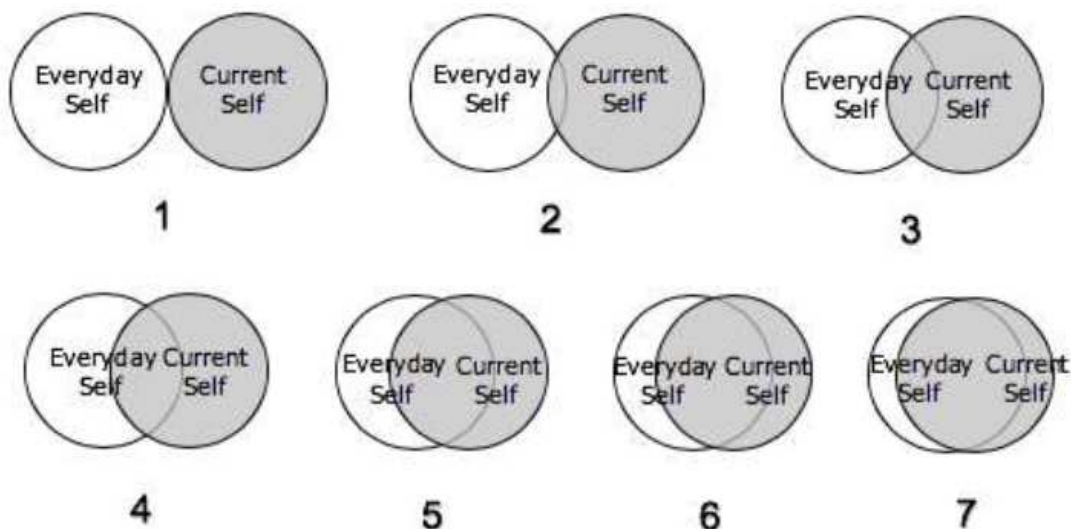
Instructions: Please use the scale below to answer how you are feeling at the moment.

- 1 = Strongly Disagree**
- 2 = Disagree**
- 3 = Somewhat Disagree**
- 4 = Neither Agree nor Disagree**
- 5 = Somewhat Agree**
- 6 = Agree**
- 7 = Strongly Agree**

1. I feel disappointed in myself.
2. I feel annoyed with myself.
3. I feel angry with myself.
4. I feel bothered with myself.
5. I feel guilty with myself.
6. I feel self-critical of myself.

Inclusion of Other in Self Scale (IOS; Aron, Aron, & Smollan, 1992)

*Instructions: Please select the picture that best describes how close your **everyday self** (i.e., your actual self) is with your **current/immediate self** (i.e., who you are at the moment). Closer circles indicate higher levels of similarity between your everyday and current self.*



Infidelity Likelihood Measure (McIntyre, Barlow, & Hayward, 2015)

Instructions: Please think about the person in the imagined scenario when answering the below questions.

1 = Very Unlikely

2 = Unlikely

3 = Somewhat Unlikely

4 = Neither Likely nor Unlikely

5 = Somewhat Likely

6 = Likely

7 = Very Likely

1. Accept the partner's invitation.
2. Accept the partner's invitation and kiss them if the opportunity arose.
3. Stay at the bar and flirt with them for the rest of the night if nobody would find out.
4. Leave the bar and go to their hotel room.
5. Go to their hotel and have sex with them if nobody would find out.
6. Tell them that you have a partner and are not interested. (R)

The Brief Self-Control Scale (BSCS; Tangney, Baumeister, & Boone, 2004)

Instructions: Using the scale provided, please indicate how much each of the following statements reflects how you typically are.

1 = Not At All

2 = A Little

3 = Somewhat

4 = Very Much

5 = Extremely

1. I am good at resisting temptations.
2. I have a hard time breaking bad habits. (R)
3. I am lazy. (R)
4. I say inappropriate things. (R)
5. I do certain things that are bad for me if they are fun. (R)
6. I refuse things that are bad for me.
7. I wish I had more self-discipline. (R)
8. People would say that I have iron self-discipline.
9. I have trouble concentrating. (R)
10. Pleasure and fun sometimes keep me from getting work done. (R)
11. I am able to work effectively toward long-term goals.
12. Sometimes I can't stop myself from doing something, even if I know it is wrong. (R)
13. I often act without thinking through all the alternatives. (R)

Perceived Relationship Quality Components Inventory (PRQC; Fletcher, Simpson, & Thomas, 2000)

Instructions: Please indicate what your current partner/relationship is like, answering each question that follows. Use the scale below to answer each question.

