Intra-individual systemic shifts: Linkages Between Relationship Quality and Depressed Affect in a Diverse Sample of Relationally Distressed Couple and Relationship Education (CRE) Participants

by

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Abstract

The negative association between depression and marital satisfaction has been clearly documented, with theoretical approaches describing the direction of effects as depression leading to marital dissatisfaction (Stress Generation Model) and marital dissatisfaction leading to depression (Marital Discord Model). Therapy approaches have found that treating the relationship of relationally distressed couples can result in positive changes in relationship satisfaction and depression. However, it is possible that many relationally distressed couples do not attend therapy. Because there is evidence that they are attending Couple and Relationship Education (CRE), we examined whether relationally distressed participants of a CRE program reported shifts in depressed affect and/or relationship quality after program participation. We found that reported depressed affect decreased and relationship quality increased after program participation.

In order to test whether shifts in constructs predicted each other, we fit two separate models. In the first model, informed by the Marital Discord Model, shift in depressed affect was the outcome variable, and we examined whether these shifts were predicted by shifts in relationship quality. In the second model, informed by the Stress Generation Model, shift in relationship quality was the outcome variable, and we examined whether these shifts were predicted by shifts in depressed affect. Results indicated that shifts in relationship quality were predicted by shifts in depressed affect, and shifts in depressed affect were predicted by shifts in

relationship quality. Additionally, the relationship between shifts was not moderated by sex, ethnicity, or marital status. We recommend that interventionists utilize an inclusive approach when working with relationally distressed couples, devoting attention to the relationship as well as individual distress variables.

Keywords: Couple and Relationship Education, Depression, Marital Discord, Relational Distress, Relationship Quality, Stress Generation

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Introduction

Depression is estimated to affect 14.8 million adults in the United States (Kessler et al., 2005). It has been linked to increased rates of substance abuse, increased hospitalizations, and represents a major expense for society (see Hall & Wise, 1995 for a review). Because depression is such a prevalent problem, it is important to understand its correlates and possible treatments. One of the correlates that has consistently been identified in the relationship literature is marital dissatisfaction. Research has found that increased levels of depressive symptoms correlate with lower levels of marital satisfaction for self and partner (Whisman, 2001; Whisman, Uebelacker, & Weinstock, 2004). Additionally, there has been some evidence that improvement of the marital relationship may result in improvements in depressive symptoms (Jacobson, Dobson, Fruzetti, Schmaling, & Salusky, 1991). However, many couples, including those who are relationally distressed, choose not to attend therapy. They may, instead, choose to attend a Couple and Relationship Education (CRE) class (DeMaria, 2005; Markman & Rhodes, 2012). The current study seeks to examine whether relationally distressed participants of CRE programs report improvements in depressed affect and relationship quality, how those shifts are related to each other, and whether demographics moderate the association between shifts in depressed affect and shifts in relationship quality.

Relational Distress

In determining which couples are relationally distressed, the extant literature relies on couples' reports on standardized measures of relationship satisfaction, adjustment, and quality

(e.g., DAS; Spanier, 1977). When couples' scores are below empirically established cut-offs on such measures, they are considered relationally distressed. Additionally, because many instruments measure various elements of satisfaction, quality, agreement, and adjustment, these terms and their corresponding constructs' ability to detect relational distress are often used interchangeably. [e.g., The Marital Adjustment Test (Locke & Wallace, 1959) is called adjustment, often referred to as a measure of satisfaction, yet includes measures of happiness, agreement/consensus, and the degree to which relational expectations are met.]

Because relationship dissatisfaction is a significant predictor of marital instability, and unstable marriages are generally marked by relational dissatisfaction (Karney & Bradbury, 1995), the current study considers relationships with higher levels of instability to be more distressed. Thus, couples who reported that they had recently considered separation or dissolution of the relationships are considered relationally distressed. Additionally, we examine relationship quality, recognizing that relationship quality and satisfaction are highly correlated constructs.

Depressed Affect

The literature linking depression to marital satisfaction also relies on established assessment tools, such as the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) or the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977), which include cut-offs that allow for the diagnosis of clinical depression. Some studies focus only on instances of diagnosable or diagnosed clinical depression (e.g., Kendler et al., 1995; Whisman & Bruce, 1999); however, most studies examining the link between depression and marital dissatisfaction do not limit their examinations to individuals who meet the diagnostic criteria for depression. Instead, they include samples of individuals who are clinically depressed

as well as those who fall below established cut-offs on depression scales. Thus, rather than exclusively examining major depression, they use the standardized depression scales as measures of symptoms on a continuum of depression (e.g., Beach, Katz, Kim, & Brody, 2003; Davila, Bradbury, Cohan, & Tochluk, 1997; Davila, Karney, Hall, & Bradbury, 2003; Sandberg & Harper; 2000; Whisman, Ueblacker, & Weinstock, 2004). Our overview of theoretical approaches and empirical studies, will therefore use the terms *depression* and *depressive symptoms* interchangeably (unless a clinically diagnosed episode was the variable under investigation, in which case we specify so accordingly; e.g., Kendler et al., 1995).

The lack of specificity regarding degree of depressive symptoms among samples in studies linking depression and marital satisfaction or quality may confound our understanding of this link. For example, it is possible that the strength of identified associations varies at different levels of symptomology. Still, because the literature has consistently identified the link between varying levels of depressive symptoms and marital satisfaction, it is clear that even undiagnosable symptomology is related to relationship dynamics. Thus, our study seeks to examine the relationship of one symptom of depression, depressed affect, to reported relationship quality. Depressed affect specifically refers to individuals' emotional experiences of sadness or "feeling down".

