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Adjustment to a Low-Control Situation: Reexamining the Role of Coping Responses

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Abstract

The aim of the study was to test a revised conceptualization of the role of coping in adjustment to a low-control stressor—women's adjustment to a failed in vitro fertilization (IVF) attempt. Data were collected prior to the IVF treatment (Time 1) and twice after the failed IVF attempt (1 to 2 weeks after finding out the results, n = 171, and 6 weeks later, n = 139). Initial adjustment was assessed at Time 1, whereas measures of coping and both self-report and partner ratings of adjustment were obtained at Times 2 and 3. As predicted, escapist strategies and problem-management strategies (mainly at Time 2) were associated with poor adjustment, whereas problem-appraisal coping was associated with better adjustment. There was also support for the proposed positive relationship between adjustment and emotional approach coping (on self-report adjustment).

Coping strategies are those strategies that are adopted by individuals with the intention of somehow reducing the effects of stress (Fleming, Baum, & Singer, 1984). Lazarus and Folkman (1984) distinguished between coping strategies that are employed to confront and seek solutions to the situation *(problem-focused* strategies) and *emotion-focused* strategies, which focus not on the event but on ameliorating the associated level of emotional distress. Typically, a range of different types of emotion- focused coping is identified. Most commonly, researchers have focused on efforts to mentally disengage (e.g., escapism, wishful thinking; Aldwin & Revenson, 1987; Billings & Moos, 1981; Carver, Scheier, & Weintraub, 1989; Dunkel-Schetter, Folkman, & Lazarus, 1987; Endler & Parker, 1990; Vitaliano, Russo, Carr, Maiuro, & Becker, 1985) or behaviorally disengage from the situation (e.g., avoidance-denial, minimization; Aldwin & Revenson, 1987; Carver et al., 1989; Dunkel-Schetter et al., 1987; Vitaliano et al., 1985).

Central to research into coping has been an examination of the links between the use of specific coping efforts and adjustment to stress. In a large number of cross-sectional studies, problem-focused strategies have been found to be associated with better adjustment (e.g., Dunkel-Schetter, Feinstein, Taylor, & Falke, 1992; Terry, Tbnge, & Callan, 1995; Vitaliano, Maiuro, Russo, & Becker, 1987). Such results have also been found in longitudinal studies of the relationships between coping and subsequent adjustment (after control of initial adjustment— e.g., Aldwin & Revenson, 1987; Aspinwall & Taylor, 1992; Holahan & Moos, 1987). The use of emotion-focused strategies. on the other hand, tends to be associated with poor adjustment, a pattern of results that is evident in both cross-sectional studies (e.g., Manne & Zautra, 1989; Terry et al., 1995; Vitaliano et al., 1987) and longitudinal studies (e.g., Aldwin & Revenson, 1987; Aspinwall & Taylor, 1992; Carver et al., 1993). Typically, the positive relationships between problem-focused strategies and adjustment are attributed to the fact that these strategies seek to deal actively with the situation, whereas the negative impact of emotion-focused strategies is attributed to the failure of such efforts to confront the event (Lazarus & Folkman, 1984).

Coping and Adjustment to Low-Control Stress

Although there is a large amount of evidence linking high and low levels of problem- and emotion-focused coping, respectively, to adjustment to stress, this literature is limited to the extent that few studies have focused specifically on the relationships between coping and adjustment to low-control stress— that is, on coping in situations in which there is little or nothing that can be done to influence the nature or the outcome of the situation (Folkman, 1984; Roth & Cohen, 1986). This is despite the fact that Ralkman and her colleagues (Folkman, Lazarus, Gruen, & DeLongis, 1986; Folkman, Schaefer, & Lazarus, 1979) highlighted the importance of considering the extent to

which the event is amenable to control when considering the differential impact of problem- and emotion-focused coping responses. More specifically, they proposed that the effectiveness of a particular coping strategy is dependent on the match or goodness of fit between the strategy and the controllability of the event. Thus, in response to low-control stress, attempts to manage the situation actively (problem-focused coping) are likely to have deleterious effects, presumably because such efforts engender feelings of frustration and disappointment (Roth & Cohen, 1986; Wortman & Brehm, 1975}, whereas emotion-focused coping responses should be adaptive, because of the need to deal with the feelings of hopelessness that are typically generated by low-control stressors (Masel, Terry, & Gribble, 1996).

Despite the intuitive appeal of these predictions, tests of the goodness-of-fit model of coping effectiveness have provided only equivocal support for the notion that in low-control situations, emotion-focused coping responses should be more adaptive than problem-focused coping. Felton and Revenson (1984) found that among patients suffering from illnesses perceived to have little potential for control—rheumatoid arthritis and cancer—information seeking (a problem-focused strategy) was associated with better adjustment, whereas the relationship between wishful thinking (an emotion-focused strategy) and adjustment was negative. In contrast, Fbrsythe and Compas (1987) found that in relation to recent uncontrollable stress (determined on the basis of perceptions of controllability over the outcome of the event), emotion-focused and problem-focused strategies were associated with low and high levels of symptoms, respectively.

More recent studies have continued to yield equivocal results. In three different samples, Vitaliano, DeWolfe, Maiuro, Russo, and Katon (1990) found that in response to events perceived to be unchangeable, the correlations between the use of problem focused coping and depression were nonsignificant—but not negative, as implied in the goodness-of-fit model of coping effectiveness. There was also no evidence that emotion-focused coping was associated with better adjustment in situations perceived to be unchangeable. In all three samples, the correlation between the use of emotion-focused coping and depression was positive, although it was significant in only one sample. The results reported by Vitaliano et al. were essentially replicated by Conway and Terry (1992).

Taken together, there is a lack of support for the prediction that a reliance on emotion-focused coping should predict better adjustment to low-control stress, whereas problem-focused strategies should relate to poor adjustment. Such findings are inconsistent with the view—embodied in the goodness-of-fit model of coping effectiveness—that the situational demands of a low-control situation should be taken into account when considering the likely effects of different coping responses in such contexts (Folkman et al., 1979). However, it is possible that the distinction between problem- and emotion-focused coping is too simplistic and that to understand how coping responses influence adjustment to low-control stress, it is necessary to make more fine-grained distinctions between different types of problem- and emotion-focused coping responses. Specifically, it is proposed that problem-management strategies and problem appraisal responses should be distinguished, as should emotional approach coping and avoidance coping. The proposed effects of these different types of problem- and emotion-focused coping on adjustment to low-control stress are described in detail below.

Problem-Focused Coping and Adjustment to Low-Control Stress

As noted, it is proposed that to understand the impact of problem-focused coping on adjustment to low-control stress, a distinction between two types of problem-focused strategies— problem-management strategies and problem-appraisal strategies— should be drawn. *Problem-management* strategies can be conceptualized as active attempts to manage or come up with a solution to the problem (e.g., making a plan of action and following it, trying to solve the problem). *Problem-appraisal* strategies are also directed toward the management of the problem and, hence, should be regarded as problem-focused strategies, but rather than dealing directly with the event, they reflect attempts to manage one's appraisal of the stressfulness of the situation (e.g., trying to step back and be more objective, trying to see the positive side of the situation). In their typology of coping responses, Moos and his colleagues (Billings & Moos, 1981; Holahan & Moos, 1987) distinguished between behavioral and cognitive problem-focused strategies (both termed active responses). This distinction is not inconsistent with the one proposed in the present research; however, the terms *behavioral* and *cognitive* are not used here, because attempts to manage a problem directly may encompass both behavioral and cognitive responses (see Mattlin, Wethington, & Kessler, 1990).

Problem-management, but not problem-appraisal, strategies should impact negatively on adjustment to low-control stress. Because attempts to minimize the appraised threat of an event and to accept its occurrence will presumably be a useful response to all types of threat (see cognitive adaptation theory; Aspinwall & Taylor, 1992; Taylor, 1983; Taylor & Brown, 1988), this type of coping should be an adaptive response to low control situations. In fact, as noted by Carver et al. (1993), the beneficial effects of problem-appraisal coping may be particularly

marked in low-control situations, in which acceptance of the situation's occurrence is central to one's adjustment to it. The use of problem-management strategies, on the other hand, should have a negative effect on adjustment to low-control stress. Because the outcome of the event is outside the person's control, problem-management responses are likely to engender frustration and non productive worry (see Roth & Cohen, 1986).