1 = Not At All

2 = A Little

3 = Somewhat

4 = Very Much

5 = Extremely

Relationship Satisfaction

1. How satisfied are you with your relationship?
2. How content are you with your relationship?
3. How happy are you with your relationship?

Commitment

4. How committed are you to your relationship?
5. How dedicated are you to your relationship?
6. How devoted are you to your relationship?

Intimacy

7. How intimate is your relationship?
8. How close is your relationship?
9. How connected are you to your partner?

Trust

10. How much do you trust your partner?
11. How much can you count on your partner?
12. How dependable is your partner?

Passion

13. How passionate is your relationship?
14. How lustful is your relationship?
15. How sexually intense is your relationship?

Love

16. How much do you love your partner?
17. How much do you adore your partner?
18. How much do you cherish your partner?

Experiences in Close Relationship –Relationship Structures (ECR-RS; Fraley, Heffernan, Vicary, & Brumbaugh, 2011)

Instructions: Please answer the following questions about your current significant other.

1 = Strongly Disagree

2 = Disagree

3 = Somewhat Disagree

4 = Neither Agree nor Disagree

5 = Somewhat Agree

6 = Agree

7 = Strongly Agree

1. It helps to turn to my partner in times of need. (R)
2. I usually discuss my problems and concerns with my partner. (R)
3. I talk things over with my partner. (R)
4. I find it easy to depend on my partner. (R)

5. I don't feel comfortable opening up to my partner.
6. I prefer not to show my partner how I feel deep down.
7. I often worry that my partner doesn't really care for me.
8. I'm afraid that my partner may abandon me
9. I worry that my partner won't care about me as much as I care about him or her.

Note. Attachment Avoidance = items 1-6; Attachment Anxiety = items 7-9.

The Revised Sociosexual Orientation Inventory (SOI-R; Penke & Asendorpf, 2008)

Instructions: Please use the scale below to respond honestly to the following questions. Your responses will be treated confidentially and anonymously.

1. With how many different partners have you had sex within the past 12 months?

0 1 2 to 3 4 to 7 8 or more

2. With how many different partners have you had sexual intercourse on one and only one occasion?

0 1 2 to 3 4 to 7 8 or more

3. With how many different partners have you had sexual intercourse without having an interest in a long-term committed relationship with this person?

0 1 2 to 3 4 to 7 8 or more

4. Sex without love is OK.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Agree	Strongly Agree

5. I can imagine myself being comfortable and enjoying "casual" sex with different partners.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Agree	Strongly Agree

6. I do not want to have sex with a person until I am sure that we will have a long-term, serious relationship.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Agree	Strongly Agree

7. How often do you have fantasies about having sex with someone you are not in a committed romantic relationship with?

- 1 = Never
- 2 = very seldom
- 3 = about once a month
- 4 = about once a week
- 5 = about once a day

8. How often do you experience sexual arousal when you are in contact with someone you are not in a committed romantic relationship with?

- 1 = Never
- 2 = very seldom
- 3 = about once a month
- 4 = about once a week
- 5 = about once a day

9. In everyday life, how often do you have spontaneous fantasies about having sex with someone you have just met?

- 1 = Never
- 2 = very seldom
- 3 = about once a month
- 4 = about once a week
- 5 = about once a day

Ten-Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003)

Instructions: Here are a number of personality traits that may or may not apply to you. Please indicate the extent to which you agree or disagree with each statement.

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Somewhat Disagree
- 4 = Neither Agree nor Disagree
- 5 = Somewhat Agree
- 6 = Agree
- 7 = Strongly Agree

I see myself as...

1. Extraverted, enthusiastic.
2. Critical, quarrelsome. (R)
3. Dependable, self-disciplined.

4. Anxious, easily upset. (R)
5. Open to new experiences, complex.
6. Reserved, quiet. (R)
7. Sympathetic, warm.
8. Disorganized, careless. (R)
9. Calm, emotionally stable.
10. Conventional, uncreative. (R)

Note. Extraversion = 1, 6R; Agreeableness: 2R, 7; Conscientiousness: 3, 8R; Emotional Stability: 4R, 9; Openness to Experience: 5, 10R.

