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Coping Processes of Couples Experiencing Infertility

Brennan D. Peterson **Christopher R. Newton** **Karen H. Rosen** **Robert S. Schulman***

Abstract: This study explored the coping processes of couples experiencing infertility. Participants included 420 couples referred for advanced reproductive treatments. Couples were divided into groups based on the frequency of their use of eight coping strategies. Findings suggest that coping processes, which are beneficial to individuals, may be problematic for one's partner. Couples where men used high amounts of distancing, while their partner used low amounts of distancing, reported higher levels of distress when compared to couples in the other groups. Conversely, couples with women who used high amounts of self-controlling coping, when paired with men who used low amounts of self-controlling coping, reported higher levels of distress. Implications of study findings are discussed, and ideas for future research are proposed.

Key Words: coping, couples, depression, infertility stress, marital adjustment.

Although the majority of people enter marriage and expect someday to have biological children, many couples will unexpectedly experience difficulty in conceiving and carrying to term their own biological child. The latest national estimates, based on data collected in 2002, indicated that nearly 4.3 million married women or their partners have impaired fecundity, defined as difficulty in conceiving or carrying to give birth a child, or infertility lasting 36 months or longer (Chandra, Martinez, Mosher, Abma, & Jones, 2005). These couples represented approximately 15% of the 28.3 million married couples in which the wives were between the ages of 15 and 44 (Chandra et al.).

As recently as the mid-1980s, researchers proposed that infertility had psychological causes as opposed to psychological consequences (Greil, 1997). Furthermore, the prevailing belief was that women were primarily responsible for infertility (ascribed to unconscious resistance to motherhood), and thus, women became the main participants and focus of infertility research. However, medical technologies have shown that both men and women contribute equally to infertility and that emotional factors only represent 5% of infertility cases (Robinson & Stewart, 1996; Seibel & Taymor, 1982). Consequently, the experience of infertility is truly one that couples share.

In an effort to better understand how infertility impacts both men and women, researchers have called for studies that examine the emotional responses of both members of the couple as they jointly cope with the experience of infertility as opposed to focusing solely on women's responses to infertility (Greil, 1997). The present study examined how couples cope with the experience of infertility and how their coping patterns were related to their adjustment to infertility.

Coping With Infertility

When a couple is faced with the experience of infertility, it is commonly interpreted as a stressor that

*Brennan D. Peterson, Assistant Professor, Department of Psychology, Chapman University, One University Drive, Orange, CA 92866 (bpeterson@chapman.edu.). Christopher R. Newton, Psychologist, Division of Reproductive Endocrinology and Infertility, London Health Sciences Centre, 339 Windermere Road, London, Ontario N6A 5A5, Canada (christopher.newton@lhsc.on.ca). Karen H. Rosen, Associate Professor, Marriage and Family Therapy Program, Virginia Tech, Northern Virginia Graduate Center, 7054 Haycock Road, Falls Church, VA 22043 (krosen@vt.edu). Robert S. Schulman, Associate Professor, Department of Statistics, Virginia Tech, 212 Hutcheson Hall, Blacksburg, VA 24061 (schulman@vt.edu).

needs to be managed. According to Lazarus and Folkman's (1984) stress and coping theory, cognitive or behavioral coping strategies are used to manage stress, and stress occurs as events in the environment are perceived by an individual to exceed his or her resources. Couples experiencing infertility commonly face severe strains on their emotional, social, and financial resources, and thus, they are likely to use coping strategies at some point during the experience. Coping strategies such as avoidance of the problem and accepting personal responsibility for one's infertility are commonly associated with increased distress, whereas coping strategies such as seeking social support and engaging in active problem solving tend to decrease distress (Jordan & Revenson, 1999).

Although understanding the relationship between coping and infertility stress is critical in understanding how a couple copes with the experience of infertility, most studies examining the issue have used the individual as the unit of analysis and have focused more on women than men (Abbey, Andrews, & Halman, 1991; Hynes, Callan, Terry, & Gallois, 1992; McQuillan, Greil, White, & Jacob, 2003). Fewer studies have examined how couples cope with the experience of infertility (Berghuis & Stanton, 2002; Peterson, Newton, & Rosen, 2003). Because infertility is recognized as a shared experience, it is important to study the interactions of partners and explore how each partner's coping with infertility may impact his or her partner's adjustment.

Systems Theory and the Couple as a Unit of Analysis

The present study's emphasis on the couples' efforts to cope with infertility, and the implications of various coping patterns among couples, was primarily guided by the family systems theoretical framework. Based on general systems theory, this framework postulates that individual behaviors of men and women are best understood in the context of their mutual interactions and systemic relationships (Bertalanffy, 1968). Thus, the focus on behavior shifts from an individual perspective to one that examines the greater system or context that surrounds the individual (e.g., the couple's relationship). Although some studies have taken a systemic focus in examining coping with infertility (Levin, Sher, & Theodos, 1997), researchers have called for additional studies using this framework (Greil, 1997). From a system's perspective, the couple's relationship provides a powerful system of mutual influence and mutual interaction that more fully explains their coping processes and reactions to the experience of infertility than considering the man's and woman's reports independently. Previous studies have shown support for using a family systems approach to guide infertility research (Andrews, Abbey, & Halman, 1991; Peterson et al., 2003; Ulbrich, Coyle, & Llabre, 1990).

Based on family systems theory, a partner's adjustment to infertility is likely impacted by the systemic nature of the couple relationship. For example, one partner may cope with infertility stress by avoiding the realities of the problem in an effort to minimize emotional pain. Although this coping style may be beneficial to the individual, it may prove detrimental to the partner if he or she feels left to face the problem alone (Beaurepaire, Jones, Thiering, Saunders, & Tennant, 1994). For example, in two studies, Stanton, Tennen, Affleck, and Mendola (1991, 1992) discovered that wives who used more self-controlling coping strategies had partners with higher levels of distress. They also found that wives who sought social support have partners who reported lower levels of psychological distress. More recently, Peterson (2003) found that when couples agreed on the amounts of infertility stress they were experiencing, they reported higher levels of marital satisfaction and decreased levels of depression. Specifically, Berghuis and Stanton (2002) found a strong between-partner relationship with coping and the reduction of depressive symptoms in couples who received a negative pregnancy result after an insemination attempt. The study revealed that a husband's use of positive coping strategies compensated for his partner's lack of coping, which, in turn, seemed to help keep her depressive symptoms relatively low and constant over time.