Theoretical Assumptions

An ecological family systems perspective suggests that family subsystems are interrelated and meaningfully influence each other and individual outcomes (Whitchurch & Constantine, 1993). The processes within a marital subsystem would, therefore, affect individual subsystems (i.e., each member of the dyad) and vice versa. Application of systems theory and an ecological perspective to the study and treatment of depression implies that the marital relationship and

processes would influence individual psychopathology, such as depression. Additionally, successful treatment of depression would influence the couple relationship.

Despite some evidence and scholarly assertions that the relationship between depression and marital satisfaction is bi-directional and should be treated as such (see Gupta, Coyne, & Beach, 2003; Mead, 2002), much attention has been given to the direction of effects (Proulx, Helms, & Buehler, 2007). Two prevailing systemic theories have been suggested to explain the systemic relationship between depression and marital satisfaction, with an emphasis on etiology. The Marital Discord Model (Beach, Sandeen, & O'Leary, 1990) suggests that decreases in marital satisfaction precipitate depression because marital dissatisfaction decreases spousal support and increases hostility and stress, which lead to increased depressive symptoms. The Stress Generation Model (Hammen, 1991) asserts that depression precedes and leads to marital dissatisfaction by way of increasing individuals' negative interactional behaviors. The decreased marital satisfaction then perpetuates the individual's depression. Support has been found for both models (Beach et al., 1990; Davila, et al., 1997) with some indication that relationship quality is a better predictor of depression than vice versa (Proulx et al., 2007).

Cowan and Cowan (2002) have suggested, however, that identifying the etiology of dysfunction is not necessary in the framework of providing systemic interventions. They argue that if intervention in one area effects changes in another construct, there is some evidence of risk and protective factors that may be targeted for effective intervention. Certainly, if treating the relationship results in relationship improvement, which also decreases depressive symptoms, there is some indication that relationship distress is a risk factor for depression. Likewise, if effectively treating depression results in improvement of relational distress, it can be argued that depression is a risk factor for relational problems. Therefore, determining which condition

comes first or whether one causes the other- which can only be accomplished through true experiments- may not be necessary for effective intervention. Cowan and Cowan (2002) suggested that interventionists choose a theoretically-informed point of intervention (e.g., relationship skills) and then test whether change in that domain accounts for variation in the outcome of interest (e.g., depression). In the current study, we apply Cowan and Cowan's framework to the existing models (Marital Discord and Stress Generation) and, instead of trying to identify etiology, we examine whether effective intervention at the couple level (i.e., improvement in the couple relationship) accounts for variation in depressed affect (A → B). However, because our couple-focused intervention also includes some individual-level content (on self-care), we also examine whether shifts in couple outcomes might be explained by shifts in depressed affect (B → A).

It should be noted that because our intervention is directed toward the couple relationship, we see our study as biased toward findings for the former examination (A → B). Certainly, a couple-focused intervention should result in changes in the couple domain (A), even more so than can be accounted for by shifts in individual domains (B) (i.e., B might not account for as much variance in A as vice versa because there is a focused intervention that should be responsible for much of the variance in A). Therefore, we are not interested in comparing effects, and seek only to examine whether associations can be identified for each direction of effects.

Marital Satisfaction and Depression

The extant literature provides significant support for the relationship between marital dissatisfaction and depression. In support of the Marital Discord Model of depression, Whisman and Bruce (1999) found that after controlling for history of depression, relationally dissatisfied

people were more than twice as likely as their relationally satisfied counterparts to experience a major depressive episode within a year following initial assessment. Using prospective data, Beach and colleagues (2003) found that controlling for baseline levels of depression, marital satisfaction at baseline was negatively related to depressive symptoms one year later. Individuals' marital satisfaction at baseline was also related to their spouse's levels of depressive symptoms one year later.

Published studies also provide support for the Stress Generation Model. Davila and colleagues (1997) found that for wives, symptoms of depression were associated with negative behaviors that in turn were related to increased marital distress one year later. The increased marital distress at follow-up was also associated with an increase in depressive symptoms. Similar findings were reported by Jones, Beach, and Forehand (2001), who found that after controlling for initial levels of marital distress, women who reported experiencing depressive symptoms were more likely to report greater marital distress one year later. Increased levels of marital distress were also related to an increase in depressive symptoms.

Despite the bodies of literature that support the assumptions of each model and suggest a direction of effects (see Proulx et al., 2007 and Whisman & Baucom, 2012), no preferred pathway has been identified. This may be due to the fact that few studies examine both potential directions, thereby limiting our understanding of the relationship between depressive symptoms and relationship quality. It may also be due in part to the documented bidirectional relationship between marital satisfaction and depression (e.g. Karney, 2001). For instance, Davila, Karney, Hall, and Bradbury (2003) collected eight waves of data for marital satisfaction and depressive symptoms over four years of marriage for newlyweds. Within-subjects tests revealed that

marital satisfaction and depressive symptoms influenced each other over time, and there was no evidence that one direction of causality was stronger than the other direction.

In an effort to address the co-occurring nature of marital dissatisfaction and depression, intervention approaches might choose one point of intervention (e.g., depression) and examine changes in its correlate (marital dissatisfaction) (Cowan & Cowan, 2002). Whisman and Baucom (2012) summarized the research on treating these interrelated constructs. They highlight that studies of treatment approaches aimed at improving the marital relationship have shown shifts in depressive symptoms, whereas individual-based treatments for depression do not generally influence relationship satisfaction, especially when the depressed individual is not in a discordant relationship. It would appear that couple therapy is most effective when couples report co-morbid interpersonal distress and depressive symptoms. Because the extant literature focuses on therapeutic interventions and only a small portion of couples utilize therapy, there remains a need to examine the relationship between depressive symptoms and relationship quality in other intervention contexts. Our study seeks to address the experience of individuals with co-occurring depressive symptoms and relational distress in a couples psychoeducational treatment context. We briefly summarize the body of research addressing the efficacy of marital therapy and then present Couple and Relationship Education (CRE) as a consideration for intervention.