Sexual Satisfaction Measure

Instructions: Please answer the following questions about your current significant other.

- 1 = Not At All**
- 2 = A Little**
- 3 = Somewhat**
- 4 = Very Much**
- 5 = Extremely**

1. How **sexually satisfied** are you in your current relationship?
2. Do you and your current partner have **similar desires for sex**?
3. Do you and your current partner have **similar desires for emotional closeness**?

History of Infidelity Measure

Instructions: Please think of your current significant partner when answering the questions below.

- 0 = No**
- 1 = Yes**
- 2 = Maybe**

1. Have **you ever cheated** on a relationship partner before?
2. If yes, how many times? (text entry)
3. Have you ever **been cheated on**?

Demographic Variables*Gender*

- 0 = Female**
- 1 = Male**
- 2 = Other (text entry)**

Age

(# of years)

Ethnicity

- 1 = Black or African American**
- 2 = White or Caucasian**
- 3 = Asian**
- 4 = Hawaiian or Pacific Islander**
- 5 = Hispanic or Latinx**
- 6 = Middle Eastern**
- 7 = Native American**
- 8 = Other (text entry)**

Sexual Orientation

- 1 = Heterosexual/ Straight**
- 2 = Homosexual/ Gay/ Lesbian**
- 3 = Bisexual**
- 4 = Other (text entry)**

Relationship Status

- 1 = Single**
- 2 = Casually Dating**
- 3 = In a Relationship**
- 4 = Married**
- 5 = Other (text entry)**

Number of Children

- 1. Do you have any children?**
- 0 = No**
- 1 = Yes**

If yes, how many children do you have?
(# of children)

Appendix C: Study 1 Model 87 including covariates

To test the prediction that temptation influences infidelity above and beyond other robust predictors (i.e., age, gender, relationship longevity, sociosexuality, attachment style, personality, sexual satisfaction, sex frequency, and history of infidelity), the sequential moderated-mediation model ($N = 193$) was tested again including all covariates (Model 87; PROCESS, Hayes, 2013). Temptation positively predicted sexual attraction, $B = 1.56$, $SE = .08$, $t(176) = 18.79$, $p = .0001$, 95% CI [1.40, 1.73]. Sexual attraction positively predicted cognitive dissonance, $B = .47$, $SE = .12$, $t(175) = 3.89$, $p = .001$, 95% CI [.23, .71]. Cognitive dissonance positively predicted infidelity likelihood, $B = .25$, $SE = .10$, $t(172) = 2.42$, $p = .02$, 95% CI [.05, .45]. Similar to the first model, relationship satisfaction did not moderate the association between dissonance and infidelity, $B = -.12$, $SE = .09$, $t(172) = -1.33$, $p = .19$, 95% CI [-.30, .06]. The index of moderated mediation was not significant, index = $-.09$, $SE = .07$, 95% CI [-.25, .04].

The indirect effect was significant at low levels (-1 SD) of relationship satisfaction, $B = .27$, $SE = .14$, 95% CI [.04, .57] and mean levels of relationship satisfaction, $B = .18$, $SE = .11$, 95% CI [.01, .45]. The indirect effect was again not significant at high levels (+1 SD) of relationship satisfaction, $B = .10$, $SE = .13$, 95% CI [-.13, .40].

