

ATTRACTIVENESS AND SPOUSAL INFIDELITY AS PREDICTORS OF SEXUAL FULFILLMENT WITHOUT THE MARRIAGE PARTNER IN COUPLES FROM FIVE CULTURES

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ABSTRACT

This paper explores the cross-cultural prevalence and predictors of extramarital sexual fulfillment and in doing so tests some predictions derived from evolutionary considerations. Although most adults, across cultures, believe that infidelity, particularly by the female, is 'wrong' and infidelity is often the cause of divorce and violence, the behavior is widespread. Evolutionists have noted various fitness advantages to be gained from sexual infidelity. With such a strong theoretical base for specific predictions about infidelity, it is surprising that few conclusions can be drawn about the predictors of the behavior in married couples. Our study of married couples from China, Russia, Turkey, the United Kingdom (UK), and the United States (US) revealed that love of the spouse, frequency of finding non-partners attractive, and self-reported extramarital sexual fulfillment of the spouse predicted frequency of sexual fulfillment outside of marriage. Cultural similarities and differences are discussed.

Key words: *sex differences, cross-cultural, infidelity, attractiveness, marriage*

INTRODUCTION

Little cross-cultural research has been conducted on predictors of sexual infidelity in married couples, although the universal existence of the behavior has been documented (reviewed in Baker & Bellis, 1995; Huber, Linhartova, & Cope, 2004). This paper begins with a discussion of the prevalence of infidelity, adaptive costs and benefits of infidelity, and predictors of infidelity. A study of predictors of infidelity in China, Russia, Turkey, the U.K., and the U.S. is then described. This research was predicated on the idea that any

characteristics of infidelity demonstrated in five quite different cultures may reflect evolved, mostly functional behavioral tendencies that constitute elements of human nature. In particular, it was expected that the relative sexual attractiveness of the spouse and others would predict infidelity in each culture. Also, it was predicted that infidelity would exhibit a degree of reciprocity, since spousal infidelity is sometimes an indication of inclination to desert the marriage, and the victimized spouse might then seek an alternative mate.

Prevalence of Infidelity

In his pioneering albeit flawed studies, Kinsey found that 50% of US men and 26% of women had had extramarital sex at least once (Kinsey, Pomeroy, & Martin, 1948, 1953). Estimates of at least one spouse per married couple engaging in extramarital sex during the course of the marriage ranged from 40% to 76% in a review by Thompson (1983) of predominantly US studies. In a cross-cultural study, over half of the 60 societies surveyed reported extramarital sex with at least "moderate" frequency, whereas less than 10% of these societies exhibited "very low" rates of infidelity (Huber et al., 2004). In a 1994 report by Greeley, 21% of men and 11% of women reported engaging in sex with someone other than their spouse during their marriage. Percentages from the National Health and Social Life Survey were only slightly different with over 90% of women and 75% of men reporting complete faithfulness across the entirety of marriage (Laumann, Gagnon, Michael, & Michaels, 1994). When unmarried dating partners were considered, reports of infidelity were higher, with 70.9% of men and 57.4% of women reporting unfaithful behavior (Hansen, 1987).

Non-paternity rates are obviously related to infidelity. Several studies have concluded that the non-paternity rate in the general population is near 10%, while one cross-cultural report found the median rate of non-paternity ranged from 1.7 to 29.8% (Anderson, 2006). Macintyre and Sooman (1991) estimated from blood group factors in the UK that at least 10-14% of babies born are the result of extra-pair mating. Another British study estimated the extent of infidelity at 4% of wives' copulations (Baker & Bellis, 1995). On theoretical grounds Russell and Wells (1987) placed the figure somewhat higher for prehistoric populations. The broad prevalence of male sexual jealousy, as well as of male interest in sexual variety, suggests that female infidelity was not uncommon in our species (Goetz & Shackelford, 2006).

This wide variation in reports of frequency of infidelity and non-paternity may reflect differences in reporting accuracy regarding these delicate matters. In a US study, women (but not men) tended to underreport their number of sex partners unless they believed lying could be detected (Alexander & Fisher, 2003). Another study of American women found that when asked face-to-face about number of sexual intercourse partners in the past year, 1.08% of married women reported infidelity whereas when the same question was asked through a computer questionnaire, 6.13% of the married women reported having sexual intercourse with more than one man (Whisman & Snyder, 2007). Another reason for variability in reports of frequency of infidelity is likely the wording of the inquiry. For example, a question may ask if one has ever found sexual fulfillment outside of any long-term relationship or marriage (Laumann et al., 1994), while another question may pertain to frequency of infidelity within one's current marriage. Also, a

young couple might report no previous incidents of infidelity, but eventually this might change, so respondents' age or duration of marriage is a complicating factor that varies across studies. However, Laumann et al. (1994) found that their older US cohorts, although married longer, had lower rates of infidelity per year of marriage than more recent cohorts. This might be partly accounted for by durable marriages being happier and less prone to infidelity, an interpretation consistent with some of their data. There is also the problem of the many meanings of being unfaithful. Is regular intercourse with a non-partner infidelity? Is exploring different acts and positions with a non-partner infidelity? Is one night of doing either infidelity? Does it all depend on the individual's desires and which of those desires remain unfulfilled while in the arms of one's spouse? Different studies take different approaches to gathering such sensitive data, which undoubtedly contributes to the wide range of prevalence data.

