Premarital Precursors of Marital Infidelity

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Premarital precursors of infidelity were evaluated in a sample of 72 couples (N = 144) who were taking part in a longitudinal study of marriage. Premarital self-report and observational data were compared for couples who experienced infidelity and those who did not experience infidelity in the first years of marriage. Couples in which the male engaged in marital infidelity were characterized, premaritally, by significantly lower male sexual satisfaction, lower male positive communication, and higher female invalidation, whereas couples in which the female went on to engage in infidelity were characterized, premaritally, by significantly lower levels of female positive communication, higher levels of male and female negative communication, and higher levels of male and female invalidation. Implications of the findings for future research on the prediction and prevention of infidelity are discussed.

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In the United States, the vast majority of marrying individuals expect to be monogamous (Wiederman & Allgeier, 1996) and disapproval rates of extramarital sex are high (Johnson et al., 2002), yet up to 34% of men and 19% of women in older cohorts report engaging in extramarital sex at some point in their lives (Wiederman, 1997). When infidelity occurs, it is typically viewed as a marital betrayal and is in fact one of the most commonly cited reasons for marital dissolution (Amato & Previti,

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2003). A number of theoretical models have been applied to infidelity, with varying emphases on the individual engaging in the behavior, the marital context, or social and cultural norms. For example, attachment theory focuses on intrapersonal factors (Allen & Baucom, 2004; Bogaert & Sadava, 2002), social constructionist theory focuses on cultural socialization (Penn, Hernandez, & Bermudez, 1997), and investment models focus on primary relationship issues such as satisfaction, investment, and commitment (Drigotas, Safstrom, & Gentilia, 1999). The most parsimonious model incorporating these theories may be a diathesis-stress model, in which intrapersonal (diathesis) and contextual (stress) factors operate together to increase likelihood of engaging in infidelity.

In cross-sectional research, studies have found links between a history of infidelity and intrapersonal (diathesis) characteristics such as age, religiosity, attitudes toward infidelity, personality, and mental health. Some of these variables may have direct effects on extramarital sexual behavior, whereas other variables may have either indirect effects or represent the effects of a third variable. One of the primary aspects of context (or stress) that has been studied is the marriage itself, and several studies have found that lower marital quality is related to increased incidence of infidelity (see Allen et al., 2005, and Blow & Hartnett, 2005, for reviews).

In cross-sectional research in infidelity, links are typically made between current levels of intrapersonal and marital characteristics and past history of infidelity. In terms of isolating predictors of infidelity, this design is not a concern for static variables such as age at marriage, premarital cohabitation, or race, but it is a problem for variables such as religiosity, mental health, and relationship functioning, all of which may be affected by the experience of engaging in infidelity. That is, certain variables may change as a result of engaging in infidelity, and thus we cannot assume that these are true precursors of infidelity. Clearly, disrupted relationship functioning is often a consequence of infidelity. Also, an individual who has engaged in infidelity may feel more alienated from his or her religion or may have increased mental health problems (e.g., depression or anxiety) as a result of remorse or negative consequences of engaging in infidelity.

Longitudinal data are needed to test what variables precede infidelity, yet such data are rare. The only such data of which we are aware are from the Panel Study of Marital Instability over the Life Course (see Amato & Rogers, 1997; Edwards & Booth, 1994; Previti & Amato, 2004). These data showed that doubts about the marital relationship preceded infidelity; infidelity then predicted deterioration in marital quality (Previti & Amato, 2004).

The current study presents data from a study that started before marriage and followed couples over time. We examined differences in premarital self-report and observational variables for individuals who did or did not report engaging in infidelity at later time points. Based on the diathesis-stress model, we included both intrapersonal (diathesis) and relationship (stress) variables in our model. We focused on premarital variables that have established links with infidelity yet are dynamic and could change in response to infidelity. For intrapersonal variables, we evaluated religiosity and mental health. Higher religiosity can inhibit infidelity due to mechanisms such as less permissive attitudes (Dollahite & Lambert, 2007), whereas mental health problems could leave individuals more vulnerable to infidelity (e.g., infidelity could be part of an effort to combat depression by boosting one's self-esteem). For relationship variables, we focused on general relationship adjustment, sexual satisfaction, and observed communication patterns between partners. Observed communication has been

found to be a powerful predictor of later marital problems (Clements, Stanley, & Markman, 2004; Gottman & Levenson, 2000; Markman & Hahlweg, 1993). Self-reported marital conflict and dissatisfaction are more often found in individuals who have a history of infidelity relative to those who do not (Atkins, Baucom, & Jacobson, 2001; Edwards & Booth, 1994); moreover, individuals who have engaged in infidelity often cite marital problems as a reason for the infidelity (Spanier & Margolis, 1983). Marital problems can erode commitment, which can lead to increased receptivity to and monitoring of alternatives (Stanley & Markman, 1992). Further, marital problems are a relatively accepted social script for justifying infidelity (Atwood & Seifer, 1997).

We included premarital data from both partners in our analyses. That is, we examined both actor effects (an individual's premarital variables predicting his or her own later infidelity) and partner effects (predicting infidelity from the partner's premarital variables). Based on (actor) correlates of a history of infidelity identified in previous literature (Allen et al., 2005), we predicted that individuals who engaged in infidelity would manifest greater premarital personal diathesis in terms of more mental health problems and lower religiosity, as well as greater relationship stress including lower relationship adjustment, lower sexual satisfaction, and higher negative communication patterns than individuals who did not engage in infidelity.

