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# HOW SELECTED PERSONALITY FACTORS AFFECT THE RELATIONSHIPS BETWEEN MARITAL SATISFACTION, SEXUAL SATISFACTION, AND INFIDELITY by

Amanda Marie Campbell, M.A.

A Dissertation Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy

# COLLEGE OF EDUCATION LOUISIANA TECH UNIVERSITY

August 2009

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# LOUISIANA TECH UNIVERSITY

# THE GRADUATE SCHOOL

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entitled HOW SELECTED PERSONALITY FACTORS AFFECT THE RELATIONSHIPS BETWEEN MARITAL SATISFACTION, SEXUAL SATISFACTION, AND INFIDELITY

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be accepted in partial fulfillment of Doctor of Philosophy

Waller Bub all Supervisor of Dissertation Research Head of Department

for

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Degree

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**Psychology and Behavioral Sciences** 

requirements

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# ABSTRACT

Although research has illuminated some differences between those who engage in sexual behavior outside of their marriage and those who do not, there is a lack of attention in the literature to complex interactions among variables in their relationships to infidelity. There is evidence that marital satisfaction, sexual satisfaction, and personality are all related to infidelity but research has failed to investigate how personality may influence these other two variables in their relationship to infidelity. Thus, the proposed study explored possible effects that selected personality factors have on the relationships between marital satisfaction, sexual satisfaction, and infidelity. The results revealed that decreased marital satisfaction and decreased sexual satisfaction were both associated with an increased likelihood of infidelity. Of the personality factors privateness, rule-consciousness both were found to be moderators of the relationships between sexual satisfaction, marital satisfaction, and infidelity.

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# DEDICATION

### TO

My mother. I will never know of all the sacrifices you made so that I can be who I am today. My relationship with you has been the most important and formative of my life. You insist that I deserve all of the credit for my accomplishments but you taught me about the value of education and the importance of loving what you do in life. I *absolutely* have you to thank.

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Walt and Soper. Thank you Walt for being patient with me and for being there for me from the very first day of graduate school. Thank you Soper for the hard work and

V

effort you put into this dissertation. You made it what it is and you made me a better writer.

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# **CHAPTER 1**

### **INTRODUCTION**

Marriage has taken many forms throughout history and across cultures. Marriage typically involves two heterosexual individuals legally and within their religion (if they belong to a faith) pledging their love and making vows to one another. Important aspects of these vows often include monogamy, trust, and an understanding that sexual intimacy may only be shared within the couple (Greeley, 1991; Kaslow & Hammerschmidt, as cited in Lusterman, 2005). Sexual fidelity in ones marriage is prescribed by American society and traditional Western culture. Although rarely enforced (Treas & Giesen, 2000), adultery laws still exist in 26 states in the United States (Foer, 1997). Additionally, before the inception of no-fault divorce laws in the 1970's, most states considered infidelity to be one of the few legal grounds for divorce (now, no specific reason is required; Previti & Amato, 2004). Although the second half of the 20<sup>th</sup> century brought with it the "sexual revolution" and a concurrent rise in acceptance of varying sexual behavior such as premarital sex, attitudes toward sexual behavior outside of marriage have remained strongly negative (Christopher & Sprecher, 2000; Thornton, 1989). In the United States approximately 90% of participants in one study believed that extramarital sex (EMS) is either "almost always" or "always" wrong (Laumann, Gagnon, Michael, & Michaels, 1994).

Despite the legal and moral sanctions against infidelity and reported negative attitudes, the ubiquity of infidelity in the United States is difficult to deny. There are a vast number of magazine articles, news stories, and television shows that deal with the subject. A theme of infidelity can also be found in some of the most popular literature of all time (e.g., Homer's Iliad, Madame Bovary, The Scarlet Letter). It also exists in the individual lives of Americans. A USA Today/Gallup Poll of 1,025 adults found that 54% of Americans know someone who has an unfaithful spouse (Jayson, 2008). In 1948 and 1953, Alfred Kinsey gathered the first prevalence data on infidelity (although he termed it extramarital intercourse) and found that of 3,088 men and 2,000 women, 50% and 26% reported their own infidelity, respectively (Kinsey, Pomeroy, & Martin, 1948; Kinsey, Pomeroy, Martin, & Gebhard, 1953). More recent findings suggest that 25% of married men and 15% of married women report having engaged in extramarital sex at least once (Laumann et al., 1994). The profusion of infidelity is problematic considering it is a major cause of divorce cross-culturally, especially when perpetrated by a wife (Betzig, 1989), and many negative outcomes of infidelity for couples and families have been demonstrated empirically (Amato, 2000; Amato & Previti, 2003; Lusterman, 2005).

One way research may contribute to the mitigation of the negative consequences of infidelity is by examining the difference between individuals who engage in infidelity and those who do not. In order to understand the phenomenon, it is important to illuminate factors that exist in marriages and individuals that contribute to the likelihood of the behavior. This is the focus of the proposed study.

On the relationship level, there is evidence that marital satisfaction is associated with infidelity. It seems intuitive that the degree to which one is satisfied with ones marriage is associated with the likelihood that one will seek an emotional and/or sexual relationship with another person outside of the marriage. There is also empirical evidence to support this relationship. For example, Spanier and Margolis (1983) found that 70% of their participants who engaged in infidelity attributed their behavior to marital problems. More recent studies find that when participants are asked to justify their own infidelity, they often cite problems with the marital relationship (Atwood & Seifer, 1997). Other studies have found that as marital satisfaction decreases, the likelihood of infidelity increases (Atkins, Baucom, & Jacobson, 2001; Glass & Wright, 1985).

Another relationship variable that has been found to be associated with infidelity is sexual satisfaction. It makes sense that a spouse who is dissatisfied with the sexual relationship in his/her marriage would be more likely to seek at least a sexual relationship outside of their marriage to compensate. Studies based on this premise also have empirically demonstrated this relationship. Sexual satisfaction in the marital relationship has been found to be significantly lower for those spouses who have a history of infidelity (Liu, 2000; Waite & Joyner, 2001). Liu used data from the National Health and Social Life Survey to demonstrate this, and also that other variables related to sexual satisfaction such as frequency of sex are negatively correlated with infidelity.

On the individual level, researchers have found that personality is related to infidelity. A majority of these studies have related the Big Five personality factors of openness, conscientiousness, extraversion, agreeableness, and neuroticism to infidelity. The Big Five model of personality is a trait theory which asserts that measurable personality characteristics exist and that they differ across individuals, are stable over time, and influence behavior (Costa & McCrae, 1998).There is evidence that scores on

agreeableness and conscientiousness are strongly related to infidelity and that more moderate relationships exist between neuroticism, extraversion, and infidelity in all kinds of romantic relationships (Buss & Shackelford, 1997; Egan & Angus, 2004; Schmitt, 2004). There is also evidence that other personality factors such as narcissism and social dominance are related to infidelity (Buss & Shackelford; Egan & Angus).

Although researchers have identified many variables that are related to infidelity, few have investigated the possible complex interactions that may exist among these variables. Research has demonstrated that satisfaction with ones marriage, satisfaction with ones sexual relationship, and ones personality are all sometimes related to infidelity. The proposed study will examine possible moderating effects that personality factors may have on marital satisfaction and sexual satisfaction in their relationships to infidelity.

## Statement of the Problem

Since the early 1970's and 1980's, interest in infidelity in the research literature has grown considerably. However, infidelity is a complex phenomenon. One can research attitudes toward infidelity, motivations, consequences, correlates, predictors, frequencies, and/or types. This inherent complexity is only exacerbated by the use of various research designs and differing operational definitions. The result is a body of literature that is riddled with definitional issues, conflicting results, and methodological limitations (Blow & Hartnett, 2005). Clinicians may be hard-pressed to make sense of the information available.

One major issue with the infidelity research is the operational definition of infidelity. In the literature, many forms and degrees of infidelity have been identified (Levine, 1998), making it difficult to compare studies. The two terms most popularly

used in the research literature are infidelity and extramarital sex (EMS). Bernard (1974) suggests that the definition of infidelity is any violation of ones marital vows. According to this definition, any time a spouse stops loving, honoring, cherishing, or comforting the other, this is infidelity (provided those were part of the marriage vows). Others use infidelity to denote sexual behavior outside of ones primary relationship but do not differentiate between types of relationships such as dating, cohabiting, and marriage (Egan & Angus, 2004).

The independent variable in a majority of studies on infidelity has been dichotomous; have you had sex with someone other than your spouse or not? One obvious problem with this is differing definitions of the word "sex". It may be assumed that people think of sexual intercourse when they hear the word "sex", but they may not. Does the word "sex" include oral sex, anal sex, or just vaginal intercourse? Often these issues are not explicitly addressed in the research and thus to which behaviors the conclusions of the studies apply is unclear. It seems intuitive that sexual intercourse would not be the only behavior that could occur secretly outside of marriage and lead to negative outcomes. What about kissing and petting? These seem to be behaviors that many couples would agree are only to be engaged in within the sanctions of marriage.

Many researchers have already attempted to differentiate between individuals who engage in infidelity and those who do not. This is an important task to gain greater understanding of the phenomenon and to help mitigate its negative consequences. For example, studies have demonstrated relationships between infidelity and gender (Allen & Baucom, 2004), age (Atkins et al., 2001), opportunity, religiosity (Treas & Giesen, 2000), length of relationship, ethnicity, number of previous sexual partners (Forste & Tanfer,

1996), permissive sexual attitudes (Smith, 1994), income level (Buunk, 1980), level of education (Amato & Rogers, 1997), personality, marital satisfaction, and sexual satisfaction (Buss & Shackelford, 1997). However, these findings are not unequivocal as other studies at different times, with different populations, and/or using a different definition of infidelity have failed to replicate some of these results (Amato & Rogers; Blumstein & Schwartz, 1983; Spanier & Margolis, 1983; Treas & Giesen; Wiederman, 1997). Another problem with this research is that it has failed to demonstrate the complexity of these variables in their relationships to infidelity. Sexual behavior outside of ones marriage is complex behavior that is likely precipitated by a complicated interplay of relational and individual factors. It is not easily understood through simple, linear relationships, which many of these studies report.

One final problem with infidelity research relates specifically to studies that have examined the relationships between personality factors and infidelity. Most of these studies have used the NEO-Personality Inventory (NEO-PI) to measure the Big Five personality factors and have ignored other measures of personality that may provide a more detailed picture of personality. There are other personality models besides the Big Five and evidence that measures of these models relate to infidelity only further bolsters the assertion that personality is, in fact, related to infidelity. Although the Big Five includes facets that are subsumed under the higher order five factors, the NEO has traditionally been used to measure the Big Five, not facet scores. One study investigated how the specific facets of the Big Five relate to risky sexual behavior, and they found that interesting relationships existed (Miller, Lynam, Zimmerman, Logan, Leukefeld, & Clayton, 2004). Therefore, an instrument that has been traditionally used to measure more specific personality factors could yield important results about the role personality plays in infidelity. More specifically, as is intended in the proposed study, it may provide information about how specific personality factors influence the relationships between marital satisfaction, sexual satisfaction, and infidelity.

### Justification

One problem with infidelity is that it is associated with conflict and dissolution of marital relationships. A survey of 122 marital therapists revealed that infidelity is one of the most commonly reported problems among couples seeking therapy (Whisman, Dixon, & Johnson, 1997) and it is also one of the reasons most frequently given for marital breakdown (Amato & Previti, 2003). Some researchers have found that a previous infidelity is present in more than 50% of divorced couples (Kontula & Haavio-Mannila, 2004).

Not only is infidelity associated with divorce and marital conflict, but actual or suspected infidelity is the leading cause of spousal battering and spousal homicide (Buss & Shackelford, 1997; Daly & Wilson, as cited in Shackelford & Buss, 1997). In fact, Daly, Wilson, and Weghorst (1982) studied male sexual jealousy and murders of men in Detroit that were precipitated by their own jealousy. Out of 306 homicides over a one year period, they found that 40 of these included an accusation of infidelity or a sexual rivalry.

Other negative outcomes for the individuals involved in infidelity include social and emotional consequences. Partners of those who engage in infidelity may experience a number of negative emotions including anger, jealousy, humiliation, disappointment, and self-doubt (Buunk, 1995; Lawson, 1988). Depression is also commonly experienced by this group (Cano & O'Leary, as cited in Hall & Fincham, 2006). They may be traumatized by a loss of trust for their spouse and the breaching of their private relationship (Lusterman, 2005). Individuals who are unfaithful face many social consequences such as being ostracized from social circles and public disapproval from family and friends.

Children who have learned of a parent's infidelity are challenged to make sense of their parents' actions, possibly at ages during which they are not developmentally prepared. They also may be asked to keep secrets from the other parent, an unhealthy boundary violation for a family which can result in anxiety for children (Lusterman, 2005). Parental infidelity threatens the stability and security of family that is important for children's healthy psychological development (Lusterman).

Infidelity also poses health risks to those involved. It increases the risk of sexually transmitted diseases in both partners, including the spread of HIV (Hirsch, Higgins, Bentley, & Nathanson, 2002; Smith, 2007). Infidelity appears even more risky when one considers the evidence that women who engage in sex outside of their marriage are less responsible with contraceptives with their extramarital partners (Baker & Bellis, as cited in Drigotas & Barta, 2001). If an individual secretly engages in sexual intercourse outside of marriage, their spouse may not know they are at increased risk for sexually transmitted diseases and neglect to take precautions they might otherwise have taken.

Thus, the proposed study is intended to examine the effects that personality factors have on the relationships between marital satisfaction, sexual satisfaction, and infidelity. Understanding the complex relationships among selected individual and relationship variables that contribute to infidelity may help predict its occurrence. If infidelity can be predicted, then more effective prevention also may be possible. The

information yielded may be useful for development of prevention programs or clinical treatment of couples and families who are challenged with infidelity.

# Literature Review

During the 1950's many theoretical writings about infidelity were published but empirical research began when Alfred Kinsey published his data regarding sexual behavior of males and females in 1948 and 1953, respectively. Studies on infidelity continued to be sparse until the early 1970s and 1980s. Concern about AIDS and risky sexual behavior contributed to the interest in these kinds of investigations and since then the body of literature on the subject has grown considerably. Based on the specific research questions of the proposed study, a selective literature review of infidelity follows. It includes a review of the literature on definitions of infidelity, incidence and prevalence rates, theories of infidelity, and correlates of infidelity.

# What is Infidelity?

The definition of infidelity is quite complex. In the literature, many forms and degrees of infidelity have been identified (Levine, 1998), making it difficult to compare studies. The many terms that have been used to denote infidelity are: nonmonogamy, extradyadic involvement, extramarital involvement, extramarital coitus, polyamory, extramarital sex, extramarital intercourse, being unfaithful, having an affair, cheating, extra-sex, and adultery. The term adultery is often used in religious and legal vernacular but is avoided in scientific investigation because of the connotation of judgment associated with the word. Some of the aforementioned terms were suggested to further avoid the implied moral judgment (Yablonsky, 1979), but the two most popularly used in the research literature are infidelity and extramarital sex (EMS). Because the literature is

full of varied definitions and terms, the wording chosen by the specified authors will be used when reporting their results.

For many years, the study of infidelity focused on sexual relationships, but eventually the "emotion-only" affair was identified and now there exists a differentiation in the literature between "emotional infidelity", "sexual infidelity", and "combined type infidelity" (Glass & Wright, 1985; Thompson, 1984). Emotional infidelity has been defined as feeling in love with an extra-dyadic person (Barta & Kiene, 2005) or as channeling emotional resources such as romantic love, time, and/or attention to someone other than ones spouse (Shackelford & Buss, 1997). Boylan (1971) offers a broad definition of emotional infidelity as simply any time a marriage partner fulfills their emotional and psychological needs outside of the marital relationship. Emotional infidelity has generally received less attention in the literature than its sexual counterpart. Sexual infidelity has been simply defined as sexual activity with someone other than ones long-term partner (Shackelford & Buss). Sexual infidelity has been thought to be of shorter duration than emotionally unfaithful relationships, involve less trust, and less selfdisclosure (Barta & Kiene). It has been noted that although these two components of infidelity seem to exist, they are not totally dichotomous, are intricately intertwined, and that most infidelity lies somewhere between emotional and sexual in nature (Barta & Kiene; Desteno, Bartlett, Braverman, & Salovey, 2002). Glass and Wright created a continuum with sexual infidelity on one end and emotional infidelity on the other, but this continuum has not been popular in the literature. Although the importance of the study of emotional infidelity has been noted (Blow & Hartnett, 2005), the present study will be

limited to only sexual infidelity. It is recognized that infidelity that involves sexual behavior may also include an emotional component, however, this will not be measured.

Even when one considers only sexual infidelity, there still is a wide variety of possible definitions. There are many different kinds of sexual behavior – should a definition of sexual infidelity regard kissing and sexual intercourse as equal behaviors? Intuitively, those two behaviors seem quite different. For example, arranging for sexual intercourse with someone other than ones spouse may involve at least some planning for a place and time, but a kiss could occur spontaneously in the same room with the other spouse. It also seems intuitive that there are some notable differences between a "one-night stand" (i.e., a sexual relationship with someone other than ones spouse that lasts one evening), and a long-term affair in which the participants are in love. However, the literature has sometimes failed to differentiate between these. Buunk (1980) created a continuum of extramarital behavior that included flirting, light petting, falling in love, sexual intercourse, and a prolonged sexual relationship. However, individual definitions of these terms are just as problematic as differing definitions for *infidelity*. This continuum has not gained popularity in the literature.

Even state laws do not agree on a definition of infidelity. According to the laws that exist in 26 states (Foer, 1997), adultery can be defined as any intercourse outside of marriage, living with someone other than ones spouse, or "lewdly and lasciviously associat[ing]" with anyone other than ones spouse (Foer, p.1). Although the legal definitions vary, adultery is generally thought to involve "sexual intercourse between a married person and someone of the opposite sex who is not, at the time, their spouse" (Lawson & Samson, 1988, p. 409).

The independent variable in a majority of studies on infidelity has been whether or not participants had sex with someone other than their spouse. Generally, infidelity is thought to involve the serious violation of a promise or vow or some form of deception that is in stark contrast with the basic notion of and societal norms associated with marriage (Barta & Kiene, 2005; Bernard, 1974; Buunk & Dijkstra, 2006). In fact, Bernard suggests that the definition of infidelity is simply any violation of ones marital vows. The issue of the definition of infidelity is quite important when one considers that the prevalence and incidence data mostly have been based on presence or absence of sex with someone other than ones spouse. One problem with this is that people may think of different things when they hear the word "sex," not just vaginal sexual intercourse. Even some researchers define "sex" more broadly. For example, Treas and Giesen (2000) defined sex as "mutually voluntary activity with another person that involves genital contact and sexual excitement or arousal, that is, feeling really turned on, even if intercourse or orgasm did not occur" (p.52). Another problem is the neglect to include emotional infidelity and sexual infidelity that includes behaviors other than sexual intercourse (or, whatever participants include in their personal definition of "sex").