Coping's Relationship to Infertility Stress, Marital Adjustment, and Depression

The primary purpose of coping with infertility is to manage the emotional and/or behavioral reactions the couple experiences once a diagnosis of infertility is given. For example, couples will use coping strategies such as avoidance of the problem to deal with the unexpected news of infertility, their perceived loss of having a child, or the difficulty they may have in relating to friends with young children. Coping also may be used to reduce infertility stress for the purpose of repairing rifts to the marital relationship or avoiding feelings of depression associated with the

multiple losses they perceive. This study attempted to better understand these relationships, namely, how the coping patterns of each partner in a couple were associated with his or her partner's levels of infertility stress, marital adjustment, and depression.

When couples are diagnosed with infertility, they commonly report encountering a number of stressors. These stressors can include, but are not limited to, stress related to their sexual functioning, stress related to the endurance and quality of their relationship, and stress related to changes in their social and family networks (Newton, Sherrard, & Glavac, 1999). Men and women may perceive the severity of these stressors differently. Andrews, Abbey, and Halman (1992) found that for men, the stress of infertility was not different from other stressors that they face. Their partners, on the other hand, reported infertility stress to be highly distressing and fundamentally different from the other stressors they experienced because infertility stress posed a special threat to their sexual identity and sense of self. In another study, Freeman, Boxer, Rickels, Tureck, and Mastroianni (1985) reported that, although 50% percent of women consider infertility the most distressing experience of their lives, only 15% of men answered similarly. Although we know that infertility is a stressful event for couples, how men and women's mutual coping patterns impact each individual member of the couple's infertility stress remains largely unknown.

When examining marital adjustment among couples experiencing infertility, anecdotal and clinical reports have proposed that couples go through a variety of reactions including anger, grief, and conflict, and that the experience of infertility has the risk of tearing one's marriage apart. However, the majority of empirical studies found that couples experiencing infertility reported normal levels of marital adjustment when compared to standardized norms or when compared to couples presumed to be fertile (Greil, 1997). These high reports of marital adjustment may be because only couples who had strong marriages chose to pursue advanced reproductive treatments, and most data on couples experiencing infertility are collected at advanced reproductive treatment centers. However, a couple's patterns of coping with infertility could also contribute to strong marital relationships. This study attempted to see whether or not the coping patterns of couples experiencing infertility were related to increases or decreases in marital adjustment.

Studies examining the relationship between infertility and depression have focused primarily on women's reports of depression. In general, studies find elevated levels of depression among women experiencing infertility. However, the level of depression reported in these studies varies. For example, Downey and McKinney (1992) characterized women experiencing infertility as distressed but not impaired. Other studies have found a stronger relationship between infertility and depression. Domar, Seibel, Broome, Friedman, and Zuttermeister (1992) found that 37% of women experiencing infertility reported depression scores in the clinically significant range and concluded that ''depression is a very common and significant problem in the infertile population'' (p. 1161). Because depression has rarely been studied using the couple as the unit of analysis, the current study examined how the coping patterns of one partner are related to the reports of depression of his or her partner.

In this current study, we defined coping as a couple phenomenon and considered husbands' and wives' use of various strategies along eight core domains. Such an approach is similar to the conceptualization developed by Levin et al. (1997). We were particularly interested in how couple coping patterns would affect important outcomes such as infertility stress, depression, and marital adjustment.

The following research questions guided this study. First, among couples experiencing infertility, to what extent are the coping strategies of each partner related to the other partner's individual reports of infertility stress, marital adjustment, and depression? Second, are there specific coping strategies that may be beneficial to one partner, which result in distress to the other partner?

Method

Sample and Procedures

The sample for this study comprised men and women experiencing infertility who were referred to a university-affiliated teaching hospital for assisted reproductive treatment (ART) in Ontario, Canada. Data were collected over a 7-year time period (1995 – 2001). Participants were eligible for the study if they were receiving in vitro fertilization (IVF). Three months prior to treatment, prospective participants were mailed a series of self-report

measures including the Ways of Coping Questionnaire (WCQ), Fertility Problem Inventory (FPI), Dyadic Adjustment Scale (DAS), and Beck Depression Inventory (BDI). Couples were asked to complete the instruments separately and to return them by mail before making a pretreatment appointment with the program staff (Newton et al., 1999).

Only those couples medically accepted for IVF participation were sent questionnaires, and, because completion of psychological screening and counseling was integral to treatment participation, information was obtained from almost all participants (approximately 95%). However, because no record was actually kept of the number of questionnaires disseminated, the exact response rate is not available. In order to be included in the study, both partners had to have completed information on each of the four data collection measures (WCQ, FPI, DAS, BDI). The original sample consisted of 506 men and 520 women, and following listwise deletion of missing data, the final sample consisted of 420 couples ($n = 420$ men and $n = 420$ women).

Men were slightly older than women with a mean age of 33.9 ($SD = 5.4$) compared to 32.5 ($SD = 4.4$) for women ($t = -5.8$, $p < .001$). The mean duration of infertility for the couples was 3.3 years. Eighty percent of infertility diagnoses were attributable to women (e.g., tubal factors, endometriosis), 12% of diagnoses were idiopathic (i.e., unexplained), and 8% were attributable to men (e.g., low sperm count). All the study participants were referred to the clinic for IVF. None of the couples had any children in their present relationship. Although data on the participants' racial and socioeconomic status were not collected, couples were predominantly White, representing the Canadian population at that time. Prior to 1996, treatment costs were paid by the Ontario government. However, since that time, treatment costs are paid only for couples with bilateral fallopian tube blockage.

Measures

Coping with Infertility

The WCQ is a 50-item scale that was used to assess the coping strategies of couples experiencing infertility in this study (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). The instrument includes eight subscales: (a) escape/avoidance (e.g., wished the situation would somehow go away or be over with); (b) confrontive coping (e.g., I did something I didn't think would work, but at least I was doing something); (c) self-controlling (e.g., I tried to keep my feelings from interfering with other things too much); (d) accepting responsibility (e.g., criticized or lectured myself, realized I brought the problem on myself); (e) planful problem solving (e.g., I made a plan of action and followed it); (f) seeking social support (e.g., talked to someone to find our more about the situation); (g) distancing (e.g., made light of the situation, went on as if nothing had happened); (h) and positive reappraisal (e.g., changed or grew as a person in a good way). Participant responses are recorded on a four-item Likert scale ranging from 0 (does not apply) to 3 (used a great deal). The Cronbach's alpha reliability estimate for the current study was .82. The creators of the WCQ claim that it contains concurrent, construct, and face validity, although they fail to provide direct evidence to support these claims (Hess, 1992). The mean scores (with standard deviations in parentheses) for women and men, respectively, along each coping domain were confrontive coping 4.3 (2.7), 3.0 (2.6); distancing 5.2 (3.1), 5.6 (2.9); self-controlling 7.6 (3.8), 6.6 (3.9); seeking social support 9.9 (3.9), 7.0 (4.1); accepting responsibility 2.1 (2.3), 1.3 (2.0); escape avoidance 7.0 (4.4), 4.5 (3.5); planful problem-solving 7.1 (3.4), 6.1 (3.5); and positive reappraisal 7.1 (4.1), 6.0 (4.3).