Treating Marital Satisfaction and Depression

A premier study of the utilization of marital therapy to treat depression and marital dissatisfaction was conducted by Jacobson and colleagues (1991). They specifically sought to compare the efficacy of marital therapy to a traditional, individual-focused approach. Findings revealed that regardless of the intervention, symptoms of depression in a clinically depressed

sample decreased for clients; however, unless couples were relationally distressed, marital therapy was not as effective as the individual therapy treatment. When couples were relationally distressed (i.e., scoring below the established cut-off on the DAS; Spanier, 1976), changes in depression were comparable for both treatment conditions. Similarly, marital satisfaction improved across all groups, but marital therapy was superior in treating marital satisfaction when couples were relationally distressed. The findings from this study indicate that relationally-oriented treatments can be effective interventions for individual-level and couple-level variables, but especially when couples are relationally distressed.

Other studies have continued to indicate that marital or couple therapy can be effective in treating marital dissatisfaction and depression (Atkins, Dimidjian, Bedics, & Christensen, 2009; Barbato & D'Avanzo, 2008; O'Leary & Beach, 1990) and that participant increases in marital satisfaction correlate with decreases in depressive symptoms (Tilden, Gude, & Hoffart, 2010). Other studies indicate that depressive symptom decreases in treatment are mediated by increases in marital satisfaction (Beach & O'Leary, 1992).

These studies provide some indication that treatment of the couple relationship has implications for shifts in depression; however, they are limited to samples of married couples. We cannot infer from their results whether unmarried couples would have similar patterns of change. Additionally, they are clinical studies, thus limiting our understanding of couple-focused interventions to the effects of marital therapy. We highlight the emerging evidence of CRE program effectiveness among relationally distressed participants (scoring below a cut-off on standardized measures; Blanchard, Hawkins, Baldwin, & Fawcett, 2009) and suggest that CRE may be an effective intervention approach for co-occurring relationship distress and depression.

CRE for Distressed Participants

Traditionally, CRE has been considered a primary prevention approach, intended for individuals and couples who are seeking enhancement or enrichment, and not for those who report relational difficulty. Previous models of Family Life Education, of which CRE is a part, have even proscribed such approaches from working with couples who may be experiencing significant levels of marital dissatisfaction (Doherty, 1995). Although widely accepted, this perspective has recently been criticized for not recognizing the natural overlap between therapy and educational approaches (Myers-Walls, Ballard, Darling, & Myers-Bowman, 2011). Indeed, the most recent review of CRE explicitly states that the boundaries between CRE and therapy are blurred (Markman & Rhodes, 2012). Myers-Walls et al. (2011) argue that, with varying intensity, each approach addresses couple needs that they have self-identified and those that are ascribed by research and programmatic efforts. Additionally, they highlight that educational and therapeutic approaches both deal with current issues or challenges (versus past or future challenges). Thus, it may be that some participant benefits traditionally exclusive to therapeutic effects are also possible due to CRE attendance.

Some earlier research provides evidence that after CRE participation, relationally distressed individuals show relational benefits similar to those of clients in therapy (Emmelkamp et al., 1988; Kaiser et al., 1998). Meta-analytic techniques have also provided modest evidence that samples with 26%-100% of relationally distressed participants show improvement in communication skills at program completion and at 6-month follow-up (Blanchard et al., 2009). Although the authors did not differentiate studies in which the majority of participants were distressed from those in which a minority were distressed, the results can be considered evidence that CRE may not be contraindicated for relationally distressed couples. Further, it is clear that

relationally distressed couples are choosing to attend CRE. Blanchard et al. (2009) found that in quasi-experimental studies, couples who were relationally distressed were more likely to self-select into the treatment group than the comparison group. Morris, McMillan, Duncan, and Larson (2011) also found that among couples who were recruited for CRE, those who chose to participate had lower marital satisfaction and higher marital conflict than those who did not attend. Whether these couples are choosing CRE as a proxy for therapy is unknown, but findings from the analyses indicate that distressed couples are seeking out intervention in the form of CRE.

DeMaria (2005) also examined the characteristics of a sample of married couples who attended a CRE course. She found that almost the entire sample of participants could be classified as relationally distressed. The sample mean on a measure of relationship satisfaction (RDAS; Busby, Christensen, Crane & Larson, 1995) was below the cut-off for distressed couples, and 93% of the couples could be classified as relationally distressed using norming criteria developed for the ENRICH survey (Fournier, Druckman, & Olson, 1983). Indeed, the majority of the sample (60%) reported previous involvement in therapy and many reported concurrent therapy attendance, providing further indication that participants of the CRE course experienced significant levels of distress. Because there were high rates of therapy attendance in the DeMaria (2005) study, we do not know whether the sample is generalizable to the population of relationally distressed CRE participants (i.e., participants may have been unusually prone to seek services). Additionally, participants were married, thus limiting generalizability to other, non-married CRE participants. Still, other studies have noted that unmarried couples with more relationship problems are more likely to have attended pre-marital education classes (Duncan, Holman, & Yang, 2007). Additionally, a greater proportion of couples report ever having

attended CRE than therapy (see Markman & Rhodes, 2012). Our study utilizes a sample of married and non-married relationally distressed CRE participants, allowing us to examine whether previous research is generalizable across diverse groups.