Recently, with the advent and popularity of the Internet came a new form of infidelity: *online infidelity* (Whitty, 2003). A *cyberaffair* is defined as a romantic and/or sexual relationship that is initiated and maintained via electronic means (Young, as cited in Young, Griffin-Shelley, Cooper, O'Mara, & Buchanan, 2000). Also, *cybersex* is online mutual erotic dialogue (Young et al.). A significant percentage of people surveyed consider some forms of online behavior as infidelity (Whitty). The research on this type of infidelity is sparse, but a few studies exist. Online infidelity is in some ways

behaviorally different from other forms of infidelity, but it has been suggested that the contributing factors and outcomes may be similar (Whitty). Additionally, this kind of infidelity may be especially insidious because being online can make people feel less inhibited, intimacy and disclosure takes less time in online relationships, contact is easily accessible, and it can lead to offline contact (Cooper & Sportolari; Young, both as cited in Young et al.).

In the proposed study, the word *infidelity* will be used to denote in person (offline) consensual sexual behavior with one or more people other than ones spouse that the participant does not want their spouse to know about. For the purposes of the proposed investigation, sexual behavior includes kissing, fondling/petting/caressing/manual stimulation, oral sex, and/or vaginal or anal sexual intercourse. This definition is different from mate sharing, co-marital sex, "swinging", or any other form of sexual behavior outside of the marriage that is sanctioned in the marital relationship. Infidelity in this study is secretive in nature. Also, because the topic is limited to *marital* sexual infidelity, when words are used to denote individuals in relationships or romantic relationships themselves, it should be assumed that they refer to heterosexual relationships, unless otherwise specified. Although same-sex marriage is recognized in some countries (and some states), and the topic is certainly worthy of investigation, the present study will be limited to heterosexual unions (although the infidelity may involve homosexual behavior).

# Incidence/Prevalence Rates

Since 1948 when Alfred Kinsey first collected data on the prevalence of infidelity, researchers have attempted to discover how many married people in the United States

actually secretly engage in sexual behavior outside of their marriage. However, because these researchers have used varying samples and definitions of infidelity, it is difficult to determine with much accuracy how many people engage in infidelity. Even when data are collected, it is likely that the estimates are conservative for several reasons. First, it is reasonable to expect that because of the illicit and secret nature of the subject of infidelity that some participants who are concerned with social desirability or confidentiality might not be truthful. In fact, in a study of 750 case histories, 30% of participants initially reported being unfaithful in their marriages, but another 30% revealed secret sexual relationships outside of their marriage during intensive therapy that followed (Greene, Lee, & Lustig, 1974). Second, these estimates do not represent lifetime prevalence rates (i.e., if participants were 30 at the time of the study, then infidelity that occurred after age 30 was not measured). Third, all of these studies use heterosexual participants and although they have sometimes asked about homosexual behavior outside of marriage, they do not provide information about infidelity rates for homosexuals in relationships or for homosexual couples. Finally, many of these studies have gathered data about prevalence of extramarital sexual intercourse and, therefore, do not account for married individuals who are emotionally involved with someone other than their spouse or those who engage in sexual behavior other than intercourse with persons outside of their marriage.

When Alfred Kinsey first published data on the prevalence of infidelity for men and women, he reported that 50% of married men and 26% of married women engaged in sexual intercourse outside of their marriage (Kinsey et al., 1948; Kinsey et al., 1953). Although Kinsey's sample was large (5,300 men and 5,940 women), it has been noted

that it was not representative of the US population (Neubeck, 1969). Athanasiou, Shaver, and Tavris (1970) found that of 8,000 readers of *Psychology Today* who responded to their survey, 40% of the men and 36% of the women had engaged in extramarital intercourse. In a study using 100 "middle-aged, well-educated, and fairly affluent" participants, 20% of men and 10% of women had engaged in extramarital intercourse (Johnson, 1970). Hunt (as cited in Thompson, 1983) reported that of 982 men and 1,044 women older than 18 years of age, 41% of men and 18% of women endorsed having engaged in extramarital intercourse. In 1979, when Yablonsky reported on sexual behavior of men, he reported that approximately 50% of married men engaged in infidelity. Not long after these data were published, Hite (as cited in Thompson) found that in a sample of 7,239 men, 66% of the married men reported having engaged in EMS. However, others have noted that Hite's sample was nonrepresentative (Gould, 1981). Thompson estimated that the combined probability that at least one person in a marriage will engage in infidelity is 40-76%.

More recent estimates of prevalence and incidence of infidelity also exist. Treas and Giesen (2000) used data from the 1992 National Health and Social Life Survey and found that 15.5% of individuals who had been married once reported EMS. Data from the 1994 General Social Survey suggest that 22% of men and 12% of women have had EMS (Wiederman, 1997). Levine (2005) estimates that at least 20% of men and 10% of women will become involved sexually with someone other than their spouse.

Incidence rates (the percentage of participants who have engaged in infidelity in the past year) are much smaller. It is estimated that 1.5-3.6% of married people have had sexual intercourse outside their marriage over the past year (Choi, Catania, & Dolcini,

1994; Leigh, Temple, & Trocki, 1993; & Smith, 1991; Treas & Giesen, 2000). Greeley (1991) found that 5% of married individuals engaged in infidelity over the past year and Laumann et al. (1994) found that 4% of their sample had engaged in EMS in the past year. Using data from the 1991 National Survey of Women (i.e., a survey designed to collect data on a broad range of sexual health concerns for women), Forste and Tanfer (1996) found that 4% of married women interviewed reported having a secondary sex partner at the time of the interview. Leigh et al. used a national probability sample of 1,194 married adults and found that 1.8% of males and 0.6% of females had engaged in EMS in the last 30 days, 4.4% of males and 2.9% of females had engaged in EMS in the past year, and 8.5% of males and 4.3% of females had engaged in EMS in the past five years. In a given year, the number of people who engage in infidelity may be quite low but the lifetime prevalence of infidelity is usually much higher.

Some researchers, like Thompson (1983), have attempted to summarize previous data to provide possible ranges of prevalence. For example, taking data from the 1991-1996 General Social Survey, Atkins et al. (2001) reported that 13% of people had reported having EMS. Laumann et al. (1994) found that 25% of men and 15% of women had engaged in EMS at least once. Shackelford and Buss (1997) estimated that 26-70% of women and 33-75% of men had engaged in infidelity. These same authors estimated in the same year that 30-60% of men and 20-50% of women engage in infidelity (Buss & Shackelford, 1997). Atkins et al. estimated that 20-25% of all Americans will have sex with someone other than their spouse while married. Blow and Hartnett (2005) estimate that infidelity will occur in fewer than 25% of all marriage in the United States. Very rarely have researchers collected data on incidence or prevalence of sexual behavior

outside of marriage other than sexual intercourse. The only known data approximating this comes from Kinsey et al. (1953) which reported that 16% of married women in that sample were involved in "extramarital petting" but not sexual intercourse.

There are some notable trends in the prevalence of infidelity. First, men are more likely to engage in sexual infidelity and women are more likely to engage in emotional infidelity (Glass & Wright, 1985; Kinsey et al., 1948; Thompson, 1984). Second, over time, the prevalence of women engaging in infidelity has increased and become more like that of men. For example, Wiederman (1997) found that for the participants in his study over age 40, men engaged in infidelity significantly more than women, but for the participants under age 40, rates of infidelity of women were equal to that of men. Also, Laumann et al. (1994) found that for participants who were born from 1933-1942, 37% of men and 12% of women had engaged in infidelity. However, for those participants born from 1953-1974, 28% of men and 26% of women had engaged in infidelity. Some authors have attempted to explain this trend by the increase of women in the workplace (Drigotas & Barta, 2001; Lawson & Samson, 1988). They suggest that the advent of the birth control pill, decrease in family size, and the women's movement all contributed to an increase in women working outside the home, which they argue increases their opportunity to engage in infidelity (Lawson & Samson). Drigotas and Barta note that working outside the home increases economic independence for women which makes infidelity less of a risk for them and thus, they are more likely to engage in it. Other authors suggest that sex differences in infidelity are an artifact of a narrow definition of infidelity (i.e., sexual intercourse) and find that women are just as likely as men to engage

in infidelity when the definition is broadened to other sexual and non-sexual behaviors (Brand, Markey, Mills, & Hodges, 2007).

# Theories of Infidelity

Some authors have attempted to explain aspects of infidelity by using existing theories. Several lesser theories (e.g., equity theory; Walster, Traupmann, & Walster, 1978; Walster, Berscheid, & Walster, 1973) have been applied to infidelity but have not received enough attention or empirical support to warrant their review here. However, evolutionary theory and attachment theory have received much attention and will be reviewed in the following section.

### Evolutionary Theory

For years, theorists have been applying evolutionary theory to interpersonal interaction and sexual relationships among human beings (Buss, 1999). Infidelity is one specific phenomenon that has been given attention in this literature (Brand et al., 2007; Buunk & Dijkstra, 2006; Cann, Mangum, & Wells, 2001; Hughes, Harrison, & Gallup, Jr., 2004; Sabini & Silver, 2005). There are two ways evolutionary theory has been used to explain infidelity. First, it has addressed the actual *occurrence* of infidelity. Second, it has focused on the oft replicated gender difference in reaction to different types of infidelity. That is, the finding that males are more upset if their spouse has a *sexual* relationship with someone else (Buss, Larsen, Westen, & Semmelroth, 1992; Schützwohl, 2005). The following will delineate these two explanations.

According to evolutionary theory, human beings behave in ways that will maximize the likelihood of their own survival and their ability to produce offspring that

will survive to reproductive age. Parental Investment Theory is a part of evolutionary theory that outlines the differences that exist between men and women in the ways in which they reproduce (Brand, et al., 2007; Trivers, 1972). Males need only ejaculate one time in order to impregnate a woman, but women must carry the child to gestation and spend the following months lactating and feeding the child. Even if women do not feed with their breast milk, their obligatory involvement is still significantly longer than that of males. Because this is the case, it would be more evolutionarily advantageous for males to have multiple sex partners so as to increase the likelihood that one or more will become pregnant and produce viable offspring. However, it would be better for women to have fewer sexual partners as this increases their likelihood of being able to identify the father and thus the likelihood that he will offer his resources to care for the child and increase the chances of its survival (Hughes et al., 2004).

If males attempt to obtain a high number of sexual partners, this offers one explanation for the finding that men engage in infidelity more than women and that males are more likely to engage in short-term mating and have more sexual partners than women (Allen & Baucom, 2004; Barta & Kiene, 2005; Brand et al., 2007). It can also explain the finding that males desire "threesomes" and group sex more than women (Hughes et al., 2004).

But what about women who engage in infidelity? If it is more advantageous for them to have fewer partners, why would they engage in a sexual relationship with someone other than their primary partner? Brand et al. (2007) suggest that this may be an attempt to "mate-switch" or to trade their partner for one with greater resources without first giving up the protection and resources of the original partner. After all, it is not simply advantageous for women to have fewer partners, it is more advantageous for them to have a partner who has the greatest resources available to help care for children and increase their chances of survival. This can be used to explain the finding that women engage in infidelity with fewer extramarital partners (Brand et al.). Additionally, women are more likely to disclose their infidelity to their partners (which they should be if they are using it to mate-switch; when they decide to actually switch, the original partner is often informed). Women are also more likely to say that they engaged in infidelity because of dissatisfaction in their current relationship (and they should if they are using infidelity to find a better partner; Allen, Atkins, Baucom, Snyder, Gordon, & Glass, 2005; Glass, 2003).

Conversely, males are more likely to cite opportunity as their reason for infidelity (and men should if they are most concerned with quantity and thus increased likelihood of impregnating a woman; Brand et al., 2007). Finally, this theory can explain the finding that women are distressed by both same- and opposite-sex infidelity, whereas men are not. A male's infidelity with another man or another woman are *both* a diversion of resources from the original relationship, and thus are both upsetting to the female. However, a female's infidelity with a woman will not produce offspring, and her male partner should not be upset because he is still able to impregnate her and also be certain of paternity (Hughes et al., 2004).

This final point is related to the second way in which evolutionary theory has been used to explain infidelity in the literature. Several studies have replicated the finding that males are more distressed by their partner's sexual infidelity and females are more upset by their partner's emotional infidelity (Brand et al., 2007; Schützwohl, 2005). Buss et al.

(1992) found that 83% of women reported that their partner's emotional infidelity was more distressing than sexual infidelity; only 40% of men agreed. This finding has been replicated cross-culturally (Buss, 1999) and using heart rate and electrodermal response as measures of distress, as opposed to self-report (Buss et al.). Women engaging in sexual infidelity should be more distressing to a male because it decreases his likelihood of reproductive success. She may become pregnant with another man's child, thus making it impossible, at least for some time, to become pregnant with his child. Also, if she becomes pregnant but has had multiple sexual partners, paternity becomes questionable and human beings are most concerned with the survival of their own offspring, not those of others. A male devoting his resources to another man's baby would decrease the likelihood of the continuation of his own genetic lineage. But, why would women be more upset by emotional infidelity? Emotional infidelity represents a possible diversion of resources. If a woman's mate becomes so emotionally entangled with another that he abandons her, then the likelihood of the survival of her offspring is compromised because her resources from him may diminish or disappear (Buss; Buunk & Djikstra, 2006). Using Parental Investment Theory, one can see how evolutionary theory lends itself to the explanation of infidelity.

### Attachment Theory

Attachment has been defined as a "systematic pattern of relational expectation, emotions, and behaviors that results from internalization of a particular history of attachment experiences" (Shaver & Mikulincer, 2002; p.150). Bowlby (1973) originally formulated attachment theory and proposed that infants were born with innate tendencies to display behaviors that would gain attention from more powerful adults who could
satisfy the infant's needs. Through repeated interactions between a caregiver and an infant, a bond develops that becomes what Bowlby termed an *internal working model* which is an internal representation of the relationship between the self and the caregiving other. Bowlby asserted that this internal working model included expectations, beliefs, and goals about the self in relation to others. The infant's behaviors that are reinforced by the caregiver will endure and these "attachment behaviors" were purported to last throughout the lifespan and were thought to be displayed most overtly during periods of distress (Bowlby).

When Bowlby originally formulated the concept of attachment it was meant to describe attachments between an infant and caregiver. However, he asserted that the internal working model that developed during infancy also was involved in the development of personality and affected interpersonal relationships throughout the lifespan (Ainsworth, 1969; Bowlby, 1973). Although this was part of Bowlby's original theory, research investigating attachment as it related to adult relationships did not flourish until the mid-1980's with Hazan and Shaver (1987) being the first to apply attachment to how adults think, feel, and behave in interpersonal relationships. Since then, there have been multiple studies confirming that attachment is stable and is an important factor in adult relationships (Scharfe & Bartholomew, 1996; Simpson & Rholes, 1998; Waters, Weinfield, & Hamilton, 2000).

Bartholomew (1990) formulated a two-dimensional model of attachment which plotted a view of self against a view of other with positive and negative being the poles of these dimensions. This resulted in four adult attachment types that are commonly used to differentiate adult attachment. According to this model, *secure* adults hold a positive view

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of themselves (i.e., as worthy of love) and a positive view of others (i.e., as responsive and available), and are comfortable with a balance between intimacy and autonomy in their close adult relationships. *Preoccupied* adults idealize others but hold a negative view of themselves as unworthy of love. They tend to desperately seek acceptance and validation from others and may be described as clingy. They are likely to often worry that their partner does not really love them or will abandon them and they display high levels of distress when they perceive their relationship threatened (which is likely to be often because they are hyper vigilant to possible separation cues). Adults who hold negative views of others but positive views of themselves are labeled *dismissing/avoidant* in their relationships. These adults tend to minimize the importance of close relationships and the needs of others and avoid intimacy due to an expectation that others will not be available or will be rejecting. These individuals might be described by others as aloof or distant. Finally, *fearful* adults hold negative views of themselves and of others and, like preoccupied individuals, desperately seek the acceptance of others but avoid intimacy to avoid expected rejection (Bartholomew; Bartholomew & Horowitz, 1991).

Others have argued that the same four attachments exist but conceptualize adult attachment differently. They propose that attachment is based on how people score on measures of avoidance and ambivalence in relationships (Simpson, Rholes, & Phillips, 1996). Avoidance is indicative of how much a person avoids intimacy and closeness in interpersonal relationships and ambivalence denotes conflicted feelings about whether or not others can be depended on to meet ones needs. Those who score low on avoidance and ambivalence are thought to be *secure*, those who score high on avoidance but low on ambivalence are thought to be *dismissing*, those who score high on ambivalence but low on avoidance are thought to be *preoccupied*, and those who score high on both avoidance and ambivalence are thought to be *fearful* (Simpson et al.). Still, other models conceptualize adult attachment in the same way but term "ambivalence" as "anxiety" (Mikulincer & Shaver, 2005).

Some authors have proposed that insecure attachment (i.e., any attachment style that is not secure) can be used to explain infidelity (Allen & Baucom, 2004; Bogart & Sadava, 2002; Buunk & Djikstra, 2006). There is evidence that individuals with insecure attachments are more likely to have short-term relationships, get divorced (Hazan & Shaver, 1987), and engage in casual sexual experiences (Miller & Fishkin, 1997). More specifically, those with an avoidant attachment style (also known as dismissing) are more likely to have less intimate relationships and to have one-night stands than individuals with other attachment styles (Hazan & Shaver). Avoidant/dismissing individuals have also been found to be more likely than individuals with other attachment styles to be less committed to their primary partners, to avoid deeply involved relationships, and to be more willing to engage in sexual relations without emotional investment (Brennan & Shaver, 1995). Brennan and Shaver also suggest that avoidant/dismissing individuals may engage in infidelity to get physically close to others without the emotional intimacy and closeness that they tend to avoid.

Regarding actual infidelity, those with preoccupied and fearful attachment styles have been found to engage in infidelity more than securely attached individuals and this relationship is stronger for females than for males (Hazan & Shaver, 1987). Allen and Baucom (2004) also found a gender difference when they discovered that the avoidant/dismissing males and preoccupied and fearful females in their sample engaged in infidelity significantly more often than others. These authors suggest that fearful or preoccupied individuals may use infidelity as a way to gain more intimacy or self-esteem.