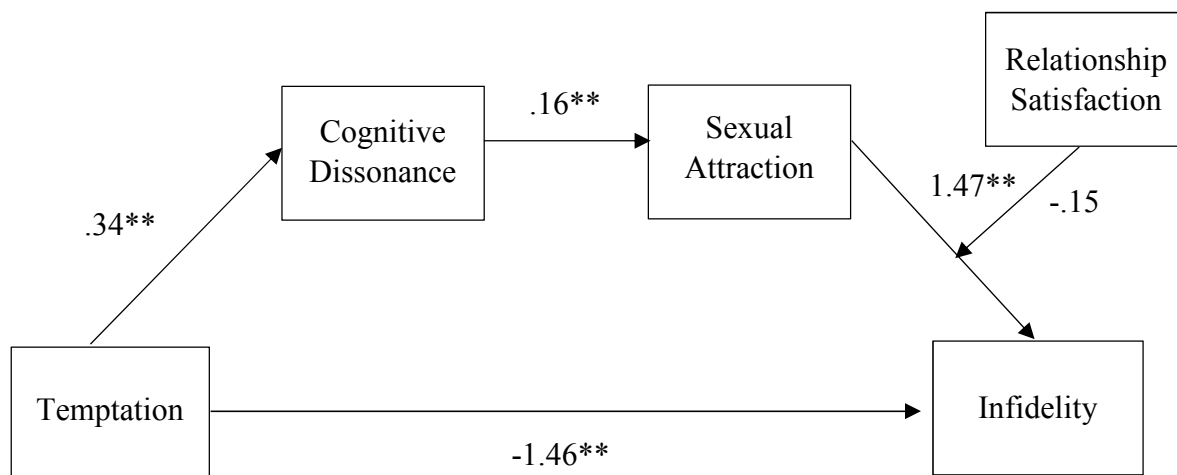
Appendix D: Study 1 Model 14 including covariates

Model 14 ($N = 193$) was tested again including all covariates, and findings were completely consistent with the model including no covariates. Temptation was positively associated with cognitive dissonance ($B = .28$, $SE = .14$, $t(176) = 2.01$, $p = .045$, 95% CI [.01, .55]) and infidelity likelihood ($B = .70$, $SE = .21$, $t(173) = 3.37$, $p = .0009$, 95% CI [.29, 1.11]), above and beyond covariates. As predicted, relationship satisfaction moderated the association between dissonance and infidelity likelihood above and beyond covariates, $B = -.26$, $SE = .10$, $t(173) = -2.57$, $p = .01$, 95% CI [-.45, -.06]. The index of moderated mediation was not significant, $index = -.07$, $SE = .05$, 95% CI [-.20, .01].

Conditional indirect effects of the association between dissonance and infidelity was significant at low levels (-1 SD) of relationship satisfaction, $B = .71$, $SE = .15$, $t(173) = 4.71$, $p = .0001$, 95% CI [.41, 1.00], and mean levels of relationship satisfaction, $B = .46$, $SE = .11$, $t(173) = 4.11$, $p = .0001$, 95% CI [.24, .68], but not at high levels (+1 SD) of relationship satisfaction, $B = .21$, $SE = .14$, $t(173) = 1.44$, $p = .15$, 95% CI [-.08, .49].

Appendix E: Testing an Alternative Decision-Making Model- Study 1

The sequential moderated-mediation model (Model 87) was tested with temptation as the predictor variable (X), cognitive dissonance as the first mediator (M₁), sexual attraction as the second mediator (M₂), relationship satisfaction as the moderator (W), self-control as the covariate, and infidelity as the outcome variable (Y).



Note. $N = 203$. Unstandardized regression coefficients for temptation, cognitive dissonance (M₁), sexual attraction (M₂), relationship satisfaction (W), and infidelity likelihood (Y), controlling for self-control (cov). Index of moderated mediation, $B = -.01$, $SE = .01$, 95% CI $[-.02, .00]$.

* $p < .05$. ** $p < .01$.

Appendix F: Cognitive Depletion Task

Pattern Recognition Task for High Depletion Condition

Instructions: For the first part of the survey, you will complete a pattern recognition task where you will select the option that best fits the pattern of the previous images. There are 10 patterns in this task. Good luck! Click next to begin.

Pattern Recognition Task for Low Depletion Condition

Instructions: For the first part of the survey, you will complete a pattern recognition task where you will select the option that best fits the pattern of the previous images. There are 5 patterns in this task. Good luck! Click next to begin.

<p>— L ▲</p> <p>a) ▼ b) ◆ c) ┘ d) ▲ e) □</p>	<p>◻◻ ◻◻ ◻◻</p> <p>a) ◻◻ b) ◻◻ c) ◻◻ d) ◻◻ e) ◻◻</p>
<p>○△ ○△ ○□ □△ ○□ △□</p> <p>a) △□ b) ○○ c) ○△ d) ○□ e) △□</p>	<p>✦ ✦ ✦</p> <p>a) ✦ b) ✦ c) ✦ d) ✦ e) ✦</p>
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Appendix G: Study 2 Covariates

Gender, age, relationship longevity, history of infidelity, sociosexuality (SOI-R; Penke & Asendorpf, 2008), attachment style (ECR-RS; Fraley et al., 2011), personality traits (TIPI; Gosling et al., 2003), sexual frequency, and sexual satisfaction are robust predictors of infidelity (Fincham & May, 2017), and were controlled for in the mediation model.

