Infidelity and marital therapy: Initial findings from a randomized clinical trial

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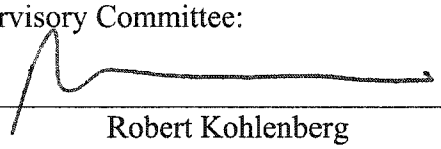

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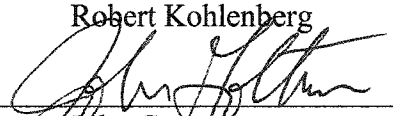

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Abstract

Infidelity and marital therapy: Initial findings from a randomized clinical trial

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Infidelity is not uncommon in American marriages, yet there is still precious little known about this relationship phenomenon. What is known is that infidelity may be one of the most stressful problems with which couples have to cope and one of the most difficult issues for couple therapists to treat. Two separate analyses addressed basic yet crucial questions regarding infidelity and its role in couple therapy using a sample of couples (N = 134) from a randomized clinical trial of marital therapy. The first analysis examined the qualities of individuals and couples that may differentiate infidelity couples from non-infidelity couples. Findings indicated that individuals who participated in affairs showed greater marital instability, dishonesty, arguments about trust, narcissism, and less time spent with their spouse. Gender also proved to be a significant moderator of several effects. Men who had participated in affairs showed increased substance use, were older, and were more sexually dissatisfied in their marriages when compared to women who had engaged in infidelity. The second analysis explored the relationship between infidelity and couple therapy. Results showed that infidelity couples began treatment more distressed than distressed, non-infidelity couples; however, there is evidence that couples in which there has been an affair improved at a greater rate than non-infidelity couples. A case-control analysis in which infidelity couples were matched to one or more distressed couples based on pre-treatment marital distress and sexual dissatisfaction also revealed some evidence that infidelity couples improved at a greater rate than the controls. The implications of the findings and directions for future research are discussed.

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Acknowledgements

I most likely never would have been interested in infidelity if it were not for my late mentor, Neil Jacobson. Upon coming to graduate school, he invited me to take a look with him at the research literature on infidelity and so began our all too brief collaboration. This dissertation is a tribute to Neil's interest in infidelity and the energy that he brought to all his research.

Since Neil's death I have been deftly guided by three gifted mentors, Don Baucom, Andy Christensen, and Bob Kohlenberg. Without their inspiration, knowledge, collective wisdom, and support, I would not have been able to finish this dissertation, much less graduate school. As always, Sona Dimidjian provided a careful reading and made insightful comments that greatly improved the manuscript.

Dedication

To my father, for always supporting my interest in psychology and research even if not always understanding it; and to my wife, Tamara, for things said, for things unsaid, and for always being there.

Introduction

Betrayal. Few experiences are as harsh and painful as being betrayed by a close friend or intimate partner. Dante, in his *Inferno*, saved the innermost circle of hell for the traitors—those who not only turned away from their allegiances but broke the very foundations of their relationships. For many couples, the discovery of a partner's infidelity[1] can be such an experience of betrayal. In fact, with the exception of domestic abuse, finding that a spouse has gone outside the marriage and secretly conducted an intimate relationship with another, may be the most devastating discovery a spouse can make. Infidelity shatters one of the most fundamental assumptions of a relationship: its exclusivity. Upon discovering a partner's unfaithfulness, the non-involved spouse often feels intense rage and anger, but also disbelief—a sense of not knowing the other person.

This dissertation explores whether infidelity is a relationship phenomenon that is different from other problems that couples may bring into therapy. In particular, there are two primary questions that this research addresses. First, are there salient qualities of the individuals or couple in which there has been an affair that distinguish them from other couples in therapy? Second, are infidelity couples more distressed and less likely to benefit from marital therapy, or do they begin and improve in therapy much in the same fashion as other distressed couples?

Before turning to the present study and analyses of these questions, the relevant research literature will be reviewed. First, some of the research literature on infidelity will be surveyed, highlighting both the prevalence of infidelity and some of the psychological correlates of the phenomenon. Next, the research literature on couple therapy in general will be surveyed. To evaluate the potential impact of infidelity on the process and outcome of couple therapy, it is important to understand the overall efficacy of couple therapy. A review of the research on the existing couple therapies—and how

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[1] Many different terms have been used in the research literature to refer to infidelity. For consistency, infidelity and affair are used to refer to a sexual and/or emotional relationship with someone other than one's spouse.

successful they are—provides a baseline against which we can explore the impact of infidelity. Lastly, we will examine the specific literature on the effectiveness of couple therapy for the treatment of infidelity.

Prevalence and Correlates of Infidelity

Infidelity is an interesting subject. But, the very quality that makes it so interesting, its secretive and covert nature, also makes it difficult to study. Alfred Kinsey, in his landmark books on male and female sexuality, was the first person to examine infidelity empirically. He found in his sample that almost 50% of men and 25% of women reported having had at least one affair (Kim, 1969). Following his work and throughout the 1960s and 1970s, there were a number of surveys that estimated the prevalence of infidelity in the American public. However, virtually all of these studies were significantly flawed; many of these studies were reader polls in publications such as *Psychology Today* (Athanasiou, Shaver, & Tavris, 1970), *Redbook* (Tavris & Sadd, 1977), *Cosmopolitan* (Wolfe, 1981), and *Playboy* (Hunt, 1974). Thompson, in his 1983 review of the infidelity literature, reported estimates of the prevalence of infidelity ranging from 10% to 69% based on these surveys. This incredible lack of consistency is not surprising as these magazine surveys were biased by sampling problems such as the limited circulation of the publication and self-selection issues reflected in which readers chose to respond to the survey. As a result, the first reliable estimates of the prevalence of infidelity did not come until the 1990s, when several nationally representative surveys included questions regarding sexual exclusivity in marriage (Choi, Catania, & Dolcini, 1994; Greeley, 1994; Laumann, Gagnon, Michael, & Michaels, 1994; Wiederman, 1997).

The more recent and representative studies have found lower rates of infidelity, indicating that approximately 20% to 25% of Americans report at least one extramarital sexual encounter during their life (Greeley, 1994; Laumann et al., 1994). It should be noted that these statistics refer to the behavior of one partner in the marriage. There are not reliable estimates of how many *marriages* have experienced infidelity from one or both partners. Based on whether one partner's infidelity is independent of the other partner's affair, the rates for marriages could be between 20% and 50%. In addition,

some authors have questioned the accuracy of the national survey data due to the particular items used to assess infidelity and suggested that these estimates should be considered a lower bound of the true estimate (Spring, 1997). For instance, the typical question used in these surveys is: "Have you ever had sex with someone other than your spouse while you were married?" It is not clear how survey participants have interpreted "had sex" and whether this would be limited to sexual intercourse or include a wider variety of sexual behavior. Some research has shown that the incidence of infidelity depends on the definition (Glass & Wright, 1992). Also, there is a question as to how comfortable a participant would feel revealing instances of infidelity to a stranger in a face-to-face interview. Thus, there are some sound reasons for thinking that these figures under-represent the true prevalence of infidelity.

In addition to providing the best estimates to date of the prevalence of infidelity, the national surveys have also provided an opportunity to explore the association between infidelity and certain demographic characteristics. Using nationally representative survey data, several recent studies have shown that there are demographic variables that are reliably associated with infidelity (Atkins, Baucom, & Jacobson, 2001; Træen & Stigum, 1998; Treas & Giesen, 2000). The most reliable finding from this research indicates that more men than women have participated in infidelity. However, this relationship is strongly dependent on the age of the participant. In older cohorts, there is a greater difference between men and women in their reported infidelity, but in cohorts younger than age 40, there is no difference between the sexes in their reported infidelity. A second common finding from the national survey research is that relationship dissatisfaction is related to higher rates of infidelity (however, see Blumstein & Schwartz (1983) for a study that failed to find an association between relationship satisfaction and infidelity). Other variables have demonstrated equivocal support. For instance, some studies have found evidence that greater education and less religiosity is associated with greater likelihood of infidelity, but these are less consistent findings.

Another variable that several studies have attempted to measure is opportunity for infidelity. Unfortunately, the construct of opportunity has been operationalized in

various ways making it difficult to compare findings across studies and draw conclusions about the association of opportunity and infidelity. For instance, Atkins et al. (2001) used income and a variable assessing the work status of both partners to represent opportunity; Træen and Stigum (1998) measured opportunity through the number of days traveling in a year; and Treas and Giesen (2000) used number of previous sexual partners, amount of interaction with other people at job, size of the city where participant lives, religious attendance, and a measure of how much the participant enjoys their partner's family and friends. As we have noted elsewhere (Atkins, Dimidjian, & Jacobson, 2001), infidelity researchers need to clarify what is meant by opportunity for infidelity.

Whereas the strengths of the national surveys include their sample size and generalizability, these studies are necessary but unfortunately limited in the range and depth of variables that they can explore. For example, it is not feasible in large surveys to include detailed measures of relationship satisfaction or personality. In contrast, laboratory-based research has explored more complex, psychological variables that may relate to infidelity. However, such laboratory-based research is not without its tradeoffs. Most of this research has failed to use participants who engaged in infidelity. Instead, such studies rely on analogue designs using college students, or in some instances, married couples. Furthermore, studies that have used mixed samples, in which some participants have engaged in infidelity and others have not, have found significant differences between these two groups of participants (Buunk & Bakker, 1995; Glass & Wright, 1992; Harris, 2002; Roscoe, Cavanaugh, & Kennedy, 1988). Thus, it is unclear to what extent the findings from analogue studies would generalize to cases of actual infidelity.

In one laboratory-based study, Buss and Schakelford (1997) explored individual and couple variables that might be related to an individual's self-estimated likelihood of future infidelity. Married couples rated their own and their spouse's likelihood to engage in six different "infidelity" behaviors: flirting, passionate kissing, a romantic date, a one-night stand, a brief affair, and a serious affair. They also completed a variety of

personality measures and questionnaires regarding their relationship. The authors found that conscientiousness, religiosity, and marital satisfaction were negatively related to potential infidelity and that openness to experience, narcissism, psychoticism (which the authors report may be closer to impulsivity), social naivete, alcohol consumption, discrepant "mate-value" between partners (rated by interviewers), and sexual dissatisfaction were all positively related to potential infidelity. The authors note that "findings suggest that a personality style marked by impulsivity, low dependability, and low reliability in general carries over into the sexual sphere" (p. 216-217).

Glass and Wright (1985; 1992) have conducted several studies in which they examined gender differences in infidelity using a community based sample. In particular, they have proposed that the ambiguous association between relationship satisfaction and infidelity may be clarified when gender differences and the type of involvement are taken into account. Their studies have utilized a mixed sample of participants in which some individuals have had affairs and others have not. Results from a questionnaire-based study suggest that men describe their affairs as more sexual than emotional, whereas women describe their affairs as more emotional than sexual (Glass & Wright, 1985). In addition, the actual degree of sexual involvement is greater among men, and more men report engaging in extramarital sexual intercourse. Although no gender differences exist in the incidence of emotional involvement, the degree of emotional involvement is greater among women.

Glass and Wright (1985) also found that affairs that included both emotional and sexual involvement were significantly more related to relationship dissatisfaction than were affairs that were characterized as only sexual or only emotional. Furthermore, women were more likely to report these "combined-type" involvements and thus were more likely to be dissatisfied with their marriage when they were having an affair. These findings are similar to those of Spanier and Margolis (1983) who found that women who had affairs tended to be more emotionally involved with their affair partners than men. Forty percent of women compared to 11% of men described their last extramarital

relationship as a "more long-term love relationship." The involved women also reported greater feelings of guilt about their affairs.

Glass and Wright (1992) also explored men's and women's justifications for infidelity. Participants completed a self-report questionnaire asking them to rate the extent to which they would feel justified engaging in infidelity based on 17 possible reasons, and factor analysis was used to analyze responses. Four factors summarizing participants' justifications for affairs emerged, accounting for 74% of the total variance. The authors named these factors: sexual (sexual enjoyment, curiosity, excitement, and novelty); emotional intimacy (intellectual sharing, companionship, ego-bolstering aspects of enhancing self-esteem, and respect); extrinsic motivation (getting even with spouse and career advancement); and love (getting love and affection and falling in love). Both men's and women's responses clustered into these four factors; however, the sexual dimension was the first factor to emerge for men and the second to emerge for women, while the emotional intimacy factor was the first to emerge for women and the second to emerge for men. Results also suggest that men were more approving of sexual justifications than were women. Involved women approved of love justifications more than involved men, although no gender differences existed for non-involved participants. This again highlights the fact that there can be significant differences between individuals based on whether they themselves have participated in an affair.

In addition to the empirical, research literature on infidelity, a number of couple therapists have developed infidelity-specific treatment models. Two of these clinically-based models (Brown, 1992; Pittman, 1989) argue that an important aspect of treating infidelity couples is determining what "type" of affair has occurred. Pittman outlines four types of affairs: philandering, accidental, romantic, and marital arrangements. Brown mentions five types of affairs: conflict avoidance, intimacy avoidance, sexual addiction, empty nest, and out the door. Although the two authors' classification systems are not identical, there are similarities between certain types and the prominent issues in the affairs.

Both authors perceive some affairs resulting from risky or compulsive behavior of the involved spouse. These affairs (philandering/sex addiction) are suggested to derive entirely from the involved spouse's individual desires and/or psychopathology. In contrast, the romantic/intimacy avoidance affairs are associated with the common theme of falling in love. In these affairs, lack of intimacy in the primary relationship is the central cause of the infidelity. Other qualities that typify different affairs include low marital satisfaction, typically in long-term relationships (out the door); inability to handle conflict within the primary relationship (conflict avoidance); unintended affairs caused by strong environmental pressures (accidental); issues around mid-life crisis or existential crisis (empty nest); and inability to get needs met in the primary relationship by both partners (marital arrangements). To date, there is no research on these hypothesized types and qualities of affairs, but these models do provide variables that might differentiate between infidelity couples and other distressed couples.