Very little research has directly assessed the primary partner of the individual engaging in infidelity (with the exception of studies that examine the impact of betrayal). Partner effects could operate by mate selection processes or by contributions to the marital context (Allen et al., 2005). For example, a person with higher religiosity may select a mate with higher religiosity (Hill, Rubin, & Peplau, 1976), and higher actor religiosity has been documented as a correlate of history of fidelity (Atkins et al., 2001). Moreover, although no one causes their partner to be unfaithful, each spouse contributes to the relationship context in which an individual decides to engage in infidelity. Declines in marital quality over time are associated with increased rates of infidelity (Edwards & Booth, 1994; Previti & Amato, 2004), and each partner contributes to marital quality. For example, the mental health of each partner influences marital adjustment (Whisman, Uebelacker, & Weinstock, 2004), possibly mediated by less positive communication (e.g., Davila, Bradbury, Cohan, & Tochluk, 1997). By including the observed communication of the partner, we were able to analyze a component of stress that a partner might add to the marital context, and the effects of this stress on the likelihood of the spouse engaging in infidelity. Thus, we predicted that partners who, before marriage, had poorer mental health, lower religiosity, lower relationship adjustment, and worse communication behaviors would be more likely to experience partner infidelity.

We chose to predict men's and women's infidelity separately, rather than predicting which couples were affected by infidelity, as vulnerabilities and motivations for infidelity may differ for men and women. Religiosity's relationship with infidelity appears similar for men and women; however, some research indicates that mental health variables may be more related to men's infidelity than women's infidelity (Greeley, 1994). In terms of relationship context, some literature suggests that women's infidelity is typically tied more closely to relationship dissatisfaction whereas men's infidelity is tied more closely to sexual dissatisfactions (Allen & Rhoades, 2008; Atkins, Yi, Baucom, & Christensen, 2005; Glass & Wright, 1992).

Although the current study is limited by its reliance on a small convenience sample, it is one of the few longitudinal studies evaluating infidelity. It is the only one of which

we are aware that examines premarital variables, includes data from both members of the couple, and utilizes both self-report and observational data.[1]

METHOD

Participants

Seventy-two heterosexual premarital couples were included in the current paper. At baseline (premarriage), women averaged 23.94 years of age ($SD = 3.89$) and 15.14 years of education ($SD = 1.90$). Men averaged 25.09 years of age ($SD = 4.33$) and 15.29 years of education ($SD = 1.75$). Almost all participants were White, Non-Hispanic. There was one Hispanic man, four Hispanic women, and one African American woman.

Procedure

The methods of the larger study are detailed in Markman, Floyd, Stanley, and Storaasli (1988) and Markman, Renick, Floyd, Stanley, and Clements (1993). In brief, 160 couples planning to marry were recruited from a large metropolitan area in the Western United States to participate in a longitudinal intervention study. Couples entered the study in staggered groups spanning the years 1980–1982. Couples were given baseline (premarriage) assessments, and then assessed at approximately yearly intervals for 8 years. Participants who divorced were no longer followed over time. Any participant who divorced was assessed regarding factors contributing to the divorce.

For the current study, we excluded all couples who did not go on to marry ($n = 38$), couples in which a spouse died within our follow-up period ($n = 2$), and couples in which either partner reported infidelity at baseline ($n = 13$). The remaining couples were then placed in one of three preliminary groups based on follow-up data: couples with male infidelity, couples with female infidelity, or a group of couples with no reported infidelity. Specifically, we evaluated (a) responses to a single self-report item given at each assessment regarding infidelity and (b) reports of whether infidelity was a factor in divorce. A person was coded as having engaged in infidelity if he or she self-reported infidelity at any follow-up or if his or her infidelity was reported as a factor in divorce.[2] One couple provided ambiguous information in their divorce assessment,

[1] Our assessment of infidelity also has interpretive benefits relative to that used in other longitudinal research on infidelity. The Panel Study of Marital Instability over the Life Course used telephone interviewers to ask ''Have you had a problem in your marriage because one of you has had a sexual relationship with someone else?'' This question raises some interpretive issues (e.g., it is unclear who engaged in the problematic sexual relationship or if there was infidelity that was not reported because the respondent did not believe it caused a problem). Our self-report question on infidelity (i.e., ''I have never been sexually unfaithful to my partner'') is less than ideal but mitigates some of these issues.

[2] There were four couples in which both the male and the female reported engaging in infidelity. Because there were only four of these couples, statistical power was too limited to form a fourth group of couples in which both partners engaged in infidelity. In one of these couples, the male engaged in infidelity before the female, and we coded this couple as the male engaging in infidelity. In two of these couples, the female engaged in infidelity first, and we coded these couples as the female engaging in infidelity. In one couple, the partners first reported infidelity at the same time point, and they were excluded from all groups (as prediction of individual infidelity would be less interpretable for this couple). The fact that only four couples had mutual infidelity suggests that, unlike most couple variables, male and female infidelity is largely independent ($\chi^2 = ns$). However, some couples might have gone on to engage in mutual infidelity beyond what follow-up data we have for them.

and was excluded. We also excluded two individuals who endorsed the infidelity item once but not on later follow-ups and had little converging data on items reflecting temptation or interest in an affair (see the Results section for more details). For our couples who reported infidelity, the first report of infidelity ranged from follow-up one to follow-up eight.

Couples were coded as not reporting infidelity if neither partner reported infidelity at any assessment (including the divorce assessment, if they divorced), and if neither partner was ever ''accused'' of infidelity by their partner at any assessment (based on the true/false item ''My partner has never been sexually unfaithful'' asked at each assessment). Eight couples were dropped due to one partner being ''accused'' of infidelity (i.e., these were couples in which a partner accused their spouse without the accused party reporting infidelity; we did not include them in any group). As usual in a longitudinal study, a number of couples dropped out at varying time points, leaving infidelity status over time uncertain for some couples. Rather than assume a couple had not experienced infidelity if we only had a couple of years of data for them, we only coded couples as not reporting infidelity when they (a) divorced, denied infidelity at all available assessments, and did not cite infidelity as a factor in divorce, or (b) did not divorce, provided data to at least follow-up five (approximately 5 years postbaseline), and denied infidelity at all available assessments. Follow-up five was a minimum: if we had later data (up to follow-up eight for some couples) to determine infidelity status we used it. Twenty-three couples were excluded from the group coded as not reporting infidelity due to lack of adequate follow-up data.[3]

As a result, 88 couples were eliminated from analyses. The remaining 72 couples consisted of 11 couples in which the female engaged in infidelity during follow-up, 13 couples in which the male engaged in infidelity during follow-up, and 48 couples in which neither partner reported infidelity within at least the first 5 years of our follow-up (or at time of divorce, if divorced). This suggests a relatively high infidelity rate of 33%, but our process of eliminating couples from various groups could have affected this rate.