Because improvements in communication among relationally distressed participants parallels the general literature on CRE participants (Blanchard et al., 2009), other program effects may also be similar. Although very few CRE studies measure domains beyond communication and relationship satisfaction (Hawkins et al., 2008), there is emerging evidence that CRE attendance is related to changes in individual-level domains for the broad population of attendees (e.g., individual empowerment, see Adler-Baeder et al., 2010). If program effects among relationally distressed participants are similar to those of the general population of participants, it is possible that relationally distressed participants of CRE also experience changes in individual-level domains. Additionally, the correlation between marital satisfaction and depression suggests that improvements in marital satisfaction following CRE participation will be associated with depressive symptoms for relationally distressed participants. The extant literature, however, only includes a few studies that address individual-level variables in samples that include relationally distressed participants (Bodenmann, Charvoz, Cina, & Widmer, 2001; Bodenmann & Shantinath, 2004; Kaiser et al., 1988; Schilling, Baucom, Burnett, Allen, & Ragland, 2003).

In the only study to examine depressive symptoms as an outcome, where 70% of the sample was relationally distressed, participants reported improved communication, marital quality, and decreased depression four months after completing a weekend CRE course (Kaiser et al., 1998). Among participants who reported low marital satisfaction at pre-program, changes in individual coping behaviors have been reported following a program specifically oriented

toward increasing coping skills (see Bodenmann et al., 2001; Bodenmann & Shantinath, 2004); symptoms of depression were not tested. Another examination found that depressive symptoms in men prior to marriage was predictive of greater gains in communication skills following CRE, which led to decreased risk of marital distress onset (Schilling et al., 2003); however, only a minority of couples in the sample were relationally distressed when they entered the study (i.e., they scored below the cut-off on the RDAS); thus the inferences that can be drawn from the results are limited.

The shortage of studies regarding possible improvements in individual-level variables for relationally distressed CRE participants, despite indications that couple-focused therapy can result in improvements in relational *and* individual distress necessitates further examination of these participants' experiences. Kaiser and colleagues (1998) provide us the clearest indication that participation in a CRE program can result in improvements in depressive symptoms and relationship quality; however, couples in their sample were married and all participants were Caucasian (in Germany). Additionally, the relationship between shifts in depressive symptoms and shifts in relationship quality were not examined. We build on their findings by including in our study non-married participants, as well as married. We also utilize a more ethnically diverse sample than previously reported, and we examine the relationship between shifts in depressive symptoms and relationship quality.

Differences by Sex, Ethnicity, and Marital Status

There has been some indication that demographic variables might moderate the relationship between shifts in relationship satisfaction and shifts in depressive symptoms. Fincham, Beach, Harold, and Osborne (1997) found that for women, marital dissatisfaction led to depressive symptoms 18 months later, whereas for men, depressive symptoms led to later

marital dissatisfaction. Beach, Davey, and Fincham (1999) replicated these findings, suggesting that when the direction of effects is tested in separate models, sex might moderate the relationship between shifts in the two constructs.

In a meta-analysis of 26 cross-sectional studies, Whisman (2001) found that marital satisfaction and depression were negatively correlated for women ($r = -.42$) and men ($r = -.37$). In tests of sex differences, he found that the difference between these effects was statistically significant, indicating that the magnitude of the association between depression and marital satisfaction was greater for women than it was for men. This is a different finding from Fincham et al. (1997) and Beach et al. (1999), suggesting that much is still unknown regarding the moderating role of sex on the association between relationship satisfaction and depressive symptoms. Indeed, Mead (2002) noted that the role of sex is still undetermined.

Whisman (2001) also noted the importance of examining other potential moderating factors, such as race or ethnicity. Between-group analyses have indicated that African Americans report more symptoms of depression than European Americans, but the relationship between ethnicity and depressive symptoms was partially mediated by the effects of having a low household income (Plant & Sachs-Ericsson, 2004). Additionally, African Americans reported higher levels of functioning in their interpersonal relationships and fewer relationship problems. Relationship problems also moderated the association between ethnicity and depression such that African Americans had lower levels of depression at lower levels of relationship problems. Thus, it may be that African Americans who report fewer interpersonal problems (or higher relationship quality) have lower levels of depressive symptoms than their European American counterparts. This study did not examine whether ethnicity might moderate the effect of depressive symptoms on the relationship, and we could find no study to do so. We

also do not know whether ethnic group membership would moderate the relationship between shifts in each construct (relationship quality and depressive symptoms).

Finally, most CRE studies are relatively homogenous in terms of relationship status, utilizing samples comprised wholly of pre-marital couples or married couples (see Blanchard et al., 2009; Hawkins et al., 2008), and the clinical intervention research examining the association between shifts in relationship quality and shifts in depression is limited to samples of married couples. There is some, albeit limited, evidence that differences in CRE program effects may exist based on marital status. For example, Adler-Baeder et al. (2010) found that being married was positively related to increases in relationship confidence after participation in CRE; however, no such effect was found for relationship quality. Additionally, results revealed that sex moderated CRE program attendance and not the relationship between constructs or shifts in constructs. Thus, we do not know whether participants in unmarried couple relationships would be similar to their married counterparts in reports of the association between depressive symptom decreases and relationship quality increases.

We note that much is yet unknown regarding the role of sex, ethnicity, and marital status in the association between relationship quality and depression. Based on the indications we have found in the literature, we suggest that these demographic variables may be important considerations in the examination of effects. Thus, we include in our study exploratory work to determine whether these demographic variables moderate the association between shifts in relationship quality and shifts in depressive symptoms within the context of a CRE program. Our utilization of a more diverse sample may allow us to uncover potential differences based on these demographic variables.