Additional evidence suggests that humans have evolved to exhibit a degree of sexual promiscuity. An appreciable degree of promiscuity, which would include some sexual infidelity, in prehistory can be inferred from the relatively large testis size of our species, a feature which is associated with sperm competition (Parker, 1984; Short, 1979). The advantage of sperm competition is suggested by data on women's concurrent sexual relationships with multiple men. In a US study, 83% of respondents who reported more than four sexual partners in the previous year said at least two of the relationships were concurrent (Laumann et al., 1994). A UK study revealed that 9% of women reported concurrent relationships with males during the past year (Johnston et al., 2001). Consistent with this phenomenon of sperm competition, men increase their sperm production after an absence from their wife and are more attracted to her - independent of time since last ejaculation (Baker & Bellis, 1993; Gallup et al., 2003; Shackelford et al., 2002). Men who are partnered with women who are likely to be unfaithful tend particularly to cater to their partner's sexual desires (Goetz et al., 2005). Copulatory urgency and semen-displacing vigorous thrusting are more likely when the likelihood of female infidelity is high (Goetz et al., 2005; Shackelford et al., 2002). Other revealing adaptations for promiscuous mating include coagulation of seminal fluid after insemination to form a soft copulatory plug (Mandal & Bhattacharyya, 1985; Tauber & Zaneveld, 1976), the spermicidal property of the last fraction of seminal fluid, the buffering property against this spermicidal capacity by the next man's prostatic fluid, and the size and shape of the penis, which can dislodge the previous man's copulatory plug during thrusting (Gallup et al., 2003; Goetz et al., 2005). Such elaborations of the male genitalia and semen are associated with multi-male mating and female choice, as opposed to monogamy, in the animal kingdom in general (Eberhard, 1985). However, the existence of contest competition between sperm in humans has been contested (see discussion in Goetz & Shackelford, 2006).

Costs and Benefits of Infidelity for Both Spouses

Infidelity may be a solution for spousal or couple-specific infertility. Another fitness advantage of infidelity is that it can lead to genetic diversity due to the birth of half-siblings and their heightened collective resistance to pathogens (Hrdy, 1979).

On the other hand, promiscuity increases the risk of contracting a sexually transmitted disease. Infidelity predicts lower marital satisfaction and divorce

(Shackelford & Buss 2000), but divorce proneness also predicts infidelity (Previti & Amato, 2004). Infidelity of the wife has been reported to be the most common reason married couples divorce cross-culturally (Betzig, 1989). Divorce may lead to economic, cognitive, and emotional hardships imposed on the children (Amato, 1994), including abuse by a stepfather or mother's boyfriend (Daly & Wilson, 1985).

A married person might attract and road-test a prospective new spouse by being unfaithful if one were contemplating divorce and remarriage. Gaining experience with short-term partners may be a way to elucidate one's mate preferences and to assess one's own mate value.

Costs and Benefits for the Man

Since almost all men seek to marry, and most do marry, around the world (Daly & Wilson, 1983), marriage seems to be the optimal reproductive strategy for males of our species under most conditions. Apparently a mixed strategy of marriage plus opportunistic extramarital sex is even more successful, given the widespread infidelity of husbands around the world.

The fitness advantage to men of securing multiple sexual partners is obvious. In various societies, many children of non-marital unions survive to maturity even without the assistance of the father, because of support provided by the mother's kin, the father's kin, the state, or charities (Geary, 2000; Hrdy, 1999).

The emotional benefits associated with men's short-term mating attest to the likely adaptive value of this behavior and may include not just sexual gratification but also gaining status among male peers (Greiling & Buss, 2000). Gaining status may be tantamount to gaining self-esteem; adolescent boys who had had multiple sex partners reported higher self-esteem and fewer depressive symptoms than those with few or none (Spencer, Zimet, Aalsma, & Orr, 2002).

The potential costs to a philandering male include alienation of the wife and possible divorce, punishment by the wife (which might include retaliatory infidelity) or her kin or a cuckolded husband, diversion of resources from his children to the paramour or her children, and possible loss of status in the community. Men who are "cheaters" may have a difficult time acquiring a desirable long-term mate (Buss, 1999). However, in most cultures the societal penalties and disapprobation are relatively minor —as long as the husband's sex partner is not married (Daly & Wilson, 1983; Hobhouse, 1924).