Couple Therapy Outcome Literature

A wide variety of couple therapies have been developed and are practiced in the community (Jacobson & Gurman, 1995; Donovan, 1999); however, only a few have been subjected to empirical scrutiny (Baucom, Shoham, Mueser, Daiuto, & Stickle, 1998). In fact, there are only three couple therapies that have been tested in more than one outcome study: Traditional Behavioral Couple Therapy[2] (TBCT; Jacobson & Margolin, 1979), Cognitive-Behavioral Couple Therapy (CBCT; Baucom & Epstein), and Emotion-Focused Therapy (EFT; Greenberg & Johnson, 1988). TBCT was developed using behavioral and social-learning theory, and the focus of therapy is on teaching the couple behavioral skills to address their relationship problems. CBCT builds upon the behavioral skills of TBCT but adds in additional components targeting attributions and other types of cognitions. EFT derives from an attachment theory perspective and focuses

[2] There has been an evolution in the names of couple therapies and TBCT in particular. Originally, this therapy was referred to as Behavioral Marital Therapy and later as Behavioral Couple Therapy when the field as a whole recognized that there are other committed relationships besides marriage. More recently, Jacobson and colleagues have referred to it as Traditional Behavioral Couple Therapy to clearly delineate it from their current work.

on helping partners communicate emotions with one another around insecure bonding issues. A fourth therapy that is germane to the current research is Integrative Behavioral Couple Therapy (IBCT; Jacobson & Christensen, 1996). IBCT builds on the change strategies of TBCT but shifts the focus of therapy to acceptance rather than change. The emphasis in IBCT is on a) helping partners to have compassion and empathy for one another and b) helping partners to achieve some emotional distance from their struggles.

By far, the most commonly studied couple therapy is TBCT. Over two dozen controlled studies have empirically tested the efficacy of TBCT (Baucom et al., 1998). Moreover, using the criteria established by Chambless and Hollon (1998) for delineating empirically supported treatments, only TBCT was noted as an "efficacious and specific treatment." By the same criteria, EFT was considered "efficacious and possibly specific" and CBCT as "possibly efficacious." As noted earlier, IBCT has not yet received similar empirical scrutiny, though there is some preliminary support (Jacobson, Christensen, Prince, Cordova, & Eldridge, 2000; Christensen & Heavey, 1999 describe two additional, unpublished studies). In addition, IBCT is currently being tested in the largest trial of couple therapy to date (Christensen, Atkins, Berns, Wheeler, Baucom, & Simpson, 2002). The results of that study will provide important information regarding its efficacy.

Several meta-analyses support the distinctions made in qualitative reviews of the efficacy of couple therapy. Hahlweg and Markman (1988) conducted the first meta-analysis of couple therapy in which they examined 17 studies of TBCT. They found that TBCT produced reliable change compared with control groups and that most couples maintained their improvements over the year following therapy. Nonetheless, Hahlweg and Markman also found that there is a significant minority of couples that received no benefit from TBCT. More recently, Dunn and Schwebel (1995) identified 21 treatment groups culled from 19 studies of couple therapy. In addition to TBCT, the authors also reported results for CBCT and Insight-Oriented Couple Therapy (IOCT), a category that combined EFT and the IOCT of Snyder and Wills (1989). Dunn and Schwebel found that all three treatments successfully helped couples improve their relationship over the course of therapy; however, they also found that IOCT created significantly larger change

at the end of therapy when compared with TBCT and CBCT but that this difference was no longer significant when assessed at follow-up. This is a rare instance in which one couple therapy achieved superior results compared to another therapy. However, not all investigators have agreed that EFT and IOCT are similar therapies, and if they are considered separately, the individual treatments do not demonstrate a significant advantage over TBCT (Baucom et al., 1998).

For the current research, the most pertinent issue is to what extent are these various therapies able to help couples. Or, put another way, what is the success rate of couple therapy? All of the outcome studies to date have used inferential statistics to determine whether there was statistically significant change in couples over the course of therapy compared to control groups. However, as Jacobson, Follette, and Revenstorf (1984) noted, statistically significant change does not imply that a distressed couple would be considered non-distressed at the end of therapy. Therefore, statistical significance based on group means does not directly answer the question of how successful is couple therapy. To address the issue of how individuals (or couples) change in therapy, Jacobson and colleagues proposed a method of clinical significance. Clinical significance classifies individuals (or couples) at the end of therapy into one of four categories: Deteriorated, Unchanged, Improved, or Recovered (for a comparison of methods of clinical significance and their predictive validity, see McGlinchey, Atkins, & Jacobson, in press).

Although there are some variations between studies, clinical significance results for couple therapies are more similar than different across studies and therapies (reviewed in Baucom et al., 1998). Most studies have found that approximately two-thirds of couples improve during therapy and that between one-third and one-half of couples are considered recovered at the end of therapy. Fewer studies have reported data on couples following therapy, but the data that do exist show that a proportion of couples (perhaps as many as one-third) do not maintain the improvement that they experienced in therapy. In an extreme example of deterioration following couple therapy, one study found that 38%

of couples who had received TBCT divorced within four years following therapy (Snyder, Wills, & Grady-Fletcher, 1991).

Considering the qualitative reviews, meta-analyses, and clinical significance of the couple therapy outcome literature, the results illustrate that the various therapies are effective with a significant number of couples. However, there is a sizable proportion of couples who receive no benefit from therapy and others who are not able to maintain their therapeutic gains over time. Given these results, it is especially important to explore the impact of specific relationship phenomena, such as infidelity, on the process and outcome of couple therapy. For example, issues like infidelity may alter the likelihood that couples respond positively to treatment. Bennun (1985) found that "jealousy" was a particularly intractable problem for TBCT, and Whisman, Dixon, and Johnson (1997) found that couple therapists report infidelity as one of the most difficult problems to treat. Moreover, Cano and O'Leary (2000) have recently shown that discovery of infidelity is associated with increased levels of clinical depression in the non-involved spouse, further complicating therapy with couples in which there has been an affair. It may, in fact, be the case that research focused on infidelity and other "difficult problems" in couple therapy may provide critical information to improve the overall impact of couple therapy.

Finally, it should be noted that the couple therapy outcome literature has, to date, tended to ignore or treat only in passing the issue of infidelity. For instance, when infidelity has been mentioned in these reports, it has typically been included in a list of presenting problems for therapy. Presenting infidelity in this manner suggests that infidelity is similar to other couple problems, just another problem on the list of problems that couples bring to therapy. This is precisely the issue that the current research addresses.

Research on Couple Therapy for Infidelity

At the present time, only one pilot study has been conducted that directly assessed the efficacy of couple therapy with infidelity. Gordon, Baucom, and Snyder (2002) have developed a multi-theoretical treatment, specifically designed to address the issue of infidelity. The authors' therapeutic approach contains three stages. The therapist helps

the couple move from the initial trauma of the discovery of the affair, through an exploration of the meaning of the affair for each partner, and finally to a discussion of forgiveness and a decision about whether to continue the relationship (for a more detailed description of the treatment, see Gordon & Baucom, 2000).

In their pilot study, the authors used a replicated case-study design with 13 infidelity couples, nine of whom completed therapy. The results indicated that the treatment effectively helped non-involved partners cope with and come to some understanding of the affair. In addition, the non-involved spouses' marital satisfaction improved markedly. Interestingly, the data for the partners who actually had the affair were quite different. Their perceptions of the relationship and individual distress did not change during the treatment. The non-involved partners were more distressed initially, and as a result, partners ended therapy with similar marital satisfaction and individual distress scores. Gordon et al. (2002) noted that the treatment focused heavily on helping the non-involved spouse cope with the affair, which may explain the apparent differential effect on the involved and non-involved spouses. Furthermore, non-infidelity relationship problems were not a focus of therapy. It is possible that greater overall improvement in marital satisfaction may be achieved through working on the affair *and* wider relationship issues.

Summary of Literature Review

The present research addresses several important implications of the infidelity and couple therapy literature. First, infidelity research has yielded mixed findings regarding factors that are associated with infidelity. Research using national samples has highlighted potential demographic variables, such as age and gender, that may be associated with an individual's infidelity. Analogue studies with college students or young married couples have suggested the importance of potential psychological factors, such as personality and attitudes. However, there have been few consistent findings within either the national survey data or the laboratory data. Moreover, the psychological factors identified by analogue studies need to be replicated with participants who have actually experienced infidelity—not simply imagined the possibility. In addition, there

has been some clinical speculation about different types of affairs and qualities of individuals and couples that may lead to certain types of affairs.

Second, research on couple therapy in general has demonstrated that, regardless of the theoretical orientation of the therapy, a large percentage of couples can be helped with therapy. Nonetheless, a significant minority of couples gain no benefit from therapy, and another group of couples are unable to sustain the gains that they make in therapy. It may be the case that couples in which there was an affair tend to fall into these latter categories.

Finally, there is initial, exciting research focusing specifically on couple therapy interventions for couples in which there has been an affair. The findings of Gordon et al. (2002) suggest that infidelity couples can be helped in therapy and that there may be important differences in response to treatment between the involved and non-involved spouses.

Thus, the topic of infidelity has generated a significant amount of theoretical speculation and empirical examination, yet it is clear that central questions remain unanswered. Are there salient qualities of the individuals or couple in which there has been an affair that distinguish them from other couples seeking therapy? Are infidelity couples more distressed and less likely to benefit from marital therapy, or do they begin and improve in therapy much in the same fashion as other distressed couples? Addressing these questions has both theoretical and pragmatic import for the field of couple therapy.

The two analyses reported here seek to answer these two questions. The first analysis examines the characteristics of individuals and couples that may differentiate distressed infidelity couples from other distressed couples. The second analysis explores the relationship between infidelity and the initial level of distress and course of treatment in couple therapy. All of the data for the current proposal come from an ongoing clinical trial of marital therapy. Thus, the methods and procedures for both analyses are identical.

Method

Participants

Participants in this study are 134 heterosexual, married couples who sought therapy for marital problems. The couples were recruited via newspaper and radio ads from November 1997 through February 2001. At the present time, all participants have completed therapy but are still being assessed following therapy. The research is being conducted at both the University of Washington and the University of California, Los Angeles with each site recruiting approximately half the participants. Nineteen couples had at least one partner with a reported infidelity.

In order to determine eligibility for the study, couples participated in a 3-step screening procedure. Initially, couples who responded to advertisements answered a set of questions over the telephone that assessed basic demographics and marital satisfaction. Couples were eligible for the study if the partners were between the ages of 18 and 65 and were married and living together. Participants were not allowed to be involved in any other form of therapy; however, they could be on psychotropic medication if they were on the medication for a minimum of 12 weeks, on a stable dose for a minimum of 6 weeks, and their physician, when contacted by the project, did not anticipate changing medication or dosage. With respect to marital satisfaction, the husbands' and wives' scores on the Marital Adjustment Test (Locke-Wallace, 1959) had to average less than 100. This is a widely used cut-off to indicate a clinical range of distress.

If the partners met the initial selection criteria, they were each mailed a packet of questionnaires to complete separately, two consent forms, and a cover letter with instructions. The questionnaire packet included the Marital Satisfaction Inventory-Revised (MSI-R: Snyder, 1997) and the Conflict Tactics Scale-Revised (CTS-R: Straus, Hamby, Boney-McCoy, & Sugarman, 1996). Couples were eligible if (a) there was no evidence of moderate to severe husband-to-wife violence in the relationship; and (b) at least one spouse scored above a T-score of 59 on the Global Distress Scale (GDS) of the MSI-R.

Couples who were eligible following this step were scheduled for a pre-treatment assessment at which husbands and wives independently completed a packet of questionnaires, participated in the Structured Clinical Interview for DSM-IV (SCID; First, Spitzer, Gibbon, & Williams, 1995), and engaged in videotaped discussions with each other. To be eligible for the study, couples had to once again meet criteria for marital distress based on the GDS (at least one partner scores above a T-score of 59), and the Dyadic Adjustment Scale (at least one partner scores below 97). Couples were excluded from the study if either partner had a current diagnosis of alcohol/drug abuse or dependence, Bipolar Disorder, or Psychotic Disorder on Axis I, and/or Borderline, Schizotypal, or Antisocial Personality Disorder on Axis II. Eligible couples were randomly assigned to one of two treatment groups: Traditional Behavioral Couple Therapy (TBCT; Jacobson & Margolin, 1979) or Integrative Behavioral Couple Therapy (IBCT; Jacobson & Christensen, 1996).

Procedure[3]

As was noted earlier, procedures are part of a larger treatment outcome study. Only those measures and procedures directly relevant to the proposed study are addressed here (further details of the study procedure are found in Christensen et al., 2002).

Couples received up to 26 sessions of either TBCT or IBCT at no cost. Although 26 sessions were allowed, the total number of sessions was decided by the therapist and couple based on the couple's needs (*Mdn* = 25). Both treatments began with an assessment phase wherein partners were seen together for the first session, separately for one session each, and then together for a feedback session in which the therapist presented their assessment of the couple's problems and an overview of treatment. All remaining sessions were in a conjoint format.

Couples were assessed at four time points throughout therapy using self-report questionnaires. As was noted above, the first assessment occurred during the pre-

[3] Therapists were trained and procedures were developed on the first 26 couples, who were designated as pilot cases. However, the differences in procedures do not affect either of the analyses of the present study, and all 134 couples are used in the analyses.

treatment eligibility process. The next two assessments were scheduled 13 weeks and 26 weeks after the pre-therapy assessment. The fourth assessment, conducted at the couple's final session, was not based on time but rather whenever their final session occurred. As a result, the time between assessments is roughly the same for couples across the first three time points; however, the last time point varies between couples (e.g., some couples may have finished before all 26 sessions were completed, other couples may have missed weeks because of traveling or illness). On average, couples finished therapy 35 weeks after the start of treatment. Although this procedure resulted in couples having had slightly varying numbers of sessions at any one time point, this flexibility increased the external validity of the treatments.

Measures

Marital Satisfaction Inventory – Revised (Snyder, 1997). The MSI-R is a multidimensional self-report measure that identifies, separately for each partner, the nature and extent of distress along several key dimensions of their relationship. The test is composed of 150 True/False items that compose 11 non-overlapping scales. Research has demonstrated that it has good validity and reliability. Profile analyses suggest that the MSI can discriminate between couples in therapy and a matched control group (Snyder, 1997).

The sexual dissatisfaction (SEX) scale of the MSI-R is comprised of 13 items that assess three domains of partners' sexual relationship. The SEX scale evaluates "general dissatisfaction with the sexual relationship, partner's lack of interest in the sexual relationship, and inadequate affection during sexual exchanges" (p. 80, Snyder, 1997). In a normative sample, the internal reliability of the SEX scale was estimated to be .84.

Dyadic Adjustment Scale (DAS; Spanier, 1976). The DAS is a commonly administered, 32-item self-report measure of relationship satisfaction. Scores can range from 0 to 151, higher scores indicating greater marital satisfaction. The DAS has been shown to have good test-retest reliability, internal reliability ($\alpha = .96$), and discriminant validity (Sharpley & Cross, 1982) and is considered among the best available measures of global marital satisfaction in the field of marital research (Fincham & Bradbury, 1987).