Current Study

The correlation between marital dissatisfaction and depressive symptoms has given rise to examinations of etiology. The Marital Discord Model suggests that marital dissatisfaction precedes depression, and the Stress Generation Model suggests that depression precedes marital dissatisfaction. Cowan and Cowan (2002) suggest, however, that determining etiology is not necessary for effective intervention. They argue that theoretically-driven systemic intervention in one area can influence another, correlated construct. The general inability of individual-focused intervention for depression to improve marital satisfaction (see Whisman & Baucom, 2012), and the ability of couple-focused intervention to improve relationship satisfaction *and* depressive symptoms among relationally distressed couples (e.g., Jacobson et al., 1991) provides support for the notion that a systemic treatment- couples therapy- will be effective in treating comorbidity of these constructs among relationally distressed individuals, whereas individual treatment may not produce similar results.

Although the emphasis has traditionally been on relationship intervention, or therapy, an increasingly accessible approach to treating couple functioning is primary prevention, or Couple and Relationship Education (CRE) (Markman & Rhodes, 2012). Traditionally CRE has been intended as a resource for individuals and couples who are seeking to enhance or revitalize their relationships, but the literature indicates that many relationally distressed participants attend courses and report gains in relationship satisfaction or marital quality (Blanchard et al., 2010). However, the literature on improvements in individual domains (such as decreased depressive symptoms) following CRE participation is scant. Only one published study to date has found that participation in CRE can result in decreases in depressive symptoms for relationally distressed participants (Kaiser et al., 1998). That study included only married couples and

lacked ethnic diversity. It also did not explicitly examine whether shifts in depressive symptoms were related to shifts in relationship satisfaction or quality.

The current study is an important first step in identifying patterns of intra-individual shifts in individual and relationship domains after CRE participation. The empirical research suggests that relationship quality gains would predict decreases in depressed affect (Marital Discord Model) and that decreases in depressed affect would predict increases in relationship quality (Stress Generation). The intervention research conducted in clinical samples has found support for the Marital Discord Model; thus, we specifically examined whether relationally distressed couples attending CRE report decreases in depressed affect that are predicted by relationship quality. However, despite its focus on couple dynamics, the CRE program we utilized also includes content on individual-level domains (i.e., self-care). Because self-care is correlated with relationship quality (Adler-Baeder & Futris, 2005), addressing this domain in the context of couple intervention may result in individual-level domain shifts influencing couple-level domain shifts. Thus, we were also interested in examining whether shifts in depressed affect among participants predict shifts in relationship quality as would be hypothesized by the Stress Generation Model. Because our intervention was directed toward the couple relationship, we recognize that the effects we detect may be stronger when testing whether shifts in relationship quality predict shifts in depressed affect. Thus, we do not compare or examine the bidirectionality of effects; instead, we seek only to examine whether associations can be identified for each direction of effects.

Because there is also some indication that the association between relationship quality and depression varies based on sex, ethnicity, and marital status, we controlled for the main effects of these variables and later, considered them moderators of the relationship between shifts

in constructs. There has also been some indication that relationship length (Proulx et al., 2007) moderates the relationship between individual constructs and couple quality, so we controlled for its effect. SES was also included as a covariate and controlled. The following research questions, organized by the predominant theories of the association between relationship satisfaction and depressive symptoms, guided our study:

Marital Discord Model Assumptions

1) Do relationally distressed participants report decreases in depressed affect after program participation?

2) Controlling for SES, relationship length, sex, ethnicity, and marital status, is the shift in depressed affect after program participation predicted by/ related to an increase in relationship quality after program participation?

3) Controlling for SES, relationship length, and the main effects of sex, ethnicity, and marital status, does sex, ethnicity, or marital status moderate the effect of increases in relationship quality on decreases in depressed affect?

Stress Generation Model Assumptions

4) Do relationally distressed participants report increases in relationship quality after program participation?

5) Controlling for SES, relationship length, sex, ethnicity, and marital status, is the shift in relationship quality after program participation predicted by/ related to a decrease in depressed affect after program participation?

6) Controlling for SES, relationship length, and the main effects of sex, ethnicity, and marital status, does sex, ethnicity, or marital status moderate the effect of decreases in depressed affect on increases in relationship quality?

Review of Literature

The association between marital dissatisfaction and depression necessitates an examination of the literature to determine potential treatment or intervention approaches for these problems. This review begins by describing the theoretical approaches used to understand the link between marital dissatisfaction and depression. Then, within the context of each theoretical approach, the literature outlining findings regarding the relationship between these variables are reviewed. We continue with an examination of the effectiveness of therapeutic approaches for co-occurring depression and marital dissatisfaction and conclude with a review of the literature suggesting that Couple and Relationship Education (CRE) may be an appropriate intervention for relationally distressed couples.

Theoretical Approaches

Family systems theory holds that the members of a family (whether that family constitutes a married couple, or a family of many children) are interconnected such that interpersonal processes influence individual processes and vice versa (Whitchurch & Constantine, 1993). These assumptions are consistent with an ecological perspective on individual outcomes (Bronfenbrenner, 1979). Thus, the processes within a marital system affect each partner individually and each partner's individual circumstances influence the marital system. Applied to the study of marital satisfaction and depression, systems theory suggests that marital functioning or dissatisfaction can lead to depression and vice versa.

Two systemic perspectives have been offered to explain the relationship between marital satisfaction and depression. The Marital Discord Model (Beach, Sandeen, & O'Leary, 1990) suggests that marital discord or dissatisfaction leads to increases in negative behaviors, such as hostility, increased stress, and decreased social support among spouses. These behaviors and general marital stressors then act as risk factors for and precipitate individual depressive symptoms.

The Stress Generation Model (Hammen, 1991) suggests that individuals who experience significant levels of distress engage in behaviors that cause interpersonal distress, such as increased negativity, and thereby perpetuate their own levels of individual distress (see Coyne, 1976). Thus, individuals who are depressed might engage in interactional processes or patterns that result in relational distress or marital dissatisfaction. That marital dissatisfaction acts as a negative feedback loop and perpetuates depressive symptoms (see Davila et al., 1997).