The revised Sociosexual Orientation Scale (SOI-R; 9 items; Penke & Asendorpf, 2008) was used to assess sexually permissive attitudes (e.g., “*I would have sex with someone who I am not committed to*” or “*Sex without love is OK*”) on a scale from 1 (*not at all*) to 5 (*very much*). The reliability for this measure was .85.

The Experiences in Close Relationship-Relationship Structures (ECR-RS; Fraley et al., 2011) measure was used to assess the two dimensions of attachment: attachment anxiety (e.g., “*I often worry that my partner will leave me*”; $\alpha = .92$) and attachment avoidance (e.g., “*I get uncomfortable if people get too close to me*”; $\alpha = .91$). Ratings were made on a Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

The Ten Item Personality Inventory (TIPI; 10 items; Gosling et al., 2003) was used to assess the Big 5 personality traits: openness to experience (e.g., “*Open to new experiences, complex*”; $\alpha = .50$), conscientiousness (e.g., “*dependable, self-disciplined*”; $\alpha = .67$), extraversion (e.g., “*extraverted, enthusiastic*”; $\alpha = .75$), agreeableness (e.g., “*sympathetic, warm*”; $\alpha = .49$), and emotional stability (e.g., “*anxious, easily upset*”; $\alpha = .72$). Ratings were made on a Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

A subscale of The Perceived Relationship Quality Components Inventory (Fletcher et al., 2000) was used to measure relationship passion (3 items; e.g., “*How passionate is your relationship?*”). Ratings were made on a Likert-type scale ranging from 1 (*not at all*) to 5

(*extremely*). The reliability of this measure was .93. A single item was also used to assess sexual satisfaction (i.e., “*How sexually satisfied are you in your current relationship?*”) and was positively correlated with the subcomponent passion, $r = .80, p = .0001$. Thus, these items were combined to create a composite variable labeled *sexual satisfaction* ($\alpha = .94$).

Appendix H: Study 2 Model 87 including covariates

To test the prediction that temptation influences infidelity above and beyond other robust predictors (i.e., age, gender, relationship longevity, sociosexuality, attachment style, personality, sexual satisfaction, sex frequency, trait self-control, and history of infidelity), the sequential moderated-mediation model ($N = 283$) was tested again including all covariates (Model 87; PROCESS, Hayes, 2013). Temptation positively predicted sexual attraction, $B = 1.40$, $SE = .07$, $t(265) = 18.84$, $p = .0001$, 95% CI [1.25, 1.54]. Sexual attraction positively predicted cognitive dissonance, $B = .48$, $SE = .08$, $t(264) = 5.90$, $p = .0001$, 95% CI [.32, .63]. Cognitive dissonance positively predicted infidelity likelihood, $B = .25$, $SE = .09$, $t(261) = 2.96$, $p = .003$, 95% CI [.09, .42]. Similar to the first model, relationship satisfaction did not moderate the association between dissonance and infidelity, $B = -.03$, $SE = .07$, $t(261) = -.47$, $p = .64$, 95% CI [-.17, .10]. The index of moderated mediation was not significant, index = $-.02$, $SE = .06$, 95% CI [-.13, .10].