The DAS reliably discriminates between married and divorced spouses and correlates highly with the Locke-Wallace Marital Adjustment Scale. The present study used both the total DAS score as well as specific, individual items from the scale.

Frequency and Acceptability of Partner Behavior (FAPB; Christensen & Jacobson, 1997). The FAPB assesses the frequency of 12 classes of positive behavior and 10 classes of negative behavior between partners over the previous month. Partners then rate how acceptable it is that their partner behaved in that manner, at that frequency. It is the primary measure of mechanism for the clinical trial of marital therapy, as it differentiates between the rate of given behaviors and their acceptability. The current study used acceptability ratings from several items of the FAPB.

Marital Status Inventory (MSI: Weiss & Cerreto, 1980). The MSI is a Guttman-type measure of steps taken toward divorce. Fourteen questions are presented in true-false format and inquire about specific thoughts and behaviors believed to represent progressive steps toward divorce. Thus, scores range from 0 to 14, with higher scores representing greater marital instability. The MSI has been shown to be a valuable tool in identifying couples with a high risk of divorce and has demonstrated good internal consistency, Cronbach's $\alpha = .87$ (Crane, Newfield, & Armstrong, 1984; Weiss & Cerreto, 1980).

Problem Areas Questionnaire (PAQ; Heavey, Layne, & Christensen, 1993). Couples complete the PAQ before they engage in two videotaped discussions of areas of conflict in their relationship. The PAQ lists 21common areas of disagreement for couples. Partner rate their level of satisfaction in each area using a 7-point Likert scale, ranging from "Completely dissatisfied" to "Completely satisfied." Several items from the PAQ were used in the present study.

NEO–Five Factor Inventory (NEO-FFI; Costa & McCrae, 1992). The NEO-FFI assesses 30 personality traits that define the basic dimensions of the Five-Factor Model (FFM) of personality: Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness (McCrae & John, 1992). It is the most widely used measure of the FFM of personality structure. The 60-item questionnaire was developed

through rational and factor analytic methods. The five primary subscales have reliabilities that range from .74 to .89 (Costa & McCrae, 1992b). The present study used several items from the NEO thought to be indicative of narcissism.

COMPASS (Howard, Brill, Lueger, O'Mahoney, & Grissom, 1993; Sperry, Brill, Howard, & Grissom, 1996). The COMPASS assessment system includes several self-report scales related to patient characteristics and therapeutic processes: (a) Patient Satisfaction, (b) Treatment needs and expectations, (c) Presenting problems, (d) Current well-being, (e) Current symptoms, and (f) Current life functioning. There are several subscales within the COMPASS related to specific disorders. The current research used the substance abuse subscale comprised of several questions from the current symptoms scale. The reliability of the substance abuse subscale is .84.

Structured Clinical Interview of the DSM-IV (SCID; First et al., 1995). The SCID is a semi-structured interview that assesses all of the diagnostic categories of the DSM-IV. The multi-site marital therapy study uses a screening questionnaire for the Axis II exclusion criteria: Borderline Personality Disorder, Schizotypal Personality Disorder, and Anti-Social Personality Disorder. The current research used the screening questionnaire for Anti-Social Personality Disorder. This questionnaire includes a checklist of items related to anti-social behaviors.

Demographics Questionnaire. Participants were asked to provide demographic information including their age, education, income, occupation, religion, ethnicity, years married, years living together, number of previous marriages, number of separations, number and age of children and step-children, psychopathology in family of origin, and ethnicity and religion of family of origin.

Infidelity Questionnaire. To gather data about the specifics of the affairs, a questionnaire was designed for each therapist to complete for every infidelity couple that they counseled. The questionnaire assessed: which partner had the affair, length of the affair, when the affair began, when the affair was revealed, number of affairs, degree of physical involvement, degree of emotional involvement, percentage of time in therapy spent on the affair, and other relevant items about the therapists' perceptions of the

couple. Some questions were based on items from Glass and Wright (1992) and Buss and Shackelford (1997). The complete questionnaire can be found in Appendix A.

The primary means of identifying affairs in the marital therapy study was through therapist report, though two "secret" affairs were revealed to a member of the research team during a post-therapy assessment. Therapists were asked to report on any of the couples that they treated in which there was a sexual and/or emotional affair (Glass & Wright, 1985; 1992). A relationship was deemed an emotional affair if it involved secrecy, romantic or sexual feelings, and interfered with the primary relationship. There was only a single affair in the present study that was purely emotional, without any sexual component.

Data Analysis for Question 1

The first question focuses on the qualities of individuals and couples that may differentiate infidelity couples from distressed, non-infidelity couples, and the data analysis must address several important features of the data. The first issue concerns the correlated nature of the data. Most traditional statistical procedures assume that data are independent, and spouses' data are likely to be more similar to one another than to other individuals in the study. Second, infidelity was an uncommonly reported event in our data, with only 19 couples in the study revealing an affair at some point during the study. Even though this study is the largest couple therapy treatment study to date with a respectable sample size ($N = 268$), the power of logistic regression is strongly dependent on the percentage of "events" in the data (Peduzzi, Concato, Kemper, Holford, & Feinstein, 1996). There is a danger that the analysis could over-fit the data and lack generalizability. Third, although there has been some research exploring the characteristics of individuals and couples that differentiate infidelity couples from non-infidelity couples, the current research is largely exploratory. As such, we are not testing competing theories, and it is unclear whether findings from analogue studies will apply to our sample with actual infidelity. Thus, we are in a position in which we would like to test a number of exploratory hypotheses but are limited by our sample of infidelity couples. Finally, because the data come from a larger trial of couple therapy, the analysis

is limited to the measures that were used in that study. That trial did not include standardized measures of all the potential predictors we would like to employ. Thus, it would be helpful to create new measures using individual items and measures from those included in the larger study. The challenge is to do this in a manner that is neither capricious nor unreliable.

The data analysis employed logistic regression using a robust estimate of the variance-covariance matrix that takes into account the clustered nature of the data (Graubard & Korn, 1994; Harrell, 2001). Logistic regression is a statistical modeling procedure that is appropriate when the outcome is a discrete variable with two or more categories. Logistic regression is similar to linear regression in that a single response variable is predicted using a linear combination of predictor variables. However, in logistic regression the discrete, response variable is transformed using the logit, or log-odds function. This transformation has several effects on the interpretation of the model; most notably, the effects of predictors on the response variable are typically reported in terms of odds ratios.

As was noted earlier, the power of logistic regression models is strongly influenced by the percentage of events in the data, in which infidelity is the "event" in the current data. As noted earlier, 19 individuals in the study revealed an affair, only 7% of the individuals in the sample.[4] This small number of events also means that there is a high risk of over-fitting the data. The danger in over-fitting is that the regression model will predict well on the present sample but will have little predictive ability on other samples and thus the findings will have low generalizability (Stevens, 1996).

A commonly used method to assess the degree of over-fitting is cross-validation in which part of the sample is used to fit the model and then the regression model is "tested" on the remainder of the sample (Heyman & Slep, 2001). One of the drawbacks to cross-validation is that it is necessary to split the sample, thus reducing the initial

[4] This figure of 19 couples refers only to the cases of infidelity that came up in therapy or were revealed to the research team following therapy. It is likely that a number of couples may have experienced an affair in the past but did not discuss it in therapy, and thus, we would not know of these past affairs.

power to detect effects. A recent improvement in model validation uses the bootstrap (Efron & Tibshirani, 1993; Lunneborg, 2000). A regression model is fit to the entire original sample. Next, a number of bootstrap samples are created by sampling with replacement from the original sample (in the present context, couples are sampled with replacement). The model from the original sample is fit to each bootstrap sample, then predictions from the bootstrap sample are tested against the *original* sample using a summary measure such as R^2. Finally, the difference between the average R^2 from the bootstrapped models and the R^2 from the original fit of the data give an estimate of over-ftting or optimism (Efron & Tibshirani, 1993; Harrell, 2001). The present analysis used this bootstrap procedure to assess over-fitting.

To further guard against over-fitting our sample, it would be beneficial to reduce and/or combine our candidate predictor variables so that the model retains as much power as possible. One common option in exploratory research with a number of possible predictors is to use step-wise methods of model selection. These methods, in which variables are entered and removed from a model based on the *p*-values of their regression coefficients, are still commonly used in psychological research. Research has shown, however, that there are manifold problems with step-wise procedures, and they have been soundly condemned by many statisticians, most notably for inflating the Type I error rate and choosing ill-fitted models (Steyerberg, Eijkemans, Harrell, & Habbema, 2000).

In choosing and consolidating our range of predictor variables, we will follow some of the guidelines described in D'Agostino, Belanger, Markson, Kelly-Hayes and Wolf (1995) and Harrell et al. (1998). These authors have proposed a method of selecting candidate predictors and data reduction that incorporates clinical and statistical reasoning and is largely "blind" to the dependent variable. As a result, their method avoids many of the problems of step-wise model selection.

As in most studies, the first step is to gather a list of candidate predictor variables based on the literature and clinical experience. Candidate predictors are then cluster

analyzed without reference to the response variable.[5] This step assesses the empirical similarity of the candidate predictors, identifying the relatedness among predictors. The authors then suggest using expert judgment to examine the results of the cluster analysis and create groups of predictors based on both empirical and clinical reasoning. Individual variables within clusters are ranked in terms of their clinical severity, variables with low frequencies can be dropped, and judgments can be made as to whether some variables should be weighted because of their perceived clinical importance. Harrell et al. (1998) also investigated six different methods for combining variables within clusters so that each cluster would be represented by a single predictor in the final model.[6] The present study typically weighted each variable within clusters equally and combined variables by standardizing and then averaging (see Results for further details). The composite variables were then used in the analysis.

There are several advantages of this data reduction method. First, Harrell et al. (1998) were able to reduce 49 candidate predictors to 7 composite variables, an 86% reduction in predictor variables. Moreover, they were able to do this using a combination of statistical and clinical reasoning that yielded meaningful composite variables, as opposed to an approach using principal components. In addition, the data reduction was accomplished with minimal reference to the outcome variable, helping to protect both the Type I error rate and avoiding severe over-fitting of the sample.

From the review of basic research on infidelity and research on couple therapy with infidelity, seven conceptual blocks of predictors were created, each comprised of a number of individual questionnaires or items from questionnaires. Based on the results of the national survey studies, a block of demographic variables and a relationship quality block were selected. Based on the laboratory research, we selected items to assess "risky personality" and "risky behavior." These blocks came from the work of Buss and

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[5] It is worth noting that the method they propose assumes that there are natural clusters among predictor variables. Their method may not be appropriate if there were no reason to believe that some predictors were related to one another; however, if this were the case, it should be evident in the results of the cluster analysis.

[6] Interested readers can see the original study for other manners to aggregate variables within clusters.

Shackelford (1997) that demonstrated narcissism, sociopathy, and addictive behaviors were related to future infidelity, as well as the "philandering" and "sexual addiction" types of affairs described by Pittman (1989) and Brown (1991), respectively. The remaining blocks (commitment, emotional closeness, and physical closeness) were derived from the affair type descriptions of Pittman (1989; Pittman & Wagers, 1995) and Brown (1992). All analyses were conducted using S-plus 2000 Professional Release 2 (Mathsoft, 1999) and made extensive use of the Hmisc and Design libraries of functions (Harrell, 1999a; Harrell, 1999b).

Results for Question 1

Infidelity Couples

Table 1 presents demographic information on the couples involved in the marital therapy study, and Table 2 provides information about the individuals and couples in which there was an affair. Almost two-thirds of couples with affairs received TBCT, and slightly more than 50% of involved spouses were males. There was considerable variation in the duration of the affair relationship (*Mdn* = 6 months). The great majority of affairs began prior to therapy. Interestingly, only about a third of affairs were revealed prior to beginning therapy and a quarter were never revealed during therapy.[7] Most involved spouses had a single affair involving sexual intercourse and moderate emotional involvement. There was significant variability in the amount of time in therapy spent on the affair (*Mdn* = 20%). This statistic is weighted somewhat by the cases in which the affair was never brought up in therapy, and no therapy time was spent on it.

Cluster Analysis

A total of 33 variables were selected to represent the 7 conceptual blocks cited earlier. Because a number of individual items from the DAS were included in the cluster analysis, a decision was made not to include the total DAS score. However, total DAS was used as a covariate in the logistic regression, described below. The remaining 32 variables were cluster analyzed using Hoeffding's D as the similarity measure. This is a nonparametric measure of distance that can detect nonmonotonic relationships (Harrell, 2001). The results of the cluster analysis were assessed by the investigator along with Don Baucom and Andrew Christensen, and 14 total predictors were constructed (either individual variables or clusters of variables), a reduction of 56% in the number of predictors. These are shown in Table 3.

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[7] Of the 5 couples in which the affair was never brought up during therapy, two individuals mentioned it to the therapist during the individual session. The affair was finished by that time, and they indicated that they did not wish their partner to know about it. The remaining three couples never revealed the affair to spouse or therapist, and it was not until therapy had ended that the research team or therapist learned of the affair.

Although some items did not cluster and were treated as individual predictors, many items clustered together. All of the original conceptual blocks are represented in the final set of predictors, though the cluster analysis did not reproduce the conceptual blocks exactly. The variables in each cluster with more than one variable were combined to form a single predictor. Clusters that contained items from the same scale were simply averaged (Intimacy and Narcissism). The items in clusters from different scales were first standardized and then averaged (Time with others and Time together). The substance abuse cluster was combined in a slightly different manner. The substance abuse subscale from the COMPASS was deemed a better indicator than the single items from the FAPB and PAQ. In addition, a minority of the sample indicated any substance abuse problems, due in large part to the exclusion criteria of the study. Thus, the substance abuse subscale of the COMPASS was collapsed into a binary variable cut at a t-score of 50.[8] Individuals scoring 50 or greater received a 1 on the indicator variable, and the remaining participants received a 0. This indicator variable was then augmented by the spouse's report of their partner's addictive behavior using the FAPB item 23. For instance, if an individual did not score above 50 on the COMPASS subscale but their partner indicated that they used alcohol or drugs at an unacceptable level, the individual was given a score of 1 on the indicator variable.

Logistic Regression

The 14 predictors were entered into a logistic regression model with an indicator variable of whether or not the individual had ever had an affair as the dependent variable. Because much of the research literature on infidelity has focused on sex differences, a second model was fit allowing for interactions between gender and the other predictors. Three significant interactions were retained between gender and sexual dissatisfaction, substance abuse, and age. Odds-ratios and 95% confidence intervals for odds-ratios are presented for both models in Table 4.[9]

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[8] The COMPASS measure was normed on an outpatient population so a t-score of 50 represents the average substance abuse score in an outpatient population.