Despite their differing explanations for which construct precedes which, these theoretical explanations for the relationship between depression and marital dissatisfaction have some overlap. For instance, the Stress Generation Model suggests that the relational dysfunction following depressive symptomology leads to more depressive symptomology. This is consistent with the assumption of the Marital Discord Model that relational problems lead to depression. Thus, the contributions of each model may only be in the examination of which experience "comes first"- individual or relational distress. We turn now to the literature outlining what we know about the relationship between depression and marital dissatisfaction, and whether one of these constructs acts as the antecedent for the other.

Depression and Marital Satisfaction

Cross-sectional studies. There is a large body of cross-sectional and longitudinal research linking marital satisfaction to depression. Cross-sectional studies consistently indicate that lower marital satisfaction is related to increased levels of depression. Whisman (2001) conducted a thorough review of the literature examining this link and then conducted a meta-analysis of 26 cross-sectional studies using community samples on the relationship between marital quality and depression. He found that self-reported marital quality was negatively associated with self-reported depression and accounted for 18% of the variance in wives' depression and 14% of the variance in husbands' depression. He tested sex differences and found that the association was statistically significantly stronger for women than for men. He also examined 10 studies of clinical samples of people diagnosed with depression and again found a strong negative association, although he did not test whether the association differed based on sex.

Similarly, Whisman, Ueblacker, and Weinstock (2004) analyzed cross-sectional data and examined individuals' effects on their own outcomes (actor effects) and their partner's outcomes (partner effects). The majority (91%) of the sample of 774 couples were married and European American (88.4%). Depression was measured using a subscale from the Minnesota Multiphasic Personality Inventory (MMPI-2; Butcher, Graham, Williams, & Ben-Porath, 1990). Approximately 8% of the sample fell within the range for clinical depression. Marital satisfaction was measured using the satisfaction subscale of the Dyadic Adjustment Scale (DAS; Spanier, 1976). Mean scores were consistent with those of non-clinical, non-distressed samples. Multi-level model results indicated that increased depression was related to respondents' decreased marital satisfaction, as well as partner's decreased marital satisfaction, with no sex

differences found for the effects identified. They did not examine the inverse direction of effects.

Whisman et al. (2004) provide good evidence of the association between depressive symptoms and marital satisfaction. It also indicates that there may be important partner effects to consider in research. However, it limits our understanding of the association between depression and marital satisfaction to one potential direction of effects. It is also limited by a sample lacking in ethnic and relationship status diversity. Furthermore, because participants were largely non-distressed (individually and relationally), we do not know whether findings are generalizable to more clinical populations.

In a sample of 535 older couples (average age was 65 for men and 62 for women), Sandberg and Harper (2000) tested whether associations between depression and the marital relationship existed among couples in longer-term relationships. Couples in their sample were married an average of 36 years. The majority (98%) was European American and retired from paid work. Depression was measured using the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977). They constructed a latent construct of marital distress, measured by three indicators (disagreement over finances, marital satisfaction, and intimacy). The authors report that couples were generally low on marital distress and similar to other community samples of older adults on depression (with only 12% of men and 15% of women scoring above the clinical cut-off for depression). Results indicated that for husbands, their own marital distress was positively related to their depression levels. For wives, their own and their husbands' marital distress was related to their depression levels.

Sandberg and Harper's (2000) findings highlight that the relationship between depression and relationship dynamics is not limited to a negative association between depression and one

end of the relational spectrum (i.e., satisfaction), but includes a positive association between depression and relationship dysfunction. This would indicate that the relationship between depression and relationship variables is not limited to satisfaction, but extends to such domains as relationship distress or discord. Again, the sample was not particularly distressed, personally or interpersonally, so we do not know whether findings are generalizable to more distressed older couples. Also, this study is another example of work that, despite hypothesizing one direction of effects, is unable to adequately test the direction of effects due to its use of cross-sectional data.

Marital Discord Model. Other research has more specifically sought to examine the direction of effects utilizing longitudinal studies. The extant literature includes several studies indicating that marital dissatisfaction precedes depressive symptoms. Unless otherwise stated, the studies reviewed did not examine the inverse direction of effects. In an examination of the effects of marital satisfaction on depression among a sample of participants in first marriages, Beach, Katz, Kim, and Brody (2003) used longitudinal data to test the Marital Discord Model. Sample participants were 166 couples. Most (84%) husbands were European American, and 82% of wives were European American. The rest of the sample was African American. Average length of marriage was not reported, but average age was 41 (husbands) and 38 (wives). Data were collected on baseline levels of marital quality using the Marital Adjustment Test (MAT; Locke & Wallace, 1959) and depression (CES-D; Radloff, 1977). They then collected data on depression levels one year later. Fitting a series of nested structural equation models, Beach et al. (2003) found that individuals' baseline levels of marital quality were negatively related to baseline levels of depression for husbands and wives, with the association being somewhat stronger for wives. Controlling for depression level at baseline, marital quality was

also negatively related to depression one year later for husbands and wives, with no sex differences. Additionally, individuals' own marital quality at baseline was negatively associated with their spouse's level of depression one year later (controlling for spouse's baseline depression), with no sex differences.

Beach et al. (2003) provide support for the longitudinal relationship between marital quality and depression, and although the authors acknowledge that this does not represent a unidirectional path, they highlight that implications for intervention suggest the utility of intervening at the couple level. Additionally, because the MAT assesses level of agreement on various topics, results indicate that later depression may be associated with constructs other than marital satisfaction (e.g., marital quality). The limitation of the study is that the authors did not include descriptive statistics for marital quality or depression in their article. Thus, we do not know whether couples had high marital quality or were relationally distressed. We also do not know the degree of depressive symptoms reported, so we cannot ascertain how clinically meaningful results are.