The adverse fitness consequences of being a victim of the wife's infidelity are indicated by the accompanying negative affect. In most cultures, a cuckold is ashamed (Freedman, 1967) and may be ridiculed. A strong predictor of low self-esteem in US husbands was perceived and/or actual infidelity of the wife; suspected or actual infidelity of the husband was not a significant predictor of wives' self-esteem (Shackelford, 2001).

Costs and Benefits for the Woman

The fitness benefits accruing to a woman from infidelity in prehistory are more obscure. A woman is probably more likely than a man to receive material benefits in exchange for extramarital sex.

A married woman might produce superior offspring by being fertilized by a man of higher genetic quality than her husband—the good genes hypothesis. Wives tend to have affairs with men who are superior to their husbands in social status or attractiveness (Baker & Bellis, 1995). Around ovulation, when fertilization is possible, women increase their preference for physically attractive, dominant men (Gangestad, Simpson, Cousins Garver-Apgar, & Christensen, 2004; Pawlowski & Jasienska, 2005). These genetic benefits might also accrue to a man, but given the principle of female choice and the Bateman effect, they would generally be greater for women.

The adaptive advantage of fertilization by a male with superior genes is suggested by the fact that extra-pair copulations frequently result in fertilization (Bellis & Baker, 1990). Extra-pair copulations are more likely than marital copulations to occur during the wife's fertile period, and more sperm are retained, rather than flowing out, as than in marital copulations (Baker & Bellis, 1993). Sperm retention is enhanced by orgasm, especially if simultaneous, and both are more likely in extra-pair copulations (Baker & Bellis, 1993; but see Meston, Levin, Sipski, Hull, & Heiman, 2004). In one study, nearly half of the women with extra-pair sexual experience reported more intense orgasms with their extra-pair partners (Gallup, Burch, & Mitchell, 2006). Most women tend to wait at least 48 hours after extra-pair sex to have in-pair sex, and this behavior may allow females to offset the “counter-insemination strategies” of males (Gallup et al., 2006). Sperm rejection is promoted by precoital masturbation, which women practice more often before a marital copulation than an extra-pair one (Baker & Bellis, 1993).

The good genes hypothesis is supported by reports that women found the scent of physically attractive men more appealing only during the fertile period (Gangestad & Thornhill, 1998; Rikowski & Grammer, 1999; Thornhill & Gangestad, 1999). Women found men with masculine faces particularly attractive around ovulation (Johnston, Hagem, Franklin, Fink, & Grammer, 2001; Penton-Voak et al. 1999; Penton-Voak & Perrett, 2000). At ovulation women with less attractive partners were more attracted to extra-pair men and less attracted to their partners (Gangestad, Thornhill & Garver-Apgar, 2005). Women reported fantasizing more about men other than their partners around ovulation (Gangestad, Thornhill & Garver, 2002; Pillsworth, Haselton & Buss, 2004).

The costs to a woman from infidelity include possible punishment by the husband or his or her kin, societal condemnation, divorce, and reduced mate value after a divorce. Daly and Wilson (1988) cited male sexual proprietariness as the most frequent predictor of domestic violence and family homicide worldwide. Although a wife may retaliate against an unfaithful husband by being unfaithful herself, this is a risky business given the possibility of his attacking her. She may also forfeit his support of current or future children, and gain little compensatory support from her lover. In island cultures with high levels of endogamy, such as Tahiti, and cultures with extensive food sharing across families, infidelity may be tolerated because of the reduced costs of being cuckolded (Ryan & Jethá, 2011).

Predictors of Infidelity

We examined several frequently studied correlates of infidelity:

Maleness: Much evidence suggests that men are more interested in sexual variety than women, and extramarital sex is the only means of gaining variety in sexual partners for monogamously married men. In a study of 52 nations, 6 continents, and 13 islands, men reported the following behaviors with higher frequency than women: desiring several sex partners, having sex without knowing the partner for long, and actively seeking uncommitted sexual partners (Schmitt, 2003).

Values: Smith (1994) found permissive sexual values to be associated with infidelity. Over three-quarters of Americans who did not think extramarital sexual relations are “always wrong” reported engaging in infidelity, whereas those who said it was “always wrong” reported a 10% rate. Being politically liberal, highly educated, and sexually permissive before marriage was related to casual sexual mores. At least two studies have discovered that the more religious people were, the less likely they reported engaging in extramarital sexual relations (Buss & Shackelford, 1997; Whisman & Snyder, 2007).

Predictors of extramarital sex include the amount of premarital sexual activity (Thompson, 1983; Weiss & Slosnerick, 1981; Whisman & Snyder, 2007), cohabitation before marriage (Treas & Giesen, 2000; Whisman & Snyder, 2007), and a previous divorce (Atkins, Baucom & Jacobson, 2001). These factors may indicate a permissive attitude that carries over into marriage, although other explanations are possible.