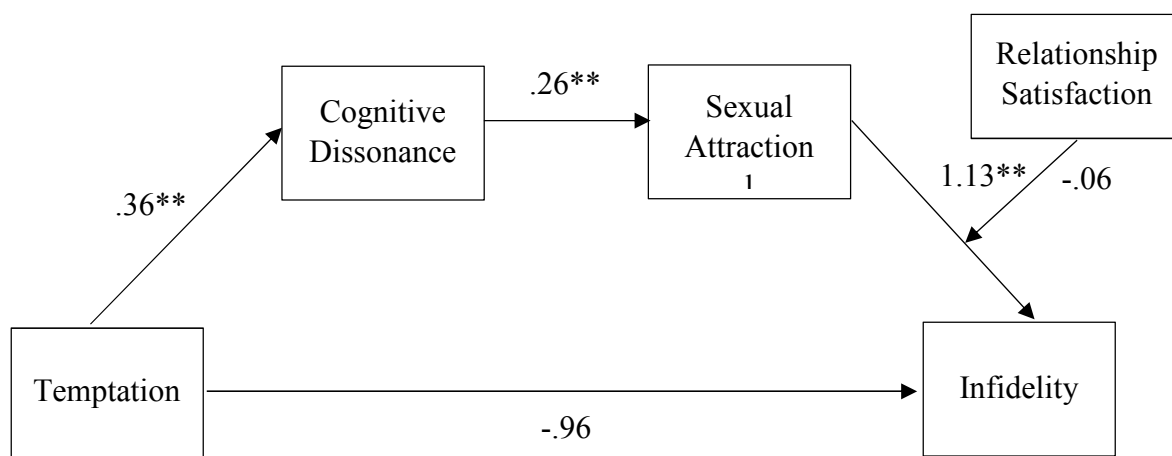
The indirect effect was significant at low levels (-1 SD) of relationship satisfaction, $B = .19$, $SE = .10$, 95% CI [.02, .39] and mean levels of relationship satisfaction, $B = .17$, $SE = .09$, 95% CI [.02, .36]. The indirect effect was not significant at high levels (+1 SD) of relationship satisfaction, $B = .15$, $SE = .11$, 95% CI [-.05, .39].

Appendix I: Study 2 Model 18 including covariates

Model 18 ($N = 283$) was tested again including all covariates, and findings were completely consistent with the model including no covariates. Temptation was positively associated with cognitive dissonance ($B = .31$, $SE = .10$, $t(266) = 3.03$, $p = .003$, 95% CI [.11, .52]) and infidelity likelihood ($B = .53$, $SE = .15$, $t(259) = 3.45$, $p = .001$, 95% CI [.23, .83]), above and beyond covariates. Cognitive depletion did not moderate the association between satisfaction and dissonance on infidelity likelihood above and beyond covariates, $B = .02$, $SE = .16$, $t(259) = .13$, $p = .90$, 95% CI [-.30, .34]. No other interactions were significant. Finally, the index of moderated moderated-mediation was also not significant, index = .01, $SE = .07$, 95% CI [-.16, .15].

Appendix J: Testing an Alternative Decision-Making Model- Study 2

The sequential moderated-mediation model (Model 87) was tested with temptation as the predictor variable (X), cognitive dissonance as the first mediator (M₁), sexual attraction as the second mediator (M₂), relationship satisfaction as the moderator (W), cognitive depletion as the covariate (cov), and infidelity as the outcome variable (Y).



Note. $N = 286$. Unstandardized regression coefficients for temptation, cognitive dissonance (M₁), sexual attraction (M₂), relationship satisfaction (W), and infidelity likelihood (Y), controlling for cognitive depletion (cov). Index of moderated mediation, $B = -.01$, $SE = .01$, 95% CI $[-.02, .01]$. ** $p < .01$.

Appendix K: VR Cover Story

The experimenter read the following cover story aloud to each participant:

“The VR simulation involves interacting with the other participant in a virtual house for about five minutes. During the simulation, you will engage in a short conversation with the participant, where one of you is assigned to be the host of the house, where you will be asking questions to get to know the other; or, you can be assigned to be the guest of the house, where you will be answering the questions posed by the participant through the controllers. Your partner in the game is down the hall getting their VR equipment set up with another research assistant. Once you and your partner are ready, we will begin the game. Do you have any questions?”

The experimenter then left the lab for 1 minute to “make sure” the other participant is ready to begin. When the experimenter returned, they informed the participant that they have been randomly assigned to be the guest of the house—participants were always assigned to be “the guest” so that they could answer the questions posed by “the host” throughout the VR game.

“You have been randomly assigned to be the guest of the house. The participant has been assigned as the host. That means, during the game, the participant will ask you questions to get to know you and you will respond using your controllers accordingly. Please wait for the participant to interact first before engaging in the back-and-forth dialogue. The interaction should last about five minutes. I will be outside and close the door, so feel free to behave as freely as you would in everyday settings. Once you are finished, please let me know. Do you have any questions? Are you ready to begin?”