This study was originally designed as a divorce prevention study. Within these 72 couples, 45 couples were clearly identified as intervention versus control (some couples declined or did not complete the intervention). In these 45 couples, 64% of couples who did not get the intervention eventually experienced infidelity as compared with 36% of couples who participated in the intervention, but the chi-square analysis was not significant ($p = .44$). Owing to the lack of significance, we did not separate intervention and nonintervention couples for analyses.

Missing Data

Some couples were missing data on one or more variables at the baseline assessment. In order to increase power for our analyses, we substituted participants' own follow-up one scores for the missing value (as long as follow-up one occurred before infidelity was reported). In longitudinal research, using participants' own scores from a proximal time point is a more accurate method of imputing missing data relative to statistical imputation (Engels & Diehr, 2003). However, if we did not have appropriate

[3] We compared those couples who lacked adequate follow-up data to those included as couples without reported infidelity in the study on several baseline measures, including relationship adjustment, observed communication, and demographics (age, income, and education). *T* tests did not reveal any significant differences between the two groups.

follow-up one data, we substituted the group mean from baseline data. For none of the variables did imputation change the direction and general magnitude of differences between groups. Analyses conducted with and without imputations demonstrated similar patterns of differences between groups, albeit with greater power when imputations were included.

Measures

Infidelity

The true/false item ''I have never been sexually unfaithful to my partner'' from the sensual/sexual satisfaction subscale of the Marital Satisfaction Inventory (MSI; Snyder, 1979) assessed at baseline and each follow-up was used as the primary indicator of infidelity (used to identify 23 out of the 24 infidelity couples). Also, if a couple divorced, at least one spouse was given a form which included an open ended question about factors contributing to the divorce. Reports of infidelity (or lack thereof) as a factor in divorce were used as appropriate.

Temptation

In each follow-up assessment, we included at least one item assessing temptation or interest in an affair (e.g., alternative monitoring; Cook & Emerson, 1978; Stanley & Markman, 1992). The sensual/sexual satisfaction subscale of the MSI (Snyder, 1979) contains two such true/false items: ''I have never seriously considered having an affair'' and ''I often wonder what it would be like to have intercourse with someone other than my partner.'' In addition, the Commitment Inventory (CI; Stanley & Markman, 1992) contains items on the alternative monitoring subscale such as ''I am not seriously attracted to people of the opposite sex other than my partner'' and ''Though I would not want to end the relationship with my partner, I would like to have a romantic/sexual relationship with someone other than my partner.'' These items were answered on a 7-point Likert scale from strongly disagree to strongly agree; all items were coded or reverse scored so that they reflected higher interest in extramarital involvements.

Religiosity

At baseline (premarriage), individuals were asked to rate how religious they were from a scale of 1 (*not at all religious*) to 5 (*very religious*).

Mental Health

At baseline (premarriage), individuals completed the SCL-90 (Derogatis, 1983). The possible range of scores was 0 (*fewer mental health problems*) to 360 (*more mental health problems*).

Relationship Adjustment

At baseline (premarriage), individuals completed the Locke–Wallace Marital Adjustment Test (MAT; Locke & Wallace, 1959) with wording altered as necessary to be appropriate to premarital couples. Higher scores indicate higher relationship adjustment. The possible range on this test is 2–158.

Sexual Satisfaction

At baseline (premarriage), individuals completed the sensual/sexual satisfaction subscale of the MSI (Snyder, 1979). Higher scores indicate higher sexual satisfaction,

with a possible range of 0–29. All individuals answered the infidelity item false at our initial assessment so that variable scores between groups at baseline are not attributable to differences on this item.

Observed Communication

At baseline (premarriage), couples were videotaped discussing what they identified as two top problem areas for them (e.g., money, children). Partners' behavior in the 10–15 minute problem solving task was observationally coded using two systems: the Couples Interaction Scoring System (CISS; Notarius & Markman, 1981) and the Interaction Dimensions Coding System (IDCS; Julien, Markman, & Lindahl, 1989; Kline et al., 2004).

The IDCS is a global coding system. Intercoder reliability for the larger study from which the present study's data were drawn is high, with intraclass correlations ranging from .66 to .95, with a median correlation of .87 (Kline et al., 2004). For the present study, we used the positive communication subscale, which averaged the positive affect, problem solving skills, support/validation, and communication skills dimensions (α for females' subscale scores was .89, for males' scores it was .90), and the negative communication subscale, which averaged the negative affect, denial, dominance, withdrawal, conflict, and negative escalation dimensions (α for both males' and females' subscale scores was .86). Scores on both the positive and negative communication subscales can range from 1 (*low observed levels of the construct*) to 9 (*high observed levels of the construct*).

The CISS is a microanalytic coding system. Scores represent the percentage of the interaction where the target behavior was observed. Clements et al. (2004) report satisfactory levels of interrater reliability for the larger sample (Cohen's κs averaging .91 for verbal codes and .72 for nonverbal affect codes). Based on Clements et al. (2004), we utilized two summary measures: emotional invalidation, which includes insults, negative comments, sarcasm, and ''mind-reading'' with negative affect, and emotional validation, which includes agreement with the partner (e.g., ''Yeah, you're right'') with positive affect, summarizing what the partner has said with positive affect, and attributing positive motives to the partner (see also Notarius & Johnson, 1982). By contextualizing specific verbal codes with positive or negative affect, the coding system reduces the likelihood that positive behaviors (e.g., agreement) are actually performed in a negative manner. For example, sarcastic or dismissing comments would not be coded as positive behaviors.

The four coding categories used (positive communication, negative communication, emotional invalidation, and emotional validation) represent complementary but nonredundant information. In the current sample, the four different observational codes for men correlated with one another at absolute values from .02 to .50 (average of .20); for women, correlations ranged from .12 to .41 (average of .28).