To empirically validate the role of attachment in infidelity, Allen and Baucom (2004) collected data on 251 community members and 504 college undergraduates. They asked their participants to report whether or not they had engaged in infidelity (the college undergraduate sample had to be in a dating relationship but not necessarily married) and their motivations for doing so. They found that avoidant/dismissive individuals were more likely to report they had engaged in infidelity to obtain space and freedom. They also found that preoccupied and fearful individuals were more likely to report they fear full individuals were more likely to report they fear full individuals were more likely to report they fear full individuals were more likely to report they and fearful individuals were more likely to report they and fearful individuals were more likely to report they and fear full individuals were more likely to report they and fear full individuals were more likely to report they did it because they felt neglect in their primary relationship, because of loneliness, or because they wanted to feel cared about. These findings provide evidence that attachment is at least somewhat related to the occurrence of infidelity for individuals who are insecurely attached.

### Correlates of Infidelity

A majority of the studies on marital infidelity have aimed at elucidating variables that are related to infidelity. Although these studies are all correlational, and imposing causation on them would be inappropriate, the stated objective of many of the authors is to possibly predict sexual behavior outside of marriage. Most of these studies have differentiated between two groups: those who have engaged in EMS at any point in their lifetime and those who have not. Their research, then, is meant to explore which variables differentiate these two groups. Because many different variables have been studied in relation to infidelity, some authors have asserted that these variables can best be understood by distinguishing between intrapersonal variables (variables that are part of the individual who engages in marital infidelity) and interpersonal variables (variables related to the relationship from which the infidelity occurs) (Aviram & Amichai Hamburger, 2005).

#### Intrapersonal Variables

Gender. Gender is probably the most frequently studied variable in relationship to infidelity and until recently it was the most consistent predictor (Buss & Shackelford, 1997). The finding that men are more likely to engage in EMS than women and that they have more EMS partners than women has been replicated worldwide (Allen & Baucom, 2004; Atkins et al., 2001; Barta & Kiene, 2005; Blumstein & Schwartz, 1983; Buunk, 1980; Choi et al., 1994; Cochran, Chamlin, Beeghley, & Fenwick, 2004; Druckerman, 2007; Glass & Wright, 1985; Greeley, 1994; Hunt, 1974; Janus & Janus, 1993; Johnson, 1970; Laumann et al., 1994; Lawson & Samson, 1988; Leigh et al., 1993; Spanier & Margolis, 1983; Træn & Stigum, 1998; Treas & Giesen, 2000; Waite & Joyner, as cited in Previti & Amato, 2004; Wiederman, 1997; Wiggins & Lederer, 1984). Men also report a higher number of incidents of infidelity than women (Lawson & Samson; Spanier & Margolis). There are very few studies that have not found that males engage in EMS more than females (Hunt). Men also express more desire and willingness to engage in extramarital involvement (Buunk & Bakker, 1995; Prins, Buunk, & Van Yperen, 1993; Seal, Agostinelli, & Hannett, 1994), more active seeking of an EM partner, and are less disapproving of EMI when compared to women (Allen et al., 2005; Buunk & Bakker; Johnson; Oliver & Hyde, 1993; Prins, Buunk, & VanYperen; Smith, 1994).

Beyond evolutionary explanations for this gender gap outlined in the previous section, Lusterman (1997) wrote about the possible influence of cultural factors such as men condoning marital infidelity, cultural depictions of women as sexual objects, male vulnerability to seeking power and conquest through sex, and pressures on men to focus on career success which may lead them to neglect their feelings in marriage until they reach a crisis. He also notes that sexual conquest and entitlement are parts of male sex role socialization in our culture and that this may influence males' traditional engagement in infidelity more than females.

Although these explanations are intriguing, recent findings suggest that men and women engage in infidelity with equal frequency. Treas & Giesen (2000) found that when permissiveness in sexual values was accounted for, the significant difference in frequency of infidelity between men and women disappeared. In recent years the gender gap in marital infidelity has decreased in younger cohorts (Atkins et al., 2001; Greeley, 1994; Hicks & Leitenberg, 2001; Oliver & Hyde, 1993; Thornton & Young-DeMarco, 2001; Wiederman, 1997) and a few studies have found no significant gender difference (Parker, as cited in Atkins et al.). Prins et al. (1993) asserted that although men in their study desired extramarital sex more there were no gender differences in actual behavior. In fact, in at least one study, women in the youngest cohort (age 18-29) actually showed higher rates of EMI than men in that same cohort (although men showed higher rates in every other cohort; Laumann et al., 1994).

There is also some evidence that the nature of male and female infidelity is different. For example, one common finding is that men engage in sexual infidelity more often and women engage in emotional infidelity more often (Egan & Angus, 2004;

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Humphrey, as cited in Drigotas & Barta, 2001). Women also tend to be more emotionally involved in their extramarital relationships than men and are more likely to fall in love with their extramarital partners (Glass & Wright, 1985; Spanier & Margolis, 1983). Some authors suggest that this is because males tend to place more emphasis on sex in relationships than females and cite findings that men want more anonymous sexual encounters and desire more sexual partners than females (Bailey, Gaulin, Agyei, & Gladue; Wright & Reise, both as cited in Egan & Angus). Others have suggested that these differences are related to differences in gender role expectations (Thompson, 1983) and sex role socialization which prepares women more for love and prepares men more for sex (Gross, as cited in Glass & Wright). There are also differences in the number of extramarital partners the genders tend to have. Lawson & Samson (1988) found that women in their sample were more likely to have 1-3 extramarital partners, conversely males were more likely to have four or more. Additionally, mens engagement in infidelity is more likely to last one night and to involve someone they do not know well (Thompson).

Gender also interacts with other variables when related to infidelity. For example, women in male-dominated occupations have more affairs at work than women who do not work in male-dominated occupations, but the converse is true for men (Lawson & Samson, 1988). This is an interaction between gender and type of career.

Additionally, significant interactions between gender and age in their relationship to infidelity have been found recently. For example, Atkins et al. (2001) noted that the men and women in their study younger than age 45 did not significantly differ in frequency of infidelity. However, they found that for male participants, those aged 55-65 were the most likely to have ever engaged in infidelity, but those older and younger than that age range were less likely. For female participants, women aged 40-45 were the most likely to have engaged in infidelity, but those older and younger were less likely. Because this study was cross-sectional, it is unclear whether these differences are due to developmental effects or cohort effects. Also, Wiederman (1997) found that for participants over age 40, males were significantly more likely to engage in infidelity, but for participants younger than 40, there was no significant difference in frequency of infidelity between the genders.

*Personality.* Personality has not been given as much attention in the literature as other variables such as gender and relationship variables, but there has been a moderate amount of interest as to how personality relates to infidelity. Some studies have investigated single, specific personality traits, but most have focused on relationships between scores on the Big Five personality factors (as measured by the NEO-PI, Costa & McCrae, 1998) and infidelity.

The NEO-PI is based on a trait theory of personality. Trait theories assert that measurable personality characteristics exist and that they differ across individuals, are stable over time, and influence behavior (Costa & McCrae, 1998). The Big Five personality factors measured by the NEO-PI are openness, conscientiousness, extraversion, agreeableness, and neuroticism. Openness measures the degree to which one is open to new experiences and change. High scorers on openness are often described as unconventional and curious. Conscientiousness measures the degree to which one controls and/or regulates ones impulses. High scores on conscientiousness are often associated with reliability and organization. Extraversion measures the degree to which one engages with the external world and other people. Those who score high on extraversion often are described as talkative and energetic. Agreeableness measures the degree to which one is concerned with cooperation and social harmony. High scores on this scale are often associated with friendliness and consideration. Finally, neuroticism measures ones propensity for experiencing negative emotions and people who score high on neuroticism can be described as moody and/or emotionally reactive. Some studies have specifically correlated the Big Five personality factors with infidelity and findings from these studies will be reviewed. However, findings from studies that correlate the Big Five with variables that seem germane to but are not specifically included in the proposed study (e.g., risky sexual behavior) will be reviewed first.

One variable that may be closely related to infidelity that has been investigated in relation to the Big Five is relationship exclusivity. Lower scores on conscientiousness and agreeableness and higher scores on extraversion have all been found to be related to lower levels of relationship exclusivity, whereas scores on neuroticism and openness were not (Schmitt & Buss, 2001). Other researchers have studied a personality variable termed impulsive sensation-seeking (i.e., the tendency to seek novel sensations or experiences and to enter into these with little deliberation or thought about consequences beforehand). Lower scores on both agreeableness and conscientiousness have been found to be related to higher levels of impulsive sensation-seeking (Zuckerman, 1993). This is interesting because impulsive sensation-seeking also has been found to be related to risky sexual behavior in a meta-analysis (Hoyle, Fejfar, & Miller, 2000) and at least one other study (Zuckerman & Kuhlman, 2000).

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Another variable that may be associated with infidelity that has been found to be related to the Big Five is risky sexual behavior. Eysenck (1976) studied the relationship between extraversion and risky sexual behavior and found that higher scores were associated with greater acceptance of having multiple sexual partners and having sex more frequently with a greater number of partners. Higher scores on extraversion also have been associated with higher levels of sexual promiscuity (Schmitt, 2004). A study that explored the relationship between the Big Five and risky sexual behaviors found that lower scores on agreeableness and openness and higher scores on extraversion were especially related to engaging in multiple risky sexual behaviors (Miller et al., 2004). The six behaviors studied were number of partners, use of drugs or alcohol before or during sex, number of sexual acts without using a condom, giving birth at an early age, sex outside of ones primary relationship, and early initiation of sex. These authors further looked at the specific facets of the Big Five personality factors and their relationships to risky sexual behavior. Each of the Big Five factors contains six facets that measure more specific personality traits. They found that high gregariousness, high excitement seeking (both subsumed under extraversion), low openness to fantasy (subsumed under openness), low trust, and low straightforwardness (both subsumed under agreeableness) all made significant contributions to the likelihood of engaging in risky sexual behavior. However, the respondents were a community sample and part of an ongoing longitudinal study. At the time of this study, the average age of participants was 21. The sample did not include only married individuals so the degree to which these findings may be extrapolated specifically to people who are married is limited. Neuroticism also has been linked to variables that may be related to infidelity. For example, high scores on

neuroticism have been associated with permissive sexual attitudes in Spanish students (Lameiras Fernandez & Rodriguez Castro, 2003) and lack of ability to resist urges (Trobst et al., 2002). However, neuroticism has not been given as much attention in the infidelity and sexual behavior literature as the other Big Five personality factors.

The aforementioned research demonstrated relationships between the Big Five and various sexual behaviors, but other studies have directly investigated the relationships between the Big Five and infidelity. For example, Buss and Shackelford (1997) found that individuals who scored low on agreeableness and conscientiousness were more likely to have an affair in the first four years of marriage. They also found that newlyweds who scored lower on conscientiousness were more likely to predict that they would be unfaithful during their first year of marriage and that higher scores on openness were a predictor of infidelity for males but not for females (Buss & Shackelford). Schmitt (2004) found that lower scores on agreeableness were associated with more relationship infidelity and lower scores on both agreeableness and conscientiousness have been associated with general unfaithfulness in relationships (Schmitt). Individuals who selfreported more cheating in their past were more likely to have lower scores on agreeableness and conscientiousness and higher scores on neuroticism (Barta & Kiene, 2005; Schmitt & Buss, 2001). Also, In a study that collected data from 52 nations and included 16,362 participants, Schmitt found that for regions in North America, lower scores on agreeableness and conscientiousness were associated with more relationship infidelity, but high scores on extraversion were only weakly related. Scores on neuroticism and openness were not related at all. Other studies have also failed to find a significant relationship between scores on openness and infidelity (Egan & Angus, 2004).

For data from all of the regions in the study, lower scores on agreeableness were associated with higher levels of infidelity (except for South American women) and lower scores on conscientiousness were related to higher levels of infidelity. Higher scores on extraversion were weakly or unrelated to higher levels of infidelity and higher scores on neuroticism were sometimes, but rarely, found to be related to higher levels of infidelity. Openness was not found to be significantly related to infidelity. Other authors have noted that the relationship between extraversion and infidelity is weak to moderate and that individuals who score high on extraversion are only somewhat more likely to engage in infidelity than those who score low (Buss & Shackelford, 1997; Schmitt & Buss, 2001).

Egan and Angus (2004) also found that the relationship between the Big Five and infidelity was different for males and females. They found that males who scored lower on neuroticism, agreeableness, and conscientiousness, and higher on extraversion were more likely to engage in relationship infidelity, but females who scored low on extraversion, conscientiousness, and agreeableness, and high on neuroticism were more likely to engage in relationship infidelity. However, this study did not differentiate between marital relationships and other kinds of romantic bonds such as dating or cohabiting relationships nor did they differentiate between sexual and emotional infidelity. Thus, the results do not directly speak specifically to marital infidelity nor to sexual infidelity which are both the focus of the proposed study.

Other personality types and traits that are associated with lower scores on agreeableness and conscientiousness also have been related to risky sexual behavior such as Machiavellianism, psychoticism, and antisocial personality. First, high scores on measures of Machiavellianism, a trait that describes individuals who are manipulative,

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motivated by their own self-interest, and emotionally detached from interpersonal relationships (Hren, Vujaklija, Ivaniševic, Knezevic, Marušic, & Marušic, 2006), have been associated with higher levels of risky sexual behavior (Paulhus & Williams, 2002). Also, men who score higher on this trait are especially likely to have permissive sexual attitudes, engage in promiscuous sexual practices (McHoskey, 2001), and have more sexual partners (Linton & Wiener, 2001) than those who score lower. Second, higher scores on psychoticism (as measured by the Eysenck Personality Questionnaire) have been associated with more permissive sexual attitudes and behaviors (Pinkerton & Abramson, as cited in Schmitt, 2004) and unsafe sexual practices (McCown, as cited in Schmitt). Lastly, higher scores on measures of antisocial personality (which is characterized by manipulative behavior and a disregard for social norms or the needs and feelings of others) are related to sexual risk-taking (Malamuth, as cited in Schmitt).

Other studies have looked at relationships between infidelity and personality factors independent of the Big Five. Traits like low frustration tolerance and narcissism have been related to infidelity (Buunk & van Driel, 1989). Buss and Shackelford (1997) found that high scores on measures of narcissism (i.e., a trait characterized by grandiosity, arrogance, entitlement, and a lack of empathy for others) and psychoticism were related to higher susceptibility to infidelity. Egan and Angus (2004) found that higher scores on a measure of manipulativeness were associated with a greater number of previous affairs and that higher scores on a measure of mating effort (i.e., the degree of intra-sexual competition in which one engages) were positively related to infidelity. They also found that more socially dominant men and less socially dominant women were more likely to have sex outside of their primary relationship.

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In summary, most of the research on the relationship between personality and infidelity has used the Big Five to define personality. It appears that conscientiousness and agreeableness are two factors that are related to infidelity. Further, extraversion may have a more moderate relationship to infidelity, whereas neuroticism and openness are not significantly related. Other personality factors such as low frustration tolerance, narcissism, and social dominance have been studied in relation to infidelity but further investigation is necessary in order to more fully explore the relationship between infidelity and personality. It is important to note that some of these studies did not differentiate between married and dating participants and others failed to provide marital status data about their sample. Thus, it is unclear the degree to which the results of some of these studies may be applicable specifically to married individuals.

## Interpersonal variables

*Marital satisfaction.* Of all the relationship factors that have been studied with regard to infidelity, satisfaction with the marital relationship has received the most attention. It seems logical that one who is dissatisfied with marriage may be more likely to engage in infidelity than one who is satisfied. Atkins et al. (2001) have suggested that perhaps when the marital relationship is unsatisfying, attention from another person may serve as comfort and may lead to infidelity. Some authors assert that infidelity is mostly a result of a dysfunctional marriage (Brown, 1991). It is true that those who engage in infidelity are less likely to report a happy marriage than those who do not (Greeley, 1991). Also, when participants are asked to give justifications for infidelity, problems with their marriage are often mentioned (Atwood & Seifer, 1997; Glass & Wright, 1992). When marital quality and incidence of EMI was measured over eight years, EMI

increased with marital instability and distress (Edwards & Booth, 1994). Because these studies are correlational and most are cross-sectional, it is difficult to determine which came first, the infidelity or dissatisfaction with the marriage. However, some studies have attempted to ascertain the role that marital dissatisfaction plays in infidelity by asking participants to retrospectively estimate this. For example, Spanier and Margolis (1983) found that 70% of their divorced or separated participants who had engaged in infidelity reported that their infidelity was largely due to marital problems. Also, when asked to recall the presence of marital problems prior to their own infidelity, 36% of married participants reported significant marital problems (Allen et al., 2005).

Many studies have found that marital satisfaction is negatively correlated with infidelity (Brown, 1991; Thompson, 1983; Vaughn, 1986). In fact, Thompson asserted that when the dependent variable under consideration is presence or absence of extramarital sex, marital satisfaction together with sexual satisfaction account for approximately 25% of the variance in its occurrence. Although they did not measure actual occurrence of infidelity, Prins et al. (1993) found that decreased marital satisfaction was associated with an increased desire for extramarital involvement. Also, Buss and Shackelford (1997) asked participants during their first year of marriage how likely it was that they and their spouse would be unfaithful and found general dissatisfaction with the marital relationship to be associated with a higher predicted likelihood of infidelity. Yablonsky (1979) found that men who were engaging in infidelity were significantly less satisfied with their marriage than men who were monogamous. Individuals with a history of EMI are more likely to report low marital quality (Atkins et al., 2001; Buunk, 1980; Treas & Giesen, 2000) and extramarital sex is more common among those who evaluate their marriage negatively (Buss & Shackelford; Prins et al.; Treas & Giesen; Waite & Joyner, 2001). Low marital quality is also associated with a higher number of extramarital partners (Wiggins & Lederer, 1984) and a higher degree of emotional and sexual involvement with ones extramarital partner (Glass & Wright, 1985). Further, Glass and Wright found that when they compared types of infidelity (i.e., sexual only, emotion only, or combined type), those individuals who engaged in a combination of emotional and sexual infidelity were significantly more dissatisfied with their marriage than those who engaged in emotion only or sexual only infidelity.

Other studies have found a relationship between marital satisfaction and infidelity for women but not for men. For example, Glass and Wright (1985) found that men engage in primarily sexual infidelity even if they are satisfied with their marriage. However, women who are dissatisfied with their marriage engage in infidelity more frequently than women who are satisfied (Prins et al., 1993; Wiggins & Lederer, 1984). Also, among individuals who engage in infidelity, women are significantly less satisfied with their marriage than men (Glass & Wright). Others have found that the relationship between marital satisfaction and infidelity exists for both sexes but is stronger for women (Allen et al., 2005; Glass, 2003). Based on these findings, some authors have asserted that marital satisfaction is a stronger factor for women who engage in infidelity but individual factors may be more important for males (Glass & Wright, 1992) and that this may explain why women engage in primarily emotional infidelity more than males (Blow & Hartnett, 2005). However, Maykovich (1976) found that marital unhappiness alone did not account for the occurrence of extramarital sex in American and Japanese women. Glass and Wright (1977) found that the relationship between marital satisfaction and infidelity depends on when marital dissatisfaction begins and that this is different for men and women. Infidelity is more common among married men whose marital satisfaction is low early in the marriage, but it is more common among women whose marital satisfaction is low later in the marriage. More specifically, in couples who were married for 12 or more years, women who engaged in extramarital sex were significantly less satisfied with their marriage than women who did not, but this finding was not repeated in men. In marriages of less than two years in length, the men who engaged in extramarital sex were significantly less satisfied with their marriages than the men who did not, but this was not true for the women.