Although the distinction between problem-management and problem-appraisal strategies has not been made in relation to adjustment to low-control stress, there is some empirical support for the proposal that the effects of these two types of problem focused coping differ in relation to this type of stress. In a study of adjustment to a low-control situation—a failed in vitro fertilization (IVF) attempt—Hynes, Callan, Terry, and Gallois (1992) found that the use of problem-focused coping was positively associated with women's well-being, presumably because the measure of problem-focused coping used in the study consisted mainly of appraisal-oriented strategies (see also Carver et al., 1993). In contrast, Forsythe and Compas's (1987) clear support for the expectation that emotion-focused coping would be a more adaptive response to low-control stress than problem focused coping may be attributable to the fact that these researchers employed a measure of problem-focused coping that focused on active attempts to manage the problem. In a more direct test of the effects of problem-management and problem appraisal strategies on adjustment to low-control stress, Masel et al. (1996) found that student adjustment to a recent stressor appraised as being low in control was influenced positively by the use of problem-appraisal strategies. In contrast, there was some evidence to suggest that the magnitude of the relationship between problem-management coping and perceptions of coping effectiveness in relation to low-control stress was weaker than for situations appraised as being high in control. The lack of stronger support for the proposed effects of problem-management coping may be a function of the fact that the study employed a student sample. In such samples, recent stressors tend to be relatively high in control (e.g., work-study stressors; see Terry, 1994; also Stanton, Danoff-Burg, Cameron, & Ellis, 1994, for evidence that perceptions of event controllability in such studies are relatively high), thus making it difficult to test adequately the role of coping in adjustment to low-control stress.

Emotion-Focused Coping and Adjustment to Low-Control Stress

In addition to distinguishing between problem-management and problem-appraisal strategies, it is proposed that two types of emotion-focused coping—namely, *avoidant-type* (or disengagement) strategies (such as escapism, wishful thinking, and denial) and *emotional approach* strategies—need to be distinguished when deriving hypotheses concerning the effects of emotion-focused coping on adjustment to low-control stress. Specifically, it is proposed that, contrary to the original goodness- of-fit model of coping effectiveness, the use of avoidant type strategies in response to low-control stress will be maladaptive. Findings from previous tests of the goodness-of-fit model of coping effectiveness have generally found that strategies such as escapism and wishful thinking are negatively associated with adjustment to this type of stress (e.g., Conway & Terry, 1992; Vitaliano et al., 1990), as have studies examining the relationships between the use of such strategies and adjustment to specific low-control stressors, including infertility (Stanton, Tennen, Affleck, & Mendola, 1992) and a failed IVF attempt (Hynes et al., 1992; Litt, Tennen, Affleck, & Klock, 1992).

In a meta-analysis of 43 studies (mostly studies of adjustment to low-control, laboratory-induced stressors such as cold-pressor tasks), Suls and Fletcher (1985) did find evidence that avoidant strategies had some benefit in the short term, whereas nonavoidant strategies were found to be most beneficial for longer term adaptation. However, the results of this meta-analysis are difficult to generalize to field settings. Suls and Fletcher focused on the effects of engaging in simple behaviors that constituted avoidant responses—such as distraction—in response to situations that were ultimately controllable, in that participants could discontinue their participation in the study at any time and they were aware that the exposure to the stressor was only for a finite period of time.

Subsequent field studies have failed to show that stage of the encounter moderates the effects of avoidant-type strategies on adjustment to low-control stress. In a student sample, Masel et al. (1996) found that the use of escapism in response to low control stress was negatively associated with adjustment, even when the event was categorized as being in the acute stage. Stanton and Snider (1993) reported similar results. In a study of women adjusting to a breast cancer diagnosis, prebiopsy cognitive avoidance was negatively associated with both postbiopsy affect (on average, 6 days after prebiopsy assessment) and postsurgery affect (on average, 18 days later). In a sample of women with early stage breast cancer, Carver et al. (1993) similarly found that distress was positively associated with concurrent avoidant-type responses—denial and behavioral disengagement—five different measurement points after initial diagnosis.

Thus, despite suggestions that the temporal course of the event needs to be taken into account when making predictions concerning the effects of avoidant-type strategies on adjustment to low-control stress (Folkman & Lazarus, 1988; Lazarus, 1983; Roth & Cohen, 1986; Suls & Fletcher, 1985), the evidence from recent field studies

suggests that, irrespective of the stage of the encounter, the use of avoidant-type strategies has detrimental effects on adjustment to low-control stress. The level of effort involved in avoiding the reality of an event and the use of escapist strategies (e.g., drinking more alcohol) may deplete a person's resources (Stanton & Snider, 1993; Wegner, Shortt, Blake, & Page, 1990), interfere with eventual assimilation and acceptance of the situation (Roth & Cohen, 1986), and increase the frequency of undesired intrusions of thoughts about the event (Stanton & Snider, 1993; Wegner et al, 1990).

In contrast to avoidant-type strategies, we propose that emotional approach responses will be an adaptive response to low control stress. Recently, Stanton et al. (1994) argued that coping research has been limited to the extent that it has focused almost exclusively on emotion-focused strategies that involve an avoidance of the situation, rather than considering the possibility that the emotional distress associated with a problem can be dealt with by more approach-oriented responses, including efforts to acknowledge, understand, and express emotions engendered by the situation (see also Roth & Cohen, 1986). In relation to adjustment to low-control stress, we propose that the use of emotional approach coping should be adaptive. This prediction accords with theoretical approaches that contend that both attention to and expression of one's emotional responses to a situation may facilitate adjustment through such processes as the release of physiological and psychological tension and changes to cognitive-affective schemas (Pennebaker, Kiecolt-Glaser, & Glaser, 1988; see also Stanton et al., 1994). These processes are likely to be particularly relevant in low-control situations in which tension cannot be reduced by directing attention toward managing the problem. Stanton et al. found some evidence that emotional approach coping was negatively associated with levels of distress in response to low-control distress, but only among female participants. For male participants, the use of this type of coping was positively associated with distress, possibly because efforts to express and understand one's emotions are counter to stereotypical male sex role norms.

The Present Study

The present research was designed to examine the effects of coping responses to a low-control situation. Specifically, the research focused on women's adjustment to a failed IVF attempt, a topic that, despite Carver et al.'s (1993) call for more research on the role of coping in adjustment to specific life crises, has received little research attention (cf. Hynes et al., 1992; Litt et al., 1992)[1]. A failed IVF attempt can be regarded as a low-control event, to the extent that there is nothing a woman can do to change the outcome of the attempt. Moreover, a failed IVF attempt occurs in the context of a more general low-control situation. The chance of conceiving a child using IVF techniques is relatively low. Only around 15% to 20% of women who successfully complete a treatment program achieve an ongoing pregnancy (American Society for Reproductive Medicine, Society for Assisted Reproductive Technology, 1995; Kovacs, 1993). Thus, many women who experience a failed IVF attempt are faced with the real possibility that they may never achieve a valued goal—that is, having a child—a situation that is likely to pose a threat to their self-esteem and cause them to question their central beliefs about the controllability of life outcomes (Stanton et al., 1992).

We proposed that the use of problem-focused coping would predict poor adjustment, but only in relation to problem-management strategies (Hypothesis 1). In contrast, we proposed that the use of problem-appraisal strategies (Hypothesis 2) would have positive relationships with adjustment. For emotion focused coping, we proposed that, irrespective of the stage of the encounter, the use of avoidant-type strategies would be associated with negative outcomes (Hypothesis 3), whereas the use of emotional approach strategies would be positively associated with adjustment (Hypothesis 4). These hypotheses were tested in a longitudinal study, in which adjustment was assessed before the IVF attempt (Time 1) and both coping and adjustment were assessed soon after participants found out about the outcome of the IVF attempt (Time 2) and again several weeks later (Time 3). To control for the potential confounding effects of a reliance on self-report measures, we obtained both self- and partner reports of adjustment. The longitudinal design meant that we could examine the differential effects of coping as a function of the period of time since the event in addition to examining the temporal relationships between Time 2 coping and subsequent adjustment. The longitudinal design also allowed us to examine the relationships among prior adjustment, Time 2 coping, and subsequent adjustment and, more specifically, to determine whether the relationships between Time 2 coping and subsequent adjustment were mediated through concurrent adjustment.

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[1] Although Litt et al. (1992) examined the effects of coping on adaptation to IVF failure, the coping responses pertained to dealing with the experience of infertility, rather than dealing specifically with the failed attempt (as in the present study).

Method

Design

As noted, the research was longitudinal in design. There were three waves of data collection—one prior to the IVF treatment (Time 1) and two after the failed IVF attempt (Times 2 and 3). To control for the possibility that measures of coping would be confounded with prior levels of well-being (Aldwin & Revenson, 1987), we .assessed initial levels of adjustment at Time 1. The immediate measures of both coping and adjustment were obtained at Time 2 (within 2 weeks of the participants' finding out that the IVF attempt had been unsuccessful), whereas delayed measures of coping and adjustment were obtained at Time 3 (6 weeks later). To decontaminate the data for same-source effects, partner ratings of adjustment were obtained at Times 2 and 3.