RESULTS

Before testing the primary hypotheses, we examined the pattern of responses to our infidelity item over time. Because the item was ''I have never been sexually unfaithful to my partner,'' once a person answers ''false'' to this item, they should answer this way on subsequent assessments (as long as they continue to define ''sexually unfaithful'' in the same way over time). Yet, this was not the case for some respondents.

Out of the 26 individuals who reported infidelity at follow-up, we did not have further follow data for 7 individuals. Out of the remaining 19 individuals, 7 individuals endorsed the item on at least one later follow-up. That left 12 individuals who endorsed infidelity once but did not endorse it again. It is important to recognize that participants who have had an affair may have felt less comfortable endorsing the item at different assessment points. Couples came in together to complete measures or, at some time points, had measures mailed to them; each assessment may have had (or been perceived to have) varying levels of privacy between the partners depending on how well they were separated in the laboratory or whether the measures were mailed. Thus, some assessment points may have been perceived to be ''safer'' to report an affair for those respondents where the partner did not know an affair had ever occurred. Each one of the 12 individuals who reported this once but not at later follow-ups was, by definition, in an ongoing relationship with their spouse (due to the fact that we had follow-up data on them; individuals were dropped from the study if they divorced). Also, in each of the cases, the partner did not appear to know of the infidelity. Therefore, these participants were in a high-risk context for reporting a past affair: an ongoing marriage in which the partner was unaware of the affair.

It seemed likely that those who reported infidelity at one point but not later points would report other evidence of being interested in alternate partners. We evaluated temptation items, as they should converge with infidelity history yet represent a lower perceived risk than reporting outright infidelity. The temptation items from the CI and MSI across all available follow-ups (including before the report of infidelity) were evaluated for these 12 individuals. Each one of these individuals endorsed temptation on at least one of these items, with most of the 12 reporting temptation on many of the available items. One woman and one man endorsed only one such temptation item despite ample follow-up data and, as noted in the Method section, we eliminated these individuals from analyses because we had reason to consider their reports of infidelity invalid. Of the remaining 10 individuals reporting infidelity at one time point but not at later time points, the average number of temptation items endorsed per person was 9.60. In comparison, a randomly selected subset of 12 individuals who never reported infidelity with the same gender representation endorsed on average only 1.75 temptation items.

We used ANOVAs to formally compare temptation responses among three groups: (a) persons who reported infidelity at one time point but not on later available follow-ups, (b) persons who reported infidelity at one time point and then dropped out of the study or who reported infidelity at more than one time point, and (c) persons who denied infidelity at all time points. We had two dependent variables: (a) the average on available CI temptation items across all follow-up points, and (b) the proportion of available MSI items answered affirmatively for temptation across all follow-up points. Among men, both the CI and MSI temptation ANOVAs were significant, CI $F(2, 55) = 7.81$, $p = .001$; MSI $F(2, 56) = 6.30$, $p < .01$ with identical findings: both groups of men reporting infidelity at any time point (groups a and b) endorsed significantly more temptation than the men who denied infidelity at all time points (group c), and the two groups of men reporting infidelity at any time point did not differ significantly from one another. Thus, even men who were inconsistent in their reporting of infidelity had relatively high levels of temptation. Unfortunately, we could not conduct similar analyses for women due to small sample sizes (e.g., there were only two women who endorsed the infidelity item once but not on later follow-ups

and had CI temptation data). These findings greatly increased our confidence that the endorsements of infidelity provided were valid, even among those who only reported infidelity at one but not subsequent time points.

Prediction of Later Infidelity

To address our main questions regarding premarital precursors of infidelity, we conducted a series of ANOVAs and planned comparisons. Table 1 presents ANOVAs comparing mean levels of premarital/baseline variables (religiosity, mental health, relationship and sexual satisfaction, and observed communication) for couples in which no infidelity was reported, couples in which the female engaged in infidelity, and couples in which the male reported infidelity (within the follow-up period). When the overall ANOVA was significant or showed a trend, planned comparisons (t tests) were used to examine differences between couples who experienced either male or female infidelity and those who did not experience infidelity in the first few years of marriage. Effect sizes are also presented.

Planned comparisons revealed that relative to couples in which there was no infidelity, couples in which the male eventually engaged in infidelity were characterized by significantly lower premarital male relationship satisfaction, sexual satisfaction, and positive communication. These are actor effects, in that men's relationship appraisals and behaviors predicted later male infidelity. In addition, a partner effect was identified in that couples in which the male later engaged in infidelity were characterized by significantly higher levels of female invalidation (relative to couples who did not report infidelity).

Planned comparisons also showed that, relative to couples in which there was no infidelity, couples in which the female eventually engaged in infidelity were characterized by significantly *higher* female sexual satisfaction, premarriage. Female infidelity was also significantly predicted by lower female positive communication, higher female and male negative communication, and higher female and male invalidation. Thus, for both males and females who eventually engaged in infidelity, actor and partner effects were evident for some communication variables.

For male infidelity, the direction of most effects was consistent with hypotheses, even when significance was not attained. For example, medium (though nonsignificant) effects were found suggesting that couples in which men engaged in infidelity were also characterized, premaritally, by lower male and female religiosity, poorer male mental health, lower female relationship satisfaction, lower female positive communication, and higher levels of male negative communication and invalidation compared with couples who did not experience infidelity.

For female infidelity, the direction of effects on some self-report variables was contrary to hypotheses, although average differences on most were small to negligible. As reported above, females who eventually engaged in infidelity were significantly higher on premarital sexual satisfaction; there was also a medium (nonsignificant) effect in which their husbands were slightly higher on this variable. The direction of means on communication variables was more consistent with hypotheses. In addition to the multiple significant effects already noted, there was an additional medium (nonsignificant) effect in which couples in which females who eventually engaged in infidelity experienced lower levels of male positive communication relative to control couples.