Personality Factors: At least three of the Big 5 personality characteristics predicted infidelity of wives (Buss & Shackelford, 1997). Women low on conscientiousness estimated that they would commit more acts of infidelity. Narcissistic women said they would engage in more extramarital sexual activity. Individuals high on the Eysenck psychoticism scale acknowledged they would probably have more affairs.

Personal Attributes: Attractive men, such as those with symmetrical features and high shoulder-to-hip ratios, are more likely to have affairs with women who were already in relationships (Gangestad & Thornhill, 1997; Hughes & Gallup, 2003). Socially dominant men, and those high in resources, tend to have more sex partners and be less faithful (Egan & Angus, 2004; Kanazawa, 2003; Perusse, 1993). These desirable men may have more opportunities for extramarital sex.

Physical attractiveness, as determined by independent raters, was not a predictor of the number of times US college women engaged in extra-pair sex (Gangestad & Thornhill, 1997). In fact, women with low self-esteem tended to have had more sex partners and one-night stands (Mikach & Bailey, 1999). Similarly, adolescent girls who had had many sex partners rather than few or none tended to have lower self-esteem and more depression (Spencer et al., 2002).

Economic Factors: Within various stratified cultures, infidelity tends to be less common among higher economic groups. For example, in those societies which display claustration as a way of controlling women’s sexual behavior, upper-class women are more likely to be claustrated than lower-class women (Daly & Wilson, 1983); mate guarding presumably reduces extramarital sex. This effect of high economic status probably occurs because the material risks of being cuckolded are greater.

One factor that seems to affect infidelity across cultures is low paternal investment. For example, in matrilineal societies paternal investment typically is low,

often giving rise to the avunculate, and infidelity and divorce tend to be common (Daly & Wilson, 1983; van den Berghe, 1979). Similarly, where the wife is relatively independent economically of the husband, marital bonds tend to be weak (Friedl, 1975; Goode, 1993; Seccombe & Lee, 1987) and infidelity by the wife is relatively common (van den Berghe, 1979).

Relationship Factors: US researchers have found marital and sexual dissatisfaction to be associated with infidelity (e.g., Allan, 2004; Buss & Shackelford, 1997; Greeley, 1991; Maykovich, 1976). In addition, couples who led separate personal and/or occupational lives (Blumstein & Schwartz, 1983) or had chances to have sex with coworkers (Treas & Gliesen, 2000) had more extramarital partners, as did people who thought about sex frequently. Of course determining causality is difficult here. Infidelity may increase marital dissatisfaction, for example, or some third factor may increase both, such as duration of the marriage.

Marital satisfaction and commitment have been associated with adopting a long-term, or slow, life history strategy (Olderbak & Figueredo, 2010), which presumably would reduce the incidence of infidelity. Possibly relevant here is the distinction between high-testosterone “cad” males who exert more short-term mating effort--seeking extramarital partners--and lower-testosterone “dad” males who are more uxorious and paternally inclined (Booth & Dabbs, 1993; Dabbs, 1992) . But “dad” males tend to earn more money and stray less, whereas Atkins et al. reported the opposite relationship between income and infidelity. Higher-income, economically independent spouses were more likely to stray (Atkins et al., 2001). Perhaps men may stray if their wealth makes them attractive or if they neglect their jobs to pursue extramarital affairs. The key for wives may be their financial independence.

Conclusions about Predictors of Infidelity: Although several personal and relationship characteristics have been proposed as predictors of infidelity, only maleness is consistently acknowledged to be a predictor, consistent with sexual selection theory (Trivers, 1972). However, the Schmitt (2003) cross-cultural study did not examine sexual infidelity per se, but only the self-reported desire for extramarital sex. Other cross-cultural evidence merely alludes to the double standard (Ford & Beach, 1951; Hobhouse, 1924). Most studies of self-reported actual infidelity show more by husbands than wives but are limited to the U.S. (e.g., Laumann et al., 1994; Smith, 1994). Marital dissatisfaction, liberal values, and a few other relationship, economic, demographic, and personality dimensions can loosely be included as predictors in the US. Many US studies have used college students in situations where they were told to imagine a partner’s infidelity. These studies are valuable, but we would be amiss in generalizing to the actual behavior of married couples. For these reasons, we studied self-reported extramarital sexual fulfillment in married couples in five diverse cultures.

If infidelity constitutes a manifestation of mate choice continuing during marriage, and if mate choice before marriage largely reflects physical attraction, then physical attractiveness may be salient in instances of infidelity for men and women. From an evolutionary point of view, the relative putative genetic quality of the current and potential mates ought to be of prime consideration in shaping decisions about infidelity. Sexual difficulties were one of the main reasons cited for one’s divorce in a cross-cultural survey, in addition to infidelity (Betzig, 1989), and marital and sexual satisfaction tend to be highly correlated (e.g., Sprecher & Cate, 2004).