Procedure

Women were asked if they would be willing to participate in the research when they were attending the clinic for blood tests and injections early in the treatment cycle (prior to undergoing the IVF procedure). This ensured that the data were collected across a specific IVF attempt. Moreover, pilot work suggested that personal contact with potential participants increased participation rates. However, the recruitment procedure precluded, for the most part, any preattempt personal contact with partners; thus, the focal sample for the research was the women, although reports on the women's adjustment were obtained from their partners at both postattempt periods of data collection.

After the IVF attempt, contact was made with women whose IVF attempt was unsuccessful—this information was conveyed to the research team on a daily basis. If the women agreed to stay involved in the research, then questionnaires for both themselves and their partners were sent to their home. These were returned separately in prepaid envelopes. A similar procedure was adopted for the collection of the Time 3 data.

Participants

The respondents were recruited through one large-city (Australian) IVF clinic and two smaller IVF units in regional centers. Of the 408 women approached to participate in the research, 315 (77%) completed the first questionnaire. Twenty-nine percent (n = 92) of these women were successful on the program; thus, they were not sent the second questionnaire. Of the 223 women who received the second questionnaire (i.e., who did not become pregnant), 77% (n = 171) provided data at Time 2. Eighty-one percent (n = 138) of their partners provided Time 2 data. Seventy-eight percent (n = 133) of the women who provided data at Time 2 also completed the Time 3 questionnaire (6 additional women provided data at Times 1 and 3). At Time 3, it was made clear to participants that they should not complete the materials if they had already embarked on a further IVF attempt or if they were planning to do so in the near future (15 women identified themselves as falling in this category and hence did not provide Time 3 data). Partner data at Time 3 were obtained for 70% *(n* = 97, 4 of whom did not provide data at Time 2) of the women who provided data at this point in time.

Multavariate analyses of variance (MANO\As) revealed that of the participants who did not become pregnant, those participants who failed to provide data at Time 2 did not differ from those participants who did on the variables assessed at Time 1 (age, education level, Time 1 psychological distress, whether the infertility problem was explained, number of previous IVF attempts, and perceived controllability of the outcome of the attempt). Furthermore, there were no differences between the participants who provided data at both Times 2 and 3 and those who provided follow-up data only at Time 2 on any of the Time 1 variables or on the Time 2 measures of coping or self-reported adjustment. MANOVAs also revealed that of the participants who provided data at Time 2, there were no differences between participants whose partners failed to provide Time 2 data and those who did on the Time 1 variables. Of the participants who provided data at Time 3, there were also no differences between participants whose partners provided data and those who did not on any of these variables or on the Time 2 measures of coping or self-reported adjustment. A final MANOVA compared the women who became pregnant (n = 92) with those women who participated in the study at Time 1 and did not become pregnant. This analysis revealed a significant overall MANOVA (using Wilks's criterion), $F(5, 300) = 3.90$, $p < .01$. Consistent widi previous research on the predictors of successful IVF attempts (e.g., Kovacs, 1993), the univariate tests revealed that the women who became pregnant were younger (31.28 years) than those who did not (33.43 years), $F(1, 304) = 14.03$, $p < .01$. They also tended to have undergone fewer previous IVF attempts (2.66 vs. 3.38), $F(1, 304) = 4.77$, $p < .05$.

The analyses reported here excluded those participants who provided data only at Time 1 (the Time 2 and Time 3 analyses were based on the number of participants who provided data at the relevant follow up). These participants (n = 171) ranged in age from 22 to 46 (M = 32.81, *SD* = 4.51); the majority of them (more than 90%) were White Australians (the remainder were primarily Asian Australians). The majority of the participants (98%) had completed high school. Twentyeight percent had graduated from, or were currently completing, postsecondary education. Approximately 75% of the participants were currently employed, with the majority working in clerical and semiprofessional occupations. All of them were married—on average, participants had been in their current relationship for 6.95 years *(SD* = 4.30). Most of the couples (63%) had been given a medical diagnosis for their infertility. The remaining couples had unexplained infertility. The number of times that women had been through the IVF program ranged from 1 (this was their first attempt) to 19 *(M* = 3.22, *SD* = 2.77). A small number of women (n = 16) had previously given birth to an IVF baby. Exclusion of these women from the analyses did not change any of the results reported in this article; *thus*, their data were retained.

Measures

Psychological distress

Two self-report measures of psychological distress were used at each wave of data collection—the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and the State-Trait Anxiety Scale (STAI; Spielberger, Gorsuch, & Lushene, 1970). The BDI has demonstrated reliability and has been shown to be highly correlated with psychiatric ratings of depression severity (Beck, Steer, & Garbin, 1988; Beck et al., 1961). Participants are required to indicate how they have been feeling in the last few days (e.g., in terms of feelings of sadness, dissatisfaction, guilt, irritation, fatigue) on a 4- point scale (0 = *no symptomatology,* 3 = *high levels of symptomatology).* The STAI has demonstrated concurrent and discriminant validity as a measure of state anxiety (Spielberger et al., 1970). It comprises statements (e.g., "I feel calm" and "I feel anxious") that require participants to indicate how they have been feeling in the past few days on a 4-point scale (1 = *not at all* 4 = *very much so).*

For the purposes of analysis, the two measures of psychological distress were combined into a composite score (correlations between the two scales at each point in time ranged from .71 to .83). The response scales employed in the two scales differed; thus, the scale scores were standardized before being combined into a composite (mean) score. Alpha coefficients for the composite measures of psychological distress ranged from .83 to .91.

(Poor) task performance

Adjustment is a multifaceted construct (Scott & Scott, 1989). Thus, in addition to the self-report measure of psychological distress, subjective measures of recent task performance were obtained at Times 2 and 3. Participants indicated how well they had been able to perform six different tasks (e.g., fulfilling work commitments, keeping up with friends and relatives). Each item was responded to on a 4-point scale (1 = *not well at all,* 4 = *very well);* items were rescored so that high scores reflected poor task performance. Principal components analyses of the task-performance items revealed, at both points in time, the presence of a single factor (accounting for 54.2% and 64% of the variance at Times 2 and 3, respectively) on which all items loaded above .50 (factor loadings ranged from .59 to .86 and .66 to .90 at Times 2 and 3, respectively). The scale had an alpha coefficient of .84 at Time 2 and .89 at Time 3.[2]

Self-ratings of (poor) coping effectiveness

At Times 2 and 3, participants were also asked to appraise how well they thought they were dealing with the failed IVF attempt. At Time 2, five items were used (e.g., "How well do you think you have handled this unsuccessful IVF attempt?"; 1 = *not well at all,* 5 = *extremely well).* Items were scored so that a high score was indicative of poor self-ratings of coping effectiveness. A principal-components analysis revealed that the items loaded on a single factor (accounting for 66% of the variance; factor loadings ranged from .78 to .86). The alpha coefficient of the scale was

[2] All the analyses reported in the text using principal-components analyses were also conducted using principal-axis analyses. The latter analyses revealed essentially the same results as those reported in the text.

.87. At Time 3, a single item was used to assess perceived coping effectiveness (the same item as the example Time 2 item provided above).

Partner ratings of emotional distress

An other-source measure of adjustment was obtained by asking partners to rate the women's recent emotional distress at Times 2 and 3, indicating on a 6-point scale (1 = *none of the time,* 6 = *all of the time)* how often their partner seemed to be experiencing eight different feelings (e.g., sad, depressed, cheerful, tense). Principal-components analyses revealed that the items loaded on a single factor at Times 2 and 3 (accounting for 64.7% and 72% of the variance, respectively; factor loadings ranged from .66 to .88 at Time 2 and from .75 to .91 at Time 3). The alpha coefficients were .92 and .94, respectively.

Partner ratings of (poor) coping effectiveness

As a second partner measure of adjustment, partners rated on a series of 5-point response scales how well they thought their partner had handled the unsuccessful IVF attempt, how often they had worried about how their partner was dealing with the event, and how difficult it had been for their partner to adjust to the unsuccessful attempt (see Terry, 1991b, 1992). The scale was scored so that high scores were indicative of poor ratings of coping effectiveness (one item was reverse scored). Principal-components analyses revealed that the three items loaded on a single factor at Time 2 (accounting for 67.4% of the variance; factor loadings ranged from .78 to .87) and at Time 3 (accounting for 72.2% of variance; factor loadings ranged from .82 to .88). The respective alpha coefficients were .85 and .81.