Appendix L: VR Game Dialogue

Below is a step-by-step procedure of the virtual reality simulation for across all manipulations. All items (excluding item 2) were totaled ($n = 12$) to assess infidelity likelihood. Participant responses are scored as 0 = reject advance, 1 = accept advance.

Instructions: The game starts outside of a virtual front door of a residential home. The participant will be prompted to click begin in order to start the game.

1. Hi! My name is Alex, welcome to my place! It's so nice to meet you!

0 = Nice to meet you, too.

1 = The pleasure is all mine.

2. What kind of music are you into? (*item not included in infidelity total score*)

0 = Classical Music

1 = Pop Music

3. You're cute. I want to get to know you better. What do you want to talk about?

0 = Random Topic

1 = Personal Topic

4. So, what's your view on dating? Are you more the short-term or long-term type?

0 = I prefer long-term relationships.

1 = I prefer short-term relationships.

5. Let's flip a coin. Heads, I'm yours.

Tails, you're mine. Hehe

0 = No, thanks.

1 = Alright, sure!

6. Cuddling with you would be perfect right now. Don't you agree?

0 = No, not really.

1 = Yes, totally.

7. I hope I'm not making you uncomfortable by flirting with you. I just can't help it!

0 = Yes, you are.

1 = No, you're fine.

8. Hey, would it be alright if I slipped into something more comfortable?

0 = I don't care.

1 = Sure, that's ok.



Four avatars programmed using Unity 3D, a graphical user interface for game development. The above avatars represent the high temptation female (top left), high temptation male (top right), low temptation female (bottom left), and low temptation male (bottom right).

9. Which outfit do you prefer me to wear?

0 = Something Casual

1 = Something Sexy

10. Would you mind if I changed in front of you? I can go to the other room if it will make you uncomfortable.

0 = Change clothes in other room

1 = Change clothes here

11. Wanna close the door from some privacy? Hehe.

0 = Do Not Close Door

1 = Close Door

12. How about dimming the lights down a little...to set the mood, if you know what I mean...

0 = Do Not Dim Lights

1 = Dim Lights

13. Ok, it's getting kinda late, and nothing good happens after midnight. Would you like to stay the night with me?

0 = Leave House

1 = Stay the Night

Appendix M: Study 3 Covariates

Gender, age, relationship longevity, history of infidelity, sociosexuality (SOI-R; Penke & Asendorpf, 2008), attachment style (ECR-RS; Fraley et al., 2011), personality traits (TIPI; Gosling et al., 2003), sexual frequency, and sexual satisfaction are robust predictors of infidelity (Fincham & May, 2017), and were controlled for in the mediation model.

The revised Sociosexual Orientation Scale (SOI-R; Penke & Asendorpf, 2008) is a 9-item measure and was used to assess sexually permissive attitudes (e.g., *“I would have sex with someone who I am not committed to”* or *“Sex without love is OK”*) on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The reliability for this measure was .82.

The Experiences in Close Relationship-Relationship Structures (ECR-RS; 9 items; Fraley et al., 2011) was used to assess the two dimensions of attachment: attachment anxiety (e.g., *“I often worry that my partner will leave me”*; $\alpha = .83$) and attachment avoidance (e.g., *“I get uncomfortable if people get too close to me”*; $\alpha = .83$). Ratings were made on a Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

The Ten Item Personality Inventory (TIPI; 10 items; Gosling et al., 2003) was used to assess the Big 5 personality traits: Openness to experience (e.g., *“Open to new experiences, complex”*; $\alpha = .15$), conscientiousness (e.g., *“dependable, self-disciplined”*; $\alpha = .33$), extraversion (e.g., *“extraverted, enthusiastic”*; $\alpha = .75$), agreeableness (e.g., *“sympathetic, warm”*; $\alpha = .22$), and emotional stability (e.g., *“anxious, easily upset”*; $\alpha = .61$). Ratings were made on a Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

A subscale of The Perceived Relationship Quality Components Inventory (Fletcher et al., 2000) was used to measure relationship passion (3 items; e.g., *“How passionate is your relationship?”*). Ratings were made on a Likert-type scale ranging from 1 (*not at all*) to 5