Although marital satisfaction appears to be related to infidelity, it is not the only possible contributor. Of participants reporting a history of infidelity, 56% of the men and 34% of the women reported that their marriage was "very happy" or "happy" (Glass & Wright, 1977, 1985). Only 36% of participants who had previously engaged in infidelity reported significant marital problems prior to the infidelity (Allen, as cited in Allen et al., 2005). Other studies have found that the association between relationship satisfaction and infidelity can depend on other variables. For example, Atkins et al. (2001) found that couples' religious behavior interacted with marital satisfaction such that the more frequently they attended religious services, the less likely they were to engage in infidelity even if their level of marital satisfaction was low. There is also evidence that people who engage in infidelity with coworkers are significantly more satisfied in their marriage than those who engage in infidelity with non-coworkers (Blow & Hartnett, 2005). This suggests that it is not only those who are dissatisfied with their marriage

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seeking extramarital partners but that other factors, such as opportunity, may be involved. Further, at least one study has failed to find a significant relationship between marital satisfaction and infidelity (Blumstein & Schwartz, 1983). Also, the literature on marital satisfaction and infidelity is problematic because marital satisfaction has been inconsistently defined and measured, making it difficult to compare results.

Sexual satisfaction. Sexual satisfaction is another relationship factor that has been studied in relation to infidelity. This research springs from the premise that married individuals may seek a sexual partner outside of marriage to compensate for sexual dissatisfaction in the marriage. Some indirect evidence suggests this may be true. Prins et al. (1993) found that sexual dissatisfaction is related to greater *desire* to engage in infidelity. Also, Buss and Shackelford (1997) found that participants in their first year of marriage were more likely to predict that they would be unfaithful if they were dissatisfied with the sexual relationship.

Other researchers have studied those who have engaged in infidelity and their self-reported sexual satisfaction. When asked to recall the presence of marital problems prior to their own infidelity, 42% of participants who had engaged in infidelity recalled sexual dissatisfaction (Allen et al., 2005). Individuals who have engaged in infidelity are also more likely to report lower levels of sexual satisfaction (Liu, 2000; Træn & Stigum, 1998; Waite & Joyner, 2001). Thompson (1983) noted in his review of the research on extramarital sex that decreased frequency and quality of marital sex was associated with an increase in extramarital sex. As was noted in the previous section, he asserted that when the dependent variable of interest is presence or absence of extramarital sex, the combined effects of marital satisfaction and sexual satisfaction accounted for 25% of its

occurrence. Liu also found that decreased frequency of marital sex was associated with increased infidelity, especially for men.

Some researchers have demonstrated a relationship between sexual satisfaction and infidelity for certain populations but not for others. For example, Choi et al. (1994) found that decreased quality of marital sex was not associated with increased infidelity for the whites in their study, but found that African-Americans who reported sexual problems and Hispanic men who had poor sexual communication skills were more likely to engage in infidelity. Some studies have found that the relationship between sexual satisfaction and infidelity exists for men but not for women or that the relationship is stronger for men (Greene, Lee, & Lustig, 1974; Liu, 2000). For example, Yablonsky (1979) found that men who were engaging in infidelity were significantly more unhappy with their marital sex life than men who were monogamous. However, Johnson (1970) found no relationship between sexual satisfaction and extramarital sex for women but found that men who engaged in extramarital sex scored significantly lower on sexual satisfaction adjustment than males who did not. When Buss and Shackelford (1997) asked couples in their first year of marriage how likely they were to engage in infidelity, they found that males were more likely to predict their own infidelity (defined as kissing and flirting with others outside of the marriage) if their partner was to hypothetically withhold sex. Some authors have suggested that sexual dissatisfaction is a stronger predictor of infidelity for men than for women (Greene et al., 1974).

It is clear that sexual satisfaction is only one variable that may predict infidelity. Only 5% of participants in one study rated their marital sex life as "poor," but approximately 50% reported engaging in infidelity (Yablonsky, 1979). Allen et al. (2005)

found that only 42% of those who had engaged in infidelity reported sexual dissatisfaction prior to the occurrence. Other studies have failed to find an association between history of infidelity and lower sexual satisfaction (Blumstein & Schwartz, 1983; Wiggins & Lederer, 1984). For example, Spanier and Margolis (1983) used a sample of recently separated and divorced couples and found that quality of marital sex was not related to the occurrence of extramarital sex. Laumann et al. (1994) found that 87% of faithful spouses reported that their relationship with their spouse was "extremely" or "very" physically pleasurable. When they asked those who had an extramarital sexual partner, that number decreased, but only to 61%. Hunt (1974) found that participants who engaged in extramarital sex reported enjoying their marital sex more than their extramarital sex. It is possible that some of those people enjoy their marital sex more and find their relationship with their spouse more physically pleasurable because that was not the reason they chose to engage in extramarital sex in the first place. As with the research on the association between marital satisfaction and infidelity, the nature of the relationship between sexual satisfaction and infidelity is still unclear. Many studies suggest an association but because of varied samples and methodologies offer conflicting findings.

#### Hypotheses

The literature suggests that marital infidelity has been and continues to be prevalent in the United States and that factors such as marital satisfaction, sexual satisfaction, and personality are related to infidelity. However, there is no research that examines interactions among these variables in their relation to infidelity. In order to better understand and to possibly reduce the prevalence of infidelity, examination of the complex interaction of factors related to its occurrence is needed. The proposed study will attempt to determine the degree to which selected personality factors interact with marital satisfaction and sexual satisfaction in their relationship to infidelity. The following hypotheses will be tested:

### Hypothesis One

There will be a significant relationship between scores on the Index of Sexual Satisfaction and infidelity.

### Justification for Hypothesis One

In Thompson's (1983) review of the research on extramarital sex, he found that decreased quality and frequency of marital sex was associated with an increase in extramarital sex.

More recent data suggests that individuals who have engaged in infidelity are more likely to report lower levels of sexual satisfaction in their marriage than those who have not (Liu, 2000; Træn & Stigum, 1998; Waite & Joyner, 2001). Additionally, when participants who had engaged in infidelity were asked to recall marital problems prior to its occurrence, 42% of them recalled sexual dissatisfaction (Allen, 2001).

### Hypothesis Two

There will be a significant relationship between scores on the ENRICH Marital Satisfaction Scale and infidelity.

#### Justification for Hypothesis Two

Several studies have found that marital satisfaction is negatively related to infidelity (Allen et al., 2005; Brown, 1991; Thompson, 1983). Those who engage in

infidelity are less likely to report happy marriages than those who do not (Greeley, 1991). Also, when Glass and Wright (1992) measured incidence of extramarital involvement (EMI) and marital quality over eight years, EMI increased with marital distress and instability.

## Hypothesis Three

There will be a significant relationship between scores on the privateness (N) factor of the 16 PF and infidelity.

#### Justification for Hypothesis Three

The privateness (N) factor measured by the 16 PF assesses a respondent's tendency to be open and willing to disclose personally or to be private. Low scorers tend to be forthright, genuine, and willing to talk about themselves openly with others, whereas high scorers tend to be private and personally guarded (Russell & Karol, 1994). It is possible that willingness to talk openly with ones spouse regarding concerns or problems in ones marriage may help prevent an individual from seeking a relationship outside of marriage. If an individual keeps marital or sexual concerns to him/herself, it may seem that an extramarital relationship is one of few options left to deal with these issues.

The description of the privateness (N) scale is also similar to a facet (a personality characteristic subsumed under one of the five major factors; Costa & McCrae, 1992) measured by the NEO-PI called straightforwardness. High scorers on straightforwardness are often candid and sincere with others, seeing no need to be disingenuine or for manipulation, but low scorers tend to be more guarded and less willing to reveal the whole truth about themselves to others (Costa & McCrae). Low scores on the

straightforwardness facet have been associated with increased likelihood of engaging in risky sexual behavior (e.g., sex outside of ones primary relationship; Miller et al., 2004). Further, this facet is subsumbed under the NEO-PI factor, agreeableness. Agreeableness has been found to be positively associated with relationship exclusivity (Schmitt & Buss, 2000). It has also been negatively associated with the likelihood of having an affair during the first four years of marriage (Buss & Shackelford, 1997) and frequency of relationship infidelity (Schmitt, 2004). It seems plausible that the privateness (N) factor of the 16 PF will also be associated with similar behaviors if it is measuring something similar to straightforwardness and/or agreeableness.

## Hypothesis Four

There will be a significant relationship between scores on the rule-consciousness (G) factor of the 16 PF and infidelity.

### Justification for Hypothesis Four

The rule-consciousness (G) factor from the 16 PF measures the extent to which a respondent's cultural values about right and wrong have been internalized and determine ones behavior. High scorers tend to strictly follow rules and manners, but low scorers tend to avoid adherence to rules and regulations (Russell & Karol, 1994). One might expect highly rule-conscious individuals to view their marriage vows as rules to be followed and thus be more likely to adhere to them than low scorers on this scale. High scorers may be less likely to engage in infidelity because of a stronger belief in the immorality of the behavior.

The description of this scale also sounds similar to and correlates positively with the facet, dutifulness, measured by the NEO-PI (Russell & Karol). This facet measures the strength of a respondent's sense of duty. High scorers tend to have strong morals and a sense of obligation and low scorers tend to find rules overly confining and thus do not feel they should follow them (Costa & McCrae, 1992). Dutifulness is subsumed under the factor, conscientiousness, which has been negatively associated with relationship infidelity and general unfaithfulness in relationships (Schmitt, 2004). It has also been associated with lower levels of relationship exclusivity (Schmitt & Buss, 2000) and increased likelihood of having an affair during the first four years of marriage (Buss & Shackelford, 1997). If the rule-consciousness (G) scale of the 16 PF is measuring something similar to dutifulness and/or conscientiousness, it seems possible that it might also be related to these same things and possibly infidelity.

#### Hypothesis Five

There will be a significant relationship between scores on the sensitivity (I) factor of the 16 PF and infidelity.

### Justification for Hypothesis Five

The sensitivity (I) factor from the 16 PF measures a respondent's sensitivities and considerations. High scorers tend to use empathy and sensitivity when making decisions and are often more sentimental, but low scorers tend to be more concerned with objectivity and attend more to utility than high scorers (Russell & Karol, 1994). If one makes the decision whether or not to engage in infidelity, it seems a person who scores high on this scale may be less likely to choose infidelity because of his/her tendency to think about the feelings of others. Conversely, a low scorer may be more likely to choose infidelity than a high scorer because s/he is more likely to consider the objective facts of the situation.

The description of this scale is also similar to that of the facet, tender-mindedness, measured by the NEO-PI. High scorers on tender-mindedness can feel the pain of others and easily feel pity whereas low scorers are not strongly affected by human suffering but are more interested in making objective judgments based on reason rather than the feelings of others (Costa & McCrae, 1992). This facet is subsumed under the factor, agreeableness, which has been found to be positively related to relationship exclusivity (Schmitt & Buss, 2000), and negatively related to risky sexual behavior (e.g., sex outside of ones primary relationship; Miller et al., 2004), and relationship infidelity (Schmitt & Buss). Low scorers on agreeableness have also been found to be more likely to have an affair during the first four years of marriage (Buss & Shackelford, 1997). If the sensitivity (I) factor of the 16 PF is measuring something similar to agreeableness and/or tendermindedness, we might also expect it to be related to some of these same things.

Hypothesis Six

The effect of marital satisfaction on the likelihood of infidelity will depend on scores on the privateness (N) factor of the 16 PF.

## Justification for Hypothesis Six

The privateness (N) factor of the 16 PF measures ones tendency to be open and honest about themselves with others. Perhaps the tendency to be open with ones spouse about needs and feelings serves as a protective factor against infidelity. Thus, people may be dissatisfied with their marital relationship but are able to talk with their spouse openly about these issues which makes it easier for them to remain faithful. Conversely, if a person who is dissatisfied with their marital relationship was guarded about their concerns, they might turn to others outside the relationship to get their needs met to avoid talking to their partner.

## Hypothesis Seven

The effect of marital satisfaction on the likelihood of infidelity will depend on scores on the rule-consciousness (G) factor of the 16 PF.

## Justification for Hypothesis Seven

The rule-consciousness (G) factor of the 16 PF measures the extent to which internalized ideas about right and wrong govern ones behavior. If an individual is dissatisfied with his/her marital relationship, it seems the degree to which they feel obligated to do "the right thing" may have a significant effect on whether or not they engage in infidelity. For example, if an individual is dissatisfied with his/her marital relationship but has a strong sense of moral obligation to remain faithful to their spouse because they vowed to when they were married, it seems they would be less likely to engage in infidelity than another individual who is also dissatisfied with their marital relationship but follows rules loosely.

## Hypothesis Eight

The effect of marital satisfaction on the likelihood of infidelity will depend on scores on the sensitivity (I) factor of the 16 PF.

## Justification for Hypothesis Eight

The sensitivity (I) factor of the 16 PF measures how people make decisions. Low scorers tend to do this via cognitive objectivity, whereas high scorers tend to make decisions more sensitively and are more likely to take into account the feelings of others. An individual who is dissatisfied with his/her marriage may decide whether or not to engage in infidelity to deal with this problem. It seems possible that a person in this situation who scores low on sensitivity would be more likely to engage in infidelity, ignoring the feelings of their spouse and attending to the objective justness of their situation but a high scorer might be less likely to engage in infidelity because of their tendency take their spouse's feelings into consideration when making decisions. *Hypothesis Nine* 

The effect of sexual satisfaction on the likelihood of infidelity will depend on scores on the privateness (N) factor of the 16 PF.

## Justification for Hypothesis Nine

Because the privateness (N) factor of the 16 PF measures ones tendency to be honest about themselves and high scorers tend to be less willing to share with others, it is possible that this characteristic manifests in marriage as a reluctance to talk about sexual problems. Perhaps low scores on privateness serve to protect a marriage against infidelity because an individual is able to share their needs and feelings about the sexual relationship. If individuals can communicate their sexual concerns, perhaps they are more likely to get their needs met by their marital partner and thus remain faithful. Conversely, if persons who are dissatisfied with their sexual relationship are guarded about their concerns, they might turn to others outside the relationship instead of discussing their concerns with their partner.

## Hypothesis Ten

The effect of marital satisfaction on the likelihood of infidelity will depend on scores on the rule consciousness (G) factor of the 16 PF.

## Justification for Hypothesis Ten

The rule-consciousness (G) factor of the 16 PF measures the extent to which ones behavior is governed by internalized concepts of right and wrong. Ones sense of an obligation to be moral seems likely to influence whether or not one will engage in infidelity. For example, if an individual is dissatisfied with his/her sexual relationship but has a strong sense of responsibility to remain faithful to his/her spouse, it seems s/he would be less likely to engage in infidelity than another individual also dissatisfied with his/her sexual relationship but whose behavior is less controlled by his/her ideas about right and wrong.

## Hypothesis Eleven

The effect of marital satisfaction on the likelihood of infidelity will depend on scores on the sensitivity (I) factor of the 16 PF.

## Justification for Hypothesis Eleven

High scorers on the sensitivity (I) factor of the 16 PF tend to make decisions subjectively and by considering others feelings, but low scorers tend to use cognitive objectivity. One possible solution to dissatisfaction with ones sexual relationship is to seek a sexual relationship outside of marriage. It seems possible that persons in this situation who scores high on sensitivity would be less likely to engage in infidelity because they consider their spouse's feelings when making the decision. However, individuals who scores low on sensitivity may be more likely to engage in infidelity because of their tendency to ignore the feelings of their spouse and attending to the objective justness of their situation.

# **CHAPTER 2**

#### **METHOD**

The purpose of the current study was to find possible moderating effects that selected personality factors may have on marital satisfaction and sexual satisfaction in their relationship to marital sexual infidelity. This was done by examining participants' responses to survey questions and comparing the data from those who reported having been sexually unfaithful and those who did not. Permission to conduct this study was granted by the Institutional Review Board of the participating university. The study utilized the following instruments: a demographic questionnaire (Appendix B), the 16 PF (Russell & Karol, 1994) as a measure of personality, the ENRICH Marital Satisfaction Scale (Olson, 1996) as a measure of marital satisfaction, the Index of Sexual Satisfaction (Hudson, 1992) as a measure of sexual satisfaction, and the Marlowe-Crowne Social Desirability Scale Short Form C (Appendix C, Crowne & Marlow, 1960) as a measure of social desirability.

#### Participants

Participants in this study were 204 married individuals (not couples) in Master's level psychology and counseling courses who volunteered to participate in exchange for extra credit in their classes. There was no consequence for declining or dropping out of the study as an alternative for extra credit was always offered. No compensation other

than extra credit was given for participation. All participants were treated in accordance with the ethical guidelines established by the American Psychological Association's *Ethical principles of Psychologists and Code of Conduct* (2002). A consent form explaining the nature of the study, along with potential risks and protections, was provided to and signed by all participants (Appendix A). All data collected was held strictly confidential and only was viewed by the researcher. All data was analyzed by groups and no individual data was analyzed or reported.

## Instrumentation

#### Demographic Questionnaire

The demographic questionnaire consisted of 28 items. The questions inquired about participant age, gender, ethnicity, education, income, type of work, religiosity, sexual orientation, living environment (e.g., urban, rural), information about their current marriage (e.g., length of relationship, length of marriage), and information about frequency and type of past infidelity during current marriage.

#### Infidelity Questions

The end of the demographic questionnaire contained six questions pertaining to infidelity. The first four each had four parts and were similarly structured, but asked about four different behaviors: kissing, fondling/petting/caressing/manual stimulation, oral sex, and sexual intercourse. The first part of each question was in a "Yes or No" format and asked if that behavior had been engaged in with another person other than the participant's spouse during their current marriage and then gave a specific definition for that behavior. It is important to note that the question specified that this occurred and the participant did not want their spouse to know about its occurrence – this was to ensure

that data about consensual sexual behavior outside of marriage was not gathered. The second part was only to be answered if the response to the first question was positive and it asked how many times the participant engaged in that behavior with someone other than their spouse during their *current* marriage, regardless of whether or not it was the same person. The third part asked how many times in the respondent's life they had ever engaged in that behavior with someone other than their spouse during their current marriage and also during previous marriages. The final part asked how many different people with which the respondent had engaged in that behavior during their current marriage. The latter three parts of each of these questions simply provided a blank for the participant to fill in a number. Question number 27 asked about motivation for infidelity and was only to be answered if the participant responded positively to any of the previous questions about infidelity. This question asked participants to rate their motivation on a Likert scale from 1 (not at all a motivation) to 5 (a very strong motivation) for two items: sexual motivation and emotional motivation. The final question also was only to be answered if the respondent answered "Yes" to the previous questions about infidelity and asked where the participant met the individuals to whom they were referring if they responded that they had engaged in any of the four sexual behaviors outside of their marriage. Respondents were given a blank to simply write their response to this question.