The Present Study

The primary aim of the study was to examine the role of attractiveness variables and sexual fulfillment within the marriage as predictors of husband's and wife's sexual fulfillment outside the marriage in five cultures. Our predictions were that the following would be associated with an increase in sexual fulfillment outside the marriage: finding oneself attractive, finding others of the opposite sex outside the marriage attractive, and finding one's spouse unattractive. Our secondary aim was to test the prediction that husbands in all cultures would report extramarital sexual fulfillment with greater frequency than wives.

The cultures were selected for the research largely because of their diversity with respect to geography, climate, predominant religion, divorce rates, collectivism vs. individualism, economic system, prosperity, and history. This strategy of studying disparate cultures reduces Galton's problem of interdependence of cultural samples, and strengthens the likelihood that a cross-cultural finding represents a species-wide phenomenon. The US and UK have a common cultural and historical connection, but some relevant differences in values have been reported in the two countries (Perkins & Spates, 1986). At the time of the data collection, Russia was in the throes of difficult economic times associated to the transition to a market economy, potentially placing strains on marriages. China had adopted the one-child policy, which seems to have been accompanied by a rise in infidelity (Shen, 1996) and women's economic independence (Sun, 1991). Turkey is predominantly Muslim, and has emerged as a thriving democracy. About one-fourth of the Turkish couples were in arranged marriages, allowing these marriages to be contrasted with self-selected ones. Of course, a great deal more than these bare facts distinguish these countries. However, all are modern cultures and quite distant from our forager ancestors.

MATERIALS AND METHODS

Participants

Table 1 displays demographic data for the five samples. Data were collected during the time period of the late 1980s through 2003. The Turkish sample was composed of couples in self-selected ($n = 306$) and arranged ($n = 150$) marriages. The US, Russian, and Turkish samples were collected by psychology students through the chain referral and modified snowball methods (Bailey, 1987). The UK samples were collected through a marketing company, recruitment by students, and an ad placed in a women's magazine.

The Chinese sample was obtained by sending questionnaires home with schoolchildren, with a 90% rate of compliance. Confidentiality of responses was assured by having respondents place completed questionnaires in separate sealed envelopes. Results were very similar across the sampling methods, and a high level of agreement between spouses on most items exists, thereby validating the measures.

Table 1. Means (S.D.) of Demographic Variables for Five Cultures

	China	Russia	Turkey	U.K.	U.S.	Total
No. of Couples	419	405	456	1356	420	3056
Husband's Age	39.42 (5.72)	42.67 (12.28)	38.33 (10.09)	39.04 (11.79)	42.35 (10.81)	39.98 (10.87)
Wife's Age	37.76 (5.56)	40.51 (12.50)	34.19 (9.34)	36.54 (11.61)	39.94 (10.31)	37.42 (10.73)
No. of Children	1.05 (0.21)	1.2 (0.84)	1.51 (1.56)	1.96 (1.69)	2.21 (1.45)	1.7 (1.43)
Duration of Marriage	13.94 (7.76)	15.63 (11.51)	11.76 (9.46)	13.18 (10.43)	15.32 (11.26)	13.78 (10.35)
Love Scale	3.46 (0.64)	3.82 (0.59)	4.09 (0.63)	3.92 (0.52)	4.27 (0.63)	3.92 (0.62)

Materials

Participants completed the 235-item Marriage and Relationships Questionnaire (MARQ; Russell and Wells, 1986), which was designed to obtain information about how husbands and wives feel about themselves in the context of their marriage and their relationship with each other. The MARQ was translated for use in each country, under the supervision of the co-authors of this manuscript. Due to the sensitive nature of the question, sexual fantasy as well as self-reported actual behavior (e.g., sexual infidelity) was included in the Chinese translation of the MARQ item: Do you find sexual fulfillment outside your marriage? We used a single-item measure of 'infidelity', asking if the respondent finds "sexual fulfillment outside your marriage". This item measures the extent to which the person's main sexual desires (whatever they may be, not necessarily intercourse) are met, by someone else other than the spouse.

Three scales within the MARQ have demonstrated strong measurement invariance for husbands and wives across most of the countries included in our analysis (Lucas, et al., 2008). The 9-item Love Scale, which we use as a predictor in the present study, was designed to "explore the extent of the respondent's emotional attachment to their partner" (Russell & Wells, 1993). Other variables from the MARQ used in this analysis include age, number of children, and the items: "Do you find your wife/husband attractive?", "Does your wife/husband find you attractive?", "Do you find sexual fulfillment inside your marriage?", "Do you find other women/men attractive?", "Do you find sexual fulfillment outside your marriage?", and "Do you think you are good looking?". Response options for these items were on a 5-point scale anchored with "not at all" and "very much". All items have been coded so that increasing numbers correspond with an increase in the frequency/strength of the variable.

RESULTS

Effects of Sex, Culture on Frequency of Finding Sexual Fulfillment Outside the Marriage

Table 2 summarizes the frequency of finding sexual fulfillment outside the marriage for husbands and wives in all five cultures. Overall, at least 23% of respondents reported something greater than “not at all” when asked: Do you find sexual fulfillment inside your marriage?