Infertility stress. The FPI is a 46-item questionnaire that measures an individual's level of infertility stress (Newton et al., 1999). The instrument is scored using a 6-point Likert scale and produces a global infertility stress score in addition to five subscores on scales measuring social infertility stress, sexual infertility stress, relationship infertility stress, an individual's need for parenthood, and an individual's feelings about living a child-free lifestyle. Higher scores on each scale indicate increased levels of infertility stress. The FPI demonstrates discriminant validity (the degree to which each subscale measures something different) as intercorrelations were low to moderate in size (Newton et al.). The FPI also demonstrates convergent validity as it had moderate correlations in the expected direction with measures of depression, anxiety, and marital adjustment (Newton et al.). The Cronbach's alpha reliability estimate for the current study was .78. The mean global infertility stress scores and standard deviations for women and men were 128.9 (35.1) and 114.0 (29.0).

Marital adjustment. The DAS is a 32-item scale developed by Spanier (1976) and designed to measure the overall marital adjustment couples have within their relationship. The DAS produces a global score in addition to scores on four subscales: satisfaction, cohesion, consensus, and affectional expression. The instrument is widely viewed as one of the best measures of marital adjustment. Scores 100 or above indicate well-adjusted marital relationships. Many studies have confirmed the concurrent and predictive validity of the DAS as lower scores are related to increased probability for domestic violence, higher depression, and poor communication (Stuart, 1992). Studies of alpha reliability by researchers have indicated good internal consistency for the total measure with scores as high as .90 or above (Stuart). The Cronbach's alpha reliability estimate for the current study was .87. The mean marital adjustment for women and men, respectively (with standard deviations in parentheses), was 120.0 (12.7) and 120.0 (11.9), well above the 100 clinical cutoff indicated by Spanier.

Depression. The BDI IA and II were used to assess the severity of depression among study participants (Beck, Steer, & Brown, 1996). Because both the BDI-IA and the BDI-II were used to assess depression in the current sample, a conversion of scores (provided by Beck et al., 1996) was used to harmonize the scores from the two instruments. Higher scores on the BDI indicate the presence of depressive symptoms: Scores from 0 to 13 indicate minimal depression, 14 to 19 mild depression, 20 to 28 moderate depression, and 29 to 63 severe depression. The coefficient alpha estimates of reliability for outpatient samples was .92 and test-retest reliability coefficient over a 1-week period was .93 (Arbisi, 2001). The concurrent validity—or the degree to which results correlate with other measures—appears strong as the BDI-II correlates with other measures of depression and also has moderate correlations with ratings of anxiety (Arbisi). The mean depression scores for women and men (with standard deviations in parentheses) were 6.3 (7.3) and 4.0 (5.2), respectively.

Data Analysis

In order to examine the coping patterns of couples experiencing infertility, we analyzed the data using Multivariate Analysis of Covariance (MANCOVA). Multivariate analysis allowed us to examine whether groups of couples coping with infertility differed on more than one dependent variable. In addition, the use of multivariate analysis helped us see the data in multivariate perspectives, as groups that vary from each other on important characteristics (e.g., infertility stress) are likely to differ from each other on other interrelated characteristics (e.g., depression) (Gall, Borg, & Gall, 1996). Couples were divided into four groups using median split procedures for each coping dimension, according to both partners' high and low scores. For each coping scale, the median score was determined for both men and women. Individual scores above the median were classified as high in terms of the frequency with which a coping strategy was used, and scores below the median were classified as low in terms of the frequency of use. Each couple was then categorized according to the coping patterns of both individuals in the couple and was placed in one of four groups: (a) High/High, (b) Low/Low, (c) F-high/M-low, (d) F-low/M-high. Couples were classified in this way for each of the eight coping processes. This approach was used by Levin et al. (1997), who examined the effects of intracouple coping concordance on psychological and marital distress in infertility patients.

In order to ascertain if the coping patterns of one member of a couple would impact the infertility stress, marital adjustment, or depression of his or her partner, a 2×4 factorial MANCOVA using gender and groups as the independent variables were conducted for each of the eight coping subscales. The dependent variables were infertility stress, marital adjustment, and depression. For the MANCOVA, coping was used as a covariate in each analysis to control for variations in individual coping and more appropriately assess the nature of the couple pairings. Tabachnick and Fidell (2001) noted that when choosing a covariate, "one wants to select covariates that adjust the dependent variable for predictable, but unwanted sources of variability" (p. 302). They further stated that "covariates are chosen because of their known association with the dependent variable" (p. 19). Thus, individual coping scores for each coping process were used as a covariate to control for the correlations that previously existed between men, women, and the dependent variables. Without the use of coping as a covariate in each analysis, a couple's report of infertility stress, marital adjustment, and depression would be inflated by the individual correlations that previously existed between coping and the dependent variables.

Results

Multivariate Analysis of Covariance

To examine the relationship between coping, infertility stress, marital adjustment, and depression, eight separate MANCOVA analyses were conducted. Each analysis used the dependent variables of infertility stress (global), marital adjustment (total), and depression (total), and each used the two independent variables of coping group (with four levels) and gender (with two levels). Furthermore, each MANCOVA used the individual coping scores from that scale as the covariate. The analyses were conducted on eight coping processes. This paper reports the findings of the three coping processes that produced significant results.

The MANCOVA analyses showed significant main effects for groups, gender, or both. However, the interactions between groups and gender were not significant in any of the analyses. For the MANCOVA analyses, overall mean scores were examined for couples in each of the grouping variables. Follow-up univariate tests of the general linear model were then performed. We examined differences between couples in their reports of infertility stress, marital adjustment, and depression using Bonferroni post hoc analyses (see Table 1). Specific gender differences between men and women in the four-couple groupings were also examined using follow-up Univariate Analyses of Variance and are reported in the text but not in the table.

Summary of MANCOVA Analyses

The MANCOVA analyses examining couples' use of distancing found significant main effects for group (Wilks' $\Lambda = .97$, $p < .01$) and for gender (Wilks' $\Lambda = .92$, $p < .001$). Univariate follow-up tests indicated the groups differed on infertility stress ($F = 7.3$, $p < .001$), marital adjustment ($F = 3.3$, $p < .05$), and depression ($F = 4.8$, $p < .001$). For gender, men and women differed on infertility stress ($F = 54.2$, $p < .001$) and depression ($F = 35.1$, $p < .001$) but not marital adjustment. A significant gender by group interaction was found for depression.