Coping

Coping was assessed by asking participants to indicate how much—since finding out about the failed IVF attempt (Time 2) or during the past 2 weeks (Time 3) —they had used a range of different coping responses to deal with their failed IVF attempt. The measure of coping comprised 30 items that appeared to assess the focal coping responses, namely, problem-management and problem-appraisal strategies, emotional approach coping, and escapism (one of the major forms of avoidance coping identified in previous research; see Aldwin & Revenson, 1987; Dunkel-Schetteretal., 1987; Vitaliano et al., 1985). Items were selected from the coping measures developed by Holahan and Moos (1987) and Lazarus and Folkman (1984) and were chosen for use in the study on the basis of the conceptual definitions of the types of coping under consideration and the relevance of the responses to a failed IVF attempt. Each of the items was responded to on a 4-point scale (1 = *not used at all,* 4 = *used a great deal).*

The Time 2 coping data were subjected to a principal-components analysis with varimax rotation. On the basis of a scree test, five factors were rotated to obtain the final solution, which accounted for 48.2% of the variance. Items with factor loadings greater than .40 on only one factor were retained (one factorially complex item was discarded). The factor solution was consistent with the a priori selection of the items to assess the four types of coping under consideration, with the exception that one set of items was split across two factors.

The first factor was labeled *Escapism.* The seven items loading significantly on this factor included "Daydreamed or imagined a better time or place than the one I was in" and "Hoped a miracle would happen." It accounted for 16.3% of the common variance (average factor loading = .59). Factor two, labeled *Problem-Appraisal Coping,* comprised eight items and accounted for 13.1% of the common variance (average factor loading = .59). Examples of items loading on this factor are "Tried to step back from the situation and be more objective" and "Tried to accept and make the most of the situation." The third factor to emerge, accounting for 8.3% of the common variance (average factor loading = .64), was labeled *Problem-Management Coping.* It included six items—for example, "Tried to think of ways of dealing with my fertility problem' * and * 'Tried to find out more about my fertility problem." Five items loaded on the fourth factor. This factor appeared to be assessing *emotional approach coping*—for example, "Talked with friends about how I was feeling" and "Let my feelings out somehow."[3] It accounted for 5.6% of the common variance (average factor loading = .58). The two items loading on the fifth factor

[3] The measure of emotional approach coping comprised items that assessed both emotional approach coping and seeking social support. However, in contrast to other measures of seeking support (e.g., Aldwin & Revenson, 1987; Fblkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986), there was a specific focus in the majority of the social-support items on contact with others for the purpose of expressing feelings rather than for a range of different purposes, such as obtaining information, seeking advice, and accepting sympathy and understanding. Thus, the major focus of the scale was considered to be emotional approach coping.

assessed planning for future IVF attempts—for example, "Made plans to undergo another treatment cycle." These items were originally designed to assess problem- management coping. Because the planning scale comprised only two items, it was not used in subsequent analyses of the data. The items loading on the other four factors are shown in the Appendix.

The scales identified from the principal-components analysis conducted on the Time 2 coping data were used at Time 3. Results of a principal-components analysis (with varimax rotation) of the Time 3 data revealed a similar solution to that obtained at Time 2. The scree plot identified the presence of five factors. With the exception of one item, all of the items identified as loading on the Time 2 factors loaded (above .35) on the same factors at Time 3.

Alpha coefficients for the measures of problem-management coping (Time 2 = .74, Time 3 - .78), problem-appraisal coping (Time 2 = .71, Time 3 = .76), and escapism (Time 2 = .78, Time 3 = .75) were satisfactory, although the reliabilities for the measures of emotional approach coping were relatively low (Time 2 = .68, Time 3 = .61). The emotional approach measures were retained in the analyses because of the fact that the principal-components analyses of both the Time 2 and Time 3 coping items clearly identified these items as being related. There was evidence that the coping measures were empirically distinct— the mean correlations among the measures were .16 and .19 at Times 2 and 3, respectively.

Preattempt perceived control

As a check on participants' perceptions of the controllability of the current IVF attempt, they indicated— before the attempt (at Time 1)—how much control they had over the outcome of the IVF attempt on a 6-point scale (1 = *no control,* 6 = *total control).*

Results

Preliminary Analyses

Participants perceived themselves as having little potential to control the situation. On the item assessing perceived control over the outcome of the current IVF attempt, the median score was 1, indicating that most participants perceived that they had no control over the outcome of the attempt. The mean score was 1.51 *(SD* = 1.42), which was significantly below the scale midpoint of 3.5, /(170) = 13.75, p < .001. Other preliminary analyses showed that control of age and number of previous IVF attempts—as covariates—did not change any of the results, nor were any of the relationships between coping and adjustment moderated by age or the number of previous IVF attempts. Thus, these variables were not considered in subsequent analyses.

Changes in Coping and Adjustment Across Time

Mean scores and standard deviations for each of the measures of coping and adjustment are shown in Table 1. A repeated measures analysis of variance (ANOVA) on participants' use of different coping responses at Times 2 and 3 revealed a significant main effect for type of coping response, F(3, 130) = 25.15, $p < .001$; a significant main effect for time, F (l , 132) = 53.56, p < .001; and a significant Type X Time interaction, F(3,130) = *3.15,p* < .05. Post hoc dependent? tests (evaluated using a conservative level of significance—i.e., based on the Bonferroni inequality as recommended by Maxwell, 1980) revealed that, overall, participants used problem-appraisal coping more than each of the other forms of coping (fs ranged from 5.01 to 8.69, all significant a t p < .001). There was also evidence that emotional approach coping was used more than problem management coping, z(132) = 3.50, p < .005. Simple main effects for the effects of time on each of the measures of coping revealed strong evidence that the use of emotional approach coping, problem-management coping, and escapism declined over time. The reduction in the use of problem-appraisal coping over time was less marked (see Table 1).

Table 1
Descriptive Statistics for Coping and Adjustment at Each Measurement Point

Variable	Possible range	Time 1		Time 2		Time 3		
		M	*SD*	*M*	*SD*	*M*	*SD*	*F*
Problem-management coping	1–4	—	—	2.10	0.76	1.89	0.66	15.14***
Problem-appraisal coping	1–4	—	—	2.61	0.59	2.48	0.58	6.73*
Escapism	1–4	—	—	2.18	0.62	1.99	0.62	16.98***
Emotional approach coping	1–4	—	—	2.39	0.61	2.05	0.60	44.93***
Depressive symptomatology	0–3	0.59_a	0.36	0.69_b	0.44	0.54_a	0.40	13.16***
State anxiety	1–4	2.33_a	0.57	2.45_b	0.62	2.26_a	0.67	5.98**
(Poor) task performance	1–4	—	—	2.15	0.61	2.01	0.53	8.77**
(Poor) self-ratings of coping effectiveness	1–5	—	—	2.93	0.95	2.77	0.91	6.66*
Partner ratings of psychological distress	1–5	—	—	2.93	0.94	2.58	0.92	7.56**
(Poor) partner ratings of coping effectiveness	1–5	—	—	2.50	0.90	2.30	0.85	8.82**

Note. Time 1: prior to in vitro fertilization (IVF) attempt; Time 2: within 2 weeks of finding out that IVF attempt was unsuccessful; Time 3: 6 weeks after Time 2. For self-report adjustment measures at Time 1 and Time 2, $n = 171$; at Time 3, $n = 139$; for partner adjustment measures at Time 1 and Time 2, $n = 138$; at Time 3, $n = 97$. Scale scores were computed as mean item scores. Means in the same row that do not share subscripts differ significantly at adjusted $p < .015$ with the exception that the Time 1–Time 2 comparison for anxiety was significant only at $p < .025$.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Repeated measures ANOVAs on levels of psychological distress over time revealed a significant effect for time (see Table 1). Post hoc comparisons (multiple dependent *t* tests evaluated at a significance level of .05 based on Bonferroni adjustment) revealed that levels of depressive symptomatology had increased from before the IVF attempt to Time 2 (the first post failure follow-up). By Time 3, levels of depressive symptomatology had significantly decreased to a level comparable to that observed at Time 1. A similar pattern of results was evident for anxiety, although the comparison between Time 1 and Time 2 anxiety was only marginally significant ($p < .025$). Additional repeated measures analyses revealed that self-ratings of (poor) task performance and (poor) coping effectiveness decreased from Time 2 to Time 3, as did partners' ratings of both the women' s distress and (poor) coping effectiveness (see Table 1).