Support for the notion that marital dissatisfaction precedes depression has also been found cross-culturally. Hollist, Miller, Falceto, and Fernandes (2007) used a sample of 99 Brazilian women to test whether decreased marital satisfaction is predictive of depression among a Latin population. Depression was measured at baseline and two years later using an assessment that was developed for mental health evaluation in developing countries (SRQ-20; Harding et al., 1980) and validated using the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), as well as a therapist's assessment of the impact of depression level on the participant's life. Marital satisfaction was measured using three items that had not been previously validated, but had good confirmatory factor loadings for

satisfaction. They assessed sexual satisfaction, global relationship satisfaction/quality, and satisfaction with partner's disclosure or intimacy.

As hypothesized, Hollist and colleagues (2007) found that marital dissatisfaction at time 1 was predictive of concurrent depression as well as depression levels two years later. Again, the authors did not include information about the level of marital dissatisfaction or depression, so it is unclear whether the sample was distressed or more similar to a non-clinical population. Thus, we do not know whether the direction of effects identified holds for more distressed individuals. However, study findings do provide some support that previously identified effects of marital dissatisfaction preceding depressive symptoms is not exclusively relevant to European Americans.

In an examination of the effect of stressful life events on the occurrence of depression, Kendler et al. (1995) used a sample 2164 female twins (1082 pairs) to determine whether such things as assault, marital problems, divorce/separation, job loss, or legal problems increased the probability of experiencing a depressive episode in the month of or within 3 months after the event was reported (independent of genetic risk factors that could be controlled using twin participants). The occurrence of depressive episodes was measured using assessments conducted by interviewers. Interviewers asked about the symptoms that meet the criteria for a DSM (DSM-III; American Psychiatric Association, 1980) diagnosis of depression and used a computer algorithm incorporating those criteria to make the diagnosis of depression. The occurrence of serious marital problems (as well as the other variables assessed) was also measured in the interview as participants were asked to report whether they had experienced such problems in the past month. Results of statistical analyses indicated that, controlling for genetic risk factors, individuals who experienced serious marital problems were over 12 times more likely to

experience a major depressive episode in that month than those who had not. The probability of experiencing depression within 1-3 months after the month in which they reported marital problems was not statistically significantly increased.

Because the onset of depression was in the same month participants reported experiencing marital problems, it is possible that depression may have preceded marital problems rather than marital problems preceding depression. The researchers attempted to account for that possibility by specifically asking participants who met the criteria for depression in detail to describe what they felt led the depression or whether it seemed random. Most participants (95%) said the stressful life event they had reported was what led to the depression. The researchers also examined whether the onset of depression predicted the experience of marital problems in the following month, and found no evidence to support that hypothesis. Thus, this study provides qualitative support for the idea that marital problems lead to depression, as well as some, albeit limited to cross-sectional, quantitative support that the probability of experiencing a depressive episode is significantly increased when having marital problems. Additionally, this study provides an indication that relationship problems may have a more serious effect on depressive symptoms by actually leading to a diagnosable depressive episode. The nature of the marital problems is unknown, however, and because standardized instruments were not used, we do not know whether participants experienced levels of satisfaction or relationship quality above or below what would be expected in a clinical sample.

Whisman and Bruce (1999) also examined the probability of experiencing a diagnosable depressive episode one year following collection of baseline evaluations of marital satisfaction, depression, and history of depression. Participants were 904 married individuals (90% of whom were European American) who did not have a major depressive episode at baseline. Depression

was measured using a diagnostic interview assessing whether study participants met the criteria for depression according to the DSM. Marital satisfaction was measured using a global item assessing how well participants felt they got along with their spouses in the past 2 weeks. The majority (75%) of participants reported getting along very well. Depression and marital satisfaction were coded as dichotomous variables. Results indicated that the individuals who were dissatisfied in their marriages (25% of the sample) were 2.68 times more likely to develop a major depressive episode during the one-year follow-up than their satisfied counterparts, and almost 30% of the incidences of depression were associated with marital dissatisfaction. These results were not moderated by sex. Additionally, because a history of depression is related to the incidence of depressive episodes, they conducted their analyses again, controlling for history of depression. Even after doing so, relationally dissatisfied people were still 2.37 times more likely to develop a major depressive episode than their relationally satisfied counterparts.

Results from Whisman and Bruce (1999) indicate that levels of marital dissatisfaction can precede major depression; however, some caution should be used in the interpretation of results because marriages that were classified as unsatisfied included individuals who reported that they didn't get along well as well as those that reported that they got along "fairly well" with their spouses. Thus, relational dissatisfaction was possibly not clinical, and may have just represented somewhat lower levels of satisfaction compared to those reporting getting along "very well." Also, because a proportion of the sample had previously experienced a depressive episode, it is possible that marital dissatisfaction was a result of prior depression. The authors did not examine this possibility; thus, it is unclear whether marital dissatisfaction preceded depression (as was reported), or whether depression preceded marital dissatisfaction, which led to further depression (as the Stress Generation Model suggests).

Stress Generation Model. The extant literature also provides some support for the Stress Generation Model, yet again, unless otherwise stated, these studies did not examine the inverse direction of effects. An explicit examination of this model can be found in Davila et al. (1997). Participants in a sample of 154 newlywed couples were assessed for depressive symptoms and marital distress at baseline and again at one-year follow-up. The sample was mostly European American (61% of wives and 67% of husbands), with about 15% Asian Americans and 15% Latinas/Latinos. Depressive symptoms were measured using the BDI. Overall, there was a low baseline rate of depressive symptoms. Marital distress was measured on a scale of 1 to 9 using interviewer ratings following detailed interviews regarding the relationship. Sample means for marital distress were not provided, thus it is unclear whether participants were relationally distressed or more satisfied. Results for wives were as hypothesized; controlling for initial marital distress, baseline depression levels were related to follow-up marital distress. And, in support of the negative feedback loop aspect of the Stress Generation Model, follow-up marital distress was then related to follow-up depression. For husbands, however, initial depression levels were not related to follow-up marital distress. (Initial levels of depression were related to follow-up levels of depression, and initial levels of marital distress were related to follow-up levels of marital distress.)