When the self-controlling coping strategy was examined, the MANCOVA analysis found significant main effects for group (Wilks' $\Lambda = .97$, $p < .01$) and for gender (Wilks' $\Lambda = .95$, $p < .001$), but not for a group by gender interaction. Univariate follow-up tests indicated the groups differed on infertility stress ($F = 4.6$, $p < .01$), marital adjustment ($F = 4.3$, $p < .01$), and depression ($F = 4.1$, $p < .01$). For gender, follow-up univariate tests indicated that men and women differed on infertility stress ($F = 30.7$, $p < .001$) and depression ($F = 19.6$, $p < .001$) but not marital adjustment.

Couples' use of accepting responsibility showed significant main effects for group (Wilks' $\Lambda = .93$, $p < .001$) and for gender (Wilks' $\Lambda = .95$, $p < .001$). Univariate tests indicated the groups differed on infertility stress ($F = 18.3$, $p < .001$), marital adjustment ($F = 4.7$, $p < .01$), and depression ($F = 3.3$, $p < .05$). Univariate tests for gender showed that men and women differed on infertility stress ($F = 36.7$, $p < .001$) and on depression ($F = 16.6$, $p < .001$) but not marital adjustment. No interaction was found between groups and gender.

Bonferroni Post Hoc Follow-Up Tests for Specific Couple Coping Patterns

Distancing. Bonferroni post hoc tests were used to examine which specific couple pairings were significantly different from the others along the domains of infertility stress, marital adjustment, and depression (see Table 1). The Bonferroni post hoc tests showed that couples using distancing (i.e., made light of the situation, went on as if nothing had happened) in the F-low/M-high group reported significantly higher levels of infertility stress ($M = 132.1$, $p < .01$) when compared to couples in each of the other three groups (High/High $M = 120.4$, $p < .01$, Low/Low $M = 119.3$, $p < .01$, F-high/M-low $M = 117.6$, $p < .01$). This increase in the couples' overall mean stress was most notably influenced by the female partners' levels of infertility stress (female infertility stress $M = 145.5$, male infertility stress $M = 117.8$, $p < .01$). With regard to the BDI, couples in the F-low/M-high group reported significantly higher scores ($M = 6.8$, $p < .01$) when compared to couples in both groups in which men coped using low amounts of distancing (Low/Low $M = 4.5$, $p < .01$, F-high/M-low $M = 4.5$, $p < .01$) with female scores of depression in the F-low/M-high couples ($M = 9.5$, $p < .01$) significantly higher than male scores ($M = 4.3$, $p < .01$) (it is worth noting that neither group scored clinically depressed at the time of the study). With regard to marital adjustment scores, couples in

the F-low/M-high reported significantly lower levels of marital adjustment ($M = 118.0$, $p < .05$) when compared to couples who coped in the opposite way (F-high/M-low, $M = 121.7$, $p < .05$), although both groups can be classified as fairly well adjusted based on clinical cutoff criteria.

Self-controlling. As summarized in Table 1, Bonferroni post hoc analyses revealed that couples in which the women engaged in high levels of emotional and behavioral self-control relative to her partner (F-high/M-low group) reported significantly higher levels of infertility stress ($M = 127.9$, $p < .01$) compared to couples in which women engaged in minimal self-control strategies (F-low/M-high $M = 116.4$, $p < .01$, Low/Low $M = 118.2$, $p < .01$). For depression, couples in the F-high/M-low group reported significantly higher levels of depression ($M = 6.4$, $p < .01$) when compared to couples in the F-low/M-high group ($M = 4.1$, $p < .01$), although both groups did not score in the clinically depressed range. For marital adjustment, couples in the F-high/M-low group reported significantly lower levels of marital adjustment ($M = 116.6$, $p < .05$) when compared to couples in the

Table 1. *Bonferroni Multiple Group Comparison of Couples Using Distancing, Self-Controlling, and Accepting Responsibility Coping Processes ($n = 420$ couples)*

Distancing				
Infertility stress	F-high/M-low ($n = 114$) 117.6_{a}	Low/Low ($n = 114$) 119.3_{b}	High/High ($n = 117$) 120.4_{c}	F-Low/M-high ($n = 75$) $132.1_{a,b,c}$
Depression	Low/Low ($n = 114$) 4.5_{a}	F-high/M-low ($n = 114$) 4.5_{b}	High/High ($n = 117$) 5.3	F-Low/M-high ($n = 75$) $6.8_{a,b}$
Marital adjustment	F-Low/M-high ($n = 75$) 118.0_{a}	High/High ($n = 117$) 119.0	Low/Low ($n = 114$) 119.8	F-high/M-low ($n = 114$) 121.7_{a}
Self-controlling				
Infertility stress	F-low/M-high ($n = 86$) 116.4_{a}	Low/Low ($n = 131$) 118.2_{b}	High/High ($n = 124$) 124.2	F-high/M-low ($n = 79$) $127.9_{a,b}$
Depression	F-low/M-high ($n = 86$) 4.1_{a}	Low/Low ($n = 131$) 4.7	High/High ($n = 124$) 5.5	F-high/M-low ($n = 79$) 6.4_{a}
Marital adjustment	F-high/M-low ($n = 79$) $116.6_{a,b,c}$	F-low/M-high ($n = 86$) 120.3_{a}	High/High ($n = 124$) 120.4_{b}	Low/Low ($n = 131$) 120.7_{c}
Accepting responsibility				
Infertility stress	Low/Low ($n = 139$) $108.0_{a,c,e}$	F-low/M-high ($n = 80$) $122.9_{a,b}$	F-high/M-low ($n = 85$) $124.2_{c,d}$	High/High ($n = 116$) $134.4_{b,d,e}$
Depression	Low/Low ($n = 139$) 4.1_{a}	F-low/M-high ($n = 80$) 4.7	High/High ($n = 116$) 5.9	F-high/M-low ($n = 85$) 6.0_{a}
Marital adjustment	High/High ($n = 116$) 117.1_{a}	F-low/M-high ($n = 80$) 119.1_{b}	F-high/M-low ($n = 85$) 119.4	Low/Low ($n = 139$) $122.6_{a,b}$

Note: All means are adjusted. Means with matching subscripts differ significantly at $p < .05$ in the Bonferroni multiple group comparison. For example, for distancing and infertility stress, couples in the F-low/M-high group have significantly higher infertility stress when compared to couples in each of the other three groups. For distancing and depression, couples in the F-low/M-high group have significantly higher depression scores compared to couples in only the Low/Low and F-high/M-low groups.

other three groups (High/High $M = 120.4$, $p < .05$, Low/Low $M = 120.7$, $p < .05$, F-low/M-high $M = 120.3$, $p < .05$), although both groups scored in the well-adjusted range.