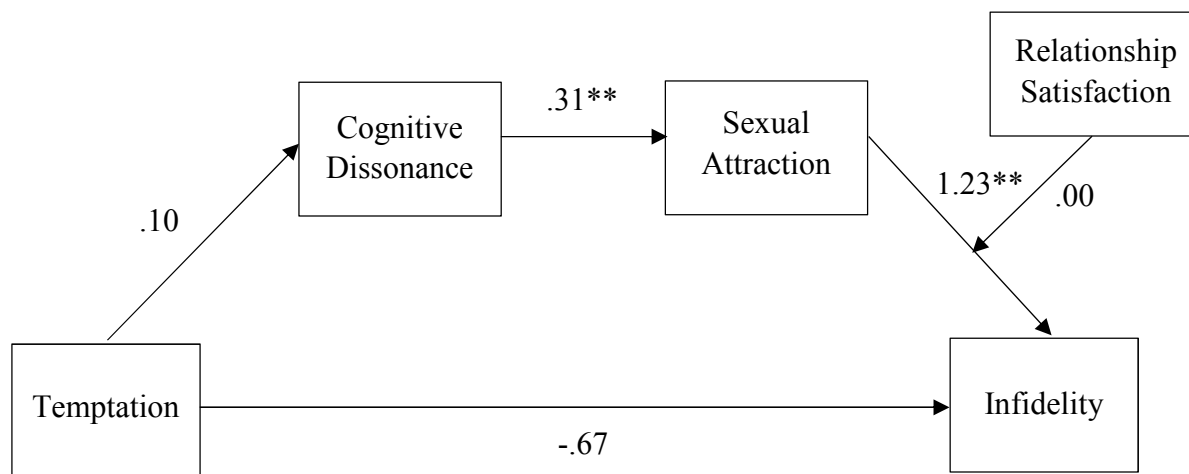
(*extremely*). The reliability of this measure was .63. A single item was also used to assess sexual satisfaction (i.e., “*How sexually satisfied are you in your current relationship?*”) and was positively correlated with the subcomponent passion, $r = .35, p = .0001$. Thus, these items were combined to create a composite variable labeled *sexual satisfaction* ($\alpha = .65$).

Appendix N: Study 3 Model 87 including covariates

To test the prediction that temptation influences infidelity above and beyond other robust predictors (i.e., age, gender, relationship longevity, sociosexuality, attachment style, personality, sexual satisfaction, sex frequency, and history of infidelity), the sequential moderated-mediation model ($N = 155$) was tested again including all covariates (Model 87; PROCESS, Hayes, 2013). Temptation positively predicted sexual attraction, $B = .96$, $SE = .15$, $t(126) = 6.45$, $p = .0001$, 95% CI [.67, 1.26]. Sexual attraction positively predicted cognitive dissonance, $B = .28$, $SE = .09$, $t(125) = 3.18$, $p = .002$, 95% CI [.11, .45]. Cognitive dissonance did not predict infidelity likelihood, $B = .31$, $SE = .25$, $t(122) = 1.25$, $p = .21$, 95% CI [-.18, .80]. Similar to the first model, relationship satisfaction did not moderate the association between dissonance and infidelity, $B = .13$, $SE = .15$, $t(122) = .91$, $p = .37$, 95% CI [-.16, .42]. The index of moderated mediation was not significant, index = .04, $SE = .06$, 95% CI [-.07, .16]. The indirect effect was significant at any level of relationship satisfaction (all CIs included zero).

Appendix O: Testing an Alternative Decision-Making Model- Study 3

The sequential moderated-mediation model (Model 87) was tested with temptation as the predictor variable (X), cognitive dissonance as the first mediator (M₁), sexual attraction as the second mediator (M₂), relationship satisfaction as the moderator (W), self-control as the covariate, and infidelity as the outcome variable (Y).



Note. $N = 153$. Unstandardized regression coefficients for temptation, cognitive dissonance (M₁), sexual attraction (M₂), relationship satisfaction (W), and infidelity likelihood (Y), controlling for self-control (cov). Index of moderated mediation, $B = .00$, $SE = .01$, 95% CI $[-.03, .03]$.

* $p < .05$. ** $p < .01$.