TABLE 1

ANOVAs Examining Premarital Data from Both Partners for Couples With or Without Later Infidelity

Premarital Variable	Couples Without Infidelity	Couples Reporting Female Infidelity	Couples Reporting Male Infidelity	$F(2, 69)$
Male religiosity	3.11 (1.27)	2.73 (1.27/0.30)	2.54 (1.33/0.45)	1.20
Female religiosity	3.18 (1.28)	3.27 (0.65/0.08)	2.62 (0.65/0.51)	1.47
Male mental health	142.62 (27.09)	145.00 (29.07/0.07)	158.94 (52.35/0.50)	1.25
Female mental health	154.96 (34.52)	151.45 (28.32/0.11)	150.69 (34.94/0.13)	0.11
Male relationship satisfaction	126.57_a (12.30)	123.82 (13.23/0.20)	115.77_b (19.46/0.79)	3.08^+
Female relationship satisfaction	126.93 (12.26)	127.00 (14.86/0.01)	118.00 (16.56/0.67)	2.34
Male sexual satisfaction	22.31_a (4.30)	24.18_a (3.22/0.45)	19.08_b (4.77/0.77)	4.65*
Female sexual satisfaction	22.54_a (3.85)	25.36_b (2.46/0.76)	22.71 (4.27/0.05)	2.58^+
Male IDCS positive Communication	5.33_a (1.06)	4.64 (1.22/0.63)	4.40_b (1.25/0.84)	4.40*
Female IDCS positive communication	5.60_a (0.99)	4.89_b (1.04/0.70)	4.98 (1.12/0.62)	3.43*
Male IDCS negative communication	2.99_a (0.74)	3.67_b (1.15/0.86)	3.35 (0.80/0.47)	3.52*
Female IDCS negative communication	2.61_a (0.81)	3.38_b (1.33/0.93)	2.75 (0.44/0.18)	3.65*
Male CISS emotional validation	15.87 (3.99)	15.79 (3.39/0.02)	15.58 (4.17/0.08)	0.03
Female CISS emotional validation	18.57 (4.04)	17.41 (6.06/0.28)	17.50 (2.81/0.26)	0.56
Male CISS emotional invalidation	4.37_a (2.32)	7.42_b (5.70/1.00)	5.87 (2.52/0.49)	4.86*
Female CISS emotional invalidation	4.09_a (2.14)	7.65_b (5.52/1.23)	6.65_b (2.63/0.88)	8.70***

Note.

CISS = couples interaction scoring system; IDCS = interaction dimensions coding system.

Numbers in the columns are group means, with standard deviations/effect size difference from the group with no reported infidelity in parentheses. Effect sizes are Cohen's d calculated and interpreted based on Thalheimer and Cook (2002; small effect $\geq .15$ and $< .40$; medium effect $\geq .40$ and $< .75$; large effect $\geq .75$). Means within each row whose subscripts (''a'' and ''b'') differ are different at $p < .05$ according to planned comparisons (t tests). These comparisons were made only for couples without reported infidelity versus couples reporting male or female infidelity when overall ANOVA showed significance or a trend.

$^+p < .10$. $^*p < .05$ (two-tailed). $^{***}p < .001$ (two-tailed).

Owing to the fact that these are couples, the male and female variables are not independent from one another. To isolate partner effects above and beyond actor effects, we conducted follow-up analyses for the instances where significant partner effects were found (i.e., male and female invalidation and male negative communication). We wished to test whether partner effects would remain significant when

controlling for actor effects. In the original ANOVAs, couples in which the female eventually engaged in infidelity were characterized by significantly higher levels of male negative communication relative to couples without reported infidelity. Female and male negative communication scores were highly correlated ($r = .65$, $p < .001$) and in an ANCOVA controlling for female negative communication, there were no longer any significant group differences for male negative communication, $F(2, 68) = 1.22$, *ns*. That is, male negative communication no longer predicted female infidelity once female negative communication was taken into account; thus, this partner effect was eliminated.

Partner effects were also found for invalidation in that male invalidation predicted female infidelity and female invalidation predicted male infidelity. Male and female invalidation were also highly correlated ($r = .56$, $p < .001$). An ANCOVA demonstrated that significant group differences were no longer found for male invalidation once female invalidation was controlled for, $F(2, 68) = 0.80$, *ns*. Using an ANCOVA controlling for male invalidation, group differences remained for female invalidation, $F(2, 68) = 4.20$, $p < .05$. Post hoc comparisons for this ANCOVA showed that couples in which either the female or the male eventually engaged in infidelity were characterized by significantly higher levels of female invalidation relative to couples without reported infidelity. Thus, the partner effect of male invalidation predicting female infidelity was eliminated once female invalidation was controlled for. In contrast, female invalidation continued to predict male infidelity even when controlling for male invalidation.

DISCUSSION

Although cultures may differ on norms regarding extramarital involvements (Scheinkman, 2005), most couples in the United States express intentions to remain monogamous in marriage. What predicts who will engage in infidelity in the first few years of marriage? We used a diathesis-stress model to understand precursors of marital infidelity in which we considered personal characteristics (e.g., mental health, religiosity) as forms of diathesis and relationship qualities (e.g., communication, adjustment) as indices of stress.

Overall, the strongest and most consistent effects were found on relationship (stress) variables, particularly observed communication. Generally, our findings suggest that couples who go on to experience infidelity show more problematic communication premaritally, such as lower levels of positive interaction and higher levels of negative and invalidating interaction. There were three significant partner effects found in the communication variables. Two of these partner effects disappeared once actor behavior was controlled for, suggesting that in general there is not a unique predictive capacity of partner behavior above and beyond actor behavior. However, female invalidation continued to be a risk factor for later male infidelity even after controlling for male invalidation. Because of the high overlap between partners' communication behaviors, it may be best to conceptualize risk at a couple level for communication behaviors. For example, rather than conclude that men who communicate less positively premaritally are more likely to go on to engage in infidelity, it may be better to focus on the notion that couples who have lower levels of positive communication are more at risk for later infidelity. Similarly, rather than one partner ''driving'' another to be unfaithful, a context of problematic couple communication may leave an individual more receptive to extramarital relationships.