[9] One infidelity couple was removed from the analysis for statistical reasons. Outlier and influence tests (DFBETAS, Cook's distance, and standardized residuals) all revealed that one involved spouse was a

A full model was fit using the original 32 predictors. A likelihood ratio test of the full model fit to the model using the reduced variables (without interactions) was not significant, $\chi^2(18) = 25.34$, $p = .12$. This indicates that our variable reduction procedure was largely successful in combining redundant predictors, and the reduced model with 14 predictors well represents the full model using all 32 predictors. Typically, with multiple regression analyses, the model R^2 is reported to indicate the total amount of variance that the model explains. However, in logistic regression R^2 is heavily dependent on the percentages of the two categories in the dependent variable and will be biased away from 1 even when there is a 50/50 split in the dependent variable categories (see Agresti, 1996; Mittlböck & Schemper, 1996). Two indices that are similar to R^2 and are useful in logistic regression are the probability of concordance index c, which has been shown to represent the area under a receiver operating characteristic (ROC) curve and Somer's D_{xy} rank correlation (Harrell, 2001). The c index is a measure of how well the model discriminates between those participants who had affairs and those who did not. A value of .5 would represent no ability to discriminate and a value of 1 would represent perfect discrimination. Both the model without interactions ($c = .93$ and $D_{xy} = .87$) and the model with interactions ($c = .95$ and $D_{xy} = .90$) show very strong discrimination and correlation between observed and fitted probabilities.

As can be seen in Table 4, there are a number of significant predictors in each of the models. As sexual dissatisfaction increases, the likelihood of being involved in an affair also increases, though this relationship is dependent upon the gender of the involved spouse. The probability of infidelity is plotted against gender and sexual dissatisfaction in Figure 1. As can be seen in the figure, the likelihood of a woman being involved in an affair is not related to her level of sexual dissatisfaction in her marriage, while men who are extremely sexually unhappy in their marriage (t-scores over 70) are significantly more likely to be involved in an affair.

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massive outlier, and there were clear differences in the models when he was included or removed. It is also interesting to note that this individual never disclosed his affair to his spouse or therapist. Thus, one possibility is that he was not being completely forthright in completing the measures.

The time spent together cluster showed a strong relationship with infidelity. Couples who spent more time together and were more satisfied with their time together were less likely to have a partner involved in infidelity. On the negative side, there was a strong relationship between marital instability as measured by the Marital Status Inventory and infidelity. Individuals who indicated they had taken 6 or more steps toward divorce were more than 8 times as likely to have reported an affair than individuals reporting 2 or fewer steps taken toward divorce. Participants whose spouse's indicated that they had been dishonest or argued about trust were also more likely to be involved in infidelity.

There were also significant gender by substance abuse and gender by age interactions. The gender by substance abuse interaction was a cross-over interaction such that men who were involved in affairs were more likely to have problems with substance abuse than men not in affairs. Conversely, women in affairs were less likely to use substances than women who were not in affairs, though there was a very low base-rate of substance use in the sample. The gender by age interaction was also a cross-over interaction. The women in the sample who had affairs were notably younger ($M = 38$) than the men who had affairs ($M = 47$). There were also a number of variables that did not prove to be significantly related to infidelity. Time with others, anti-social behavior, work status, and divorce were not significant predictors of infidelity. Intimacy and narcissism both failed to meet the conventional significance cutoff, but both variables were quite close ($p = .06$ and $p = .09$, respectively). The odds-ratios for these two variables show that greater narcissism[10] and, surprisingly, greater intimacy increase the likelihood of infidelity.

Finally, total DAS was entered as a predictor into the model with the interactions. This was to test whether global relationship satisfaction would prove a better predictor than its constituent parts, such as sexual satisfaction, intimacy, time together, and marital instability. Total DAS was not a significant predictor (OR = 1.22, 95% CI = 0.34 - 4.35).

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[10] Lower scores on the narcissism items reflect greater narcissism.

Model Validation

The bootstrap validation procedure described earlier was used to estimate possible over-fitting of the data. Two separate models were validated. The first model was the model with interactions described above. The second model was a reduced model containing variables selected through an automatic selection procedure using the Bayesian Information Criterion (BIC, Pinheiro & Bates, 2000) as the selection criterion. BIC is a model comparison criterion that penalizes models for the number of predictors. The reduced model contained: sexual dissatisfaction, intimacy, time together, marital stability, dishonesty, narcissism, substance abuse, age, gender, and the three gender interactions. The reduced model has 12 predictors as opposed to the 17 predictors in the model with interactions. For each model, 500 bootstrap samples were drawn with replacement using couples as the sampling units. Original fit indices, index optimism based on the bootstrap, and corrected estimates for the two models are presented in Table 5.[11]

There is some evidence of over-fitting as seen in the estimates of optimism. However, this does not appear to be extreme. Moreover, the reduced model with fewer predictors has less optimism and would be expected to have better prediction on other samples. This provides some evidence that our model did not severely over-fit the data and that the findings would have generalizability to similarly selected samples.

[11] We attempted to validate the full model containing all 32 predictors; however, this was impossible to do because of singularity and convergence problems in the bootstrap samples. In itself, an indication of severe over-fitting.

Table 1. Demographic Information for Couples in the Marital Therapy Study (N =134)

	Husbands	Wives
	M (*SD*)	*M* (*SD*)
Age	43.49 (8.74)	41.62 (8.59)
Education	17.03 (3.17)	16.97 (3.23)
Monthly income	4642 (3787)	3696 (4085)
Years married	--	8.5 (7.61)
Number of children	--	1.0 (1.03)
Ethnicity	*N* (%)	*N* (%)
Non-Latino Caucasian	106 (79.1)	102 (76.1)
African American	9 (6.7)	11 (8.2)
Asian American/Pacific Islander	8 (6.0)	6 (4.5)
Latino	7 (5.2)	7 (5.2)
Other	4 (3.0)	8 (6.0)

Note. Years married and number of children are identical for husbands and wives. The value for the couple is reported in the wives' column.

Table 2. Basic Information About Affair Couples (N = 19)

Therapy couple received	TBCT (63%)	IBCT (37%)
Sex of involved spouse	Male (58%)	Female (42%)
Length of affair	Median = 6 mos.	Range = 1 mos., 24 mos.
When affair began		
Greater than 6 mos. before therapy	63%	
Less than 6 mos. before therapy	11%	
During therapy	11%	
Unknown	15%	
When affair was revealed		
Prior to therapy	32%	
During therapy	42%	
Not revealed during therapy	26%	
Number of affairs	Single (68%)	Multiple (22%)
Degree of physical involvement	Mode = sexual intercourse	
Degree of emotional involvement	Mode = moderate emotional involvement	
Percentage of time in therapy spent on affair	Median = 20%	Range = 0%, 80%

Table 3. Individual Items and Variable Clusters Resulting from Cluster Analysis

Predictor	Variables	
Sexual dissatisfaction	SEX subscale from the MSI-R	
Intimacy	FAPB2	My partner was verbally affectionate.
	FAPB5	My partner confided in me.
	FAPB10	My partner discussed problems in our relationship with me and tried to solve those problems.
	FAPB15	My partner was not responsive to me.
Time with others	PAQ4	How dissatisfied/satisfied are you with the amount of time you spend with friends?
	PAQ15	How dissatisfied/satisfied are you with the amount of time spent alone or independence?
	FAPB9	My partner socialized with my family or my friends.
Time together	DAS11	How much do you disagree about amount of time spent together?
	DAS24	How often do you engage in outside interests together?
	DAS25	How often do you have a stimulating exchange of ideas?
	DAS26	How often do you laugh together?
	DAS28	How often do you work together on a project?
	PAQ12	How dissatisfied/satisfied are you with the amount of time you spend together?
	FAPB8	My partner did social activities with me.

Table 3 continued

Marital stability	Marital Status Inventory	
Trust	PAQ21	How dissatisfied/satisfied are you with trust/jealousy in your relationship?
Dishonesty	FAPB16	My partner was dishonest with me.
Narcissism	NEO14	Some people think I'm selfish.
	NEO45	Sometimes I'm not as dependable or reliable as I should be.
	NEO59	If necessary, I am willing to manipulate people to get what I want.
Substance Abuse	PAQ17	How dissatisfied/satisfied are you with drugs/alcohol?
	FAPB23	My partner engaged in addictive behaviors.
	Alcohol and substance abuse subscale of COMPASS	
Anti-Social behavior	Sum of SCID-II screening questionnaire items for Anti-Social Personality Disorder	
Work	Whether or not the individual indicated they were currently employed on the demographics questionnaire	
Divorce	Whether or not the individual indicated they had been married previously	
Age		
Gender		

Table 4. Logistic Regression Model of Cluster Predictors (N = 266)

	Main effects model		Model with interactions	
Variable	OR	95% CI	OR	95% CI
Sexual dissatisfaction	2.86*	1.20-6.80	1.20	0.53-2.72
Intimacy	1.93	0.87-4.25	2.95	0.98-8.84
Time with others	2.04	0.74-5.63	1.35	0.41-4.39
Time together	0.20***	0.09-0.56	0.23***	0.10-0.49
Marital stability	5.86****	3.24-10.61	8.42****	3.07-23.12
Trust	2.61*	1.19-5.71	2.18*	1.02-4.66
Dishonesty	0.09***	0.02-0.36	0.10***	0.02-0.38
Narcissism	0.93	0.45-1.89	0.55	0.28-1.09
Substance abuse (no:yes)	2.74	0.56-13.29	0.01**	0.00-0.10
Anti-social behavior	1.50	0.78-2.90	1.36	0.66-2.83
Work (not working:working)	0.64	0.05-7.96	0.73	0.05-10.84
Divorce (divorced:not divorced)	1.75	0.38-7.98	2.41	0.42-13.92
Age	1.72	0.66-4.50	0.72	0.17-3.11
Gender (male:female)	0.73	0.20-2.67	0.31	0.07-1.38
Gender x Sexual dissatisfaction			LR $\chi^2(1) = 11.90^{***}$	
Gender x Substance abuse			LR $\chi^2(1) = 9.23^{**}$	
Gender x Age			LR $\chi^2(1) = 3.56^{*}$	

Table 4 continued

Note. OR = Odds ratio. 95% CI = 95% Confidence intervals for the odds ratios. LR χ^2 = likelihood ratio χ^2. For continuous variables, odds ratios are based on the inter-quartile range of the variable. For categorical variables, the odds ratio is the odds of infidelity of the second category listed relative to the first category listed. The likelihood ratio χ^2 is listed for interactions because there is no single odds ratio.
* $p < .05$, ** $p < .01$, *** $p < .001$, **** $p < .0001$

Table 5. Fit Indices from Original Models, Bootstrap Models, and Corrected

	Original fit		Optimism		Corrected	
	c	D_{xy}	c	D_{xy}	c	D_{xy}
Model with interactions	.95	.90	.07	.14	.88	.76
Reduced model	.93	.87	.04	.09	.89	.78

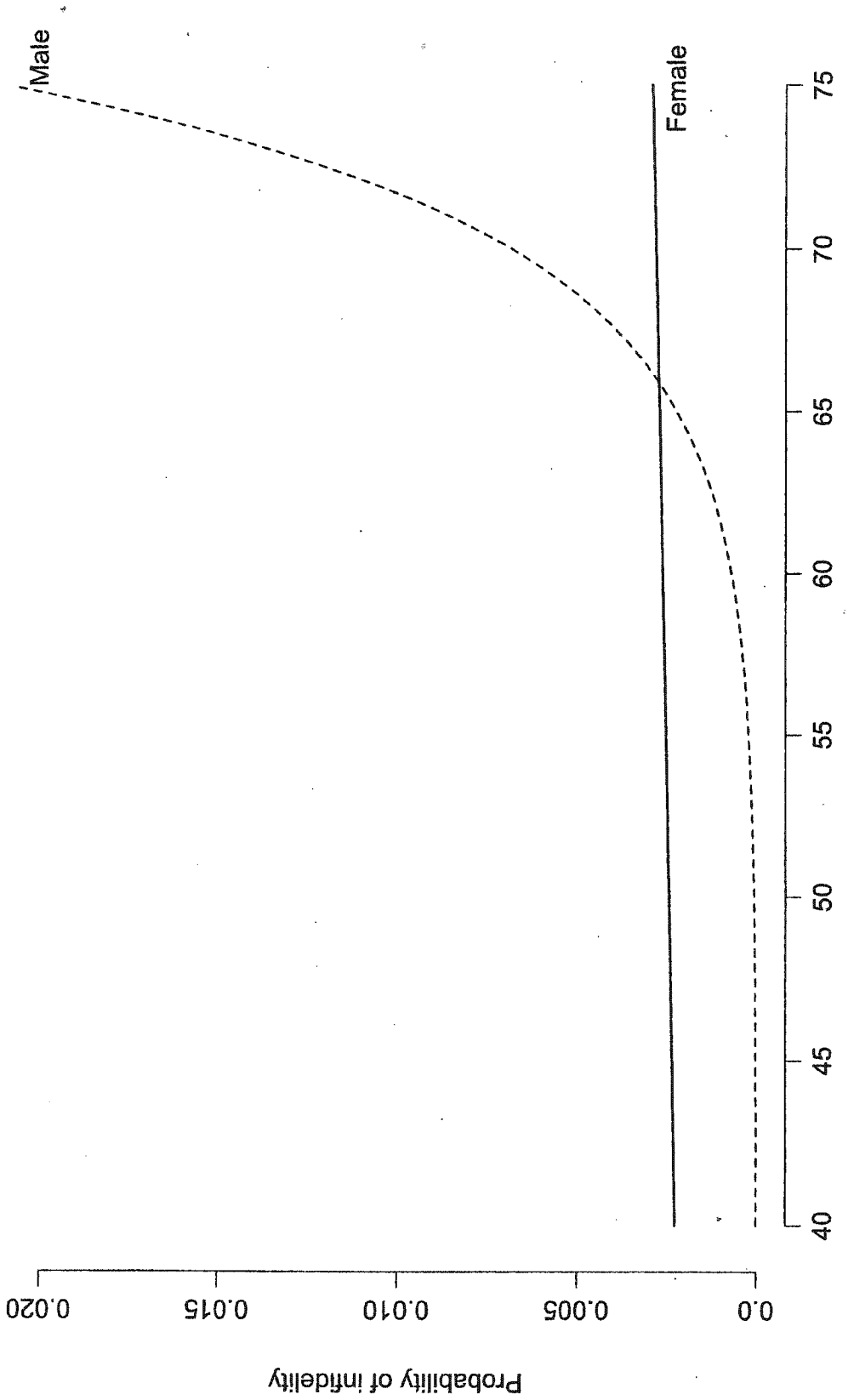

Figure 1. Probability of infidelity predicted from sexual dissatisfaction and gender

Discussion for Question 1

The findings from the first analysis demonstrate that there are factors that discriminate between individuals who have had affairs and those who have not among a sample of couples in marital therapy. In examining the model building process, the data reduction approach successfully reduced the number of candidate predictors, and tests against the full model with all 32 predictors showed that the reduced set of predictors had almost equal predictive ability. In addition, the bootstrap validation procedure provided evidence that our sample was not over-fit by the model, and thus it should generalize to other, similar samples.