Data Analysis Procedure

Two sets of analyses were performed. First, hierarchical regression analyses were used to examine the relationships between Time 2 and Time 3 coping responses on the corresponding concurrent self-report and partner ratings of adjustment, after control of Time 1 psychological distress (to control for consistency in levels of adjustment over time). Second, structural equation analyses were performed to examine the possible relationships between Time 2 coping and subsequent (Time 3) adjustment. This procedure was considered appropriate because it allows simultaneous testing of pathways in mediational models. In the structural equation analyses, the central question of interest was whether the Time 2 measures of coping had significant relationships with Time 3 adjustment. However, these analyses also allowed examination of the extent to which Time 2 coping mediated the relationship between Time 1 (preattempt) psychological distress and subsequent adjustment. Previous research (Aldwin & Revenson, 1987; Masel et al., 1996) has found that there are bidirectional relationships between coping and distress, to the extent that prior distress has been shown to be related to subsequent coping responses.

Relations Between Coping and Concurrent Adjustment:

Prediction of Time 2 adjustment from Time 2 coping

The results of the analyses predicting the Time 2 self-report measures of adjustment from the concurrent measures of coping, after control of Time 1 psychological distress, are shown in Table 2. As shown in this table, there was evidence of consistency in women's adjustment across time. Time 1 psychological distress accounted for a significant proportion of variance in Time 2 levels of psychological distress, $F(1, 169) = 185.12$, $p < .001$; (poor)

task performance, F (l , 169) = 59.54, $p < .001$; and (poor) self-report ratings of coping effectiveness, F(1, 169) = 47.74, $p < .001$. After control of the effects of Time 1 distress, the Time 2 coping responses were associated with concurrent levels of psychological distress, $F(4, 165) = 24.63$, $p < .001$, (poor) task performance, F(4, 165) = 7.00, $p < .001$; and (poor) self-report ratings of coping effectiveness, $F(1, 169) = 21.78$, $p < .001$. When all the variables were entered in the equation, there was evidence that in the initial period after finding out that the FVF attempt was unsuccessful, a high score on each of the Time 2 self-report measures of poor adjustment was associated with a reliance on escapist coping strategies (as predicted under Hypothesis 3). There was also evidence that, consistent with Hypothesis 2, the use of problem-appraisal coping was associated negatively with Time 2 distress and self ratings of poor coping effectiveness, whereas the use of problem- management coping was associated positively with scores on both these dependent variables (as predicted under Hypothesis 1). In accord with Hypothesis 4, the use of emotional approach coping was negatively associated with poor concurrent ratings of task performance.

Table 2
Hierarchical Multiple Regression Predicting Time 2 Measures of Adjustment From Time 2 Coping Responses

	Psychological distress (Time 2)			(Poor) task performance (Time 2)			(Poor) self-ratings of coping effectiveness (Time 2)			Partner ratings of psychological distress (Time 2)			(Poor) partner ratings of coping effectiveness (Time 2)		
Variable	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β
Step 1															
Time 1 psychological distress	.523	.523	.47***	.261	.261	.33**	.220	.220	.16*	.154	.154	.23**	.095	.095	.15†
Step 2															
Time 2 coping	.701	.178		.368	.107		.489	.269		.286	.132		.227	.132	
Problem-management coping			.11*			.05			.18*			.25**			.26**
Problem-appraisal coping			−.16***			−.10			−.38***			−.13			−.14†
Emotional approach coping			−.07			−.18**			−.10			−.05			−.01
Escapism			.40***			.28***			.36***			.21*			.20*

Note. Time 1: prior to in vitro fertilization (IVF) attempt; Time 2: within 2 weeks of finding out that IVF attempt was unsuccessful.
† $p < .10$ (marginally significant). * $p < .05$. ** $p < .01$. *** $p < .001$.

effectiveness, $F(1, 137) = 13.26$, $p < .001$; however, when all the variables were entered in the equation, Time 1 distress did not significantly predict Time 3 ratings of (poor) coping effectiveness. After control of Time 1 distress, the Time 3 coping scores (as a set) accounted for a significant increment of variance in Time 3 (low) psychological distress, $F(4, 133) = 35.42$, $p < .001$; (poor) task performance, $F(4, 133) = 16.44$, $p < .001$; and (poor) self-report ratings of coping effectiveness, $F(1, 133) = 16.04$, $p < .001$. When all the variables were in the equation, there was evidence—as predicted under Hypotheses 2 and 3—that high scores on each of the self-report measures of (poor) adjustment were associated with low levels of problem-appraisal coping and a reliance on high levels of escapism (as at Time 2). For psychological distress and (poor) task performance, there was also evidence linking high levels of emotional approach coping to better levels of adjustment—these findings provide support for Hypothesis 4.

The results of the analyses predicting the Time 3 partner ratings of adjustment from Time 3 coping are also shown in Table 3. As is evident from this table, the women's Time 1

The results of the analyses predicting Time 2 partner ratings of adjustment are also shown in Table 2. Time 1 levels of psychological distress predicted scores on the Time 2 external (partner report) measures of both distress, F (l , 134) - 24.40, $p < .001$, and (poor) coping effectiveness, F (l , 134) = 14.07, p < .001. After control of Time 1 psychological distress, Time 2 coping responses accounted for a significant increment of variance in partner reports of both the women's distress, F(4, 130) = 6.03, $p < .001$, and (poor) coping effectiveness, F(4, 130) = 5.56, $p < .001$. When all the variables were entered into the respective equations, there was evidence that partners' ratings on the measures of poor adjustment were higher if participants were relying on escapism (consistent with Hypothesis 3), problem-management coping (consistent with Hypothesis 1) and low levels of problem-appraisal coping (the latter result was only weak).

Prediction of Time 3 adjustment from Time 3 coping

The results of the regression analyses predicting Time 3 adjustment from the Time 3 coping scores are shown in Table 3. For the measures of self-reported adjustment, there was, once again, evidence of a continuity in levels of distress across time. Time 1 psychological distress accounted for a significant proportion of variance in scores on

Time 3 psychological distress, F (l , 137) = 52.64, $p < .001$; (poor) task performance, F (l , 137) - 35.43, $p < .001$; and (poor) self-report ratings of coping effectiveness, f (l , 137) = 13.26, $p < .001$; however, when all the variables were entered in the equation, Time 1 distress did not significantly predict Time 3 ratings of (poor) coping effectiveness. After control of Time 1 distress, the Time 3 coping scores (as a set) accounted for a significant increment of variance in Time 3 (low) psychological distress, F(4, 133) — 35.42, $p < .001$; (poor) task performance, $F\{A$, 133) = 16.44, $p < .001$; and (poor) self-report ratings of coping effectiveness, $F($ 1, 133) = 16.04, $p < .001$. When all the variables were in the equation, there was evidence—as predicted under Hypotheses 2 and 3—that high scores on each of the self-report measures of (poor) adjustment were associated with low levels of problem appraisal coping and a reliance on high levels of escapism (as at Time 2). Par psychological distress and (poor) task performance, there was also evidence linking high levels of emotional approach coping to better levels of adjustment—these findings provide support for Hypothesis 4.

Table 3
Hierarchical Multiple Regression Predicting Time 3 Measures of Adjustment From Time 3 Coping Responses

	Psychological distress (Time 3)			(Poor) task performance (Time 3)			(Poor) self-ratings of coping effectiveness (Time 3)			Partner ratings of psychological distress (Time 3)			(Poor) partner ratings of coping effectiveness (Time 3)		
Variable	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β
Step 1															
Time 1 psychological distress	.278	.278	.25***	.261	.261	.33**	.088	.088	.06	.150	.150	.20*	.099	.099	.12
Step 2															
Time 2 coping	.650	.373		.368	.107		.385	.297		.363	.214		.321	.221	
Problem-management coping			.03			.07			.10			.19†			.17
Problem-appraisal coping			−.17**			−.25**			−.38***			−.09			−.14
Emotional approach coping			−.11*			−.16*			−.02			.05			.06
Escapism			.62***			.44***			.40***			.37***			.39***

Note. Time 1: prior to in vitro fertilization (IVF) attempt; Time 3: approximately 8 weeks after finding out that IVF attempt was unsuccessful.
† $p < .07$ (marginally significant). * $p < .05$. ** $p < .01$. *** $p < .001$.

The results of the analyses predicting the Time 3 partner ratings of adjustment from Time 3 coping are also shown in Table 3. As is evident from this table, the women's Time 1 psychological distress accounted for a significant proportion of variance in partner ratings of both distress, F(1, 95) = 16.72, $p < .001$, and (poor) coping effectiveness, F (l , 95) = 10.47, $p < .01$, although Time 1 distress emerged as an independent predictor (when all the variables were entered in the equation) only of Time 3 partner ratings of distress. After control of the effects of Time 1 distress. Time 3 coping accounted for a significant increment of variance in scores on both partner measures of adjustment—ratings of the women's distress, F(4, 91) - 7.64,p < .001, and ratings of poor coping effectiveness, F(4, 91) = 7.42, $p < .001$. When all the variables were entered in the equation, there was weak evidence—as at Time 2—that partners' ratings of distress were higher for the women who were using high levels of problem-management coping (as predicted under Hypothesis 1). In support of Hypothesis 3, the women's reliance on escapism at Time 3 was associated with poor partner ratings of adjustment at this point in time (on both measures).