Accepting responsibility. Bonferroni post hoc analyses indicated that when both members of the couple tended to accept a high degree of responsibility (i.e., criticized or lectured myself, realized I brought the problem on myself), the couple reported significantly higher levels of infertility stress ($M = 134.4$, $p < .01$) when compared to couples in the other three groups (Low/Low $M = 108.0$, $p < .01$, F-low/M-high $M = 122.9$, $p < .01$, F-high/M-low $M = 124.2$, $p < .01$). Conversely, when both partners assumed low levels of personal responsibility for infertility, they reported significantly lower levels of infertility stress when compared to the couples in the other three groups (see data above). Men in couples in which both partners accepted low amounts of responsibility for the infertility had significantly lower infertility stress ($M = 99.1$, $p < .01$) than men in each of the other three groups (High/High $M = 128.8$, $p < .01$, F-high/M-low $M = 112.3$, $p < .01$, F-low/M-high $M = 120.3$. $p < .01$).

For depression, when both partners accepted low amounts of responsibility for their infertility, they reported significantly lower levels of depression ($M = 4.1$, $p < .05$) than couples in the F-high/M-low group ($M = 6.0$, $p < .05$). Again, neither group reported scores in the clinically depressed range. Although in the well-adjusted range for marital adjustment, couples with low scores on accepting responsibility (i.e., both engaged in minimal self-blame) reported a higher level of marital adjustment ($M = 122.6$, $p < .05$) when compared to couples in which men engaged in high levels of self-blame (High/High $M = 117.1$, $p < .05$, F-low/M-high $M = 119.1$, $p < .05$). Men in these couples reported higher levels of adjustment ($M = 123.1$, $p < .01$) when compared to men in couples who accepted a high level of responsibility (High/High $M = 116.3$, $p < .01$, F-low/M-high $M = 117.7$, $p < .01$).

Discussion

The purpose of this study was to explore the coping processes of men and women experiencing infertility and their relationship to infertility stress, marital adjustment, and depression. This study is the first of its kind in that it identifies key couple pairings across coping strategies that had significant relationships to partner reports of infertility stress, marital adjustment, and depression. The study adds to the infertility literature by studying the couple as the unit of analysis and answers a call by researchers to increase the number of studies that examine the systemic nature of coping and the interplay between spouses' responses to infertility stress (Greil, 1997). The study identified three key coping strategies—distancing, self-controlling, and accepting responsibility—that were significantly related to couples reports of infertility stress, marital adjustment, and depression. The discussion will highlight these coping patterns and discuss their implications.

Distancing (M-High/F-Low)

A key coping dynamic was discovered among couples in which men distanced themselves from the infertility while their partners did not. Men who used distancing to cope with infertility reported making light of the situation, refusing to get too serious about infertility, and living their lives as if nothing had happened. This couple pairing, accounting for approximately one in five couples, was especially difficult for the female partners.

The negative impact of men's frequent use of distancing when coupled with a partner who rarely uses distancing is particularly evident when comparing the scores of women in the F-low/M-high to women in the Low/Low group. Although one would anticipate the women's scores to be relatively equal (since women in both groups engage in relatively minimal distancing), women in the F-low/M-high group report increased infertility stress and depression scores when compared to women in the Low/Low group. This supports the idea that for women in the F-low/M-high group, their partner's increased use of distancing related to increases in their levels of infertility stress and depression. These data could also be interpreted by looking at men's scores in the F-low/M-high group and comparing them to men in couples who use distancing coping techniques less frequently. For men in these couples, their scores of infertility stress and depression remain constant, indicating that their high or low use of distancing does not impact their own individual stress and depression levels. However, women in couples where men use infrequent distancing report significantly lower scores of infertility stress and depression when compared to women in the F-low/M-high group.

Beaurepaire et al. (1994) suggested that when coping with infertility, some coping strategies may be individually beneficial, but may become aversive when they contrast with a strategy used by one's partner. For example, although a husbands' suppression of emotions may reflect a personally adaptive response, it may have a negative impact on wives. She may feel that he does not share her distress and is not equally committed to having children. The elevated levels of infertility stress and depression for women in this group may be the result of feeling unsupported by their husbands who cope by trying to minimize the seriousness of infertility (Williams, 1997). It is not uncommon for men and women who are coping differently from each other to view their partner as uncaring, resulting in increased infertility stress (Draye, Woods, & Mitchell, 1988).

In terms of marital adjustment, couples in the F-low/M-high distancing group reported significantly lower levels of marital adjustment when compared to couples in F-high/M-low group. Levin et al. (1997) found that when the man used a high degree of emotion-oriented coping (e.g., distancing) his partner reported the lowest levels of marital satisfaction. Current findings are also consistent with prior research, which found that when coping between partners is characterized by a lack of emotional intimacy and acceptance, the quality of the marital relationship can deteriorate (Coyne & DeLongis, 1986).

Self-Controlling (F-High/M-Low)

A second key dynamic occurred in couples in which women engaged in a high degree of emotional and behavioral self-control, whereas their partners engaged in a low degree of self-control. This couple pairing accounted for approximately one in five couples. Women who frequently used self-controlling coping kept their feelings to themselves, kept others from knowing how bad things were, and tried to keep their feelings from interfering with other things in their lives. Couples experiencing the F-high/M-low dynamic reported significantly higher levels of infertility stress than couples where the women used low amounts of emotional self-control and significantly higher levels of depression than couples in the F-low/M-high self-control group.

As with the distancing dynamic, it appears that when one partner copes using self-controlling strategies, it directly impacts the other partner's reports of infertility stress and depression. This was particularly true for men when their partners use self-controlling coping strategies. Men in the F-high/M-low group reported higher levels of infertility stress when compared to men in couples in which their partners used a low degree of emotional and behavioral self-control. These findings are consistent with those of Stanton et al. (1992) that wives who used more self-controlling coping had husbands who were more distressed.