Prior cross-sectional research suggests that general relationship dissatisfaction may be more of a factor in women's infidelity whereas sexual dissatisfaction may be more of a factor in men's infidelity (Allen et al., 2005). In the current study, men who engaged in marital infidelity appeared less relationally and sexually satisfied before marriage, whereas women who eventually engaged in infidelity were not more relationally distressed premaritally and were, contrary to expectation, more sexually satisfied premaritally than women in the no infidelity couples. Because the overall ANOVA testing female sexual satisfaction revealed only a trend and the planned comparison finding was opposite to what was expected, replication is needed. If replicated, it could be that a higher premarital interest in sex for women could be a risk factor for infidelity in some situations if and when the enjoyment of sex in marriage decreases.

Our study also provided initial evidence that there may be diathesis effects for men, in which personal vulnerabilities precede infidelity. Women's own religiosity and mental health had negligible effects, but men's own religiosity and mental health had medium-sized effects predicting their own infidelity. However, we only had sufficient power to detect large effects, and thus these medium effects were not statistically significant. Further, we used a summary measure of mental health; it may be that distinguishing between specific mental health issues (e.g., depression, anxiety) would allow for a better identification of which particular mental health issues do or do not leave one vulnerable to infidelity. Moreover, instead of omnibus measures of mental health, it may be more important to consider relationship-specific intrapsychic issues, such as internalized models of self and other as delineated by adult attachment theory. In cross-sectional research, adult attachment has been shown to relate to both rates of and motivations for infidelity (e.g., Allen & Baucom, 2004); future longitudinal research that includes attachment as a predictor of marital infidelity would provide important information about the diathesis component of infidelity.

Huston and Houts (1998) provide evidence for some of the processes underlying deterioration of marital quality over the early years of marriage, including a ''perpetual problems model'' in which dissatisfactions with the relationship or partner that are evident premaritally continue to operate at later stages of the relationship, and a ''disillusionment model'' in which early shortcomings are overlooked during courtship but negatively impact the early years of marriage. It may be that males who engage in infidelity better exemplify a perpetual problems model, as their relatively lower self-reported satisfaction and poorer observed communication is evident premaritally. In contrast, women who engage in infidelity appear to have premarital relationships marked by poorer communication, but not lower self-report relationship or sexual satisfaction. These women may be experiencing more of a disillusionment process in which these early problems (i.e., poor communication patterns) are overlooked (i.e., not reflected in more self-reported dissatisfaction), but take their toll over time, increasing risk for infidelity.

One of our ultimate goals in this study was to answer the question, ''Can you see it coming?'' That is, even though most couples in the United States expect marital fidelity and disapprove of infidelity (Johnson et al., 2002; Wiederman & Allgeier, 1996), are there warning signs early on that are associated with risk for later infidelity? The answer is yes and no. Statistically, we found many differences, particularly on the observational coding. However, it is important to note that individuals who went on to experience infidelity looked fairly well adjusted before marriage (as typically found

when assessing couples who are planning marriage). On average, they showed more positive than negative communication and had high relationship adjustment scores (in the range considered satisfied). Thus, although there are differences that are detectable statistically, by and large couples who go on to experience infidelity do not appear uniformly distressed and hostile with one another premaritally.

Clinical Implications

These findings will likely be useful to premarital preparation programs (see Markman, 2005). Few premarital training programs include information on infidelity, even though we see that there are risk factors that are present even before marriage. Although our research would benefit from replication, it seems justifiable to tell couples that good communication confers protective benefits against a host of marital problems, including infidelity. Just like the famous 5:1 ratio of positives to negatives associated with greater marital success over time (Gottman, 1994a, 1994b; Notarius & Markman, 1993), our findings suggest that positives need to far outweigh negatives. For example, couples without infidelity evidenced an average of an approximate 4:1 ratio of validating to invalidating behaviors, whereas couples who went on to experience male or female infidelity evidenced a ratio of around 2.4:1. Based on our data and other research, it also seems prudent to give couples the message that, while there are some personal vulnerabilities that may also increase risk for infidelity, infidelity does occur for those who are relatively well adjusted and who hold belief systems incompatible with infidelity. In fact, data presented by Atkins et al. (2001) suggest that individual factors such as religiosity may only be protective in the context of a good marital system. Thus, it is beneficial, and perhaps even protective against infidelity, for all couples to work on maintaining positive and supportive communication with one another.

Limitations and Future Research Directions

It would be helpful to describe to couples the exact developmental mechanisms linking negative communication to later infidelity. We do not have this type of detailed longitudinal data at this point, but previous research and theory provides a strong basis for speculation. We know that negative communication erodes relationship satisfaction over time (Gottman & Levenson, 2000; Markman & Hahlweg, 1993; Notarius & Markman, 1993), and that lower satisfaction is associated with lower levels of commitment to the partner and also a greater likelihood of monitoring alternative partners (Stanley & Markman, 1992; Stanley, Markman, & Whitton, 2002). In contrast, higher commitment is associated with actively devaluing the attractiveness of alternative partners (Johnson & Rusbult, 1989). Our data suggest that problematic communication could be a salient first link in the chain toward infidelity for many couples, but detailed longitudinal data would be needed to truly articulate the pathways.

This study was limited by the small convenience sample, which also had the complicating factor of an intervention without adequate power to model the intervention as a moderating variable. Although we had longitudinal data, the small sample size and incomplete data at follow-up points meant that we were unable to conduct analyses to model developmental progressions over time for couples who did and did not experience infidelity. Thus, we do not know how communication and other individual or relationship factors changed over time for these couples, and how these changes were or were not associated with infidelity. Future research would benefit from close tracking of couples

over time to understand the processes that accompany the transition from fidelity to engaging in an extramarital relationship. The small sample size also precluded direct comparisons of couples who experienced male versus female infidelity. Thus, interpretations of differential effects or processes for men and women should be viewed as preliminary until tested through replication with larger samples.