Our findings replicate some of the previous literature in that gender proved to be an important factor in predicting infidelity. Interestingly, the findings of the present study do not replicate the most common finding involving gender, that more men have had affairs than women (Atkins et al., 2001; Greeley, 1994; Laumann et al., 1994; Wiederman, 1997). However, several survey studies have found that the sex difference in affairs is moderated by the age of the individual. This finding was confirmed in the present study. Men who had affairs tended to be somewhat older than women who had affairs. This finding was not quite as dramatic as the differences found in the survey research, but this may result in part from the cohorts represented in the current sample.

In addition, gender significantly interacted with substance abuse and sexual dissatisfaction in predicting infidelity. Men who had affairs used substances at a greater rate and were significantly more sexually dissatisfied in their marriages compared to women who had affairs. There has been a significant debate in the infidelity literature regarding sex differences in reasons for affairs. Some research shows that men have affairs and are more upset at their partner's affair because of sexual reasons, whereas women engage in affairs and are upset by their partner's affairs for emotional reasons (Buunk, Angleitner, Oubaid, & Buss, 1996; Glass & Wright, 1985; Harris, 2002). The present finding that men in affairs are very sexually dissatisfied in their marriages supports the association between sex and affairs in men. Previous research has shown that men in unhappy relationships rate sexual dissatisfaction as the most important area of

change in their relationship (Margolin, Talovic, & Weinstein, 1983) and a primary reason for seeking couple therapy (Doss, Atkins, & Christensen, 2002). Given the importance of sexual dissatisfaction for men, it is not surprising that they choose affairs in a sexually dissatisfying marriage where divorce may be perceived as a difficult option.

The interaction between gender and substance use was not anticipated, and there is not research supporting such an interaction. Thus, it should be interpreted conservatively. Perhaps the most interesting aspect of this finding is that substance use was predictive of infidelity at all, given that couples were excluded from the study if they met abuse or dependence diagnostic criteria. As a result, there was a very limited range of substance use, which may suggest that substance use could be an even stronger predictor of infidelity in samples with greater levels of substance use.

Narcissism was somewhat weakly related to infidelity. The relationship between narcissism and infidelity was in the predicted direction that individuals who were more focused on themselves and their own needs and desires were more likely to have had or be involved in an affair. This finding supports past research from analogue studies (Buss & Shackelford, 1997). In addition, the present relationship between narcissism and infidelity was found using three items from the NEO personality inventory. A better measure may detect a stronger relationship.

With some of the remaining predictors, there is a potential confound in interpreting their effects. It could be the case that the affair was revealed prior to therapy, and the findings simply reflect this fact. For example, dishonesty was shown to be a strong correlate of infidelity. However, if the affair were revealed prior to therapy, then this "finding" may reflect simply that the spouse knows about the affair and knows that their partner lied to them. If the affair were not known at the outset of therapy, then it may be that dishonesty is a problem in these relationships even when the affair is still hidden. The sample sizes are too small to run analyses using subsets of affair couples. However, Table 6 presents medians and standard deviations for several predictors by when the affair was revealed.

The descriptive statistics show that the time together cluster was lower among infidelity individuals than non-infidelity individuals regardless of when the affair was revealed. The effect of intimacy, on the other hand, does appear to depend somewhat on when the affair was revealed. When the affair was already revealed to the spouse, the average intimacy score is positive relative to the rest of the sample. Conversely, when the affair was unknown, the average intimacy score is negative relative to the rest of the sample. When the affair has already been revealed, it may be that these couples are already trying to work on their relationship, trying to rebuild after the discovery of the affair. For the couples in which the affair has not yet been revealed, there may be continued ambivalence and lower intimacy.

Looking at marital instability, there are some interesting differences depending on when the affair was revealed. Infidelity couples as a whole are strongly considering ending the relationship; the median for non-infidelity couples is 3. However, those individuals who never revealed the affair during therapy are significantly closer to separation and divorce than individuals who revealed the affair prior to therapy and individuals who revealed the affair during therapy. These individuals have lied to their spouses up until therapy began and then during therapy about their extramarital liaison. These descriptive statistics show that this may be a particularly toxic state of affairs for the relationship. Of course, it is unclear whether there is a cause-effect relationship between these variables. Whereas having a secret affair might be very detrimental to the relationship, it could also be that spouses who are very close to ending their relationship decide to have an affair.

Finally, when the affair is revealed or will be revealed during therapy, infidelity couples report arguing about trust and problems with dishonesty. However, the secret affair couples do not report problems with trust or dishonesty relative to non-infidelity couples. These individuals lie, and they appear to lie well. This finding also suggests that the couples with secret affairs are not arguing about other areas of dishonesty either. Perhaps the dishonesty is focal to the affair, or the person having the affair is successful in being dishonest in other domains also.

In addition to these significant predictors of infidelity, there were some predictors that failed to discriminate between infidelity and non-infidelity individuals. Divorce and current work status were not significant predictors of infidelity. While these two variables were found to be predictive of infidelity in survey research, those effects were modest given the sample size (Atkins et al., 2001). Thus, it may be that there was insufficient power to detect these effects with the current sample, though even if it were deemed that these predictors have a "true" relationship with infidelity, they may have limited explanatory power if their effects are so small. Anti-social behavior also failed to reach significance; it was anticipated that this variable might cluster with the narcissism variables. The model clearly shows that narcissism has more predictive power with infidelity than does anti-social behavior, though anti-social behavior had a very low base-rate in the present sample. Finally, the time with others cluster did not significantly discriminate infidelity individuals from non-infidelity individuals. It was intended that this cluster of items would group with the time together cluster. The results of the analysis show that time spent with one's spouse and satisfaction with this behavior are much more predictive of infidelity than time spent with other people.

Data Analysis for Question 2

Aside from the pioneering work of Gordon et al. (2002), there is no other research directly examining the efficacy of couple therapy for dealing with infidelity. Thus, very little is known about the "prognosis" or seriousness of infidelity as a problem to be treated in couple therapy. The second analysis explored the impact of infidelity on the initial level of distress and course of treatment in two broad-based, couple therapies.

Similar to the first analysis, the second data analysis must accommodate several features of the data. First, the data are repeated measures collected over four time points (pre-therapy assessment, 13-week assessment, 26-week assessment, and final therapy session). The time between assessments is approximately equal for couples across the first three time points; however, the last time point varies between couples (e.g., a few couples finished therapy before all 26 sessions were completed, most couples took longer than 26 weeks to complete treatment, $M = 35$ weeks). In addition, there are correlated

groups in the data; spouses, on average, are more similar to one another than to other individuals in the study. These aforementioned qualities of the data violate assumptions of standard statistical procedures such as dependent samples *t*-test and repeated measures ANOVA.

Hierarchical Linear Modeling (HLM; also called multilevel modeling or mixed-effects modeling) effectively and accurately models data with these characteristics (Bryk & Raudenbush, 1992; Kreft & de Leeuw, 1998; for a comparison of statistical approaches with longitudinal data, see Snijders & Boskers, 1999). Studies have shown that when dependencies within the data are not taken into account, actual *p*-values are more liberal than the reported *p*-values, reflecting an inflated Type I error rate. With data on couples, three common alternatives include analyzing husband and wife data separately, analyzing averages of husband and wife data, and treating sex as a random factor in a repeated measures ANOVA. However, these adjustments are imperfect solutions. Analyzing the spouses' data separately ignores the influence of partners' data on each other; it is both more accurate and parsimonious to model spouses' data within a single model. Treating the data as averages of husbands and wives also has certain problems. First, it may obfuscate the "true" data when partners scores radically deviate from one another (e.g., one partner may be significantly more satisfied with the relationship than the other). Secondly, this method reduces the sample size by half, leading to a significant loss of power. Analyzing the data using HLM utilizes all of the available data in a single model.

A third option is to analyze couple data using a repeated measures ANOVA with spouse as a within subject factor. This method avoids the problems of the first two options but does require that the data are balanced and that there are no missing data. Repeated measures ANOVA assumes that the time between each measurement is identical for all participants in the study, and often, this is patently false, as in the current data. HLM allows variability between time points for each participant in the study (for comparisons between repeated measures ANOVA and HLM, see Hox, 2001).

Another advantage of HLM involves missing data. Longitudinal designs are particularly prone to missing data. For a variety of reasons, individuals and couples are

likely to have one or more time points of data missing. With ANOVA models and *t*-tests, participants with missing data either are excluded from the analyses or the missing data are "filled in," typically with means or regression estimates. Excluding participants because of some missing data is inefficient but filling in or imputing data can underestimate the true variability, biasing standard errors. HLM produces Empirical Bayes' estimates of missing data that are weighted estimates of individual and population data. These estimates have been shown to produce unbiased estimates of missing data when the missing data does not exceed 15-20% of the total data (Snijders & Boskers, 1999). For the present study, there was complete data on all 134 couples at pre-treatment and 115 couples at their final session. Only 7% of the total data were missing.

The present analyses used a three-level model to represent couples change over time in relationship satisfaction. The first level modeled the repeated measures growth curve of each individual, consisting of an intercept, slope (linear change), and quadratic (curvature). Each of these parameters is directly relevant to the goals of the analysis. The intercept estimates marital satisfaction at pre-therapy, or the initial level of distress. The slope estimates the linear rate of change in therapy, and the quadratic estimates the acceleration or deceleration of change during therapy. At Level 2, spouses' intercepts were treated as random effects; thus, partners were not required to start at the same initial level of distress. At the couple level (Level 3), each of the parameters was decomposed into an average estimate and a random variance component that accounts for the variance across couples. Thus, the different couples in the study were represented with their own intercepts, slopes, and quadratics.[12] Considering the three levels together forms a basic model describing the initial level of distress and change over time for the couples in the study. Following the notation of Bryk and Raudenbush (1992), the model is displayed in equation 1.

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[12] Most published couple research using HLM have used the 2-level model presented by Raudenbush, Brennan, and Barnett (1995). The 3-level model used in the present study is more parsimonious (8 random effects parameters vs. 22 parameters in the 2-level model). One significant restriction of the current model is that spouses are assumed to have a common slope and quadratic. This assumption is reasonable in a therapy study, and it was very uncommon to have partners' satisfaction moving in opposite directions.

Level 1: $Y_{tij} = \pi_{0ij} + \pi_{1ij}(\text{Time})_{tij} + \pi_{2ij}(\text{Time}^2)_{tij} + \varepsilon_{tij}$ (1)

Level 2: $\pi_{0ij} = \beta_{00j} + r_{0ij}$

$\pi_{1ij} = \beta_{10j}$

$\pi_{2ij} = \beta_{20j}$

Level 3: $\beta_{00j} = \gamma_{000} + u_{00j}$

$\beta_{10j} = \gamma_{100} + u_{10j}$

$\beta_{20j} = \gamma_{200} + u_{20j}$

where t subsets time points, i subsets individuals, and j subsets couples. ε_{tij} is the level 1 residual term that describes the scatter of the data points around each growth curve; r_{0ij} is a random intercept that allows individuals within the same couple to have separate intercept values; u_{00j}, u_{10j}, and u_{20j} are the random effects at the couple level that allow different couples within the study to have distinct intercept, slope, and quadratic values.

To this basic model, an infidelity indicator variable was included (0 = no infidelity, 1 = infidelity) as a predictor at level 3. This predictor was added to each component of the basic model—intercept, slope, and quadratic. These variables indicate whether couples in which there was an affair reliably deviate from non-infidelity couples in one or more components of their relationship satisfaction trajectory.

Preliminary analyses of the data revealed that infidelity couples began treatment more highly distressed than non-infidelity couples. In light of this, one possible confound of the present analysis could be that infidelity couples do worse in therapy because they are more highly distressed at the start of therapy and not because of the difficulty of treating infidelity. To address this possibility, a matched case-control analysis was conducted. Each infidelity couple was matched to one or more non-infidelity couples based on average couple scores of the pre-treatment DAS and pre-treatment sexual dissatisfaction subscale (SEX) of the MSI-R. Pre-treatment DAS was chosen because—as was noted above—there was evidence that infidelity couples were

more highly distressed initially. Pre-treatment SEX scores were chosen because there is some evidence that couples who are more highly dissatisfied with their sex lives have poorer outcomes in therapy (Berns, Atkins, Doss, Sutherland, & Christensen, 2002). Spouses' scores on each measure were averaged, and infidelity couples were matched to non-infidelity couples scoring within +/- 3 points on both measures. Variable matching was used, and each infidelity couple was matched to between 1 and 8 non-infidelity couples. The data analysis used a similar HLM model to the one described previously, except that a fourth level was added related to the matching that controlled for the artificial correlation induced by the matching. This analysis compares the treatment outcomes of infidelity couples with similarly distressed, non-infidelity couples.

An additional issue that may be a factor in the analysis of objective 2 is that some infidelity couples sought therapy because of the affair while in other cases the affair was revealed for the first time during therapy, which was displayed in Table 2. When the affair was revealed could affect the course of therapy. Comparisons within the 19 infidelity couples are not feasible statistically; however, descriptive comparisons can be made. In addition, 5 of the infidelity couples never discussed the infidelity during therapy. The outcomes of these "secret" affairs do not address the primary question because in these instances—therapy never addressed the infidelity. Models were run with and without these couples.

Finally, two other comparisons were made within the group of infidelity couples. Following the research of Gordon et al. (2002), we examined differences in trajectories between involved and non-involved spouses. As noted earlier, another aspect of the present research is that the data come from a randomized clinical trial testing two separate marital therapies. Because infidelity was not part of the randomization process, there were varying numbers of affairs in the two treatments (7 in IBCT, 12 in TBCT), and the small sample sizes make statistical conclusions dubious. Both comparisons (involved vs. non-involved spouse and IBCT vs. TBCT) used only the infidelity couples and were limited to a qualitative inspection of the trajectories. All analyses were conducted using

S-plus 2000 Professional Release 2 (Mathsoft, 1999) and made extensive use of the nlme library version 3.3 of functions for mixed-effects modeling (Pinheiro & Bates, 2000).