Relations Between Coping and Subsequent Adjustment

As noted, structural equation analyses (using the EQS program; Bentler, 1993) were used to examine the longitudinal effects of Time 2 coping on Time 3 adjustment. Specifically, a model was tested that incorporated Time I psychological distress, Time 2 coping responses, and Time 3 measures of either self-reported or partner-rated adjustment (the self-reported and partner measures of adjustment were analyzed in separate analyses because of the differing sample sizes). The proposed model incorporated direct paths from each of the measures of Time 2 coping to each of the measures of adjustment—there was no theoretical reason to propose that one or more of the longitudinal effects of coping would be nonsignificant. On the basis of previous literature (Aldwin & Revenson, 1987; Masel et al., 1996), an indirect path between Time 1 psychological distress and Time 3 adjustment through Time 2 escapism was also proposed.

Because of the small ratio of cases to estimated parameters, the structural equation analyses were conducted on the basis of scale totals (i.e., these scores were used as single indicators of each of the variables),

rather than estimating the pathways between latent variables. In the initial analyses, an attempt was made to correct for the unreliability in the measures. Specifically, the error variance associated with each variable was set as the variance of the variable multiplied by one minus an estimate of its reliability (see Bollen, 1989). The results of these analyses were the same as those obtained when the measures were not corrected for unreliability; hence, the latter results are reported in this article.

Using EQS, there are several methods for evaluating the utility of the particular model under consideration. First, a chi-square test was used to compare the observed covariance matrix with the predicted matrix. A chi-square statistic that is nonsignificant (i.e., exceeds the .05 or .01 cutoff) is indicative of a model that fits the data well (Bentler, 1993). Second, because the chi-square test may be sensitive to small differences between the covariance matrices (Bentler, 1993; Bollen, 1989), other goodness-of-fit indexes were used to evaluate the validity of a model (Bentler, 1980). In the present study, the normed fit index (NFI) and the comparative fit index (CFI)—a population estimate of model fit—were considered. These indexes vary in size between zero and one and reflect the extent to which the proposed model, in comparison to the null model, provides a good fit to the data. To indicate a good model fit, the indexes should exceed .90 (Bentler, 1980). As a third assessment of model fit, the distribution of residuals was examined. The distribution should be symmetrical (around zero), and the average absolute off-diagonal standardized residual should be close to zero (see Bollen, 1989).

When testing the adequacy of the proposed model of the relationships among Time 1 distress, Time 2 coping, and Time 3 adjustment, the measures of coping were allowed to covary, as were the residuals among the measures of adjustment obtained at Time 3. As noted by Bentler and Chou (1987), the assumption that variables will be completely unrelated is unlikely to be supported when real data are used. In relation to the present research, there is consistent evidence that responses to different measures of coping tend to correlate (e.g., Aldwin & Revenson, 1987; Terry, 1991a, 1994), as do measures of adjustment (e.g., Terry, Nielsen, & Perchard, 1993).

Preliminary analyses revealed that the data satisfied the assumptions of structural equation procedures (see Bentler & Chou, 1987). The distributions of scores on each of the variables were normally distributed-—there was no evidence of kurtosis or skewness. There were also no multivariate outliers, and there was no evidence of multivariate kurtosis (see Bollen, 1989). Hence, the data were analysed using the maximum-likelihood estimation procedure (as recommended by Bentler, 1993) on the complete data set obtained from participants who had valid data at each of the three points in time.

Self-report ratings of adjustment

The proposed model provided a reasonable fit to the data. Although the chi-square statistic was significant, $x^2(3, N = 133) = 16.03$, $p < .01$, both the NFI and the CFI exceeded .90. Inspection of the results of the Lagrange modifier tests revealed that the model could be improved by adding a link between Time 1 psychological distress and Time 2 problem appraisal coping, $x^2(1, N = 133) = 11.47$, $p < .001$—this path was estimated in each of the subsequent structural equation analyses. The model that incorporated this link fit the data better than the original model. The chi-square difference test was significant, $x^2(1, iV = 133) = 12.35$, $p < .001$. Moreover, the chi-square test for the fit of the modified model was nonsignificant, $x^2(2, AT = 133) = 3.68$, $p > .15$, and both the NFI and the CFI were high (.99). The distribution of the residuals was symmetrical (around zero), and the average standardized off-diagonal residual was low (.03). The standardized path coefficients for the final model are shown in Figure 1.

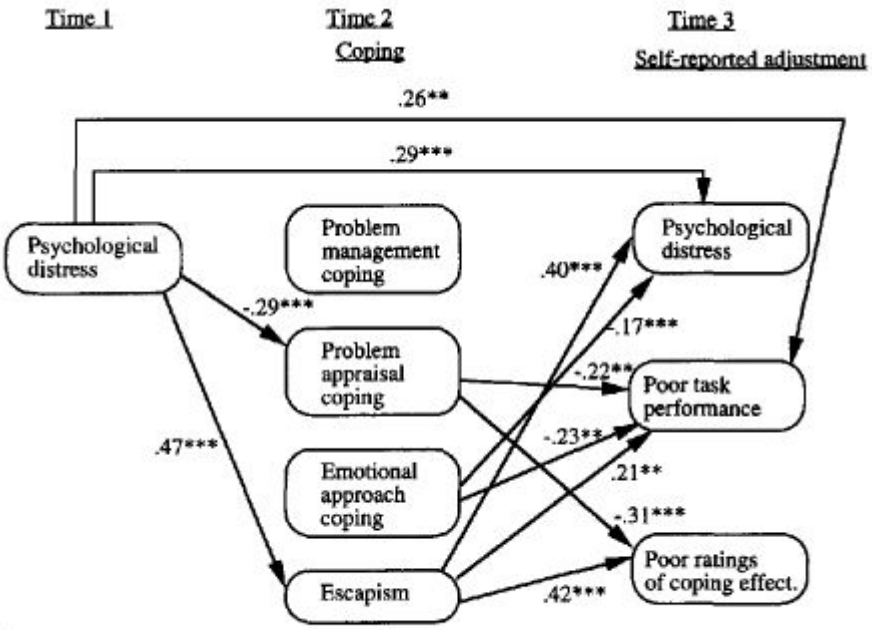

Figure 1. Standardized path coefficients for significant paths in final model for self-reported measures of adjustment. effect. = effectiveness. $^{**}p < .01$. $^{***}p < .001$.

As shown in this figure, there was evidence of continuity in levels of adjustment over time. Participants who were distressed at Time 1 tended to be distressed at Time 3. Time 1 psychological distress also had a significant direct effect on Time 3 ratings of (poor) task performance and significant indirect effects— through its effect on Time 2 coping—on each of the Time 3 self-report measures of adjustment (psychological distress, $z = 4.07$, $p < .001$; poor task performance, $z = 3.14$, $p < .01$; poor ratings of coping effectiveness, $z — 4.17$,$p < .001$). Participants who were depressed at Time 1 used high levels of escapism and low levels of problem appraisal coping, respectively. Examination of the effects of coping revealed that a reliance on escapist strategies in the early period after finding out about the failed IVF attempt had positive relationships with subsequent levels of psychological distress, poor role performance, and poor ratings of coping effectiveness (in accord with Hypothesis 3). There was also evidence that subsequent levels of adjustment were better if participants were using high levels of both emotional approach coping (for distress and task performance) and problem-appraisal coping at Time 2 (for role performance and ratings of coping effectiveness)—effects that were consistent with predictions (Hypotheses 2 and 4).

Partner ratings of adjustment

The proposed model (incorporating a path between Time 1 distress and Time 2 problem-appraisal coping) provided a good fit to the data when the partner ratings of adjustment were considered. The chi-square statistic, $x^2(2, N = 92) = 3.23$, $p = .20$, was non-significant; both the fit indexes were high (NFI = .98, CFI = .99); and the distribution of the residuals was symmetrical (the average standardized off-diagonal residual was .04).