In addition to increased infertility stress among male partners, the F-high/M-low self-controlling pairing appeared to be particularly difficult for couples' marital relationship. Couples in the F-high/M-low group exhibited poorer marital adjustment than couples in each of the other three groups—the only time this was found among marital adjustment in the study. The decreased marital adjustment may be related to the discrepancy in each partner's use of self-controlling coping. For example, men in the F-low/M-high couples may feel pressure from their spouse to be protective about information related to the infertility experience, whereas they, on the other hand, may feel a desire to share this information with others. This contradiction between the partner's coping style may fuel marital conflict, which decreases adjustment. A second possible explanation for the decreased marital adjustment in couples using the F-high/M-low coping dynamic is related to partner support. Because women in the F-high/M-low group are less likely than women who use low amounts of emotional self-control to communicate with their partner or others about their infertility stress, both members of the couple fail to receive the benefit of support from their partner and from others, which is a critical element of the coping process (McDaniel, Hepworth, & Doherty, 1992). O'Brien and DeLongis (1997) found that if a spouse is unavailable to offer support and understanding regarding the difficulty of coping with a stressor, support received from other sources is not an adequate replacement. And finally, decreased marital adjustment in these couples may be related to a woman's emotional isolation that is likely to accompany this coping dynamic. For example, women who attempt to control their emotional and behavioral reactions to infertility may prevent their partner from hearing about significant emotional distress. This creates a potential barrier to emotional cohesion and consensus, which are key ingredients to marital adjustment (Spanier, 1976).

However, the opposite of this coping style (F-low/M-high) does not appear to produce the same negative results. When women engaged in low amounts of self-controlling coping strategies and their partners engaged in high amounts, the couples were likely to report lower levels of infertility stress and depression and higher levels of marital adjustment. Couples in which men use more self-controlling than women may reflect the more common and traditional dynamic in which men are less likely to discuss their problems and women are more open to expressing discomfort and sharing their difficulties. Studies have indicated that men were much less likely than women to confide in others regarding infertility (Daniluk, 1997). As a result, the F-low/M-high dynamic may appear normal and more acceptable to the couple and, therefore, may be less likely to produce a negative result.

Accepting Responsibility (Low/Low, High/High)

Accepting responsibility as a coping strategy involves acknowledgement of one's role related to infertility as well as one's attempt to correct the problem (e.g., "criticized or lectured myself," "realized I brought the problem on myself," "I made a promise to myself that things would be different next time"). Couples in this study who tended to assume a high degree of responsibility for their infertility, reported the highest amount of infertility stress and lowest levels of marital adjustment. On the other hand, when both partners did not accept sole responsibility for the infertility (e.g., Low/Low group), they reported the lowest levels of infertility stress and the highest amounts of marital adjustment. For accepting responsibility, 28% of couples were in the High/High group, whereas 33% of the couples were in the Low/Low group.

Although studies have examined the relationship between accepting responsibility and coping individually with infertility, less is known about how a couple's use of accepting responsibility impacts a couple's distress. In a study examining how individuals cope with infertility, a strong relationship was found between accepting responsibility and increased emotional distress (Stanton, 1991). For couples who both accept responsibility, this relationship appears to be heightened. One possible explanation could be that when both members of the couple accept blame, couples feel unable to console and support each other when experiencing the feelings of guilt and hurt that are associated with accepting blame for their infertility. When at least one member of the couple does not accept responsibility for the infertility, this appears to have a buffering effect on the couple's reports of infertility stress and marital adjustment.

It is noteworthy that the most favorable outcome is found when neither partner assumes blame for the infertility. This dynamic is important for both men and women. When neither partner assumed responsibility for the infertility, men reported lower levels of infertility stress in comparison to men in the other three groups. Similarly, when neither partner assumed responsibility, women reported lower levels of infertility stress in comparison to women whose partners accepted a high degree of responsibility. Research examining the coping process of accepting responsibility for infertility has found that men and women may accept blame in an effort to protect one's spouse from additional stress-related burdens (Tennen, Affleck, & Mendola, 1991). The current study appears to show that removing this protective function by both partners refusing to accept responsibility may be the best coping strategy of all.

Limitations

It should be noted that the current study contains a number of limitations. First, participants represent only a subset of couples experiencing infertility whose earlier treatments have failed and who have made a decision to pursue IVF. Although approximately 75% of couples will pursue some form of infertility treatment (e.g., medication, surgery, etc), it is estimated that only 3% of infertility services are accounted for by IVF and other assisted reproductive technologies (American Society for Reproductive Medicine, 2005; Sadler & Syrop, 1987). Thus, the findings from this study are limited in their generalizability to couples pursuing in vitro fertilization. Reactions and coping processes might be different for couples in other phases of the infertility experience or who are pursuing other forms of treatment (e.g., medication, tubal surgery, artificial insemination, etc).

Second, the research design and multivariate analysis used in the study do not allow for causal relationships to be determined between the independent and dependent variables. Thus, it is difficult to determine if the coping patterns used by couples reduce negative outcomes or if negative outcomes—such as increased infertility stress—lead couples to use particular coping patterns. Future studies that

use more highly controlled research designs would be useful in adding to these preliminary findings.

Third, due to the cross-sectional design of this study, the analysis fails to capture the impact of time on infertility treatments. Berg and Wilson (1991) have shown that infertility treatments longer than 2 – 3 years typically result in negative outcomes such as decreased marital satisfaction. On average, the current sample indicated that couples in the study had well-adjusted marriages. This characteristic of the sample is consistent with claims that participants in infertility research studies are those whose marriages have survived the initial stress of infertility and who proceed to advanced treatment on a self-selected bias of high cohesion (Raval, Slade, Buck, & Lieberman, 1987).

Fourth, the findings regarding depression and marital adjustment should be regarded as preliminary and should be interpreted with caution. For the majority of couples in the study, they reported minimal levels of depression and normal levels of marital adjustment. Although statistically significant results were found using the MANCOVA analysis, the clinical significance of these study findings must be examined. These scores can likely be explained due to timing factors (e.g., couples completed the measures prior to treatment when they are more hopeful about the possibility of treatment) and also to social desirability factors (e.g., couples want to make a good impression at the medical treatment clinic so they won't be denied services). It is interesting, however, that even though the majority of couples were well adjusted and nondepressed, statistically significant differences were found in the sample. Although these couples were well functioning prior to their first treatment cycle, it would be interesting to examine these coping processes during a more distressing period (e.g., following a treatment failure). Such studies may find greater group differences and expand on the preliminary findings in this study.

Fifth, although specific data on race and ethnicity of study participants were not collected, it is estimated that the sample comprised primarily of patients who are Caucasian reflecting the Canadian population during those years (Newton et al., 1999). As a result, minority groups are underrepresented, which is a limitation in the majority of studies examining infertility (Greil, 1997).