Table 6. Summary Statistics for Predictors by When the Affair was Revealed

	Prior to therapy	During therapy	Following therapy
	Mdn (*SD*)	*Mdn* (*SD*)	*Mdn* (*SD*)
Intimacy	0.60 (2.09)	-1.19 (2.11)	-1.03 (1.53)
Time together	-0.39 (0.45)	-0.68 (0.66)	-0.44 (0.79)
Marital stability	6.00 (3.37)	6.5 (2.81)	9.5 (2.94)
Trust	5.00 (1.90)	4.00 (1.91)	6.50 (0.95)
Dishonesty	0.00 (1.46)	0.00 (4.10)	6.5 (3.56)

Results for Question 2

Basic Model

Figure 2 presents mean DAS during therapy and 90% bootstrapped confidence intervals for distressed couples, infidelity couples, and secret affair couples. From the means, it appears that infidelity couples begin treatment more distressed than non-infidelity couples and that couples in which the affair was kept secret begin treatment even more distressed than couples in which the affair was revealed. The plot of means also shows that when the affair is revealed prior to or during therapy, there is a positive trajectory of relationship satisfaction during therapy as opposed to when the affair is not revealed. The secret affair couples show an increase early in therapy that deteriorates in the later portions of therapy.

Table 7 presents the basic HLM model and a model including the infidelity indicator variables excluding couples in which the affair was kept secret. The basic model shows that, on average, couples in the study began treatment with a DAS score of 85 and improved during the course of therapy, gaining 0.36 DAS points per week. There is some indication of deceleration, but the quadratic component failed to reach significance. A deviance test demonstrated that adding the infidelity indicator variables significantly improved the fit of the model, $\chi^2(3) = 10.0$, $p = .018$. In addition, the Akaike Information Criterion (AIC), which penalizes models for additional predictors, was lower for the model with the infidelity indicators, again suggesting an improved model fit.

The coefficients of the infidelity dummy variables represent the difference between infidelity couples and distressed non-infidelity couples in each parameter of the growth curves. Similar to the plot of means, infidelity couples began therapy significantly more distressed than non-infidelity couples, with an estimated pre-treatment DAS of approximately 78. There is a non-significant difference between infidelity and non-infidelity couples in their rate of change, and a trend ($p = .10$) that infidelity couples' change in therapy is accelerating over time compared to non-infidelity couples. The

estimated regression lines along with mean DAS scores at the 4 time points are presented in Figure 3.

Case-control Analysis

As noted earlier it is possible that differences in therapy outcomes over time between infidelity and distressed non-infidelity couples could be related to differences in initial level of distress and not the affair per se. To control for this possibility, a case-control analysis was conducted. The same HLM model was used with slight modification. A fourth level was added to represent the nested structure of the data due to matching. In addition, because infidelity and non-infidelity couples were matched using pre-treatment DAS, the random intercept at the couple level was no longer needed. Thus, the random effects structure for the case-control analysis is a single error term at level-1 (repeated measures), a random intercept at level-2 (individual), random slope and quadratic at level-3 (couple), and a random intercept at level-4 (matching). The case-control analysis includes 14 infidelity couples (all infidelity couples in which the affair was discussed in therapy) and 42 controls. The results of the case-control analysis are presented in Table 8.

The estimated pre-treatment DAS for couples in the case-control analysis is 80, a result of the matching and notably lower than the pre-treatment DAS for the entire sample. These highly distressed couples improve 0.31 DAS points per week in therapy, and there is little evidence of curvature in their change. The infidelity couples are not different from their matched controls at pre-treatment, a manipulation check on the matching procedure. Quite similar to the previous analyses, there is not a significant difference between the groups in their linear change during therapy, and there is slight indication of acceleration of infidelity couples later in therapy. The smaller t-statistic for the quadratic in this analysis compared with the previous analysis most likely results from the smaller overall sample size of this analysis. A second model was run in which the quadratic effect was dropped. In that model, infidelity couples demonstrated a trend toward greater linear rate of change compared to matched controls ($t(304) = 1.65, p = .10$), averaging 0.45 DAS points per week. The difference between the models with and

without the quadratic most likely relate to the power to detect those differences. With only 4 time points, the present data has greater power to detect a difference in linear change as compared to a difference in quadratic change.

Clinical Significance

Clinical significance (Jacobson & Truax, 1991) is a method of classifying change during therapy. There are two criteria that are assessed. First, the couple's change during therapy is classified as Deteriorated, Unchanged, or Improved. Second, for those couples who made positive change during therapy (Improved), an assessment is made whether they would be considered closer to the non-distressed population or the distressed population based on a cutoff. Those couples who improved during therapy and crossed the non-distressed cutoff are classified as Recovered. Table 9 presents clinical significance data for study couples broken down by whether or not there was an affair.

The clinical significance data complement the results of the previous HLM analyses. The amount of change made during therapy is quite similar across infidelity and non-infidelity couples. The one exception is that more non-infidelity couples passed the non-distress cutoff and were classified as Recovered relative to infidelity couples.

Finally, several comparisons among the infidelity couples were. Because each of these comparisons uses only the infidelity couples, they are limited to descriptive analyses. As noted earlier, when the affair was revealed could very well have an impact on the course and outcome of therapy. Figure 4 presents the DAS data during therapy broken down by infidelity status and when the affair was revealed. A locally-weighted regression line has been added to depict the mean change over time within each group. With respect to the findings of Gordon et al. (2002), in the present study involved spouses are more distressed initially ($M = 73.26$) than non-involved spouses ($M = 78.42$), and both partners in infidelity couples achieved similar gains in therapy. In examining the two treatments, infidelity couples receiving TBCT displayed greater gains in therapy early, whereas infidelity couples who received IBCT showed very little gains in the first half of therapy. However, in the latter stages of therapy, these two patterns reversed with TBCT couples slowing down in their improvement, and IBCT couples accelerating their

improvement. The IBCT couples are largely responsible for the late therapy gains reported earlier with infidelity couples as a whole.

Table 7. HLM Results for Basic Model and Model with Infidelity

	Basic model		Infidelity model	
	B (*SE B*)	*t*	*B* (*SE B*)	*t*
Intercept	84.67 (1.02)	82.8	85.90 (1.08)	79.6
Infidelity			-7.10 (3.27)	2.2
Slope	0.36 (0.08)	4.6	0.39 (0.09)	4.5
Infidelity			-0.26 (0.26)	1.0
Quadratic	-0.002 (0.002)	1.1	-0.003 (0.002)	1.4
Infidelity			0.009 (0.006)	1.7
AIC	7431.6		7427.6	

Table 8. HLM Results for Case-Control Analysis of Basic Model and Model with Infidelity

	Basic model		Infidelity model	
	B (*SE B*)	*t*	*B* (*SE B*)	*t*
Intercept	80.00 (3.67)	22.0	80.39 (3.67)	21.9
Infidelity			-1.34 (2.33)	0.6
Slope	0.31 (0.15)	2.0	0.38 (0.17)	2.2
Infidelity			-0.29 (0.35)	0.8
Quadratic	0.000 (0.003)	0.1	-0.003 (0.004)	0.7
Infidelity			0.010 (0.007)	1.4
AIC	3741.2		3741.7	

Table 9. Clinical Significance Classifications for Infidelity and Non-Infidelity Couples (N = 130)

	Non-infidelity couples	Infidelity couples
	N (%)	*N* (%)
Deteriorated	14 (12%)	3 (17%)
Unchanged	25 (22%)	4 (22%)
Improved	17 (15%)	5 (28%)
Recovered	56 (50%)	6 (33%)

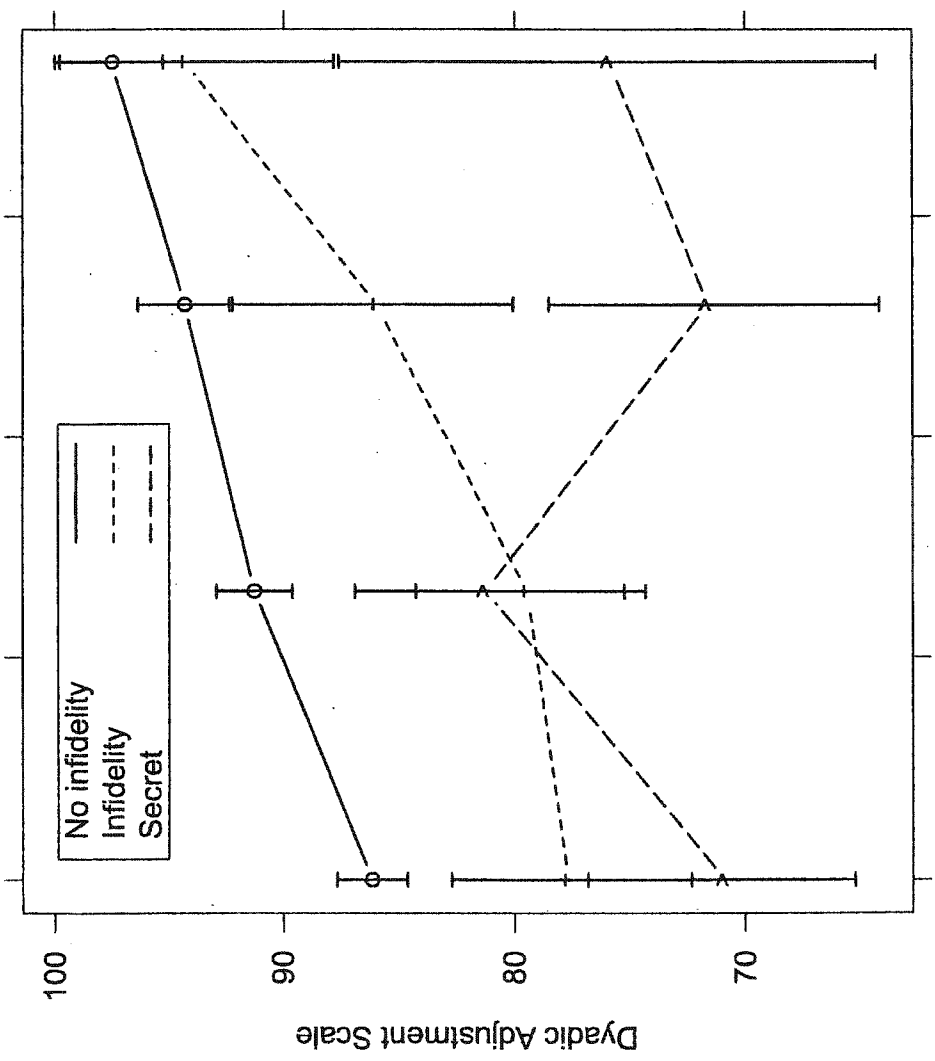

Figure 2. Mean DAS during treatment for non-infidelity, infidelity, and secret affair couples

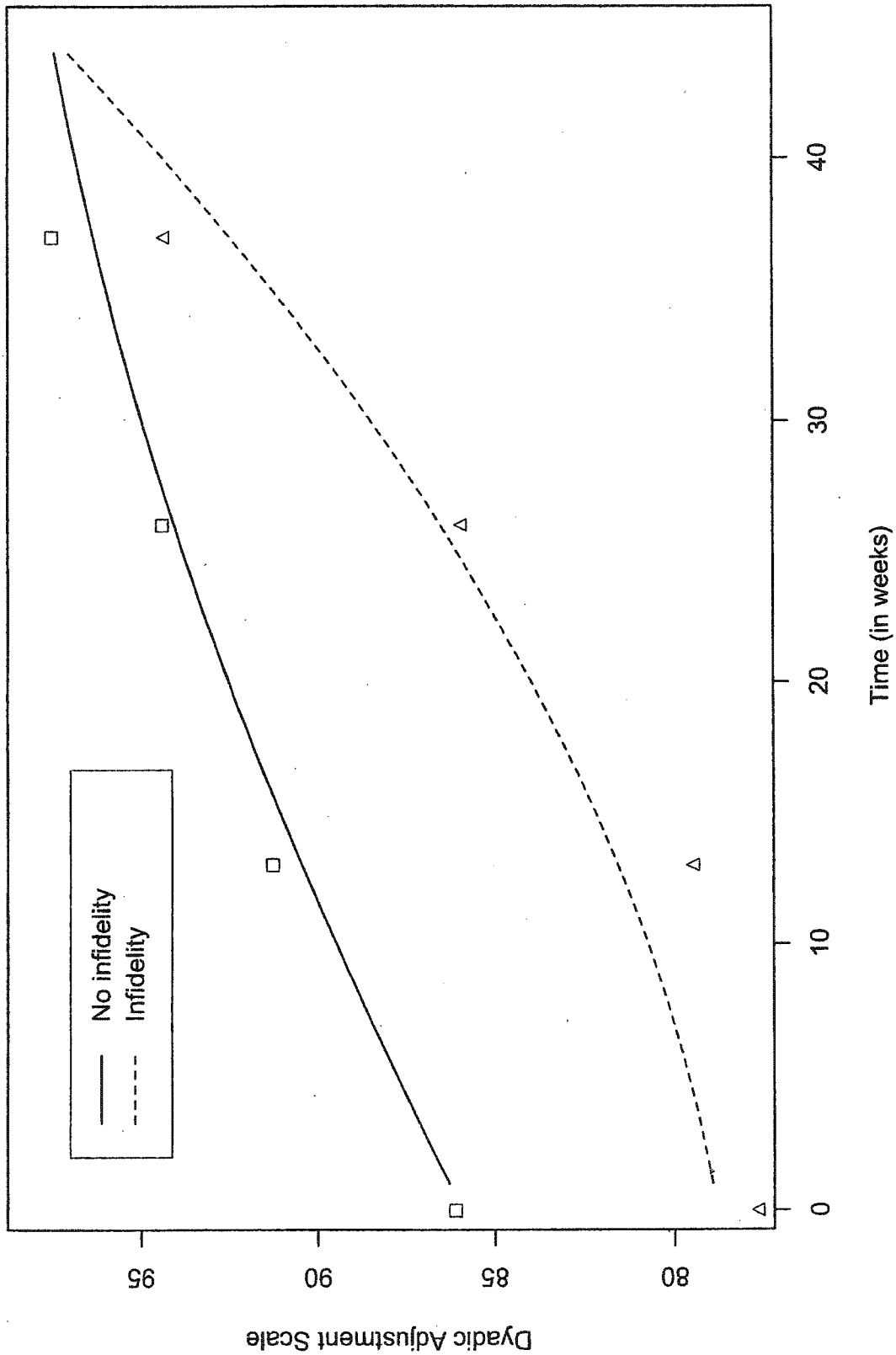

Figure 3. Predicted regression lines from HLM model including infidelity predictor