The standardized path coefficients for the final model are shown in Figure 2. As in the previous analysis, there were significant paths between Time 1 psychological distress and both Time 2 escapism and Time 2 problem-appraisal coping. There was also evidence of a (positive) direct relationship between Time 1 self-reported psychological distress and Time 3 partner ratings of the women's distress (but not for partner ratings of coping effectiveness). The indirect effects of Time 1 psychological distress (through Time 2 coping) on Time 3 partner ratings of adjustment were significant (ratings of distress, $z = 2.14$, $p < .05$; ratings of poor coping effectiveness, $z \sim 3.30$, $p < .001$). There were a number of significant paths between Time 2 coping and Time 3 partner ratings of adjustment. Consistent with Hypothesis 3 and the results obtained for the self-report data, participants' reliance on escapism at Time 2 predicted high subsequent levels of poor adjustment (as indicated by poor partner ratings of both psychological adjustment and coping effectiveness). Contrary to Hypothesis 4, the use of high levels of emotional approach coping predicted poor subsequent partner ratings of adjustment. Partners were more likely to give poor

ratings of coping effectiveness at Time 3 if, at Time 2, the women reported relying on high levels of emotional approach coping. There was also evidence of a weak positive relationship between the women's use of problem management coping at Time 2 and subsequent partner reports of the women's distress—this finding provided some support for Hypothesis 1.

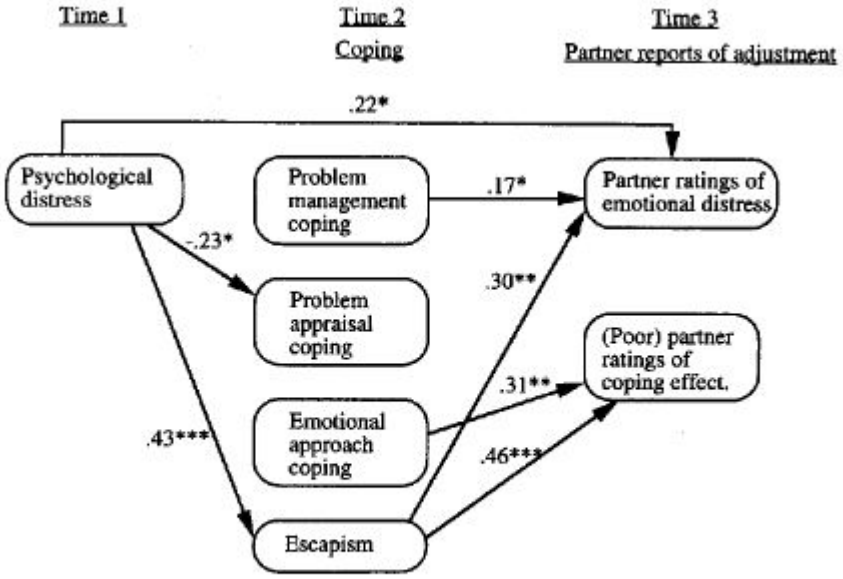

Figure 2. Standardized path coefficients for significant paths in final model for partner measures of adjustment. effect. = effectiveness. $^{\dagger}p < .10$ (marginally significant). $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Mediation of effects of Time 2 coping on Time 3 adjustment through Time 2 adjustment

An additional set of structural equation analyses was performed to ascertain whether the relationships between coping and subsequent adjustment were mediated through their relationships with concurrent adjustment. In these analyses, a model was tested that incorporated Time 1 psychological distress, Time 2 coping responses, and both Time 2 and Time 3 measures of either self-reported or partner-rated adjustment (once again, analyses were performed separately for the two sets of dependent variables). Because there was no theoretical basis on which to predict which coping responses would have unmediated effects on subsequent adjustment, the models tested were based on the assumption that the effects of Time 2 coping on Time 3 adjustment would be mediated, through their effects on Time 2 adjustment. To test whether the model could be improved by freeing any of the unspecified paths (unmediated effects of Time 2 coping on Time 3 adjustment), we performed a series of Lagrange modifier tests on these paths (see Bentler, 1980). The improvement in the model was evaluated by testing the significance of the difference between the two chi-square statistics—that is, for the proposed and the modified models.

Analysis of the self-report measures of adjustment revealed no effects that were not mediated through Time 2 ratings of adjustment—none of the Lagrange multiplier tests were significant. For the partner ratings of adjustment, there was weak evidence that the model could be improved by incorporating a direct path between Time 2 emotional approach coping and Time 3 partner ratings of (poor) coping effectiveness, $x^2(1, N = 92) = 10.62$, $p < .075$. The model incorporating this path provided a marginally better fit to the data than the original model, x^2_{diff} (l, N = 92) = 3.34,p < .075. Contrary to Hypothesis 4, inspection of the standardized parameter estimate for emotional approach coping (.11, $p < .05$) indicated that women's use of this type of coping predicted poor levels of subsequent adjustment (as assessed by partners), an effect that was not completely mediated through Time 2 partner ratings of adjustment.

Discussion

The aim of the present study was to examine the relationships between coping and adjustment to a low-control situation, namely, women's adjustment to a failed IVF attempt. It was proposed that the use of both problem-

management strategies and avoidant-type strategies (in this study, escapism) would be associated with poor outcomes, whereas problem-appraisal strategies and emotional approach coping were proposed to be associated with better outcomes. The research supported these predictions. There was consistent evidence that, even in the short term, the use of escapist strategies was associated with poor adjustment to the low-control situation, whereas the use of problem- appraisal coping was associated with better adjustment. There was also support for the proposed relationships between adjustment and problem-management coping (mainly at Time 2) and emotional approach coping (on the self-report measures of adjustment).

One of the central findings of the research is that, irrespective of whether coping and adjustment were assessed in the early post event period or several weeks later, a reliance on escapism was associated with poor adjustment. The conclusion that the use of avoidant coping (i.e., escapism) is a maladaptive response to low-control stress is strengthened by a number of factors: (a) The relationship was evident when both self-report and partner ratings of adjustment were considered; (b) escapism was a significant prospective predictor of Time 3 adjustment; and (c) in both the concurrent and longitudinal analyses, Time 1 distress was used as a covariate, thus controlling for the fact that in cross-sectional designs (in which residualized adjustment scores are not used), the confounding effect of prior distress is likely to inflate the magnitude of the relationship between avoidant type strategies (such as escapism) and adjustment (see also Aldwin & Revenson, 1987; Masel et al., 1996).

These results render strongly questionable the view that avoidant-type responses may be a short-term adaptive response to situations with little potential for control (Roth & Cohen, 1986; Suls & Fletcher, 1985). Even when the measures of coping were obtained in the period immediately after participants found out that the IVF attempt was unsuccessful, escapism was associated with poor adjustment. These results are in accord with the results of other studies that have examined the relationships between coping and adjustment to specific low-control stressors, including infertility (Stanton et al., 1992), a failed IVF attempt (Hynes et al., 1992; Litt et al., 1992), and diagnosis of breast cancer (Stanton & Snider, 1993). They are also consistent with the results of recent empirical tests of the goodness-of-fit model of coping effectiveness (e.g., Conway & Terry, 1992; Masel et al., 1996; Vitaliano et al., 1990), which have failed to find any consistent evidence that avoidant-type strategies are associated with positive outcomes in the context of low-control situations.

In contrast to avoidant-type strategies, it was proposed that the use of emotional approach coping would be adaptive in low control situations, given that in these situations the primary goal is the control of one's emotional response to the event. In support of the results reported by Stanton et al. (1994), there was evidence that emotional approach coping was associated with better adjustment on the self-report outcome measures. This pattern of results was evident in both sets of concurrent analyses (after control of initial adjustment) and in the longitudinal analyses in which the Time 2 measure of emotional approach coping was positively associated with subsequent (Time 3) scores on two of the self-report measures of adjustment. These results are noteworthy in that they provide support for one of the central predictions of the original goodness-of-fit model of coping effectiveness, namely, that when exposed to low-control stress, adjustment can be enhanced if emotion-focused strategies are used. The present results clarify this prediction by suggesting that this is the case, but only for strategies that involve attention to and expression of one's emotional responses to the event.

There was no evidence of positive relationships between emotional approach coping and adjustment when partners' reports of adjustment were considered. In fact, the only evidence linking emotional approach coping to partners' ratings of adjustment suggested that, contrary to expectations, women's use of emotional approach coping—at Time 2—predicted low rather than high ratings of subsequent adjustment, a result that was shown not to be completely mediated through concurrent (Time 2) partner ratings of coping effectiveness. This pattern of results could be a function of the fact that overt attempts to express one's emotional responses to a situation may be taken as evidence by a woman's partner of her failure to adjust to the situation. However, the fact that women's use of emotional approach coping predicted poor subsequent partner ratings of adjustment may also be a reflection of men's discomfort with confronting their emotions (Stanton et al., 1994), a state that may be reflected in their unwillingness to accept that such a response may be beneficial to other people (i.e., their partners).