We found that some individuals reported infidelity at one time point but not later follow-ups. Our general assumption has been that we may have false negatives (not reporting infidelity when infidelity has occurred) due to the risks perceived with reporting, but probably not many false positives (reporting infidelity when infidelity has not occurred). We identified two potential false positives, as two individuals endorsed the infidelity item only once and endorsed only one of many available temptation items. These individuals may have misread the infidelity item and were omitted. Other than these two cases, single reports of infidelity converged well with temptation items. As noted in the Results section, some assessment points may have been perceived as riskier for reporting infidelity. It would be inappropriate to assume that individuals will typically lie on this item when collecting data from couples, as we had several persons reporting the behavior and the item did converge with other data. In general, research suggests that increasing the participant's perceptions of anonymity will increase honesty (Schroder, Carey, & Vanable, 2003). For example, Whisman and Snyder (2007) found about a sixfold increase in women's reports of infidelity when using computer-assisted methods relative to face to face interviews.

Our sample consisted of married couples who were mostly White and fairly well educated. They were presenting for a study on relationships which included a chance for a relationship intervention, and all came from one western city in the United States. Typically in this type of population, infidelity is seen as a violation of the marital contract; the findings and our clinical implications may not generalize to contexts with different social constructions of infidelity (Scheinkman, 2005). Some constructs could operate differently in different communities, ethnic groups, or groups of lower SES. For example, religiosity may be more protective for African Americans and Hispanics relative to Whites (Choi, Catania, & Dolcini, 1994). A larger, more diverse longitudinal sample would allow for analysis of variations in subgroups or pathways of development, such as testing the perpetual problems versus disillusionment models, and a more detailed assessment of nonmonogamy would allow for analysis of different types of extramarital involvement (e.g., extramarital sexual or emotional involvement not considered ''infidelity'' by the respondent).

In sum, the current investigation suggests that we can extend our prevention messages to couples to underscore the fact that couples who go on to experience infidelity exhibit more problematic communication patterns premaritally (Markman, 2005). Although mechanisms are not yet well understood, these problematic patterns of communication can be altered (e.g., Stanley et al., 2005), perhaps resulting in more protection from infidelity for couples who wish to hold on to premarital intentions to ''forsake all others.''

REFERENCES

Allen, E.S., Atkins, D., Baucom, D.H., Snyder, D., Gordon, K.C., & Glass, S.P. (2005). Intrapersonal, interpersonal, and contextual factors in engaging in and responding to extramarital involvement. *Clinical Psychology: Science and Practice*, *12*, 101–130.

Allen, E.S., & Baucom, D.H. (2004). Adult attachment and patterns of extradyadic involvement. *Family Process*, *43*, 467–488.

Allen, E.S., & Rhoades, G.K. (2008). Not all affairs are created equal: Emotional involvement with an extradyadic partner. *Journal of Sex and Marital Therapy*, *43*, 307–317.

Amato, P.R., & Previti, D. (2003). People's reasons for divorcing: Gender, social class, the life course, and adjustment. *Journal of Family Issues*, *24*, 602–626.

Amato, P.R., & Rogers, S.J. (1997). A longitudinal study of marital problems and subsequent divorce. *Journal of Marriage and the Family*, *59*, 612–624.

Atkins, D.C., Baucom, D.H., & Jacobson, N.S. (2001). Understanding infidelity: Correlates in a national random sample. *Journal of Family Psychology*, *15*, 735–749.

Atkins, D.C., Yi, J., Baucom, D.H., & Christensen, A. (2005). Infidelity in couples seeking marital therapy. *Journal of Family Psychology*, *19*, 470–473.

Atwood, J.D., & Seifer, M. (1997). Extramarital affairs and constructed meanings: A social constructionist therapeutic approach. *The American Journal of Family Therapy*, *25*, 55–74.

Blow, A.J., & Hartnett, K. (2005). Infidelity in committed relationships II: A substantive review. *Journal of Marital and Family Therapy*, *31*, 217–233.

Bogaert, A.F., & Sadava, S. (2002). Adult attachment and sexual behavior. *Personal Relationships*, *9*, 191–204.

Choi, K., Catania, J.A., & Dolcini, M.M. (1994). Extramarital sex and HIV risk behavior among US adults: Results from the national AIDS behavioral survey. *American Journal of Public Health*, *84*, 2003–2007.

Clements, M.L., Stanley, S.M., & Markman, H.J. (2004). Before they said ''I Do'': Discriminating among marital outcomes over 13 years based on premarital data. *Journal of Marriage and the Family*, *66*, 613–626.

Cook, K.S., & Emerson, R.M. (1978). Power, equity and commitment in exchange networks. *American Sociological Review*, *43*, 721–739.

Davila, J., Bradbury, T.N., Cohan, C.L., & Tochluk, S. (1997). Marital functioning and depressive symptoms: Evidence for a stress generation model. *Journal of Personality and Social Psychology*, *73*, 849–861.

Derogatis, L.R. (1983). *SCL-90-R administration, scoring, and procedures manual*. Towson, MD: Clinical Psychometric Research.

Dollahite, D.C., & Lambert, N.M. (2007). Forsaking all others: How religious involvement promotes marital fidelity in Christian, Jewish, and Muslim couples. *Review of Religious Research*, *48*, 290–307.

Drigotas, S.M., Safstrom, C.A., & Gentilia, T. (1999). An investment model prediction of dating infidelity. *Journal of Personality and Social Psychology*, *77*, 509–524.

Edwards, J.N., & Booth, A. (1994). Sexuality, marriage, and well-being: The middle years. In A.S. Rossi (Ed.), *Sexuality across the life course* (pp. 233–259). Chicago: University of Chicago Press.

Engels, J.M., & Diehr, P. (2003). Imputation of missing longitudinal data: A comparison of methods. *Journal of Clinical Epidemiology*, *56*, 968–976.

Glass, S.P., & Wright, T.L. (1992). Justifications for extramarital relationships: The association between attitudes, behaviors, and gender. *The Journal of Sex Research*, *29*, 361–387.

Gottman, J. (1994a). *Why marriages succeed or fail*. New York: Simon & Schuster.

Gottman, J. (1994b). *What predicts divorce? The relationship between marital process and marital outcomes*. New Jersey: Lawrence Erlbaum.