Finally, because 80% of the sample had a female-factor diagnosis (e.g., tubal factors, endometriosis), participants represent only a subset of the infertility population. It has been estimated that 40% of infertility is attributable to women, 40% to men, and 20% to a combination of male and female factors (Robinson & Stewart, 1996; Wright, Allard, Lecours, & Sabourin, 1989), although this distribution is rarely found in research studies (Ulbrich et al., 1990). Ulbrich et al. speculated that the underrepresentation of men in infertility research may be a function of men being more reluctant to discuss their infertility and seek social support. It is likely that a similar dynamic is occurring here, but further research is needed to assess the frequency of male-factor infertility and the reasons why men diagnosed with infertility choose not to pursue treatments or report their condition to researchers.

Implications for Practice and Research

Many clinical approaches to working with infertility fail to take into account the relational and systemic nature of the experience. Instead, therapists commonly view infertility as an individual problem, which often leads to unsatisfactory outcomes (Greil, Leitko, & Porter, 1988). Such approaches to therapy fail to take into account the complex interpersonal relationships that are often found among couples coping with infertility.

However, in recent years, systemic clinical approaches have been emphasized to help couples more successfully adjust to the infertility experience. Newton (2000) writes about effective cognitive behavioral strategies to help couples adjust to the stress of infertility. Diamond, Kezur, Meyers, Scharf, and Weinshel (1999) use a narrative approach to help couples re-story their experience and work through a series of predictable stages in the infertility experience. The current study suggests that couples' coping patterns using distancing, self-controlling, and accepting responsibility seem to be particularly important, and an integration of cognitive behavioral strategies and techniques to re-story the intended experience of infertility, might be helpful interventions when working with couples using these coping patterns.

For clinicians who work with infertile couples, integrating the findings from this study into their treatment can assist couples in moving away from negative coping patterns to coping patterns that are related to reductions in infertility stress and

depression and increases in marital adjustment. For example, findings from this study showed that coping strategies may benefit the individual but negatively impact the partner. Clinicians can use this information to alter negative relationship dynamics that occur when one partner is coping using strategies, which have a deleterious effect on his or her partners functioning. For example, this study found that couples where the women engaged in a high degree of emotional self-control and the men used a low degree of self-control had lower levels of marital adjustment. In this situation, clinicians could help the couple understand the mutuality of the problem. The therapist could help the couple to see how each partner's behaviors impact the other by discussing how the wife, by keeping her feelings to herself and not involving her husband, may trigger negative emotional reactions in her husband. Likewise, a husband who discloses how difficulty the infertility experience is to others may further increase the wife's use of self-controlling coping strategies.

A similar rationale could be used for couples where the man distances himself from the experience of infertility whereas his partner does not, and for couples who both use a high degree of self-blame to cope with infertility. Using the findings from this study, therapists can help couples alter their coping patterns to either promote or discourage any of the dynamics that were significantly related to infertility stress, decreased marital adjustment, or depression.

Findings from this study also point to the direction of future research that may benefit couples experiencing infertility. First, the creation of a new instrument that measures infertility-specific coping would be valuable. Although the WCQ helps one to understand the coping processes of individuals and couples experiencing certain stresses, some of the items appear to have little relevance to couples experiencing infertility. This new instrument could be developed in conjunction with the FPI so that various types of coping could be linked with specific forms of infertility stress.

Future research that examines the impact of coping with infertility stress in understudied populations (e.g., minorities, couples not pursuing treatments) is also needed. Findings from such studies would be valuable in identifying the relationship between infertility and coping among minority couples and those who do not pursue treatment. In addition, studies that examine the relation coping processes of couples pursuing other forms of infertility treatments (e.g., tubal surgery, artificial insemination, etc), would be valuable in helping further the understanding of the coping processes of couples dealing with the unique stresses of other treatments.

Qualitative studies that examine the coping processes of couples experiencing infertility would be of great value. These studies could help reveal the complex processes of coping with infertility and could shed additional light on the couple groupings that reported positive outcomes (Low/Low accepting responsibility), as well as those that reported negative outcomes (F-high/M-low self-controlling, F-low/M-high distancing).

Finally, future research could include longitudinal studies that track changes in couples' coping strategies over time. Coping strategies that appear ineffective at the early stages of treatment may prove to be effective, given a new set of circumstances. If longitudinal designs are not possible, cross-sectional designs that replicate this study using couples experiencing infertility who are not pursuing treatment or who recently completed treatments would be valuable. This would allow researchers to more fully understand the relationship between coping and infertility stress, marital adjustment, and depression across the various phases of the infertility experience.

References

Abbey, A., Andrews, F. M., & Halman, J. (1991). Gender's role in response to infertility. *Psychology of Women Quarterly*, *15*, 295–316.

American Society for Reproductive Medicine. (2005). *Frequently asked questions about infertility*. Retrieved June 30, 2005, from http://www.asrm.org/Patients/faqs.html

Andrews, F. M., Abbey, A., & Halman, L. J. (1991). Stress from infertility, marriage factors, and subjective well-being of wives and husbands. *Journal of Health and Social Behavior*, *32*, 238–253.

Andrews, F. M., Abbey, A., & Halman, L. J. (1992). Is fertility-problem stress different? The dynamics of stress in fertile and infertile couples. *Fertility and Sterility*, *57*, 1247–1253.

Arbisi, P. A. (2001). Review of the Beck Depression Inventory-II. In B. S. Plake & J. C. Impara (Eds.), *The fourteenth mental measurement yearbook* (pp. 121–123). Lincoln: University of Nebraska Press.

Beaurepaire, J., Jones, M., Thiering, P., Saunders, D., & Tennant, C. (1994). Psychological adjustment to infertility and its treatment: Male and female responses at different stages of IVF/ET treatment. *Journal of Psychosomatic Research*, *38*, 229–240.

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Beck depression inventory: Manual* (2nd ed.). San Antonio, TX: Harcourt Brace.

Berg, B. J., & Wilson, J. F. (1991). Psychological functioning across stages of treatment for infertility. *Journal of Behavioral Medicine, 14*, 11–26.

Berghuis, J. P., & Stanton, A. L. (2002). Adjustment to a dyadic stressor: A longitudinal study of coping and depressive symptoms in infertile couples over an insemination attempt. *Journal of Consulting and Clinical Psychology*, *70*, 433–438.

Bertalanffy, L. (1968). *General systems theory*. New York: Brazillier.

Chandra, A., Martinez, G. M., Mosher, W. D., Abma, J. C., & Jones, J. (2005). Fertility, family planning, and reproductive health: Data from the 2002 National Survey of Family Growth. *Vital and Health Statistics* (Series 23, No. 25). Hyattsville, MD: National Center for Health Statistics.