### 16 Personality Factor Questionnaire

The 16 PF (Russell & Karol, 1994) is a widely used measure of non-pathological personality. It is based on the 16 primary personality components identified by Raymond Cattell when he factor analyzed all of the adjectives in the English language used to describe human behavior. Since the first edition was published in 1949, there have been

four revisions that refined the scales of the assessment and led to improved psychometric properties. The measure contains 185 multiple-choice items with three options possible. Many of the questions offer 'true' and 'false' as two of the three options but others differ depending on the statement (e.g., for the item, 'My friends would probably describe me as': option A is, 'warm and comforting' and option C is, 'objective and formal'). The middle choice is always a question mark to be used when neither of the other two choices is more characteristic of the respondent.

The instrument's 16 primary factor scales are as follows: Factor A (Warmth), Factor B (Reasoning), Factor C (Emotional Stability), Factor E (Dominance), Factor F (Liveliness), Factor G (Rule-Consciousness), Factor H (Social Boldness), Factor I (Sensitivity), Factor L (Vigilance), Factor M (Abstractedness), Factor N (Privateness), Factor O (Apprehension), Factor Q1 (Openness to Change), Factor Q2 (Self-Reliance), Factor Q3 (Perfectionism), and Factor Q4 (Tension). Each scale contains 10 to 15 items. The Reasoning scale is measured by 15 problem-solving questions at the end of the test and is designed to assess reasoning ability. Factor analysis has revealed that items of the assessment load on their own factor and not on other factors, but Cattell chose to use oblique factors and thus they are allowed to intercorrelate and, in fact, they do in order to make up the five global factors of the 16 PF: Extraversion (EX), Anxiety (AX), Tough-Mindedness (TM), Independence (IN), and Self-Control (SC).

The 16 PF yields scores for these 16 standardized scales that range from 1.00 to 10.00 with a mean of 5.00 and a standard deviation of 2.00. The scales are bipolar such that high scores represent the opposite characteristic of low scores. For example, a high score on Warmth (A) represents a warm, outgoing, attentive personality and a low score

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represents a reserved, impersonal, and distant personality. Scores in the middle range represent the majority average.

Convergent validity for the 16 PF has been demonstrated through correlations with other similar personality constructs measured by other assessments of nonpathological personality such as the California Personality Inventory (CPI) and the NEO-PI. Expected correlations have been found when the 16 PF has been compared to these instruments (e.g., the global factor, Extraversion, on the 16 PF correlates significantly with the Extraversion facets of the NEO). A review of these findings can be found in the *16 PF Fifth Edition Administrator's Manual* (Russell & Karol, 1994). There is also evidence of the predictive validity of the 16 PF for certain life behaviors. For example, by administering the CPI and the 16 PF to 212 college students and regressing the Empathy scale score from the CPI on the 16 PF primary factors, evidence is found for the contribution of warmth (A), liveliness (F), and social boldness (H) to empathy (Russell & Karol).

Using a college sample, two-week test-retest reliabilities ranged from .69 to .86 with a mean of .80 for the primary factors and ranged from .84 to .91 with a mean of .87 for the global factors. Two-month test-retest reliabilities also using a college sample ranged from .56 to .79 with a mean of .70 for the primary factors and for the global factors ranged from .70 to .82 with a mean of .78 (Russell & Karol, 1994). Cronbach's alpha coefficient was used to assess internal consistency with data from the stratified random sample of 2,500 adults used to norm the instrument and yielded values ranging from .64 to .85 with an average of .74 (Russell & Karol). Walter (2000) found similar internal consistency values when he used two samples from the general population and a

college student sample and found internal consistency reliabilities ranging from .66 to .86 with a median of .75.

#### ENRICH Marital Satisfaction Scale

The ENRICH Marital Satisfaction Scale (Olson et al., 1987) is commonly used as part of the PREPARE/ENRICH Program which was designed to prepare premarital couples for marriage (PREPARE) and to help married couples who are seeking marital counseling or looking to enrich their relationship (ENRICH). Originally, the scale consisted of 15 items and two scales; Marital Satisfaction (10 items) and Idealistic Distortion (5 items). The Idealistic Distortion scale was designed to measure a respondent's tendency to describe the marital relationship in an unrealistically positive manner (e.g., 'My partner completely understands and sympathizes with my every mood'). The original scoring included a downward correction of the overall Marital Satisfaction score based on respondents' higher scores on this scale. The current version is a 10-item instrument designed to measure global marital satisfaction. For each of the ten statements on the scale, respondents rate on a Likert scale whether they "Strongly Disagree" (1), "Moderately Disagree" (2), "Neither Agree nor Disagree" (3), "Moderately Agree" (4), or "Strongly Agree" (5). Each item refers to one of the following domains in the marriage: communication, conflict resolution, roles, financial concerns, leisure time, sexual relationship, parenting, family and friends, and religion. These domains were chosen based on the theoretical, empirical, and clinical issues that are common conflict areas in marriage (Olson & Olson, 2000).

In order to score the instrument, the positive items (i.e., items 1, 3, 5, 7, 9, and 10) are added. Items 2, 4, 6, and 8 are reverse scored so that a 1 becomes a 5, a 2 becomes a

4, and so on. These scores are then added to the sum of the positive items. Scores range from 10 to 50 with a mean of 32.2 and a standard deviation of 8.6 for a national sample of 2,112 couples (Fowers & Olson, 1993). Raw scores are then converted into percentages with 85-100% indicating "Very High" marital satisfaction, 65-80% indicating "High" marital satisfaction, 40-60% indicating "Moderate" marital satisfaction, 20-35% indicating "Low" marital satisfaction, and 0-15% indicating "Very Low" marital satisfaction.

In a study of 5,039 married couples, Fowers and Olson (1989) found that the scale discriminated between happily married couples and unhappily married couples with 85-95% accuracy. In a national study of 1,200 couples, the ENRICH Marital Satisfaction Scale correlated .73 for individual scores and .81 for couples' scores with the Locke-Wallace Marital Adjustment Test, and 0.71 for males and .66 for females with the Family Satisfaction Scale, providing evidence for its concurrent validity (Olson, McCubbin, Barnes, Larsen, Muxen, & Wilson, 1989). It also correlated .71 for men and .77 for women with a single-item measure of marital satisfaction in a national sample of 7,261 couples which is consistent with the relationships found between other marital satisfaction scales with single-item measures (Huston, McHale, & Crouter, 1986). In this same sample, the mean item-total correlations were .65 for males and .68 for females (Fowers & Olson, 1993). Internal consistency reliability was .86 and test-retest reliability was .86 for a national sample of 21, 501 married couples (Olson & Olson, 2000). In a more recent study of 591 couples, reliability was found to be .83 (Purdom, Lucas, & Miller, 2006).

#### Index of Sexual Satisfaction

The Index of Sexual Satisfaction (Hudson, 1998) is a 25-item measure of the behavior, attitudes, occurrences, and affection in the sexual relationships of married or long-term couples. The scale consists of statements and respondents rate them on a 7-point Likert scale that ranges from "None of the Time" (1) to "All of the Time" (7). An example item is "Sex is fun for my partner and me."

In order to score the instrument, responses are reverse scored for items 1, 2, 3, 9, 10, 12, 16, 17, 19, 21, 22, and 23. Then 25 is subtracted from the sum of all of the scores to yield a total score which ranges from 0 to 100 with higher scores indicating greater dissatisfaction with the sexual relationship. Scores below 30 are considered to represent satisfaction with the sexual component of ones relationship, scores between 30 and 70 indicate possible clinical problems in the sexual relationship, and scores above 70 indicate that the person is experiencing significant stress regarding the sexual relationship. More generally, scores above 30 indicate the presence of a clinical problem in the respondent's sexual relationship. This cutoff score was identified as that which minimized the total of false positives and false negatives obtained when differentiating a clinical sample of 100 participants (Hudson et al., 1981).

The instrument has an average reliability coefficient of .92 with a heterogeneous sample of both non-clinical participants and participants who were seeking counseling (Hudson et al., 1981). Fischer and Corcoran (1990) found a two-hour test-retest reliability of .94. Larson, Anderson, Holman, and Niemann (1998) found an internal consistency reliability of .91 and a one-week test-retest reliability of .93 for 91 married couples. Hudson et al. also found a one-week test-retest reliability of .93 with their sample of 79
participants. Hudson (1998) reported that the instrument has construct validity of .68 and determined its discriminant validity as .76. It also correlates .68 with the Index of Marital Satisfaction providing evidence for its construct validity (Hudson, 1992).

# Marlowe-Crowne Social Desirability Scale Short Form C

The Marlowe-Crowne Social Desirability Scale (Crowne & Marlow, 1960) is a True/False measure of the tendency to respond to self-report items in a socially desirable manner. Marlowe and Crowne developed their instrument from other various personality tests, trying to avoid the pathological implications of a previously popular scale (Edwards, 1957) which was developed based on items from the Minnesota Multiphasic Personality Inventory (Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989). The original 33-item scale consisted of 18 positive behaviors that most people were not likely to admit to (the socially desirable response was 'True') and 15 negative behaviors that were likely to be true of the general population (the socially desirable response was 'False'). In research, the scale has mostly been used with self-report measures to determine the impact of possible socially desirable response biases on the data collected.

After findings that some of the items did not contribute much to the overall 33item original measure and lack of use of the scale in research, the possibility of short forms were investigated (Strahan & Garbasi, 1972). The 13-item abbreviated form of this scale will be used because it has been found to have satisfactory concurrent validity and reliability (Reynolds, 1982). This form was developed by having undergraduates complete the original scale and then performing a factor analysis on the data. Items with factor loadings of 4.0 or above were included which yielded an 11-item short form. Two additional items were then added based on their correlation with the entire scale to increase internal consistency reliability.

For this 13-item form, Reynolds originally reported an internal consistency reliability of 0.76 and a correlation of 0.93 with the original form of the scale. Internal consistency reliability of this form have ranged from 0.62 to 0.76 (Ballard, 1992; Loo & Thorpe, 2000; Zook & Sipps, 1985) and later correlations of scores on this scale with scores on the original form ranged from 0.91 to 0.96 (Fischer & Fick, 1993; Loo & Thorpe). Zook and Sipps reported a six-week test-retest reliability of 0.74. This form is also well balanced as eight of the items have a socially desirable response of 'False' and five are 'True' (Ballard).

# Procedure

The Institutional Review Board of the participating university approved this study before it was formally conducted. Participants were students in master's programs in psychology and counseling classes. The researcher asked professors to introduce the study to their classes and invite volunteers to participate in exchange for extra credit in the class. There also was a comparable alternative extra credit opportunity offered which was chosen by the professor to assure that participation was strictly voluntary. Those students who wanted to participate were given a large envelope that will contained a survey packet complete with all of the instruments and a consent form attached to the front with a paper clip. The professor explained to the participants that they could take their packets home and return them two weeks from that day with the survey packet sealed inside the envelope and the consent form separate from the envelope to ensure confidentiality and anonymity. These professors were instructed to return the sealed envelopes and consent forms to the researcher.

#### Data Analysis

The first level of statistical analysis conducted involved the calculation of frequency and percentages of the following demographic variables: ethnicity, religion, sexual orientation, length of marriage, socioeconomic status of family of origin, and political views. Means, standard deviations, and ranges were calculated for all variables in the study. The mean and standard deviation of scores on the Marlowe-Crowne Social Desirability scale was calculated and differences from a norm comparison group were used to determine whether or not the sample responded in a socially desirable manner.

Hypotheses one through eleven were tested using two logistic regression analyses. Logistic regression allows prediction of group membership from a set of variables that can continuous, discrete, or dichotomous. The criterion variable in both of the regression analyses was dichotomous. They were both used to predict membership in the infidelity group or the no infidelity group. However, all of the predictor variables in both of the regression analyses were continuous. The predictor variables were also converted to zscores prior to the analyses to aid in interpretation of the interactions and reduce multicollinearity among predictor variables. In the first logistic regression, the seven predictor variables will be as follows (all will be converted to z-scores first): scores on the Index of Sexual Satisfaction Scale (ISS), scores on the privateness (N) scale of the 16 PF, scores on the rule-consciousness (G) scale of the 16PF, scores on the sensitivity (I) scale of the 16PF, an interaction variable between scores on the ISS and scores on privateness, an interaction variable between scores on the ISS and scores on ruleconsciousness, and an interaction variable between scores on the ISS and scores on sensitivity. The interaction variables will be calculated by multiplying z-scores on the ISS and z-scores on the personality variables. All of the interaction variables used in this study will be calculated in this same way. In the second logistic regression, the seven predictor variables will be as follows (all will be converted to z-scores first): scores on the ENRICH Marital Satisfaction Scale (ENRICH), scores on the privateness (N) scale of the 16 PF, scores on the rule-consciousness (G) scale of the 16PF, scores on the sensitivity (I) scale of the 16PF, an interaction variable between scores on the ENRICH and scores on privateness, an interaction variable between scores on the ENRICH and scores on rule-consciousness, and an interaction variable between scores on the ENRICH and scores on sensitivity.

# **CHAPTER 3**

### RESULTS

The results of the main analyses will be presented as follows: main effects of marital satisfaction, sexual satisfaction, and the three personality factors (privateness, rule-consciousness, and sensitivity) on the dependent variable, likelihood of infidelity, will be presented. Next, interactions of each of the three personality variables (privateness, rule-consciousness, and sensitivity) with marital satisfaction and sexual satisfaction in predicting the dependent variable, likelihood of infidelity, will be examined. Sample characteristics will be presented first followed by reliability estimates for the scales used in the study. Next, means, standard deviations, and correlations between the variables are provided. Social desirability of the sample is then analyzed and the results of the main analyses and each hypothesis are explained.

# Participants

Participants were 204 married or separated volunteers enrolled in master's level counseling and psychology courses at a mid-sized university in the American south. Seventy-four percent of the participants were female and 26% were male. Racial/ethnic composition of the sample was 67% of the participants were European American, 29% were African American, and the final 4% were Latino, Asian, Middle Eastern, Multiracial, or "Other." Ages ranged from 22 to 67 with 86% of the sample being between 23 and 48 ( $\overline{X} = 36$ , SD = 10.10). Self-identified religious affiliation include 31% Baptist, 26% Christian, 11% Catholic, 7% Pentecostal, 7% Methodist, and the remaining 18% were Non-denominational, Muslim, Agnostic, Jehovah's Witness, Protestant, Jewish, Mormon, "Spiritual," or "None."

Ninety-eight percent of participants indicated they were heterosexual, two participants indicated they were homosexual, and one marked bisexual. Ninety-seven percent of participants were married and the remaining 3% were separated (the separated individuals were included because they were still married at the time of data collection). Length of marriage varied among participants as 9% were married six months or less, 4.5% were married 7 to 12 months, 32% were married between 13 months and 5 years, 16% were married between 5 years 1 month and 10 years, 20% were married between 10 years 1 month and 20 years, 11% were married between 20 years 1 month and 30 years, and the remaining 7.5% were married more than 30 years. In the sample, 75% of participants indicated that they were raised in a family that was middle class, whereas 20% indicated that the family in which they were raised was lower class, and the remaining 5% indicated that their family of origin was upper class. Political views were measured on a scale of "1" ("Liberal") to "5" ("Conservative"), 37% of participants rated themselves at "3", 46% rated themselves at "4" or "5", and the remaining 17% rated themselves as "1" or "2". Based on this, the sample was rather conservative.

### **Descriptive Statistics and Reliabilities**

Table 1 contains the reliability coefficients, means, and standard deviations of the ENRICH Marital Satisfaction Scale; Index of Sexual Satisfaction; and the privateness, rule-consciousness, and sensitivity factors of the 16 PF. The mean and standard deviation found for the ENRICH Marital Satisfaction Scale in this study is significantly higher than

that reported by Fowers and Olson (1993), t(203) = 9.13, p < .001. The mean score of this sample falls in the "High Satisfaction" range for the measure (for which raw scores range from 36-40). Actual norms are not available for the Index of Sexual Satisfaction and thus, comparison with the mean and standard deviation found in this study is not possible. However, the mean for the Index of Sexual Satisfaction in this study is significantly below the first cutoff score of 30 identified by Hudson (1992; i.e., scores above 30 indicate the likelihood of a clinically significant problem), t(203) = -3.06, p < -3.06.01. The mean obtained in this study is from a non-clinical population. Thus, one would not expect many of these respondents to have clinically significant problems with their marital sexual relationship. A one-sample t-test indicated that this sample scored significantly higher on privateness than the national norm sample reported in 2002 (Russell & Karol), t(203) = 2.58, p = .01. Another one-sample t-test also indicated that this sample's mean on rule-consciousness was significantly higher than the national norms (Russell & Karol), t(203) = 3.86, p < .01. A final one-sample t-test indicated that this sample's mean on sensitivity was higher than the national norms (Russell & Karol), t (203) = 3.60, p < .01. It is possible that because the sample used in this study were master's level students in psychology, they may report greater sensitivity than the population as a whole. It could also be that samples from the southern United States are higher in authoritarianism and/or conservativism, possibly explaining the finding that they are higher on privateness and rule-consciousness when compared to national norms. These findings will be considered in the interpretation of further analyses.

# Table 1

Variables	М	SD	a
ENRICH Marital Satisfaction Scale (Total)	36.80	7.19	.82
Index of Sexual Satisfaction (Total)	27.00	15.90	.93
Privateness (Total)	11.55	5.29	.77
Rule-consciousness (Total)	16.01	4.50	.69
Sensitivity (Total)	13.50	5.85	.80

Means, Standard Deviations, and Cronbach's Alpha Measures of the Predictor Variables

Cronbach's alpha was used as a measure of reliability for the ENRICH Marital Satisfaction Scale, the Index of Sexual Satisfaction, and the privateness, ruleconsciousness, and sensitivity factors of the 16PF. All alphas were above .70 except for the reliability coefficient of the rule-consciousness scale ( $\alpha = .69$ ) of the 16PF which approached the acceptable level. Reliability coefficients for the privateness and sensitivity factors of the 16PF are comparable to those reported in 2002 (Russell & Karol). However, the rule-consciousness factor is less reliable in this study ( $\alpha = .69$ ) than for the national norm sample for which  $\alpha = .77$ .