The results obtained for emotion-focused coping cannot be generalized to men, given that the focal sample consisted of only women. Indeed, Stanton et al. (1994) found that the positive association between the use of emotional approach coping and adjustment to low-control stress was evident only for female participants. Stanton et al. attributed these results to the fact that efforts to understand and express one's emotions are inconsistent with stereotypical male sex role norms, a supposition that, as noted above, accords with the findings in the present study that women's use of emotional approach coping predicted poor subsequent partner reports of adjustment. Research is needed to examine further the effects of males' use of emotional approach coping on adjustment to low-control stress and to examine the effects of other types of emotion-focused coping that males may feel comfortable using and, hence, may constitute an adaptive emotion-focused response to stressors with little potential for control.

As expected, the present study also revealed evidence linking problem-appraisal coping responses to better adjustment to a low-control situation. This result was observed most consistently when the self-report measures of adjustment were considered, and it was evident in both the concurrent and prospective analyses of these data. Participants who were engaging in efforts to accept and reappraise the situation at Time 2 were more likely at Time 3—several weeks later—to have better adjustment than participants who engaged in only low levels of this type of coping. In the concurrent (Time 2) analyses of the partner ratings of coping effectiveness, there was some weak evidence of an association between women's use of problem-appraisal coping and their partners' ratings of their coping effectiveness. The lack of stronger relationships between problem-appraisal coping and partner reports of adjustment may reflect the intra psychic nature of this type of coping—the lack of external evidence of its use may limit the extent to which it influences partners' ratings of women's adjustment. The results obtained for problem-appraisal coping are considered important to the extent that, although related forms of coping have been identified previously in the literature (Carver et al., 1989; Holahan & Moos, 1987), the relationship between problem-appraisal strategies and adjustment to stress—in particular, low-control situations—has not received much empirical attention (cf. Carver et al., 1993)

The final finding of note pertains to the fact that, as predicted, there was some evidence that the use of problem-management strategies was associated with poor adjustment to a low-control situation. This result was most marked in the concurrent Time 2 analyses. In these analyses, problem-management coping significantly predicted—after control of prior adjustment—concurrent adjustment on both self-report and partner reports of adjustment. There was also weak evidence in the longitudinal analyses, that women's use of problem-management coping at Time 2 influenced subsequent partner ratings of emotional distress and that women's reliance on this type of coping at Time 3 was associated with poor concurrent partner ratings of coping effectiveness. These results are important in that they suggest, in line with the proposed conceptualization of the effects of coping on adjustment to low-control stress, that the type of problem-focused coping most relevant when considering the fit between event controllability and coping responses comprises direct attempts to manage the problem. Under conditions of low control, it is the use of such strategies that is most likely to lead to frustration and, as a consequence, poor adjustment, an assertion that received some support in the present study and is also consistent with results reported by Masel et al. (1996).

The fact that the negative associations between the use of problem-management coping and poor adjustment—on both the self-report and partner ratings of adjustment—were most marked soon after the failed IVF attempt may be a reflection of the ongoing nature of the underlying stressor of infertility. In the short term, the use of strategies designed to manage the situation actively is likely to be strongly associated with poor adjustment because such strategies are likely to preclude acceptance of the outcome of the specific IVF attempt. In the longer term (in the present study, approximately 8 weeks after finding out that the attempt was unsuccessful), problem-management strategies may not be so clearly associated with negative adjustment because acceptance of the situation should not be such an important goal. Moreover, several weeks after a failed IVF attempt, women are likely to be in a position in which longer term planning for the management of their infertility may not necessarily be an inappropriate type of response. Further research is needed to examine the extent to which, in response to other low-control situations, problem-management responses are particularly likely to be associated negatively with adjustment in the short term.

Overall, the present results provide support for the proposed conceptualization of the role of coping in response to low control stress. The results suggest that there is a need for future coping research to be informed by the fact that the effects of coping in response to such stressors may not be the same as those typically observed in relation to controllable stressors. Moreover, the results point to the need for future research on the relations among event control, coping, and adjustment to move beyond the basic dichotomy between problem- and emotion- focused coping. On the basis of the present results, it can be suggested that the failure of previous studies to show the predicted effects of coping in low-control situations is because researchers have not contrasted between problem-management and problem-appraisal strategies or assessed both approach and avoidant forms of emotion-focused coping.

At a more general level, the results of the present research extend previous research on coping. First, there was support in the present research not only for a link between previous poor adjustment and the subsequent use of escapism—as has been found in previous research (e.g., Aldwin & Revenson, 1987) — but also for a (negative) link between Time 1 psychological distress and the use of problem-appraisal coping at Time 2. This result is consistent with cognitive adaptation theory (Taylor, 1983; Taylor & Brown, 1988), which is based on the assumption that people with better adjustment tend to perceive the self and their environment in positive terms. The fact that the effects of Time 2 coping on subsequent adjustment were found, for the most part, to be mediated through concurrent adjustment is noteworthy. Much of the previous research on the relationships between coping and adjustment to stress has been limited by the use of cross-sectional designs. However, even when longitudinal data are obtained,

there has been little attention paid to the question of whether effects of coping on subsequent adjustment are mediated through concurrent adjustment (cf. Masel et al., 1996), an issue that has implications for the development of coping-based interventions.

The present study has a number of strengths—it was longitudinal in design, and it obtained both self-report and partner measures of adjustment. It also examined the relationships between coping responses and adjustment at two different points in time in response to the same stressor, a design that has not been frequently employed in the coping literature (cf. Carver & Scheier, 1994; Folkman & Lazarus, 1985). However, we acknowledge that the research was limited in its focus on a single low-control situation. Further research is needed to test the predictions proposed in the present research in relation to other low-control situations—in order to ascertain that the results are generalizable—and, ideally, in a more general research design, in which differential effects of coping as a function of event controllability can be examined more fully. Nevertheless, it can be argued that a focus on a single low-control situation has the advantage of constituting a strong test of the proposed effects of coping in response to a low-control situation, a test that may not be achieved in a more general study in which the majority of the stressors experienced are likely to have more potential for control than the situation studied in the present research (see Masel et al., 1996).

The use of partner measures of adjustment strengthened the design of the research, in that the data were decontaminated for same-source effects. Thus, conclusions based on findings that emerged from both sets of analyses can be made with some confidence, to the extent that a particular finding cannot be attributed to the effects of same-source measurement. Nevertheless, the discrepancies between the results of the analyses involving the same-source and the other-source measures of adjustment are also interesting, in that, within the dynamic context of a marital relationship, the fact that partners' ratings of their wives' distress were influenced differently by wives' use of emotional approach coping could have implications for wives' future adjustment. In accord with this supposition, Manne and Zautra (1989) found that spouse criticism (a component of the measure of spouse support) influenced wives' adjustment to rheumatoid arthritis—one source of spouse criticism may be the perception that wives are using inappropriate coping responses.

In addition to having implications for the study of the effectiveness of problem- and emotion-focused coping responses in low-control situations, the present study is important because it joins the relatively few studies that have examined the prospective effects of coping responses to specific, highly stressful situations (see Carver et al., 1993). At an applied level, the results of the present study suggest that practitioners involved in the counselling of women after a failed IVF attempt may find it useful to encourage women's efforts not to attempt to find a solution to the problem but to both cognitively reappraise the situation and acknowledge and express their emotional responses to the event. The fact that the event occurs in the dyadic context means that women may find that their partners are not responsive to the latter type of coping, a finding that suggests that future research needs to examine more systematically the interplay between spouses' coping responses to stressful life events.

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Appendix

Items for the Four Coping Factors

Escapism

Daydreamed or imagined a better time or place than the one I was in.
Wished I could change the way I felt.
Wished I was a stronger person—more optimistic and forceful.
Hoped a miracle would happen.
Thought about fantastic or unreal things (like winning a million dollars) that made me feel better.
Refused to believe that it had happened.
Avoided being with people in general.

Problem-Appraisal Coping

Tried to accept and make the most of the situation.
Tried to see the positive side of the situation.
Tried to step back from the situation and be more objective.
Got busy with other things to keep my mind off the problem.
Accepted it; nothing could be done.
Made light of the situation; refused to get too serious about it.
Looked for the silver lining, so to speak; tried to look on the bright side of things.
Took things a day at a time, one step at a time.

Problem-Management Coping

Thought about what steps to take to deal with my fertility problem.
Considered several alternatives for handling my fertility problem.
Tried to think of ways of dealing with my fertility problem.
Tried to find out more about my fertility problem.
Set some goals for myself to deal with my fertility problem.
I knew what had to be done so I tried harder to make things right.

Emotional Approach Coping

Talked with friends about how I was feeling.
Talked with spouse or other relative about how I was feeling.
Let my feelings out somehow.
Kept my feelings to myself. (reverse scored)
Talked with professional person (e.g., doctor, clergy, nurse).