To examine the effects of sex and culture on sexual fulfillment outside the marriage, we used analysis of covariance, controlling for age, number of children, and Love Scale score. Husbands reported a significantly higher frequency of finding sexual fulfillment outside the marriage than wives, $F(1, 6041) = 109.29, p < .001$. There was a main effect of culture, $F(4, 6041) = 296.23, p < .001$. The interaction of sex and culture was also significant, $F(4, 6041) = 11.97, p < .001$. In every culture men reported significantly more extramarital sexual fulfillment than women. There was no effect of marriage type (arranged or self-selected) on frequency of sexual fulfillment outside the marriage in the Turkish sample, $F(1, 898) = .37, p = .54$.

Table 2. Summary of MARQ Item: “Do you find sexual fulfillment outside your marriage?”

Culture and Sex	1 = Not at All %	2 = Not Really %	3 = Some %	4 = Quite A Lot %	5 = Very Much %	Total
Chinese Husbands	46.7	26.3	18.2	5.4	3.4	3056
Chinese Wives	66.1	17.1	12.9	3.2	.7	39.98 (10.87)
Russian Husbands	17.2	58.4	18.7	2.0	3.7	37.42 (10.73)
Russian Wives	28.0	57.9	9.2	2.5	2.5	1.7 (1.43)
Turkish Husbands	65.3	22.6	8.8	1.5	1.8	13.78 (10.35)
Turkish Wives	88.2	7.1	1.6	2.2	.9	3.92 (0.62)

Predictors of Sexual Fulfillment Outside Marriage

Hierarchical linear regressions for husbands and wives were used to analyze the contributions of nine predictor variables to frequency of sexual fulfillment outside the marriage. In the first block of our regression analyses, age, love, and number of children were entered. In the second block, the following predictors were added: Do you find your wife/husband attractive? Does your wife/husband find you attractive? Do you find sexual fulfillment inside your marriage? Do you find other women/men attractive? Do you find sexual fulfillment outside your marriage? (response of the spouse) and Do you think you are good looking?

Table 3 displays standardized regression coefficients, adjusted R^2 , and F statistics associated with the change in R^2 for wives and husbands in all cultures taken together as well as separately. Variance accounted for ranged from 8% for the Chinese wives to 32%

for American husbands. When all cultures were considered together, the following factors were associated with an increase in the frequency of sexual fulfillment outside the marriage in wives: less love for the husband, fewer number of children, finding non-partners attractive, less sexual fulfillment inside the marriage, increased frequency of spouse's sexual fulfillment outside the marriage, and perception that the husband finds her attractive. For husbands, less love for the wife, fewer number of children, finding non-partners attractive, increased frequency of spouse's sexual fulfillment outside the marriage, rating oneself as more attractive, and finding the wife more attractive predicted increased sexual fulfillment outside the marriage.

Given the positive predictive nature between husband's and wife's frequency of sexual fulfillment outside the marriage, we tested the possibility that these individuals may simply be "swingers" or in "open" marriages. Excluding the Chinese couples, both partners gave a response greater than 1 (i.e., 1 = "not at all") in 13% of the cases. Twenty-seven percent of wives who responded greater than "not at all" had husbands who responded "never", and half of the husbands who responded greater than "not at all" had wives who responded "never". This pattern makes it unlikely that the positive relationship between husband's and wife's "infidelity" is due to open relationship agreements.

Regressions were run for the Turkish wives and husbands overall, as well as separately by marriage type. For husbands, significant predictors of sexual fulfillment outside the marriage were the same for self-selected (total adjusted $R_2 = .16$), and arranged (total adjusted $R_2 = .19$) marriages as they were for the Turkish husbands as a whole group, with one exception: when analyzed as a whole, increased extramarital sexual fulfillment was predicted by rating the wife as less attractive. For Turkish wives, an increase in the husband's sexual fulfillment outside the marriage was the one consistent predictor for wives overall, and in self-selected and arranged marriages. In addition, an increased perception of one's own attractiveness increased sexual fulfillment outside the marriage in wives in the self-selected group ($\beta = .20$, $p = .001$, total adjusted $R_2 = .05$). For wives in arranged marriages, younger age ($\beta = -.29$, $p = .001$) and the perception that the husband found her attractive ($\beta = .32$, $p = .001$, total adjusted $R_2 = .19$) were also predictive of an increase in sexual fulfillment outside the marriage.