#### Correlations between Variables

Table 2 presents the Pearson intercorrelations between all variables in this study. Most of the intercorrelations (approximately 90%) fell below .23, and 60% were outside of the significant range. The highest intercorrelation was between the ENRICH Marital Satisfaction Scale and the Index of Sexual Satisfaction (r = -.66; p < .01). The next highest was between the Index of Sexual Satisfaction and rule-consciousness (r = -.22; p < .01). There was also a significant intercorrelation between the ENRICH Marital Satisfaction Scale and rule-consciousness (r = .19; p < .01) and the Index of Sexual Satisfaction and privateness (r = -.01; p < .01).

# Table 2

Variable	1	2	3	4	5
1 ENR	1.00	66*	05	.19*	04
2 ISS		1.00	01*	22*	.07
3 PRIV			1.00	.12	13
4 RULE				1.00	02
5 SENS					1.00

Correlation Matrix of All Predictor Variables

*Note:* ENR = ENRICH Marital Satisfaction Scale; ISS = Index of Sexual Satisfaction; PRIV = privateness; RULE = rule-consciousness; SENS = sensitivity; \* p < .01 two-tailed.

# Social Desirability and Results by Hypothesis

Analysis of the social desirability scores for this sample and the results of the 11 hypotheses will be presented in this section. Scores on the Marlowe-Crowne Social Desirability Scale – Short Form C are compared with norms reported in previous research. The results of the main analyses are then presented followed by explanations of the results for each specific hypothesis. Hypotheses One through Five predicted that there would be significant relationships between each of the five predictor variables (marital satisfaction, sexual satisfaction, privateness, rule-consciousness, and sensitivity) and the outcome variable, likelihood of infidelity. The final six hypotheses predicted that the relationships between marital satisfaction and sexual satisfaction with infidelity would depend upon scores on the personality factors privateness, rule-consciousness, and sensitivity.

### Social Desirability

A one-sample t-test indicated that the mean and standard deviation for this sample on the Marlowe-Crowne Social Desirability Scale – Short Form C (M = 6.20, SD = 3.19) was significantly higher (i.e., more socially desirable) than the average mean and standard deviation (M = 5.37, SD = 3.13) computed from seven studies by Andrews and Meyer (2003), t (203) = 3.76, p < .001. Because of this finding, a preliminary logistic regression was used to determine whether social desirability scores had a significant effect on the outcome variable, likelihood of infidelity, used in the main analyses. Social desirability did not have a significant effect on likelihood of infidelity,  $X^2(1) = .51$ , p >.05. Based on these findings, it was concluded that there was no reason to control for social desirability.

# Logistic Regressions

Two binomial logistic regressions were used to test Hypotheses One through Eleven. Logistic regression was used because it allows for prediction of the probability of a dichotomous dependent variable (Tabachnick & Fidell, 2006) which in this study was "infidelity" (i.e., an endorsement of kissing, manual, oral, or intercourse infidelity) or "no infidelity" (i.e., a denial of kissing, manual, oral, and intercourse infidelity). Z-scores for all of the continuous variables were used in the analyses in the interest of clearly presenting the results.

The overall results of the first logistic regression are presented in Table 3. The dependent variable was endorsement or non-endorsement of infidelity and the predictors were Z scores for the Index of Sexual Satisfaction and the privateness, rule-consciousness, and sensitivity scales of the 16PF for Step 1. One interaction variable was calculated for each of the Z scores on the privateness, rule-consciousness, and sensitivity scales on the privateness, rule-consciousness, and sensitivity scales with Z scores for the Index of Sexual Satisfaction and these interaction variables were included as predictors in Step 2.

Table 3

Step	-2 Log Likelihood	Cox & Snell <i>R</i> <sup>2</sup>	Nagelkerke R <sup>2</sup>
1	176.77	.17	.26
2	153.29	.26	.40

Results of Logistic Model One

A global model fit test (likelihood ratio) revealed that the fitted model provided a significantly better fit than the constant-only model,  $X^2(7) = 62.00$ , p < .001. The Hosmer and Lemeshow goodness of fit test (Hosmer & Lemeshow, 1989) revealed that this model fits the data well,  $C^{(8)} = 14.45$ , p > .05. The model correctly predicted the occurrence of infidelity 37.8% of the time and correctly predicted the absence of infidelity 95.6% of the time. A model summary can be found in Table 4.

## Table 4

Modal	Summon	for	Logistic	Madal	Ono
Model	Summary	IOL	Logistic	Model	Une

								<u>95.0% C.I. f</u>	or Exp (β)
Step		β	S.E.	Wald	df	Sig.	Εχρ (β)	) Lower	Upper
1	ZISSSCOR	1.02	.20	25.79	1	.00*	2.80	1.88	4.15
	ZPRIVRAW	04	.20	.05	1	.83	. <b>9</b> 6	.65	1.41
	ZRULERAW	27	.19	2.14	1	.14	.76	.53	1.10
	ZSENSRAW	17	.19	.77	1	.38	.85	.58	1.23
	Constant	-1.53	.21	54.59	1	.00	.22		
2	ZISSSCOR	1.38	.29	23.39	1	.00*	3.96	2.27	6.92
	ZPRIVRAW	.22	.25	.77	1	.38	1.25	.76	2.06
	ZRULERAW	46	.22	4.41	1	.04*	.63	.41	.97
	ZSENSRAW	.08	.23	.11	1	.74	1.08	.69	1.70
	INT_IP	-1.06	.31	11.56	1	.00*	.35	.19	.64
	INT_IR	.75	.26	8.51	1	.00*	2.12	1.28	3.52
	INT_IS	28	.26	1.18	1	.23	.76	.46	1.25
	Constant	-1.68	.25	43.80	1	.00	.19		

*Note:* ZISSSCOR = Z scores for scores on the Index of Sexual Satisfaction; ZPRIVRAW = Z scores for the raw scores on the privateness scale of the 16PF; ZRULERAW = Z scores for the raw scores on the ruleconsciousness scale of the 16PF; ZSENSRAW = Z scores for the raw scores on the sensitivity scale of the 16PF; INT\_IP = the interaction variable between Z scores for the Index of Sexual Satisfaction and the privateness scale of the 16PF; INT\_IR = the interaction variable between Z scores for the Index of Sexual Satisfaction and the rule-consciousness scale of the 16 PF; INT\_IS = the interaction variable between Z scores for the Index of Sexual Satisfaction and the rule-consciousness scale of the 16 PF; INT\_IS = the interaction variable between Z scores for the Index of Sexual Satisfaction and the sensitivity scale of the 16 PF. \* = p < .05, two-tailed.

The results of the first logistic regression revealed that scores on the Index of Sexual Satisfaction (ZISSSCOR) are a significant predictor of infidelity,  $\beta = 1.02$ , p < .05. Thus, the addition of sexual satisfaction to the model resulted in better prediction of infidelity. Scores on the privateness, rule-consciousness, and sensitivity scales of the 16PF were not significant predictors of infidelity. Additionally, Step 2 of the logistic regression revealed that the interaction between privateness and scores on the Index of Sexual Satisfaction was also a significant predictor of infidelity,  $\beta = -1.06$ , p < .05, as was the interaction between rule-consciousness and scores on the Index of Sexual Satisfaction,  $\beta = .75$ , p < .05. Interpretation of these interactions will be presented as appropriate later.

The overall results of the second logistic regression are presented in Table 5. For Step 1, the dependent variable in this regression was likelihood of infidelity and the predictors were Z scores for the ENRICH Marital Satisfaction Scale and the privateness, rule-consciousness, and sensitivity scales of the 16PF. For Step 2, one interaction variable was calculated for each of the Z scores on the privateness, rule-consciousness, and sensitivity scales with Z scores for the ENRICH Marital Satisfaction Scale and these interaction variables were included as predictors.

Step	-2 Log Likelihood	Cox & Snell R <sup>2</sup>	Nagelkerke R <sup>2</sup>
1	188.44	.12	.19
2	175.28	.18	.27
2	175.28	.12	

Results of Logistic Model Two

A global model fit test (likelihood ratio) revealed that the fitted model provided a significantly better fit than the constant-only model,  $X^2(7) = 40.00$ , p < .001. The Hosmer and Lemeshow goodness of fit test (Hosmer & Lemeshow, 1989) revealed that this model fits the data well,  $C^{(8)} = 3.63$ , p > .05. The model correctly predicted the occurrence of infidelity 22.2% of the time and correctly predicted the absence of infidelity 96.9% of the time. A model summary is listed in Table 6.

# Table 6

Model Summary fo	or Logistic Model Two
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								<u>95.0% C.I.</u>	<u>for Exp (β)</u>
Step		β	S.E.	Wald	df	Sig.	Exp (β)	Lower	Upper
1	ZENRSCOR	81	.19	17.42	1	.00*	.45	.31	.65
	ZPRIVRAW	13	.20	.43	1	.51	.88	.60	1.29
	ZRULERAW	31	.18	2.92	1	.09	.74	.52	1.05
	ZSENSRAW	10	.19	.30	1	.58	.90	.63	1.30
	Constant	-1.5	.20	55.32	1	.00*	.23		
2	ZENRSCOR	-1.01	.24	18.07	1	.00*	.37	.23	.58
	ZPRIVRAW	03	.22	.02	1	.90	.97	.64	1.48
	ZRULERAW	40	.19	4.35	1	.04*	.67	.47	.98
	ZSENSRAW	.06	.21	.08	1	.78	1.06	.70	1.60
	INT_EP	.64	.23	7.55	1	.01*	1.89	1.2	2.98
	INT_ER	47	.22	4.78	1	.03*	.62	.41	.95
	INT_ES	.35	.24	2.05	1	.15	1.42	.88	2.28
	Constant	-1.47	.21	48.72	1	.00	.23		

Note: ZENRSCOR = Z scores for scores on the ENRICH Marital Satisfaction Scale; ZPRIVRAW = Z scores for the raw scores on the privateness scale of the 16PF; ZRULERAW = Z scores for the raw scores on the rule-consciousness scale of the 16PF; ZSENSRAW = Z scores for the raw scores on the sensitivity scale of the 16PF; INT\_EP = the interaction variable between Z scores for the ENRICH Marital Satisfaction Scale and the privateness scale of the 16PF; INT\_ER = the interaction variable between Z scores for the ENRICH Marital Satisfaction Scale and the privateness scale of the 16PF; INT\_ER = the interaction variable between Z scores for the ENRICH Marital Satisfaction Scale and the rule-consciousness scale of the 16 PF; INT\_ES = the interaction variable between Z scores for the ENRICH Marital Satisfaction Scale and the sensitivity scale of the 16 PF.

\* = p < .05, two-tailed.

The results of the second logistic regression revealed that scores on the ENRICH Marital Satisfaction Scale are a significant predictor of infidelity,  $\beta = -.81$ , p < .05. Thus, the addition of marital satisfaction to the model resulted in significantly more accurate prediction of infidelity. Scores on the privateness, rule-consciousness, and sensitivity scales of the 16PF were not significant predictors of infidelity in the first step of this model. Additionally, Step 2 of the second logistic regression revealed that the interaction between privateness and scores on the ENRICH Marital Satisfaction Scale was a significant predictor of likelihood of infidelity,  $\beta = .64$ , p < .05, as was the interaction between rule-consciousness and scores on the ENRICH Marital Satisfaction Scale,  $\beta = .47$ , p < .05. Interpretation of these interactions will follow as appropriate later.

# Hypothesis One

Hypothesis One stated that there would be a significant relationship between scores on the Index of Sexual Satisfaction and infidelity. Results from the first logistic regression revealed that this hypothesis was confirmed,  $\beta = 1.02$ , p < .05. This means that individuals who were less satisfied with their marital sexual relationships were more likely to engage in infidelity than individuals who were more satisfied with their marital sexual relationships.

### Hypothesis Two

Hypothesis Two stated that there would be a significant relationship between scores on the ENRICH Marital Satisfaction Scale and infidelity. Results from the second logistic regression revealed that this hypothesis was confirmed,  $\beta = -.81$ , p < .05. Thus, individuals who were less satisfied with their marriage were more likely to engage in infidelity than individuals who were more satisfied with their marriage.

### Hypothesis Three

Hypothesis Three predicted a significant relationship between scores on the privateness (N) factor of the 16 PF and infidelity. This hypothesis was not confirmed in the first regression model,  $\beta = -.04$ , p > .05, nor in the second regression model,  $\beta = -.13$ , p > .05. Thus, no significant relationship between privateness and infidelity was found.

# Hypothesis Four

Hypothesis Four predicted a significant relationship between scores on the ruleconsciousness (G) factor of the 16 PF and infidelity. This hypothesis was not confirmed in the first regression model,  $\beta = -.27$ , p > .05, nor in the second regression model,  $\beta = -.31$ , p > .05. Thus, no significant relationship between rule-consciousness and infidelity was found.

### Hypothesis Five

Hypothesis Five predicted a significant relationship between scores on the sensitivity (I) factor of the 16 PF and infidelity. This hypothesis was not confirmed in the first regression model,  $\beta = -.17$ , p > .05, nor in the second regression model,  $\beta = -.10$ , p > .05. Thus, no significant relationship between sensitivity and infidelity was found.

### Hypothesis Six

Hypothesis Six stated that the effect of marital satisfaction on the likelihood of infidelity (presented as an odds ratio, OR) would interact with (i.e., depend on) scores on the privateness (N) factor of the 16 PF. The second logistic regression revealed that the interaction between privateness and the ENRICH Marital Satisfaction Scale was a significant predictor of likelihood of infidelity,  $\beta = .64$ , p < .05, confirming the hypothesis. This means that the nature of the relationship between marital satisfaction and

infidelity changed depending on the level of privateness. More specifically, individuals who scored high on marital satisfaction did not differ greatly in likelihood of infidelity regardless of whether they scored low on privateness (OR = 0.20) or high on privateness (OR = 0.67). However, for individuals who scored low on marital satisfaction, the likelihood of infidelity for those who scored low on privateness (OR = 5.33) was much higher than for those who scored high on privateness (OR = 1.41). A graphic representation of this interaction is presented in Figure 1. Note that all of the figures presented illustrate likelihood of infidelity based on "Low" and "High" scores on the predictor variables (i.e., one standard deviation below and above the mean). This was done for comparison purposes but these designations represent only "Low" and "High" scores for the sample in this study and they may not necessarily be the same as for the general population.





*Note:* Low ENRICH = One standard deviation (SD) below the mean on the ENRICH Marital Satisfaction Scale; High ENRICH = One SD above the mean on the ENRICH Marital Satisfaction Scale; Low Priv = One SD below the mean on the Privateness scale of the 16PF; High Priv = One SD above the mean on the Privateness scale of the 16PF.

### Hypothesis Seven

Hypothesis Seven stated that the effect of marital satisfaction on the likelihood of infidelity would interact with scores on the rule-consciousness (G) factor of the 16 PF. The second logistic regression revealed that the interaction between rule-consciousness and the ENRICH Marital Satisfaction Scale was a significant predictor of infidelity,  $\beta = -.47$ , p < .05. This means that the nature of the relationship between marital satisfaction and infidelity changed depending on the level of rule-consciousness. More specifically, there is not a great difference in likelihood of infidelity between those who score high or low on rule-consciousness at any level of marital satisfaction. However, for individuals who scored low on marital satisfaction, those who scored high on rule-consciousness (OR = 2.53). Conversely, for those who scored high on marital satisfaction, those who scored low on rule-consciousness (OR = 0.15). A graphic representation of this finding is presented in Figure 2.



Figure 2. Interaction between marital satisfaction and rule consciousness in the prediction of likelihood of infidelity.

*Note:* Low ENRICH = One SD below the mean on the ENRICH Marital Satisfaction Scale; High ENRICH = One SD above the mean on the ENRICH Marital Satisfaction Scale; Low Rule = One SD below the mean on the Rule-Consciousness scale of the 16PF; High Rule = One SD above the mean on the Rule-Consciousness scale of the 16PF.

# Hypothesis Eight

Hypothesis Eight stated that the effect of marital satisfaction on the likelihood of infidelity would interact with scores on the sensitivity (I) factor of the 16 PF. This hypothesis was not confirmed in the second logistic regression model,  $\beta = .35$ , p > .05. Thus, the nature of the relationship between marital satisfaction and infidelity did not

vary with changes in sensitivity.

# Hypothesis Nine

Hypothesis Nine stated that the effect of sexual satisfaction on the likelihood of

infidelity would interact with scores on the privateness (N) factor of the 16 PF. The

second logistic regression revealed that the interaction between privateness and the Index

of Sexual Satisfaction was a significant predictor of infidelity,  $\beta = -1.06$ , p < .05. This

means that the nature of the relationship between sexual satisfaction and infidelity

changed depending on the level of privateness. More specifically, individuals with high sexual satisfaction did not differ greatly on likelihood of infidelity whether they scored low on privateness (OR = 0.07) or high on privateness (OR = 0.91) but for individuals who scored low on sexual satisfaction, those who scored low on privateness were more likely to engage in infidelity (OR = 9.14) than those who scored high on privateness (OR = 1.72). A graphic representation of this interaction is presented in Figure 3.



Figure 3. Interaction between sexual satisfaction and privateness in the prediction of likelihood of infidelity.

*Note:* High SS = One SD below the mean on the Index of Sexual Satisfaction Scale; Low SS = One SD above the mean on the Index of Sexual Satisfaction; Low Priv = One SD below the mean on the Privateness scale of the 16PF; High Priv = One SD above the mean on the Privateness scale of the 16PF.

# Hypothesis Ten

Hypothesis Ten stated that the effect of sexual satisfaction on the likelihood of

infidelity would interact with scores on the rule-consciousness (G) factor of the 16 PF.

The second logistic regression revealed that the interaction between rule-consciousness

and the Index of Sexual Satisfaction was a significant predictor of infidelity,  $\beta = .75$ , p < .75

.05, confirming the hypothesis. This means that the nature of the relationship between

sexual satisfaction and infidelity varied depending on the level of rule-consciousness. More specifically, for individuals with high sexual satisfaction, likelihood of infidelity was not much different between those individuals who scored high on rule-consciousness (OR = 0.08) and those who scored low on rule-consciousness (OR = 0.85). But for those who scored low on sexual satisfaction, those who scored high on rule-consciousness (OR = 5.32) were more likely to report infidelity than those who scored low on ruleconsciousness (OR = 2.95). A graphic representation of this interaction can be found in Figure 4.