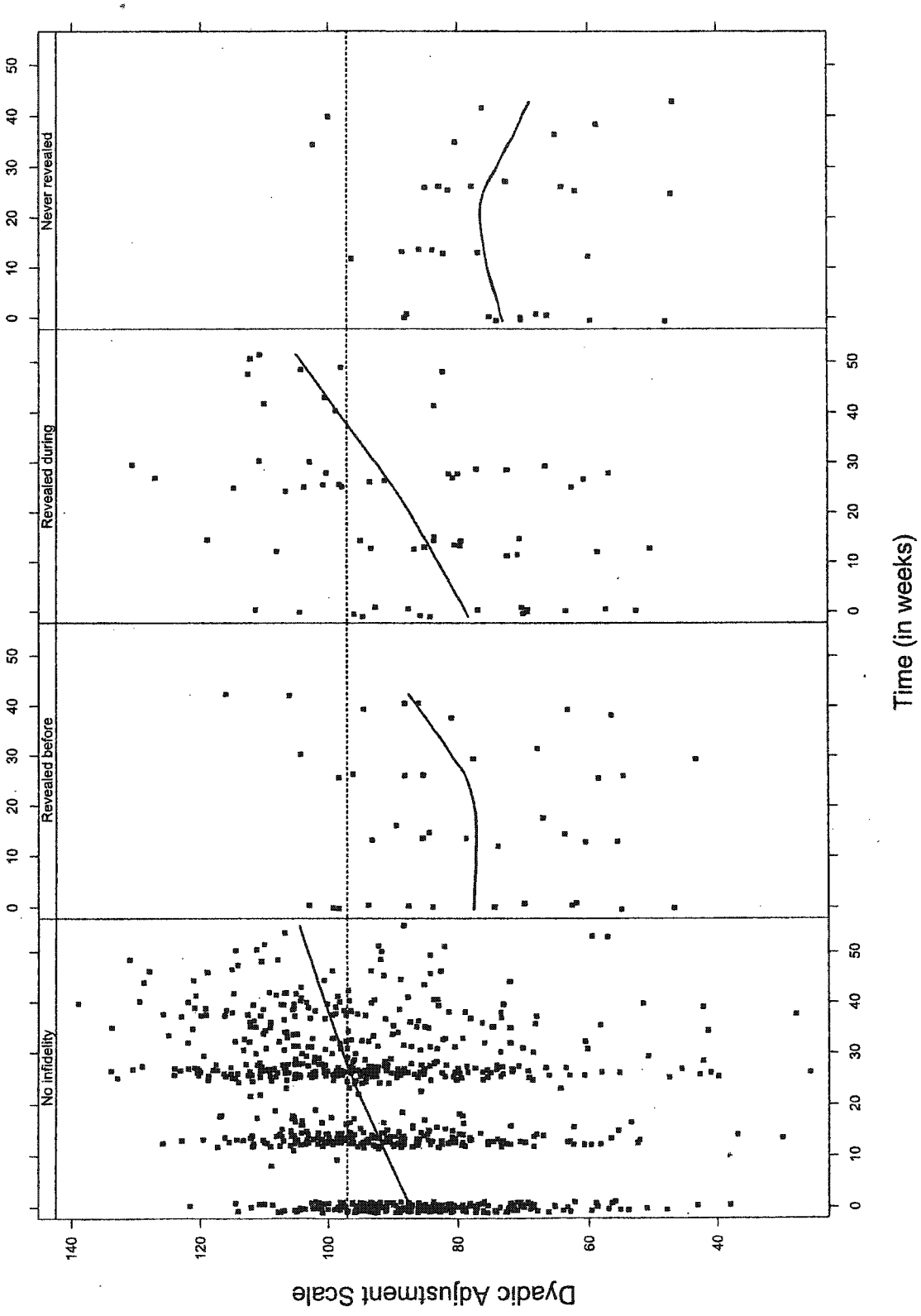

Figure 4. DAS during treatment by when affair was revealed with locally-weighted regression line

Discussion for Question 2

It is not uncommon to hear or see expressed the opinion that an affair is the end of a relationship. Our data speak unequivocally to this issue: infidelity is not the death knell of a relationship. However, a case could be made that infidelity is not just another problem that couples bring into therapy as infidelity couples are notably and reliably more distressed than their non-infidelity peers. Especially given their initial distress, the results of the present research are quite optimistic with respect to the efficacy of couple therapy with couples in which there has been an affair. The analysis including all couples revealed that infidelity couples start treatment more distressed than their non-infidelity peers; however, they improve in therapy, particularly at the end of therapy, at a greater rate. Thus, at the end of treatment, the average outcome of couples in which there is an affair is indistinguishable from the outcome of distressed but non-infidelity couples. When compared with couples who were selected to be equally distressed initially, infidelity couples showed some tendency to improve at a greater rate, reiterating the findings from the first analysis.

However, there are two findings from the present study that are somewhat less optimistic. First, affairs that remain hidden among couples seeking therapy appear devastating to the relationship. This finding is observational rather than statistical as the small sample size ($N = 5$) of secret affair couples prevents any meaningful statistical analyses. However, with an average DAS of 76 at the end of treatment, there appears to be great consistency and little optimism among this small cohort of couples.

The other note of caution in the present data is that a lower percentage of infidelity couples return to a non-distressed range of relationship satisfaction at the end of therapy. This is not surprising as these couples began therapy more distressed and thus needed much stronger gains in therapy to return to the non-distressed range. However, this fact puts these couples at greater risk of relapse. Moreover, it is possible that the affair itself may put a couple at a greater risk of relapse, though there has been no research on this topic to date.

There are some unexpected findings related to the timing of the affair disclosure. There is some evidence from the models that infidelity couples made gains later in therapy such that their change was accelerating over time. We anticipated that this aspect of their course in therapy would be driven by infidelity couples in which the affair was revealed during therapy. These couples "lost" some amount of time in therapy relative to the infidelity couples in which the affair was known from the outset of therapy. However, the descriptive data in Figure 4 show precisely the opposite; it seems that the couples in which the affair was revealed during therapy show steadier and stronger gains over the course of therapy relative to infidelity couples in which the affair was known from the outset. One possible interpretation is that affairs that are revealed during therapy allow the therapist an opportunity to intervene immediately with the couple around the issue of infidelity. It could be that this initial work in containing intense emotions at the revelation of the affair helps these couples to quickly move toward processing the meaning of the affair. Those couples in which the affair was revealed prior to therapy may have been struggling with the affair on their own for some time. It may be that their pre-therapy struggles were detrimental to moving forward with therapy. As noted, this finding was unexpected and thus should be replicated with other research.

Some remarks comparing the present results with the work of Gordon et al. (2002) are warranted. The two primary findings from the Gordon et al. study were that the non-involved spouse was more distressed than the involved partner initially and also made greater gains in therapy relative to the involved spouse. The current findings are somewhat different. In the present study, the involved spouse was found to be more distressed than the non-involved spouse, and both partners made similar gains in therapy. As Gordon et al. noted, their therapy focused largely on the affair, which may explain the differential effects between involved and non-involved spouses. The present study used two broad-based couple therapies and work with infidelity couples involved non-affair issues. Comparing the findings from the two studies, it appears that focusing on the relationship as a whole may be particularly helpful for the involved spouse. The Gordon et al. study also specifically recruited couples with affairs whereas the current study

recruited distressed couples. These sample differences may also help to account for differences between studies.

Finally, the descriptive results comparing the two treatments reveal possibilities for future research. There is some evidence based on the pattern of change during therapy that infidelity couples who received TBCT made their gains early in therapy, whereas those infidelity couples who received IBCT made their gains in the latter portions of therapy. This pattern of treatment response in the two therapies with infidelity couples reflects the findings from the larger outcome study to some extent (Christensen et al., 2002). Therapists and researchers have commented on the intense emotions that are present in working with infidelity couples such that non-involved partners sometimes display trauma symptoms from the discovery of the affair (Glass & Wright, 1997; Gordon, Baucom, & Snyder, 2002). It is possible that the greater structure of TBCT is helpful to infidelity couples early in therapy, in which the therapist can actively control the intensity and emotions through focusing the couples on specific skills. Conversely, it could be difficult for these couples to focus on "acceptance work" early in therapy. Following the initial turmoil of the revealed affair, it may be therapeutically effective to work on the meaning of the affair and acceptance of one's partner following such a relationship trauma. This sequencing of interventions could be particularly effective with infidelity couples and, in fact, is similar to the three stages of therapy for working with infidelity couples proposed by Gordon and Baucom (1998). This is clearly an area for more research.

Conclusions, Limitations, and Future Research

This study addressed two basic issues with respect to infidelity and couple therapy. The first analysis revealed that there are qualities of individuals and couples that differentiate between spouses who had engaged in infidelity and those who had not. The second analysis demonstrated that infidelity couples are more distressed initially but do well in treatment, evidenced by the fact that infidelity couples improve at a greater rate than non-infidelity couples. In interpreting these findings there are several important issues to bear in mind.

One important issue is the nature of the present sample. The couples in this study were highly distressed couples seeking marital therapy. They are not a representative sample of couples in general. This fact may explain the difference between the rate of infidelity in the present study (14% of couples), and the somewhat higher rate found in some of the survey studies, approximately 20%-25% (Greeley, 1994; Laumann et al., 1994; Wiederman, 1997). These comparisons are difficult to interpret because the present data is from 134 married couples, while the national survey data is based only on individuals, with no data on their partners. However, the Atkins et al. (2001) study that included participants who were married at the time of the interview found that 13% of married responders had engaged in infidelity. Thus, the rate of infidelity in the present study does coincide with a rate of married individuals with infidelity in at least one national survey.

Another salient issue noted earlier is that couples were not recruited based on their affair status, nor were they specifically assessed about affairs. The primary means of assessing which couples had affairs and which did not was via therapist report. Therefore, it is possible and even quite likely that some individuals in our study did engage in infidelity at an earlier time (or during the study), and it simply was never mentioned in therapy. Moreover, these couples sought therapy. It is quite likely that some people who engage in infidelity are quite unlikely to seek therapy. If we entertain the veracity of the different affair types of Pittman (1989) and Brown (1992), certain types would be very unlikely to seek therapy. For instance, the "Out the door" affair, in

which the main purpose is to end the primary relationship, seems an unlikely candidate for therapy. There is also some evidence from a community sample that some individuals who engage in secret affairs are quite satisfied in their primary relationships (Glass & Wright, 1985). Again, these couples are not likely to be represented in our sample.

The foregoing issues highlight the variability of affairs in the general population; similarly, there was a great deal of variability in affairs in the present study. In the popular media, affairs are often portrayed with a similar pattern—a chance encounter which sparks interest and then a progression toward a sexual relationship that is eventually brought to light with the spouse. However, in the present study with our limited sample, there was an incredible variety in the nature and course of the affairs. There were brief, one-time encounters that were never disclosed to the spouse, affairs that centered on sexual or emotional needs that were not getting met in the marriage, and affairs that followed the "movie script," to illustrate just a few. Thus, a profitable area of future research is to further explore the varieties of infidelity.

In conclusion, it is worth highlighting the optimistic findings of the present research with respect to infidelity and couple therapy. This study is modest in terms of the number of affair couples and speculation should be tempered accordingly. Nonetheless, the clear indication from the outcome analysis is that two of the existing, broad-based couple therapies can be effective with couples who are struggling with infidelity. This is an important message for couples who may be seeking couple therapy for infidelity and for the therapists who are providing the therapy. In addition, it is an encouraging indication of the efficacy of couple therapy.

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Appendix A

Questionnaire for Therapists with Infidelity Couples

1. Which partner had the affair? _____ Husband _____ Wife _____ Both

2. How long did the affair last (approximately, in months; most recent affair if more than one)?

_____ months

3. When did the affair begin? _____ > 6 months before therapy _____ just before therapy

_____ during therapy

4. When was the affair revealed? _____ prior to therapy _____ during therapy

_____ following therapy

5. Was it a single affair? multiple affairs _____ single affair _____

6. Please rate the physical involvement of the affair on a scale from 1 to 5, where 1 represents "no physical involvement," 2 represents "kissing," 3 represents "sensual caressing," 4 represents "sexual behaviors other than intercourse," and 5 represents "sexual intercourse." _____

1	2	3	4	5
No physical involvement	Kissing	Sensual caressing	Sexual behavior other than intercourse	Sexual intercourse

7. Please rate the emotional involvement of the affair on a scale from 1 to 5, where 1 represents "no emotional involvement," 3 represents "moderate emotional involvement" and 5 represents "extremely deep emotional involvement". _____

1	2	3	4	5
No emotional involvement		Moderate emotional involvement		Extremely deep emotional involvement

8. How much of the total time in therapy was spent specifically addressing the affair(s)? (Note: I know this is difficult to say accurately but just give your best estimate.) _____ %

9. Based on what the couple reported and your own opinion, what led to the affair? (Note: If there were different opinions among the partners and/or yourself as to what led to the affair, please note the differences.)

10. Do you feel that the affair was representative of the couple's problems in general (i.e., indicative of their "theme" or central problems), or somehow tangential to their central issues (i.e., a one-night stand or "mistake")? _____

1 ---------- 2	---------- 3	---------- 4	---------- 5
Not representative At all		Somewhat representative	Totally representative

Comments on relationship between couple's problems in general and affair:

11. What specific factors associated with each partner's behavior in therapy either helped or hindered their work on the affair (e.g., partner's openess/defensivesness; rigidity; overwhelming anxiety or hyper-emotionality)?

12. In your opinion, do you think that the couple was able to deal successfully with the affair in therapy? _____

1 ---------- 2	---------- 3	---------- 4	---------- 5
Not successful at all		Somewhat successful	Completely successful

If no, why not? If yes, how did that occur? (Note: I am not providing a definition of "successful" because I'd like your opinion as the therapist. So, please note how you are defining successful in your comments.)

13. Do you think that the particular type of therapy that the couple received (i.e., TBCT or IBCT) helped or hindered the couple in addressing the affair? _____

1 ---------- 2	---------- 3	---------- 4	---------- 5
Definitely		Neither helped	Definitely

hindered nor hindered helped

If so, in what ways did the therapy help or hinder?

14. How confident are you that you got the "full story" about the affair? _____

1 ---------- 2 ---------- 3 ---------- 4 ---------- 5
Definitely did not get the full story | Not certain | Definitely got the full story

Please rate the following factors that may have contributed to the affair on a scale from 1 to 5, where 1 represents "not at all important" and 5 represents "extremely important".