Table 3. Predictors of Sexual Fulfillment Outside the Marriage in Wives and Husbands from Five Countries

	Wives					
	All	China	Russia	Turkey	U.K.	U.S.
Block 1 Predictors	β					
Age	.00	-.07	.05	-.16**	.03	-.03
Love	-.27***	-.14***	-.26***	-.11*	-.24***	-.20***
No. of Children	-.08***	.10*	-.01	.02	.03	-.10
Adjusted R^2	.08	.03	.08	.03	.06	.05
F	85.63***	4.06**	10.86***	4.96***	30.66***	7.18***
Block 2 Predictors						
Find Spouse Attractive	.03	-.05	-.04	-.09	.08	-.10
Find Other Men/Women Attractive	.17***	.25***	.19***	-.01	.21***	.15***
Self-Perceived Attractiveness	.03	-.01	.08	.13**	.00	.00
Sexual Fulfillment Within Marriage	-.07***	-.01	-.23***	-.05	-.04	-.03
Spouse Finds Sexual Fulfillment Outside Marriage	.18***	.09	.12**	.22***	.28***	.37***
Perception of how Attractive Spouse Finds Her/Him	.05*	.03	.09	.12*	.06	.01
R^2 Change	.08	.08	.14	.07	.15	.17
F	44.29***	5.48***	11.73***	6.09***	43.17***	14.37***
Total Adjusted R^2	.15	.08	.20	.09	.21	.20
	Husbands					
	All	China	Russia	Turkey	U.K.	U.S.
Block 1 Predictors	β					
Age	-.03	-.07	-.04	-.02	-.03	-.04
Love	-.37***	-.17***	-.24***	-.25***	-.33***	-.29***
No. of Children	-.04**	.04	.02	.07	.06*	.02
Adjusted R^2	.14	.03	.06	.07	.12	.09
F	164.96***	4.29***	7.67***	11.62***	58.07***	13.07***
Block 2 Predictors						
Find Spouse Attractive	.04*	-.15**	-.14**	-.11*	.10*	-.01
Find Other Men/Women Attractive	.20***	.32***	.31***	.24***	.17***	.20***
Self-Perceived Attractiveness	.05**	-.01	.08	.06	.04	.14**
Sexual Fulfillment Within Marriage	-.03	.09	-.16**	-.05	.01	-.15***
Spouse Finds Sexual Fulfillment Outside Marriage	.18***	.09	.20***	.21***	.30***	.37***
Perception of how Attractive Spouse Finds Her/Him	.03	.07	.07	.07	-.09*	.03
R^2 Change	.08	.12	.21	.12	.13	.24
F	53.93***	9.24***	18.54***	10.60***	39.42***	24.61***
Total Adjusted R^2	.22	.13	.25	.17	.24	.32

Note. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

DISCUSSION

Frequency of Sexual Fulfillment Outside the Marriage

When the percentage of "not at all" responses was subtracted from 100, 31% of husbands and 21% of wives self-reported extramarital sexual fulfillment with at least some frequency. Variation across cultures was marked, with 12% - 82% of husbands and 8.5% - 72% of wives endorsing these response options. However, endorsement of the highest frequency of this behavior was rare, ranging from less than 1% to 3.7%. This is consistent with spouses' appreciating the risks of infidelity to marital satisfaction and stability.

As predicted, in all five cultures men reported greater extramarital sexual fulfillment than women. The sex difference on this variable is in agreement with men's desire for sexual variety, and these findings are consistent with previous reports on various cultures (Schmitt, 2003; for review, see Symons, 1979). The infidelity sex ratio of the comparable Laumann cohort (1963-1974), 1.58, was very similar to that of our own US sample, 1.56. Two US historical trends do emerge from the Laumann data: wives have gained on husbands in engaging in extramarital sexual fulfillment, and infidelity per year of marriage has risen.

There was substantial cultural variability in frequency of reported infidelity, possibly due to a host of factors including economic state of the country, financial interdependence of the couple, financial independence of the wife, degree of wealth inequality among men, the sex ratio, sex role norms varying from liberal to conservative, and translation differences.

The liberal wording of the question in the Chinese sample has been mentioned as an example of the last factor. This fact, coupled with the practice of spouses sometimes living in separate cities for employment purposes, could at least partially explain why the infidelity rates of the Chinese are higher than those of Turkey, the UK and US. Separation of spouses might be viewed as facilitating short-term mating strategies, i.e., infidelity.

Similarly, the higher rate of infidelity in Russia compared to the other samples may in part be attributed to difficulty encountered by estranged couples in being able to afford divorce and/or in securing separate living quarters. Such people sometimes carry on with a spouse and family while having long-term extramarital affairs.

The wide range in frequency of reported infidelity across these disparate cultures suggests that many factors can affect this behavior, casting doubt on monolithic causal explanations. For example, the relatively high rate of infidelity in Russia may have been due to the economic disruptions following the transition to a market economy. Ramifications of this transition include widespread male unemployment, employees' difficulties in getting paid, housing shortages (mentioned above), prevalence of alcoholism in husbands, and many other factors.