Gottman, J.M., & Levenson, R.W. (2000). The timing of divorce: Predicting when a couple will divorce over a 14-year period. *Journal of Marriage and the Family*, *62*, 737–745.

Greeley, A. (1994). Marital infidelity. *Society*, *31*, 9–13.

Hill, C.T., Rubin, Z., & Peplau, L.A. (1976). Breakups before marriage: The end of 103 affairs. *Journal of Social Issues*, *32*, 147–168.

Huston, T.L., & Houts, R.M. (1998). The psychological infrastructure of courtship and marriage: The role of personality and compatibility in romantic relationships. In T.N. Bradbury (Ed.), *The developmental course of marital dysfunction* (pp. 114–151). New York: Cambridge University Press.

Johnson, C.A., Stanley, S.M., Glenn, N.D., Amato, P.A., Nock, S.L., & Markman, H.J. et al. (2002). *Marriage in Oklahoma: 2001 baseline statewide survey on marriage and divorce (S02096 OKDHS)*. Oklahoma City, OK: Oklahoma Department of Human Services.

Johnson, D.J., & Rusbult, C.E. (1989). Resisting temptation: Devaluation of alternative partners as a means of maintaining commitment in close relationships. *Journal of Personality and Social Psychology*, *57*, 967–980.

Julien, D., Markman, H.J., & Lindahl, K.M. (1989). A comparison of global and microanalytic coding systems: Implications for future trends in studying interactions. *Behavioral Assessment*, *11*, 81–100.

Kline, G.H., Julien, D., Baucom, B., Hartman, S., Gilbert, K., & Gonzalez, T. et al. (2004). The interactional dimensions coding system: A global system for couple interactions. In D.H. Baucom & P.K. Kerig (Eds.), *Couple observational coding systems* (pp. 113–126). Mahwah, NJ: Lawrence Erlbaum.

Locke, H., & Wallace, K. (1959). Short marital adjustment and prediction tests: Their reliability and validity. *Marriage and Family Living*, *2*, 251–255.

Markman, H.J. (2005). The prevention of extramarital involvement: Steps toward ''affair proofing'' marriage. *Clinical Psychology: Science and Practice*, *12*, 134–138.

Markman, H.J., Floyd, F.J., Stanley, S.M., & Storaasli, R.D. (1988). Prevention of marital distress: A longitudinal investigation. *Journal of Consulting and Clinical Psychology*, *56*, 210–217.

Markman, H.J., & Hahlweg, K. (1993). The prediction and prevention of marital distress: An international perspective. *Clinical Psychology Review*, *13*, 29–43.

Markman, H.J., Renick, M.J., Floyd, F.J., Stanley, S.M., & Clements, M. (1993). Preventing marital distress through communication and conflict management training: A 4- and 5-year follow-up. *Journal of Consulting and Clinical Psychology*, *61*, 70–77.

Notarius, C.I., & Johnson, J.S. (1982). Emotional expression in husbands and wives. *Journal of Marriage and the Family*, *44*, 483–489.

Notarius, C.I., & Markman, H.J. (1981). The couples interaction scoring system. In E.E. Filsinger & R.A. Lewis (Eds.), *Assessing marriage. New behavioral approaches* (pp. 112–127). Beverly Hills, CA: Sage.

Notarius, C.I., & Markman, H.J. (1993). *We can work it out: Making sense of marital conflict*. New York: Putnam.

Penn, C.D., Hernandez, S.L., & Bermudez, J.M. (1997). Using a cross-cultural perspective to understand infidelity in couples therapy. *The American Journal of Family Therapy*, *25*, 169–185.

Previti, D., & Amato, P.R. (2004). Is infidelity a cause or a consequence of poor marital quality? *Journal of Social and Personal Relationships*, *21*, 217–230.

Scheinkman, M. (2005). Beyond the trauma of betrayal: Reconsidering affairs in couples therapy. *Family Process*, *44*, 227–244.

Schroder, K.E.E., Carey, M.P., & Vanable, P.A. (2003). Methodological challenges in research on sexual risk behavior: II. Accuracy of self-reports. *Annals of Behavioral Medicine*, *26*, 104–123.

Snyder, D.K. (1979). Multidimensional assessment of marital satisfaction. *Journal of Marriage and the Family*, *41*, 813–823.

Spanier, G.B., & Margolis, R.L. (1983). Marital separation and extramarital sexual behavior. *The Journal of Sex Research*, *19*, 23–48.

Stanley, S.M., Allen, E.S., Markman, H.J., Saiz, C.C., Bloomstrom, G., & Thomas, R., et al. (2005). Dissemination and evaluation of marriage education in the Army. *Family Process*, *44*, 187–201.

Stanley, S.M., & Markman, H.J. (1992). Assessing commitment in personal relationships. *Journal of Marriage and the Family*, *54*, 595–608.

Stanley, S.M., Markman, H.J., & Whitton, S. (2002). Communication, conflict, and commitment: Insights on the foundations of relationship success from a national survey. *Family Process*, *41*, 659–675.

Thalheimer, W., & Cook, S. (2002). *How to calculate effect sizes from published research articles: A simplified methodology*. Retrieved April 13, 2006, from http://work-learning.com/effect_sizes.htm

Whisman, M.A., & Snyder, D.K. (2007). Sexual infidelity in a national sample of American women: Differences in prevalence and correlates as a function of method of assessment. *Journal of Family Psychology*, *12*, 147–154.

Whisman, M.A., Uebelacker, L.A., & Weinstock, L.M. (2004). Psychopathology and marital satisfaction: The importance of evaluating both partners. *Journal of Consulting and Clinical Psychology*, *72*, 830–838.

Wiederman, M.W. (1997). Extramarital sex: Prevalence and correlates in a national survey. *The Journal of Sex Research*, *34*, 167–174.

Wiederman, M.W., & Allgeier, E.R. (1996). Expectations and attributions regarding extramarital sex among young married individuals. *Journal of Psychology and Human Sexuality*, *8*, 21–35.