1. Individual factors that may include but are not limited to: personality (e.g., narcissism, anti-social traits), psychological problems (e.g., depression), or addictions (e.g., substance abuse, sexual addiction): _____

1 ---------- 2 ---------- 3 ---------- 4 ---------- 5
Not at all important | Somewhat important | Extremely important

If important, specific individual problem(s):

2. Relationship factors that may include but are not limited to: poor relationship quality, sexual dissatisfaction or incompatibility, not getting needs met in marriage, or "drift" between partners over time: _____

1 ---------- 2 ---------- 3 ---------- 4 ---------- 5
Not at all important | Somewhat important | Extremely important

If important, specific relationship factor(s):

3. Contextual/Environmental factors that may include but are not limited to: frequent travels away from home, aggressive pursuit of third party, stressful life circumstances, or high opportunity because of status or desirability: _____

1 ---------- 2 ---------- 3 ---------- 4 ---------- 5
Not at all important | Somewhat important | Extremely important

If important, specific contextual factor(s):

Any additional comments about the affair?

June 2003

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Curriculum Vitae

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Education

Clinical Internship
July, 2002 – Present

University of Washington Psychiatry, Seattle, WA
Twelve-month clinical internship involving rotations in psychiatry consultation-liaison, outpatient psychiatry, and inpatient psychiatry.

Supervisors: Kate Comtois, Ph.D., Chris Dunn, Ph.D., Andrew Elliott, M.D., and Craig Sawchuck, Ph.D.

Doctorate
September, 1997 - Present

University of Washington, Seattle, WA
Major: Clinical Psychology

Dissertation: "Infidelity and marital therapy: Initial findings from a randomized clinical trial"
Advisors: Donald H. Baucom, Ph.D., Andrew Christensen, Ph.D., Robert J. Kohlenberg, Ph.D.

Master's
September, 1994 –June, 1995

Stanford University, Palo Alto, CA
Major: Social Psychology

Master's Research: Replication study of senior honor's thesis
Advisors: Mark Lepper, Ph.D., Lee Ross, Ph.D., Claude Steele, Ph.D.

Bachelor's
September, 1990 –June, 1994

Stanford University, Palo Alto, CA
Bachelor of Arts, *with Honors*

Major: Psychology

Honor's Thesis: "Eliminating reactive devaluation with self-affirmation"
Advisors: Mark Lepper, Ph.D., Lee Ross, Ph.D., Claude Steele, Ph.D.

Research Experience

July, 2001 – Present

Statistical Consultant, University of Washington. *Treatments for Depression study*. Assisted with data preparation and conducting statistical analyses for a study comparing two types of psychotherapy, paroxetine, and pill-placebo.
Supervisor: Robert Kohlenberg, Ph.D.

December, 2001 – July, 2002

Statistical Consultant, Seattle VA. *Attributions of Gulf War veterans*. Conducted statistical analyses for a study examining the attributions of Gulf War veterans and their relationship to physical and mental health outcomes.
Supervisor: Miles McFall, Ph.D.

June, 2001 – June, 2002

Research Study Coordinator, University of Washington. *Acceptance and Change in Marital Therapy research study*. Coordinated all aspects of on-going 5-year marital therapy outcome study. Duties included overseeing research assistants and staff, data management and statistical analyses, aid in the writing of scholarly journal articles, and presenting data at conferences.
Supervisors: Andrew Christensen, Ph.D. and William George, Ph.D.

September, 1997 – June, 2001

Research Assistant, University of Washington. *Acceptance and Change in Marital Therapy research study*. Duties included assessment development, aid in the determination of research protocol, performing structured clinical diagnostic interviews (SCID I and II), data management and analyses, subject recruitment and scheduling, and overseeing coding of treatment adherence by graduate and undergraduate students.
Supervisors: Andrew Christensen, Ph.D., Neil Jacobson, Ph.D., and William George, Ph.D.

June, 1996 – June, 1997	**Research Assistant**, Palo Alto VA Hospital, CA. *Charting the therapeutic alliance over time in couple therapy.* Duties included helping to develop a coding system for measuring therapeutic alliance in couple therapy and data entry. *Supervisor*: Douglas Rait, Ph.D.
September, 1995 – June, 1997	**Research Assistant**, Stanford University. *Stereotype threat and standardized testing research studies.* Duties included designing and conducting social psychology experiments, basic data analyses, and coordinating resources for research lab. *Supervisor*: Claude Steele, Ph.D.
June, 1993 – June, 1997	**Research Assistant**, Stanford University. Conducted library research in preparation for book, *Self-Efficacy: The Exercise of Control.* *Supervisor*: Albert Bandura, Ph.D.

Teaching Experience

April, 2002 – June, 2002	**Tutorial on Hierarchical Linear Modeling**, University of Washington. Ten week seminar for graduate students on the theory and application of Hierarchical Linear Models with special emphasis on longitudinal data.
January, 2001 – March, 2001	**Teaching Assistant**, University of Washington. *Introduction to Statistics and Data Analysis*. Second course in graduate student statistics sequence. Instructor: John Miyamoto, Ph.D.
September, 2000 – December, 2000	**Teaching Assistant**, University of Washington. *Linear Models and Data Analysis*. First course in graduate student statistics sequence. Instructor: Carolyn Mangelsdorff, Ph.D.
May, 1998	**Guest lecture**, Research on infidelity, given in *Sociology of Gender and Sexuality*. Instructor: Pepper Schwartz, Ph.D.
April, 1997 – June, 1997	**Teaching Assistant**, Stanford University. *Perception*. Instructor: David Heeger, Ph.D.

January, 1997 – March, 1997	**Teaching Assistant**, Stanford University. *Abnormal Psychology*. Instructor: David Rosenhan, Ph.D.
April, 1996 – June, 1996	**Teaching Assistant**, Stanford University. *Abnormal Psychology*. Instructor: David Rosenhan, Ph.D.
April, 1995 – June, 1995	**Teaching Assistant**, Stanford University. *Introduction to Psychology*. Instructor: John Gabrieli, Ph.D.
September, 1994 – December, 1994	**Teaching Assistant**, Stanford University. *Carl Jung and Analytical Psychology*. Instructor: Douglas Daher, Ph.D.

Clinical Experience

July, 2002 – Present	**Clinical Intern**, University of Washington, Department of Psychiatry and Behavioral Sciences. Currently completing a one year clinical internship. Rotations include inpatient psychiatry, psychiatry consultation/liaison, and outpatient psychiatry. *Supervisors*: Kate Comtois, Ph.D., Chris Dunn, Ph.D., Andrew Elliott, M.D., M.P.H., Doug Zatzick, M.D.
January, 2001 – March, 2002	**Psychometrist**, Seattle, WA. Performed neuropsychological testing with adults, score tests, and write behavioral observations. *Supervisor*: David Coppel, Ph.D.
November, 1998 – February, 2002	**Therapist**, University of Washington. *Psychological Services and Training Clinic*. Conducted therapy with three individual clients, two couples, and one social process group. *Supervisors*: David Coppel, Ph.D., Peter Fehrenbach, Ph.D., Neil Jacobson, Ph.D., Steve Sholl, Ph.D., and Tom Wall, Ph.D.
January, 2000 – January, 2001	**Research Therapist**, University of Washington. *Relapse Prevention in Couple Therapy*. Provided manualized couple therapy to 4 couples over the course of a year (9 sessions per couple). *Supervisors*: John Gottman, Ph.D. and John Slattery, Ph.D.

Publications

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. & Christensen, A. (2001). Is professional training worth the bother? A review of the impact of psychotherapy training on client outcome. *Australian Psychologist, 36,* 122-131.

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Atkins, D. C., Dimidjian, S., & Jacobson, N. S. (2001). Why do people have affairs? Recent research and future directions about attributions for extramarital affairs. In, V. Manusov & J. Harvey (Eds.), *Attribution, communication behavior, and close relationships*. Cambridge University Press: Cambridge.

Burke, B. L., Dunn, C. W., Atkins, D. C., & Phelps, J. (in press). The emerging evidence base for motivational interviewing: A meta-analytic and qualitative inquiry. *Journal of Cognitive Psychotherapy.*

Christensen, A., Atkins, D. C., Berns, S. B., Wheeler, J., Baucom, D. H., & Simpson, L. (in press). *Integrative versus traditional behavioral couple therapy for moderately and severely distressed couples.*

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McGlinchey, J. B., Atkins, D. C., & Jacobson, N. S. (2002). Clinical significance methods: Which one to use and how useful are they? *Behavior Therapy, 33,* 529-550.

Papers Under Review

Rosen, G. M., Sawchuk, C., Atkins, D. C., Brown, M., Price, R., & Lees-Haley, P. (2002). *Failure of the Trauma Symptom Inventory to detect malingered posttrauma symptoms.* Manuscript submitted for publication.

Papers in Preparation

Allen, E. B., Atkins, D. C., Baucom, D. H., Glass, S., Gordon, K. C., & Snyder, D. K. (2002). *A framework for studying and understanding infidelity.* Manuscript in preparation.

Atkins, D. C., Baucom, D. H., & Christensen, A. (2002). *Correlates of infidelity in a randomized clinical trial of marital therapy.* Manuscript in preparation.

Atkins, D. C., Baucom, D. H., & Christensen, A. (2002). *Infidelity in marital therapy: Treatment outcomes from a clinical trial.* Manuscript in preparation.

Berns, S. B., Atkins, D. C., Doss, B., Sutherland, K., & Christensen, A. (2002). *Predicting success in a randomized clinical trial of marital therapy.* Manuscript in preparation.

Christensen, A., Doss, B., & Atkins, D. C. (2002). *A scientific foundation for couple therapy.* Manuscript in preparation.

Doss, B. D. & Atkins, D. C. (2002). *Examining mediators of change in treatment studies without control groups.* Manuscript in preparation

Hunt, S. C., Richardson, R. D., Engel, C. C., Atkins, D. C., & McFall, M. (2002). *Gulf war veterans' illnesses: Relationship of illness beliefs to symptom severity and functional health status.* Manuscript in preparation.

Professional Presentations

Atkins, D. C. (2002, November). *Affairs, abuse, drugs, and depression: The promises and possible pitfalls of couple therapy.* Chaired Symposium at the annual meeting of the Association for the Advancement of Behavior Therapy, Reno, Nevada.

Atkins, D. C., Christensen, A., & Baucom, D. H. (2002, November). *Couple therapy and infidelity: How effective is therapy when there has been an affair?* Paper presented at the annual meeting of the Association for the Advancement of Behavior Therapy, Reno, Nevada.

Atkins, D. C. & Christensen, A. (2002, November). *Self-Report of marital satisfaction during treatment: Comparing the trajectories of TBCT and IBCT.* Paper presented at the annual meeting of the Association for the Advancement of Behavior Therapy, Reno, Nevada.

Berns, S. B., Atkins, D. C., Sutherland, K., Doss, B., & Christensen, A. (2002, November). *Predicting change: The road to improving response rates.* Paper

presented at the annual meeting of the Association for the Advancement of Behavior Therapy, Reno, Nevada.

Yi, J., Atkins, D. C., & Christensen, A. (2002, November). *Adherence: What is it good for?* Poster presented at the annual meeting of the Association for the Advancement of Behavior Therapy, Reno, Nevada.

Atkins, D. C. & Christensen, A. (2001, November). *Effectiveness of couple therapy with infidelity: Results from a randomized clinical trial of couple therapy.* Paper presented at the annual meeting of the Association for the Advancement of Behavior Therapy, Philadelphia, Pennsylvania.

Atkins, D. C. & Christensen, A. (2001, November). *Main outcome findings from active treatment: Self-report of marital quality.* Paper presented at the annual meeting of the Association for the Advancement of Behavior Therapy, Philadelphia, Pennsylvania.

Gordon, K. C., Atkins, D. C., Allen E. S., Snyder, D. K., Glass, S., & Baucom, D. H. (2001, November). *Intrapersonal, interpersonal, and contextual factors in engaging in and responding to infidelity.* Paper presented at the annual meeting of the Association for the Advancement of Behavior Therapy, Philadelphia, Pennsylvania.

Atkins, D. C. & Christensen, A. (2001, August). *Results of self-report and observational data at post-treatment.* Paper presented at the annual meeting of the American Psychological Association, San Francisco, California.

Atkins, D. C. (2000, November). *Multi-site clinical trial of couple therapy: First findings.* Chaired Symposium at the annual meeting of the Association for the Advancement of Behavior Therapy, New Orleans, Louisiana.

Atkins, D. C. & Christensen, A. (2000, November). *Preliminary results of self-report data at post-treatment.* Paper presented at the annual meeting of the Association for the Advancement of Behavior Therapy, New Orleans, Louisiana.

Atkins, D. C., Jacobson, N. S., & Baucom, D. H. (2000, November). *Why do people have affairs: Modeling the influences of infidelity.* Poster presented at the annual meeting of the Association for the Advancement of Behavior Therapy, New Orleans, Louisiana.

Atkins, D. C. (1999, November). *The dark underbelly of relationships: The problems no couple therapist wants to treat.* Chaired Symposium at the annual meeting of the Association for the Advancement of Behavior Therapy, Toronto, Canada.

Atkins, D. C. (1999, November). *Infidelity: How do we treat what we don't understand?* Paper presented at the annual meeting of the Association for the Advancement of Behavior Therapy, Toronto, Canada.

Atkins, D. C. (1998, November). *Infidelity: New developments in research and clinical interventions.* Chaired Symposium at the annual meeting of the Association for the Advancement of Behavior Therapy, Washington, DC.

Atkins, D. C. & Jacobson, N. S. (1998, November). *Modeling the influences of infidelity.* Paper presented at the annual meeting of the Association for the Advancement of Behavior Therapy, Washington, DC.

Awards and Honors

June, 2002	Recipient, Stanley Scholars Research Award
November, 2000	Recipient, Robert L. Weiss Graduate Student Award from the AABT Couples Research and Therapy S.I.G., Honorable Mention
September, 1993 – June, 1995	Psi Chi, National Honor Society in Psychology
June, 1994	Senior Honors Thesis, Eliminating Reactive Devaluation with Self-Affirmation
September, 1993	Recipient, Undergraduate Research Opportunities Grant

Professional Organizations

Association for the Advancement of Behavior Therapy
American Psychological Association—Division 12: Society of Clinical Psychology
American Psychological Association—Division 5: Evaluation, Measurement, and Statistics
Society for the Science of Clinical Psychology

Ad hoc Reviewer

Behavior Therapy
Family Process
Journal of Family Psychology