Applying life history theory (Ellis, Figueredo, Brumbach, & Schlomer, 2009), one might suggest that adverse conditions such as these would reduce marital satisfaction (Olderbak & Figueredo, 2010), which in turn is associated with pursuing a fast life history strategy, including infidelity. Alternatively, one might expect that harsh, unpredictable conditions might promote a fast strategy including promiscuity. Either way, wives might seek extramarital partners who might provide better financial support

to current or future children. Husbands might have extramarital partners for reciprocal reasons such as the availability of unmarried women seeking better economic prospects. On the other hand, the adversity of harsh competitive conditions of Russian life, including crowded housing, might incline spouses to intensify their cooperative efforts to care for their children, assuming this enhanced care would pay fitness dividends. Research is needed on many societies, and on a given society over time, to identify the factors associated with sexual infidelity in greater detail.

Predictors of Infidelity

Three consistent cross-cultural predictors of infidelity emerged for men and women: (a) love, (b) finding non-partners attractive, and (c) extramarital sexual fulfillment of the spouse. Men place physical attractiveness at or near the top of the list of characteristics sought in short and long-term mates, while women also value physical attractiveness in a potential mate, but place less of an emphasis on it compared with other criteria (e.g., Buss, 1989; Lippa, 2009). Our results are consistent with other findings that physical attractiveness is more heavily weighted by women when they are seeking short-term as opposed to long-term mates (Buss & Schmitt, 1993; Kenrick, Sadalla, Groth, & Trost, 1990). In a study of Romanians who posted personal advertisements, women who were already in "attached" heterosexual relationships placed more importance on the physical characteristics of potential mates than did single women (Rusu & Maxim, 2009), so these women may have sought an affair with a man with genes superior to the husband's.

We expected that attractive men and women would exhibit more infidelity because of their higher mate value. Previous US research has indicated that this is true of men but not women. However, we found that men's perceiving themselves as attractive was not a consistent predictor of infidelity. Only US men who regarded themselves as attractive reported more infidelity. Previous research has not indicated that attractive women engage in more infidelity; if anything, the reverse may be true. In our research, only attractive Turkish women from self-selected marriages reported more infidelity than less attractive ones.

Whether or not one sought sexual fulfillment outside the marriage seemed mainly to reflect amorousness toward the spouse, attractiveness of potential partners, plus the particular appeal of sexual variety to men. This corroborates the notion that evaluation of the mate continues into marriage, because the relative attractiveness of competing potential partners remains salient to most men and women even if they are not engaged in extramarital sex. Potentially, a marriage is threatened when one or both spouses frequently find members of the opposite sex attractive, regardless of whether this is accompanied by infidelity. Kenrick and Gutierrez (1980) found that men exposed to very attractive women (e.g., centerfolds, television stars) rated the attractiveness of average women lower than men who had not been exposed to the highly attractive females. Husbands who found centerfold models attractive reported less love for their wives (Kenrick, Gutierrez, & Goldberg, 1989). Our own data show an inverse relationship between love for one's spouse and finding others attractive, as well as between love of one's spouse and extramarital sexual fulfillment (Nowak, Weisfeld, Weisfeld, Imamoğlu, & Shen, 2006).

It is interesting to note that spousal infidelity was one of the most consistent predictors of infidelity because this is not based on perception, but on the actual self-reported behavior of the spouse. This result is not likely due to a high prevalence of “swingers” or “open marriages,” as only three percent of the overall sample constituted couples (i.e., both husband and wife) who had extramarital sex with at least some frequency. Moreover, up to half of those who reported frequent extramarital sex had spouses who reported never engaging in the behavior. Precisely why infidelity is or is not reciprocal is unclear. If one’s spouse shows signs of defection from the marriage, the other may respond in kind, in self-interest. Retaliatory infidelity may have occurred in some instances.

The aim of the present study was to single out predictors related to physical attractiveness and sexual satisfaction. Given the direct effect of choice of mating partners on fitness and the consequently strong selection pressure molding mate choice, factors such as sexual attraction and sexual satisfaction might be expected to trump more volatile factors such as ecological conditions. Infidelity and the potential resulting birth of a child carry long-term consequences for fitness and therefore are unlikely to reflect shifting environmental conditions as strongly as the quality of the mate.

Another formidable factor might be infidelity of the spouse, which would pose the threat of desertion and might precipitate undertaking the countermeasure of seeking a new mate. If marriage is essentially a reproductive union, one would expect that sexual and amorous attraction would loom large in guiding marital behavior. The high correlations consistently obtained between sexual and marital satisfaction attest to the joint importance of these affinities

This is not to deny the importance of other individual and societal factors shaping marital conditions, which need to be elucidated by comparative research on many levels. Economic conditions, for example, have been shown to affect infidelity. A wife may seek a more prosperous mate, and a wealthy husband may successfully pursue extramarital affairs, leading in some cases to serial monogamy or informal polygyny.

If generalizations may be made, we may say that strategies for preserving faithfulness between partners would include being faithful oneself, having children together, not acting on (inevitable) feelings of being attracted to others, and performing acts which strengthen mutual feelings of love. These insights are of great significance for those who wish to maintain the advantages of long-term partnerships.

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