*Note:* High SS = One SD below the mean on the Index of Sexual Satisfaction Scale; Low SS = One SD above the mean on the Index of Sexual Satisfaction; Low Rule = One SD below the mean on the Rule-Consciousness scale of the 16PF; High Priv = One SD above the mean on the Rule-Consciousness scale of the 16PF.

### Hypothesis Eleven

Hypothesis Eleven stated that the effect of sexual satisfaction on the likelihood of

infidelity would interact with scores on the sensitivity (I) factor of the 16 PF. This

hypothesis was not confirmed in the first logistic regression model,  $\beta = -.28$ , p > .05.

Thus, the nature of the relationship between sexual satisfaction and infidelity did not vary with changes in sensitivity.

# **CHAPTER 4**

### DISCUSSION

The current study was conducted to determine whether three personality characteristics (privateness, rule-consciousness, and sensitivity), marital satisfaction, and sexual satisfaction were significantly related to infidelity and if each of the three personality characteristics would interact with both marital satisfaction and sexual satisfaction in the prediction of infidelity. It was hypothesized that marital satisfaction, sexual satisfaction, and the personality factors privateness, rule-consciousness, and sensitivity would all be significantly related to infidelity. Further, the hypotheses stated that each of the three personality factors would interact with marital satisfaction and sexual satisfaction in their prediction of infidelity. In this chapter, a general overview of the results will be discussed, followed by an individual discussion of each hypothesis. Next, general implications for the study will be presented. The limitations of the study then will be appraised followed by suggestions for future research.

# Overview of Results

Hypotheses 1 through 5 stated that marital satisfaction, sexual satisfaction, and the three personality factors (privateness, rule-consciousness, and sensitivity) would each be significantly related to infidelity. As hypothesized, marital satisfaction and sexual satisfaction were each significantly related to the likelihood of infidelity. However, none

of the three personality variables (privateness, rule-consciousness, sensitivity) were found to be significantly related to infidelity. Regarding the hypothesized interactions (Hypotheses 6 through 11), two of the three personality variables showed significant interactions. Privateness was found to interact significantly with marital satisfaction and sexual satisfaction in the prediction of infidelity. Rule-consciousness was also found to interact significantly with marital satisfaction and sexual satisfaction in the prediction of infidelity. Sensitivity did not significantly interact with either marital satisfaction or sexual satisfaction in predicting likelihood of infidelity. The specific nature and meaning of these interactions will be discussed later.

### **Discussion of Hypotheses**

# Hypothesis One

The first hypothesis was tested to determine if there was a significant relationship between sexual satisfaction and infidelity. The results indicated there was a significant relationship. Specifically, lower sexual satisfaction was related to an increased likelihood of infidelity. Thus, individuals who were less satisfied with their marital sexual relationship were more likely to engage in infidelity than those individuals who were more satisfied with their marital sexual relationship. This finding is consistent with the finding of Allen et al. (2005) that 42% of individuals who had engaged in infidelity recalled sexual dissatisfaction when asked to remember problems in their marriage prior to their infidelity. It is also consistent with the finding that those individuals who have engaged in infidelity are more likely to report lower levels of sexual satisfaction (Liu, 2000; Træn & Stigum, 1998; Waite & Joyner, 2001). However, the findings of the current study also conflict with previous studies that did not find a significant relationship between sexual satisfaction and infidelity (e.g., Laumann et al., 1994).

### Hypothesis Two

Hypothesis Two tested if there was a significant relationship between marital satisfaction and infidelity. Results confirmed that this relationship was significant with lower marital satisfaction associated with increased likelihood of infidelity. This means that individuals who are less satisfied with their marital relationship are more likely to engage in infidelity than individuals who are more satisfied with their marital relationship. This finding is consistent with the finding that those individuals who have engaged in infidelity are less likely to report a happy marriage (Greeley, 1991). It is also consistent with the finding of Edwards and Booth (1994) that a decrease in marital satisfaction over time was associated with an increase in incidence of extramarital involvement. However, it conflicts with studies that have failed to find a relationship between marital satisfaction and infidelity (e.g., Blumstein & Schwartz, 1983).

# Hypothesis Three

Hypothesis Three tested if there was a significant relationship between privateness and infidelity. The results were not significant. Recall that highly private individuals tend to be interpersonally guarded and are not very willing to openly disclose about themselves to others. This means that if an individual engages in infidelity (or not), it is unrelated to how private they are. Perhaps interpersonal factors (e.g., marital satisfaction and sexual satisfaction) are more important in determining whether or not one will engage in infidelity and intrapersonal factors (e.g., personality characteristics) simply moderate those relationships but have no significant relationship to infidelity alone.

### Hypothesis Four

Hypothesis four examined if there was a significant relationship between ruleconsciousness and infidelity. The results failed to reveal a significant relationship. Ruleconscious individuals make decisions and behave based on internalized ideas about right and wrong and their sense of moral obligation. This finding means that the level of ruleconsciousness for an individual will be of little to no importance in determining whether or not that individual engages in infidelity. As previously stated, this could mean that intrapersonal characteristics (e.g., personality) are not directly related to infidelity alone, but moderate relationships between interpersonal factors (e.g., marital satisfaction and sexual satisfaction) and infidelity.

# Hypothesis Five

Hypothesis Five was tested to assess a predicted significant relationship between sensitivity and infidelity. The results failed to reveal a significant relationship. Sensitive individuals tend to make decisions by considering the feelings of others and based on this finding, an individual's level of sensitivity is unrelated to whether or not they will engage in infidelity. Once again, this could mean that intrapersonal characteristics (e.g., personality) are not directly related to infidelity alone, but moderate relationships between interpersonal factors (e.g., marital satisfaction and sexual satisfaction) and infidelity.

# Hypothesis Six

Hypothesis Six was tested to examine if marital satisfaction would interact with privateness in the prediction of infidelity. The results confirmed that this interaction was significant. Privateness interacted with marital satisfaction such that at high levels of marital satisfaction, there was little difference between persons who were high or low in privateness in likelihood of infidelity. However, at low levels of marital satisfaction, persons with low privateness were more likely to report infidelity than persons with high privateness. This finding could mean that individuals who are less private open themselves to sexual relationships with others more easily than those who are more private and so perhaps these individuals are more likely to use infidelity as means of coping with dissatisfaction in their marriage.

### Hypothesis Seven

Hypothesis Seven was tested to determine if there was a significant interaction between rule-consciousness and marital satisfaction in the prediction of infidelity. The results revealed that this significant interaction did exist. Specifically, there was not a great difference in likelihood of infidelity between those who score high or low on ruleconsciousness at any level of marital satisfaction. However, for individuals who scored low on marital satisfaction, those who scored high on rule-consciousness were more likely to engage in infidelity than those who scored low on rule-consciousness and for those who scored high on marital satisfaction, the opposite was true.

It makes sense for individuals who are more rule-conscious to report infidelity less (as was true for those who were high on marital satisfaction) because highly ruleconscious people have a strong sense of right and wrong guiding their behavior and infidelity is typically perceived as morally "wrong." It is curious that highly ruleconscious persons were more likely to report infidelity than individuals low on ruleconsciousness when marital satisfaction was low. Perhaps a highly rule-conscious person who is dissatisfied with their marriage is more likely to see their dissatisfaction as resulting from their spouse not living up to marital vows. If they also believe in "two wrongs make a right" or "an eye for an eye" as a rule, then they might not perceive their own infidelity as "wrong."

Perhaps there was not much difference in likelihood of infidelity between those who were high or low on rule-consciousness in general because infidelity is an impulsive behavior. It seems that the longer one spends thinking about or planning a behavior, the more likely an assessment of the "right or wrong" judgment of that behavior would be. If infidelity is impulsive and therefore does not involve much planning, then maybe there is not enough "time" for a person to decide whether it is right or wrong and thus ones level of rule-consciousness becomes less important in determining whether or not they will engage in that behavior.

# Hypothesis Eight

Hypothesis Eight was tested to determine if there was a significant interaction between sensitivity and marital satisfaction in the prediction of infidelity. The results did not reveal this significant relationship. This means that the relationship between marital satisfaction and infidelity is not changed by an individual's level of sensitivity.

Because sensitivity involves taking the feelings of others into consideration when making decisions, perhaps it does not moderate the relationship between marital satisfaction and infidelity because there is not much decision-making that occurs in that relationship. Perhaps infidelity is a more impulsive behavior, whether one is satisfied with their marriage or not, and so there is not much time to take the feelings of others into consideration in the first place.

## Hypothesis Nine

Hypothesis Nine was tested to determine if there was a significant interaction between sexual satisfaction and privateness in the prediction of infidelity. The results revealed that there was a significant interaction. This means that the nature of the relationship between sexual satisfaction and infidelity changes depending on an individual's level of privateness. The interaction was such that at high levels of sexual satisfaction, individuals scoring high or low on privateness did not differ greatly in their likelihood of reporting infidelity. However, at low levels of sexual satisfaction, individuals who were low on privateness were more likely to report infidelity than individuals who were high on privateness.

Perhaps individuals seek sexual partners outside of marriage more often when they are dissatisfied with their marital sexual relationship. If sexual relationships are thought to involve at least some element of personal openness and "letting down of ones guard," then perhaps individuals who are dissatisfied with their sexual relationship and are more comfortable being open with others are more likely to actually engage in sexual behavior outside of their marriage, whereas others who are dissatisfied with their sexual relationship but are also highly personally guarded are less likely to cope with this by finding an extramarital sexual partner. Or, perhaps the issues that contribute to sexual dissatisfaction are not issues that can be helped by being personally open and honest (e.g., low sex drive associated with taking medication).

# Hypothesis Ten

Hypothesis Ten was tested to discover if there was a significant interaction between sexual satisfaction and rule-consciousness in the prediction of infidelity. The results revealed a significant interaction. This means that the nature of the relationship between sexual satisfaction and infidelity changes depending on an individual's level of rule-consciousness. Specifically, for individuals with high sexual satisfaction, likelihood of reporting infidelity did not differ greatly between those who scored high on ruleconsciousness or low on rule-consciousness. But for individuals with low sexual satisfaction, those who were highly rule-conscious were more likely to report infidelity than those who were low on rule-consciousness.

It is interesting that individuals with high rule-consciousness were more likely to engage in infidelity than those with low rule consciousness when sexual satisfaction is low. One would always expect high rule-consciousness to decrease the likelihood of infidelity. It is possible that individuals who have low sexual satisfaction and high ruleconsciousness have ideas that it is their spouse's obligation and responsibility to keep them satisfied sexually and thus, if their spouse is not meeting their obligation it is not "wrong" to cope with that by finding another sexual partner outside of the marriage. Perhaps for individuals with high sexual satisfaction, rule-consciousness is less important in determining likelihood of infidelity because when those individuals engage in infidelity it is more of an impulsive behavior for which "right and wrong" are not considered until afterward. Maybe individuals with low sexual satisfaction spend time thinking about how to cope and consider the option of infidelity along with the judgment of "right or wrong" for that behavior whereas those who are highly satisfied with their sexual relationship do not spend time thinking about infidelity as a means of coping but engage in it more impulsively.

## Hypothesis Eleven

Hypothesis Eleven was tested to determine if there was a significant relationship between sexual satisfaction and sensitivity in the prediction of infidelity. The results revealed that this relationship was not significant. This means that the relationship between sexual satisfaction and infidelity does not depend on individuals' levels of sensitivity.

Perhaps sensitivity does not moderate the relationship between sexual satisfaction and infidelity because infidelity is generally an impulsive behavior that does not involve much planning or decision-making. If this is so, there would be less opportunity for a person to take the feelings of others into consideration and thus sensitivity would be an unrelated factor in determining the likelihood of infidelity. Or, sexual satisfaction could be so important to individuals that whether they are generally highly sensitive or not, they will find ways to meet their sexual needs regardless of how it affects the feelings of others.

### **General Implications**

The finding that marital and sexual satisfaction are each significantly related to infidelity further bolster previous findings that these interpersonal variables are important in the prediction of infidelity (Allen et al., 2005; Edwards & Booth, 1994; Greeley, 1991; Liu, 2000; Træn & Stigum, 1998; Waite & Joyner, 2001). Selected personality factors in this study were not found to be significantly related to infidelity in the bivariate case. The literature on the relationship between personality and infidelity has many gaps, one of which these findings may begin to fill. Many previous studies examining the relationship between personality and infidelity factors and many

have found significant negative correlations between scores on both agreeableness and conscientiousness with frequency of infidelity (Barta & Kiene, 2005; Buss & Shackelford, 1997; Schmitt, 2004; Schmitt & Buss, 2001). It is possible that more global factors of personality like the Big Five (under which more specific personality factors are subsumed) are more likely to be related to infidelity whereas more specific personality factors like those in Cattell's 16 Personality Factor model are less likely to be related.

Although personality was not directly related to infidelity, the personality factors privateness and rule-consciousness did serve to moderate the relationships between sexual satisfaction, marital satisfaction, and infidelity. Broadly, these findings suggest that infidelity is a behavior influenced by a complex interplay of interpersonal and intrapersonal factors. More specifically, how marital satisfaction and sexual satisfaction relate to infidelity depends, in part, on personality of the individual. Thus, when marital satisfaction or sexual satisfaction are considered concurrent with personality factors, infidelity is better predicted than when personality, marital satisfaction, or sexual satisfaction are considered alone. Specifically, privateness was found to moderate both marital satisfaction and sexual satisfaction in the prediction of infidelity, as was ruleconsciousness. Recall that highly private individuals tend to be interpersonally guarded and are not very willing to openly disclose about themselves to others whereas ruleconscious individuals make decisions and behave based on internalized ideas about right and wrong and their sense of moral obligation. Sensitive individuals tend to make decisions by considering the feelings of others and this characteristic was not found to be either significantly directly related to infidelity or to be a significant moderator of marital satisfaction or sexual satisfaction in the prediction of infidelity.

The significant interaction between marital satisfaction and privateness was such that at high levels of marital satisfaction, there was not much difference between persons who were high or low in privateness in likelihood of infidelity. However, at low levels of marital satisfaction, persons with low privateness were more likely to report infidelity than persons with high privateness. The interaction between sexual satisfaction and privateness was similar. At high levels of sexual satisfaction, whether or not individuals were low or high on privateness, they did not differ greatly in likelihood of infidelity. However, at low levels of sexual satisfaction, individuals who were low on privateness were more likely to report infidelity than individuals who were high on privateness. Thus, decreasing sexual satisfaction and marital satisfaction are associated with greater likelihood of infidelity and these relationships are even stronger when individuals are less private and personally guarded.

The significant interaction between marital satisfaction and rule-consciousness was such that for persons who were dissatisfied with their marriage, they were more likely to report infidelity if they were high on rule-consciousness than if they were low on rule-consciousness. However, the opposite was true if individuals were highly satisfied with their marriage. The difference between those who were high or low on ruleconsciousness on likelihood of infidelity was not large for either of these. This finding is different from the finding that rule-consciousness significantly interacted with sexual satisfaction in the prediction of infidelity such that for individuals with high sexual satisfaction, level of rule-consciousness had little effect on likelihood of infidelity but for individuals with low sexual satisfaction, those who were high on rule-consciousness were more likely to report infidelity than those who were low.

Taken together, these findings indicate that personality does moderate the relationships between sexual satisfaction, marital satisfaction, and infidelity. Privateness moderated these two relationships in the same way. That is, there was not much difference between low and high privateness on likelihood of infidelity when individuals were satisfied with their marriage and sexual relationship with their spouse. However, when they were dissatisfied, those who were not very private were more likely to engage in infidelity. The interaction between sexual satisfaction and rule-consciousness followed a similar pattern in that the difference between those who were high and low on rule consciousness in likelihood of infidelity was more pronounced for individuals who were dissatisfied (i.e., those who were highly rule-conscious were more likely to engage in infidelity). Perhaps this means that in general, personality is "more important" in determining whether or not one will engage in infidelity when the infidelity is associated with dissatisfaction with the marital or sexual relationship. This could be because the infidelity is used as a means of coping and perhaps methods of coping are related to personality characteristics. Maybe when people engage in infidelity but they are satisfied with their marriage and/or sexual relationship, that behavior is impulsive or based on factors that do not depend as strongly on personality (e.g., having more opportunity because one lives in a city or works in a large company).

It is curious that the interaction between marital satisfaction and ruleconsciousness did not follow this pattern. Perhaps because marriage typically involves the saying of vows, duty, and obligation to another person and marital satisfaction represents satisfaction with that relationship, rule-consciousness does not necessarily change the strength of that relationship but rather, the direction (i.e., with highly rule-

conscious people being more likely to engage in infidelity when marital satisfaction is low and vice versa). Whatever the case, the differing findings reiterate the complexity of infidelity as a behavior. Also, it is interesting to note that this interaction followed a similar pattern as the interaction between rule-consciousness and sexual satisfaction with highly rule-conscious people more likely to engage in infidelity when individuals are dissatisfied.

Thus, it seems that for the most part, the personality factors that were found to be moderators (i.e., privateness and rule-consciousness) interacted with marital satisfaction and sexual satisfaction in similar ways. Specifically, for both of them, differences in likelihood of infidelity was more pronounced when individuals were dissatisfied with their marriage or sexual relationships (for three out of the four interactions). Also, low privateness and high rule-consciousness were associated with a higher likelihood of infidelity when individuals were dissatisfied (for all of the interactions). Perhaps because sensitivity was not found to be a moderator, only some personality characteristics have moderating effects on the relationships between sexual satisfaction, marital satisfaction, and infidelity. But based on the above, those that do interact may do so in reliable and/or predictable ways.

Interactions among variables in the prediction of infidelity have been neglected in the literature, but the interactions between personality, marital satisfaction, and sexual satisfaction reported here add to two previous findings that these relationships do exist (Atkins et al., 2001; Lawson & Samson, 1988). For example, Atkins et al. found a significant interaction between gender and age in the prediction of infidelity with no significant difference between males and females in the frequency of infidelity when they
were younger than age 45, but females 40-45 and males 55-65 were the most likely to engage in infidelity in their gender. Also, gender and type of career interact in the prediction of infidelity with women working in male-dominated occupations engaging in infidelity more at work than women not working in male-dominated occupations and the converse being true for men (Lawson & Samson).

In addition to the main analyses, it is interesting that there was no significant difference found between males and females for infidelity. Gender was one of the most consistent predictors for infidelity, but beginning in the 1990's, the gender gap in infidelity began to shift with females engaging in infidelity almost as often or just as often as males. This finding is consistent with more current research in the infidelity literature that found that men and women engage in infidelity with equal frequency (Parker as cited in Atkins et al., 2001; Prins et al., 1993; Treas & Giesen, 2000). Some authors have found that males engage in sexual infidelity more than females and that females engage in emotional infidelity more than males (Egan & Angus, 2004; Humphrey as cited in Drigotas & Barta). However, this study only measured sexual infidelity (although it is acknowledged that an emotional relationship may also exist between sexual partners, this was not measured) and did not find that males engaged in infidelity significantly more frequently than females, which contradicts those findings. Other authors have found that males and females engage in infidelity at the same rates, as long as they are younger than a certain age. For example, Atkins et al. found no significant differences in rate of infidelity for males and females younger than age 45 and Weiderman (1997) also did not find a difference for those individuals younger than age 40.