Coyne, J. C., & DeLongis, A. (1986). Going beyond social support: The role of social relationships in adaptation. *Journal of Consulting and Clinical Psychology*, *54*, 454–460.

Daniluk, J. C. (1997). Gender and infertility. In S. R. Leiblum (Ed.), *Infertility: Psychological issues and counseling strategies* (pp. 103–129). New York: John Wiley & Sons.

Diamond, R., Kezur, D., Meyers, M., Scharf, C. N., & Weinshel, M. (1999). *Couple therapy for infertility*. New York: Guilford Press.

Domar, A. D., Seibel, M., Broome, A., Friedman, R., & Zuttermeister, P. C. (1992). The prevalence and predictability of depression in infertile women. *Fertility and Sterility*, *58*, 1158–1163.

Downey, J., & McKinney, M. (1992). The psychiatric status of women presenting for infertility evaluation. *American Journal of Orthopsychiatry*, *62*, 196–205.

Draye, M. A., Woods, N. F., & Mitchell, E. (1988). Coping with infertility in couples: Gender differences. *Health Care for Women International*, *9*, 163–175.

Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986). Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology*, *50*, 992–1003.

Freeman, E. W., Boxer, A. S., Rickels, K., Tureck, R., & Mastroianni, L. (1985). Psychological evaluation and support in a program of in vitro fertilization and embryo transfer. *Fertility and Sterility*, *43*, 48–53.

Gall, M. D., Borg, W. R., & Gall, J. P. (1996). *Educational research*. White Plains, NY: Longman.

Greil, A. L. (1997). Infertility and psychological distress: A critical review of the literature. *Social Science and Medicine*, *45*, 1679–1704.

Greil, A. L., Leitko, T. A., & Porter, K. L. (1988). Infertility: His and hers. *Gender & Society*, *2*, 172–199.

Hess, K. D. (1992). Review of the ways of coping questionnaire. In J. J. Kramer & J. C. Conoley (Eds.), *The eleventh mental measurement yearbook* (pp. 296–297). Lincoln, NE: University Press.

Hynes, G. J., Callan, V. J., Terry, D. J., & Gallois, C. (1992). The psychological well-being of infertile women after a failed IVF attempt: The effects of coping. *British Journal of Medical Psychology*, *65*, 269–278.

Jordan, C., & Revenson, T. A. (1999). Gender differences in coping with infertility: A meta-analysis. *Journal of Behavioral Medicine*, *22*, 341–358.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.

Levin, J. B., Sher, T. G., & Theodos, V. (1997). The effect of intracouple coping concordance on psychological and marital distress in infertility patients. *Journal of Clinical Psychology in Medical Settings*, *4*, 361–372.

McDaniel, S. H., Hepworth, J., & Doherty, W. (1992). Medical family therapy with couples facing infertility. *The American Journal of Family Therapy*, *20*, 101–122.

McQuillan, J., Greil, A., White, L., & Jacob, M. C. (2003). Frustrated fertility: Infertility and psychological distress among women. *Journal of Marriage and Family*, *65*, 1007–1018.

Newton, C. R. (2000). Counseling the infertile couple. In L. H. Burns & S. N. Covington (Eds.), *Infertility counseling: A comprehensive handbook for clinicians* (pp. 103–116). New York: Parthenon.

Newton, C. R., Sherrard, M. A., & Glavac, I. (1999). The fertility problem inventory: Measuring perceived infertility-related stress. *Fertility and Sterility*, *72*, 54–62.

O'Brien, T. B., & DeLongis, A. (1997). Coping with chronic stress: An interpersonal perspective. In B. H. Gottlieb (Ed.), *Coping with chronic stress* (pp. 161–190). New York: Plenum Press.

Peterson, B. D., Newton, C. R., & Rosen, K. H. (2003). Examining congruence between couples' perceived infertility related stress and its relationship to depression and marital adjustment in infertile men and women. *Family Process*, *42*, 59–70.

Raval, H., Slade, P., Buck, P., & Lieberman, B. E. (1987). The impact of infertility on emotions and the marital and sexual relationship. *Journal of Reproductive and Infant Psychology*, *5*, 221–234.

Robinson, G. E., & Stewart, D. E. (1996). The psychological impact of infertility and new reproductive technologies. *Harvard Review of Psychiatry*, *4*, 168–172.

Sadler, A. G., & Syrop, C. H. (1987). The stress of infertility: Recommendations for assessment and intervention. In D. Rosenthal (Ed.), *Family stress: The family therapy collections*, Vol. 22 (pp. 1–17). Rockville, MD: Aspen.

Seibel, M. M., & Taymor, M. L. (1982). Emotional aspects of infertility. *Fertility and Sterility*, *37*, 137–146.

Spanier, G. B. (1976). Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *Journal of Marriage and the Family*, *38*, 15–28.

Stanton, A. L. (1991). Cognitive appraisals, coping processes, and adjustment. In A. L. Stanton & C. Dunkel-Schetter (Eds.), *Infertility: Perspectives from stress and coping research* (pp. 87–108). New York: Plenum Press.

Stanton, A. L, Tennen, H., Affleck, G., & Mendola, R. (1991). Cognitive appraisal and adjustment to infertility. *Women and Health*, *17*(3), 1–15.

Stanton, A. L., Tennen, H., Affleck, G., & Mendola, R. (1992). Coping and adjustment to infertility. *Journal of Social and Clinical Psychology*, *11*(1), 1–13.

Stuart, R. B. (1992). Review of the dyadic adjustment scale. In J. J. Kramer & J. C. Conoley (Eds.), *The eleventh mental measurement yearbook* (pp. 297–298). Lincoln, NE: University Press.

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics*. Boston: Allyn and Bacon.

Tennen, H., Affleck, G., & Mendola, R. (1991). Causal explanations for infertility: Their relation to control appraisals and psychological adjustment. In A. L. Stanton & C. Dunkel-Schetter (Eds.), *Infertility: Perspectives from stress and coping research* (pp. 109–132). New York: Plenum Press.

Ulbrich, P. M., Coyle, A. T., & Llabre, M. M. (1990). Involuntary childlessness and marital adjustment: His and hers. *Journal of Sex & Marital Therapy*, *16*, 147–158.

Williams, M. E. (1997). Toward greater understanding of the psychological effects of infertility on women. *Psychotherapy in Private Practice 16*(3), 7–26.

Wright, J., Allard, M., Lecours, A., & Sabourin, S. (1989). Psychological distress and infertility: A review of controlled research. *International Journal of Fertility*, *34*, 126–142.