The findings of this study provide greater illumination of infidelity as a behavior. There is now evidence that intrapersonal factors (viz., personality) interact with interpersonal factors (viz., marital satisfaction and sexual satisfaction) in the prediction of infidelity. Because this is the first study of its kind, further research must be done to provide a greater understanding of the complex interactions that influence infidelity. It is hoped that in the future, when there is more empirical evidence to support these relationships, eventually the information can be applied to clinical settings to predict and possibly prevent infidelity in relationships through marital therapy or premarital therapy. Thus, these findings may be able to help mitigate the negative effects that infidelity can have on individuals, couples, and families.

#### Limitations

Limitations of the current study will be addressed in the following paragraphs. First, there is an issue with generalizability of the results because of the specificity of the sample used in this study. Second, there are issues with the method of data collection. These will be addressed in turn.

The sample used in this study consisted of 204 married participants, all enrolled in master's programs in counseling and psychology at a mid-sized southern university. Because of the specificity of this sample, there are many populations to which it is unclear if the results of this study could be generalized. The participants were all married. It is unclear the extent to which the results reported here would apply to dating or cohabiting couples. Second, education level may be an issue because individuals who are in master's programs represent a relatively small proportion of the population. It is unknown whether these results would apply to individuals of lesser or greater education.

The participants in this sample were all counseling or psychology students, which also represent a small, specialized proportion of the larger population. Especially considering personality was a variable in this study, and there is evidence that personality influences career interest (Holland, 1997), care should be taken when attempting to extrapolate these findings to individuals in different fields and areas of education. Additionally, because the sample consisted of individuals at a southern university, it is possible that certain cultural differences (e.g., regional or religious values) may have affected the results and thus, the results found here are not necessarily generalizable to populations in other regions of the United States.

When analyzing the demographics of the sample, it was found that respondents were mostly European American with a significant number of African American participants. However, it is unclear how these results might generalize to other ethnicities as these were not well represented in the current study. Also, the sample was 74% female and thus the results can be more confidently applied to females than to males. Regarding religion and spirituality, most of the sample identified as either Baptist, Christian, or Catholic and 89% of the sample rated themselves between three and five on a Likert-type scale of religiosity, with points ranging from one to five with five being "*Very Religious*." Thus, the sample in this study can be considered mostly traditionally religious in a Christian sense and mostly representing only a few very specific faiths so it is unclear if these results may apply to other forms of religion/spirituality or to those individuals who identify as less religious in general. Marriage length of the sample is also an issue for generalizability because 61.5% of the sample had been married for 10 years or less and 81% had been married for 20 years or less. Thus, the results from the current study may not generalize to individuals who have been married for longer periods of time. Further, 75% of the sample indicated that they were raised in a family that was middle class, indicating that the results of this study may not apply to those individuals who were raised in families of higher or lower socioeconomic status. This is especially true for those individuals raised in upper class families, which comprised only 5% of the sample. Finally, 98% of the sample indicated that they were heterosexual. Thus, the results of the current study may not be applicable to persons endorsing other sexual orientations.

The present study had other limitations that should also be considered. First, all data collected were self-reported. Studies using this method are limited because one must assume that the responses of the participants were truthful. There were attempts in the present study to prevent dissimilation from interfering with the data. For example, participants were allowed to take their survey packets home and to return them in provided sealed envelopes. Of course, "home" might not be a particularly comfortable place to complete a survey of infidelity, but the participants were free to take it and complete it anywhere they liked. Participants were also instructed to return their consent forms separately, outside of their survey packet. This was meant to ensure their privacy and the confidentiality of their data. Also, surveys that were incomplete or for which there was evidence of inaccurate responding (i.e., endorsing the same response for every item) were not used. Finally, this study attempted to control for social desirability response bias by administering the Marlowe-Crowne Social Desirability Scale to all participants. Although the analyses revealed that the sample in this study scored higher on social desirability compared to norms, social desirability did not have a significant effect

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on likelihood of infidelity in preliminary statistical analyses and thus it was not included in the main analyses.

Another limitation of this study is an issue of timing and of correlational data. The infidelity questions used to generate the dependent variable in the study, presence or absence of infidelity during participant's current marriage, were phrased such that if the respondent had *ever* engaged in sexual behavior outside of their current marriage, they would be placed in the infidelity group. This could have been a limitation because participants may have engaged in sexual infidelity that occurred years ago which means their memory of it and thus their responses may not have been accurate. Also, the ENRICH Marital Satisfaction Questionnaire, the Index of Sexual Satisfaction, and the 16PF (i.e., the instruments used to measure marital satisfaction, sexual satisfaction, and personality) are phrased in the present tense. A respondent may have engaged in infidelity years ago and may have been satisfied with their marriage and sexual relationship at that time but at the time of data collection could have been dissatisfied with their marriage and/or sexual relationship. Such temporal relationships were not examined. Thus, there may not have actually been an association between marital satisfaction or sexual satisfaction and infidelity for this person at the time of their infidelity. In fact, their satisfaction could have decreased as a result of conflict in the marriage because of their infidelity. This is related to another issue with the data, as well - the findings are correlational in nature. Hence, one may conclude that these variables are associated with one another but no valid statement can be made about causation. Because the findings are correlational and because the data collection did not account for time, it is impossible to say which variables preceded, followed, or caused other variables.

A final limitation concerns the instruments used to measure the constructs in the study. The ENRICH Marital Satisfaction Scale and the Index of Sexual Satisfaction have both been in existence since the early to mid 1990's. Thus, they are new enough that they are not considered outdated, but also have existed long enough that validity and reliability research exist to support their use. The ENRICH Marital Satisfaction Scale was selected because of its brevity and specificity to marital relationships (and the satisfactory psychometric data) but it is not the most widely used measure of marital satisfaction. The Index of Sexual Satisfaction is one of several measures of sexual satisfaction but it is frequently used. Because no measure of sexual infidelity exists, the questions used in this study to measure infidelity were created specifically for this study and thus have no historic psychometric data to support their use. Constructing the infidelity questions was chosen as a solution to this problem because creating and norming a sexual infidelity instrument was beyond the scope of this investigation. Finally, the 16PF was used to measure the three selected personality factors. Although this measure is widely used and there is sufficient psychometric data to support its use, the factors chosen were based on similarity to factors from the NEO Personality Inventory.

#### Suggestions for Future Research

Based on the findings of the present study and how they fit into the context of the existing infidelity literature, there are many possibilities for future research. First, there is a need for studies of infidelity to be extended to a broader range of demographic groups. Not only would this be useful in terms of comparison, but there also are some populations for which infidelity research is almost non-existent (e.g., sexual minorities). The current study should be replicated with more diverse groups in terms of education level, career

interest, socioeconomic status, religious affiliation, marriage length, region of habitation, ethnicity, and gender. Also, the present study was possibly the first to describe interactions between marital satisfaction, sexual satisfaction, and personality in the prediction of infidelity. Because this study is exploratory in nature, these findings should be replicated with larger and more representative samples and including a wider range of personality factors to further support the idea that personality factors moderate the effects of marital and sexual satisfaction in their relationship to infidelity. Also, different "infidelity groups" should also be investigated and compared regarding these interactions because the moderating effects of personality on marital satisfaction and sexual satisfaction in the prediction of infidelity may be different for those who engage in one instance of infidelity and those who engage in infidelity several times with several different partners. It could also be different for those who engage in sexual infidelity, ermotional infidelity, and/or infidelity on the internet. It would also be interesting to investigate whether these findings could be replicated with other kinds of romantic relationships such as cohabiting and dating relationships.

Research on infidelity could also benefit from a clearer and more widely used definition of infidelity. Even when specifically considering sexual infidelity (as opposed to emotional or cyber infidelity) there is not clear consensus about which behaviors constitute infidelity. This is left to the researcher to decide which in turn results in findings that cannot be easily integrated or generalized. If there was a clearer and universal definition and operationalization of infidelity, it would be easier to compare findings and make sense of the infidelity literature as a whole. There is a need for longitudinal data in the infidelity literature. Without such longitudinal data, it is impossible to determine whether changes in marital and sexual satisfaction or the occurrence of infidelity came first. It would be interesting to know how these variables change in relation to one another over time. It is also possible to apply treatments to couple entering premarital counseling and compare incidence and frequency of infidelity over time with other couples who entered premarital counseling but did not receive the treatment.

One very important impetus for some empirical inquiries is the consideration of how the findings may be used to help people. It seems possible that in the future, these findings could be applied to treatment for couples or possibly premarital counseling to help decrease or prevent infidelity and thus, possibly mitigate the harmful effects it can have on individuals, couples, and families. However, because of the exploratory nature of the current study, the application of these findings should come only after attempts to replicate this study with various groups and using other research designs to explore predictors of infidelity. The findings reported here are only the beginning of a possible line of inquiry into the nature of the complex relationships between marital satisfaction, sexual satisfaction, personality, and infidelity. As more is known about these relationships, the information may be applicable to the effort to promote the health and happiness of individuals, couples, and families everywhere.

# APPENDIX A

## **CONSENT FORM**

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#### HUMAN SUBJECTS CONSENT FORM

The following is a brief summary of the project in which you are being asked to participate. Please read this information before signing the statement below.

TITLE: Correlates of Marital Sexual Infidelity

PURPOSE: To investigate personality, demographic, and relationship factors that may be related to sexual infidelity among married couples.

PROCEDURES: Completion of the survey packet by participants.

INSTRUMENTS: Personal Attributes Questionnaire, Personal Attitude Inventory, 16 Personality Factor Questionnaire, Marlowe-Crowne Social Desirability Scale, ENRICH Marital Satisfaction Scale, Kansas Marital Satisfaction Scale, Index of Sexual Satisfaction, and a Demographic Form.

**RISKS/ALTERNATIVE TREATMENTS: None** 

BENEFITS/COMPENSATION: There will be no benefits or compensation for participants.

I attest with my signature \_\_\_\_\_\_\_\_ that I have read and understood the above description of the study, "Correlates of Marital Sexual Infidelity", and its purposes and methods. I understand that my participation in this research is strictly voluntary and <u>my participation or refusal to participate in this study will not affect</u> <u>my relationship with Louisiana Tech University in any way</u>. Further, I understand that I may withdraw at any time or refuse to answer any questions without penalty. Upon completion of the study, I understand that the results will be freely available to me upon my request. I understand that the results of my survey will be <u>completely anonymous and</u> <u>confidential</u>, accessible to only the principal investigators, myself, or a legally appointed <u>representative appointed only by me</u>. I have not been requested to waive nor do I waive any of my rights related to participation in this study.

CONTACT INFORMATION: The principal experimenters listed below may be reached to answer questions about the research, participant's rights, or related matters:

Dr. Barlow Soper (318-257-2874) Dr. Walter Buboltz, Jr. (318-257-4039) Amanda Campbell (318-257-3413)

The Human Subjects Committee of Louisiana Tech University may also be contacted if a problem cannot be discussed with the experimenters:

Dr. Mary Livingston (318-257-4315) Dr. Les Guice (318-257-2924)

### **APPENDIX B**

## **DEMOGRAPHIC FORM**

#### **DEMOGRAPHIC FORM**

Please answer the following questions about yourself by filling in the blank or by placing a check in the appropriate box. If you need extra space to add information, feel free to use the back of this page. We will keep all information about our participants anonymous and confidential.

1. Age: \_\_\_\_\_ 2. Gender: \_\_\_\_\_

3. With which ethnic group do you most identify?

- □ African American/Black (non-Hispanic)
- Asian/Asian American/Pacific Islander
- □ Biracial/Multiracial
- □ Caucasian/European American/White (non-Hispanic)
- □ Hispanic/Latino/Latina
- □ Middle Eastern/Arab
- Native American/American Indian/Alaska Native
- □ South Asian/Asian Indian

4. Annual household income:

- □ Other:
  - Please specify:

the family in which you were raised?

9. Which would best describe the socioeconomic status of

- □ Middle class
- □ Upper class

10. With which religious/spiritual group do you most identify (atheist, agnostic, and none are acceptable answers to this question)?

11. Please rate yourself as to how religious you are:

Not religious				Very
at all				Religious
1	2	3	4	5

5. In which state do you reside?

6. What is the distance to the nearest metropolitan area (an area with a population greater than 100,000 usually including a city with a population greater than 50,000) from your home?

miles

7. What is the distance to the nearest metropolitan area from your place of work?

miles

8. Which would best describe the area in which you were raised as a child?

- □ Rural
- □ Suburban
- 🗆 Urban

12. On average, how many people do you interact with on a daily basis on an individual level on a weekday – including work-related and non-work related interaction (not a group interaction like a meeting, excluding family members, and excluding interaction that is not face-to-face or on the internet)?

13. On average, how many people do you interact with on a daily basis on an individual level on a weekday *online or over the phone*— including workrelated and non-work related interaction (not a group interaction like a meeting and excluding family members)?

- □ Executive/administrative/managerial
- Professional specialty
- □ Technicians and support
- □ Marketing and sales
- □ Administrative support
- □ Service
- □ Agricultural, forestry, fishing
- D Precision production, craft, and repair
- □ Operator, fabricator, laborer
- □ Retired
- □ Unemployed
- □ Other:

Please specify:

- 15. With which group do you most identify?
  - □ Heterosexual
  - □ Homosexual
  - Bisexual
  - □ Other:
  - Please specify: \_\_\_\_\_
- 16. What is your highest education level?
  - □ No diploma
  - □ High school diploma/GED
  - □ Associates degree
  - Bachelors degree
  - □ Currently a bachelor's student
  - □ Masters degree
  - Currently a master's student
  - Doctorate degree
  - □ Currently a doctoral student

17. Please rate yourself as to your political attitude:

Liberal			Co	Conservative	
1	2	3	4	5	

- 18. What is your current relationship status?
  - $\Box$  Single, never married
  - □ In a relationship, not living with partner
  - □ Living with partner
  - □ Married
  - □ Separated
  - □ Divorced
  - □ Widowed

19. If you are currently in a relationship or married, for how long (if you are married, please indicate how long you and your partner have *actually been married* to one another)?

\_\_\_\_\_ years \_\_\_\_\_ months

20. If you are currently married, please indicate how long you and your partner have been together *total* (including dating, engagement, and marriage).

\_\_\_\_\_ years \_\_\_\_\_ months

21. Please indicate how many times you have been married **before** your current marriage or relationship:

22. Indicate on the blank the number of children you have...

From current marriage

From previous marriage(s)

- Stepchildren from current marriage
- Stepchildren from previous marriage(s)
- \_\_\_\_\_ Outside of marriage

23 a. During your current marriage, have you ever engaged in kissing that you did not or do not want your partner to know about? Kissing is defined as mouth to mouth or mouth to body contact between at least two people engaged in for pleasure.

	Yes
	No

b. If you answered "Yes" to number 23a, how many different times did you kiss someone other than your partner (regardless of whether or not it was the same person) during your current marriage?

c. How many times in your life have you ever kissed someone other than your partner (including during current marriage and also during past marriages)?

d. How many different people have you kissed (excluding your current partner) during your current marriage?

24 a. During your current marriage, have you ever engaged in fondling/petting/caressing/manual stimulation that you did not or do not want your partner to know about? This is defined as hand to body contact above or under clothing between at least two people engaged in for pleasure including digital penetration and not including professional massage.

□ Yes

🗆 No

b. If you answered "Yes" to number 24a, how many different times were you involved in fondling/petting/caressing/manual stimulation with someone other than your partner (regardless of whether or not it was the same person) during your current marriage?

c. How many times in your life have you ever been involved in fondling/petting/caressing/manual stimulation with someone other than your partner (including during current marriage and also during past marriages)? d. With how many different people have you been involved in fondling/petting/caressing/manual stimulation (excluding your current partner) during your current marriage?

25 a. During your current marriage, have you ever engaged in oral sex that you did not or do not want your partner to know about? Oral sex is defined as mouth to genital contact between at least two people engaged in for pleasure.

□ Yes

🗆 No

b. If you answered "Yes" to number 25a, how many different times did you engage in oral sex with someone other than your partner (regardless of whether or not it was the same person) during your current marriage?

c. How many times in your life have you ever engaged in oral sex with someone other than your partner (including during current marriage and also during past marriages)?

d. With how many different people have you engaged in oral sex (excluding your current partner) during your current marriage?

26 a. During your current marriage, have you ever engaged in sexual intercourse that you did not or do not want your partner to know about? Sexual intercourse is defined as genital to genital contact between at least two people that includes vaginal and/or anal penetration and is engaged in for pleasure.

🗆 No

<sup>🗆</sup> Yes

b. If you answered "Yes" to number 26a, how many different times did you engage in sexual intercourse with someone other than your partner (regardless of whether or not it was the same person) and also during past marriages)? during your current marriage?

c. How many times in your life have you ever engaged in sexual intercourse with someone other than your partner (including during current marriage

d. With how many different people have you engaged in sexual intercourse (excluding your current partner) during your current marriage?

27. If you answered "Yes" to 23a-26a, please rate yourself on your motivation for doing so:

#### Sexual Motivation:

Not at all a motivation			A very strong motivation	
1	2	3	4	5
Emotional N Not at all a motivatior	Aotivation 1 2	n: 2	A ve mot	ry strong ivation
1	2	3	4	3

28. If you answered "Yes" to 23a-26a, where did you meet this person(s)?

### **APPENDIX C**

### MARLOWE-CROWNE SOCIAL DESIRABILITY SCALE SHORT FORM C

Read each of the following items and decide whether the statement is *true* or *false* as it pertains to you personally and mark T or F in the blank beside the statement to indicate this.

<u>.</u>	1. I sometimes feel resentful when I don't get my way.
	2. On a few occasions, I have given up doing something because I thought too little of my ability.
	3. There have been times when I felt like rebelling against people in authority even thought I knew they were right.
	4. No matter who I'm talking to, I'm always a good listener.
	5. I can remember "playing sick" to get out of something.
	6. There have been occasions when I took advantage of someone.
<u> </u>	7. I'm always willing to admit it when I make a mistake.
	8. I sometimes try to get even, rather than forgive and forget.
	9. I am always courteous, even to people who are disagreeable.
	10. I have never been irked when people expressed ideas very different from my own.
	11. There have been times when I was quite jealous of the good fortunes of others.
	12. I am sometimes irritated by people who ask favors of me.
	13. I have never deliberately said something that hurt someone's feelings.

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