These results provide some evidence that, at least for wives, depressive symptoms may lead to increased marital distress. This is a particularly noteworthy finding because it is among participants who have low levels of depressive symptoms. Thus, even low, non-clinical, levels of depressive symptoms may lead to marital distress. Still, caution should be used in interpreting the meaning of these results. Because the authors did not include descriptive statistics of baseline or follow-up levels of marital distress, we do not know whether the depressive

symptoms preceded clinical levels of marital dissatisfaction or whether they were related to a lower, yet still relationally satisfied, degree of marital distress.

In a similar examination of lower levels of depressive symptoms, Beach and O'Leary (1993) examined the effects of premarital depressive symptoms on later marital adjustment among a sample of 264 European American couples about to marry. Depressive symptoms were measured using the BDI at baseline, 6 months after marriage, and 18 months after marriage. The authors considered scores above 10 on the BDI as dysphoric and classified cases as such. The sample mean of depressive symptoms was relatively low; only 29 of the wives and 24 of the husbands were considered dysphoric at pre-marital assessment. Of those, only 10 wives and 8 husbands were still dysphoric at 6 months after marriage. Marital adjustment was measured using the MAT; mean scores for the MAT at baseline, 6 months after marriage, and 18 months after marriage were above the clinical cut-off of 100, indicating that the sample as a whole was not relationally distressed at any data collection timepoint. Thus the full sample was not individually or relationally distressed. Using between groups analyses, the authors examined the effects of one's dysphoria on his/her marital adjustment as well as his/her spouse's marital adjustment. Results indicated that for women, dysphoria prior to marriage and at 6 months following marriage ("chronic dysphoria") was predictive of declines to maritally discordant levels in marital adjustment at 18 months after marriage. Premarital dysphoria alone (i.e., scoring above a 10 only at Time 1) was not related to later marital adjustment. For men, any premarital dysphoria was negatively associated with their own adjustment over the course of 18 months, such that the mean MAT score for these husbands dropped below the cut-off for marital satisfaction. Additionally, husbands' dysphoria predicted declines in their wife's marital adjustment over the first 18 months.

The results of Beach and O'Leary's (1993) study provide some indication that pre-marital levels of depression can be predictive of marital dissatisfaction or maladjustment in early marriage. They also suggest that there may be partner effects, in which husbands' depressive symptoms can affect wives' satisfaction. Additionally, although the sample was not especially depressed, time x group analyses of variance allowed for the comparison of groups, providing important information about the role of depressive symptoms prior to and after 6 months of marriage. This would imply that pre-marital treatment of depressive symptoms may be especially important to prevent the development of marital discord. Still, clinical studies would need to be conducted to validate the idea that treatment of depressive symptoms can prevent declines in marital satisfaction.

Because Davila et al. (1997) only found their effects for women, and Beach and O'Leary (1993) found effects for both men and women, some question arises regarding the Stress Generation model. For instance, it is possible that because Davila et al. (1997) studied newlywed married couples and the Beach and O'Leary (1993) sample comprised premarital couples, findings may be limited to couples at very specific stages in their relationship development. If relationship length is not related, it may be that there are important sex differences to consider in examining the relationship between depression and marital satisfaction.

Fincham, Beach, Harold, and Osborne (1997) made efforts to determine whether different directions of effects might be expected based on sex. Using a predominantly European American sample (91%) of 150 newlyweds (married 3-8 months), they collected marital satisfaction and depression assessments at two time points, one year apart. Marital satisfaction was measured using the MAT; depressive symptoms were assessed using the BDI. Sample means indicated that overall, participants were satisfied in their marriages at time 1 and time 2, although there

was a decrease in satisfaction from time 1 to time 2. Depressive symptoms remained stable and non-clinical. Estimations resulted in the identification of a path from depressive symptoms to later marital satisfaction for men, where higher symptoms were related to lower satisfaction one year later. For women, a significant path from marital satisfaction to later depressive symptoms was identified, where lower marital satisfaction led to higher depressive symptoms.

The results of the Fincham et al. (1997) study suggest that there may be important sex differences when examining the relationship between depressive symptoms and marital satisfaction. The authors suggest that such differences should be used to amend current investigations; however, they focus their discussion on amending the Marital Discord Model, rather than considering that one model may be more fitting for men while the other is more fitting for women. Indeed, their work suggests that for women, marital dissatisfaction leads to depressive symptoms, whereas for men, depressive symptoms influence their relationship satisfaction. The examination of both models and inclusion of sex as a moderator would help elucidate its role in the relationship between depression and relationship satisfaction.

Related examinations. Examinations of related constructs have also been conducted. Proulx, Buehler, and Helms (2009) were interested in examining the specific effects of hostility on change in spouses' depression. A sample of 322 couples provided assessments at baseline and again 3 years later. Most of the sample was European American (91%), and the median annual income was $70,000, which was higher than the average income for the county in which participants resided, indicating a sample higher in SES. Depressive symptoms were assessed using the CES-D. Hostility was assessed using the Iowa Family Interaction Rating Scales (IFIRS; Melby & Conger, 2001). Descriptive statistics were not provided for the variables included in the examination. After controlling for marital satisfaction at time 2 (measured using

the Kansas Marital Satisfaction scale, KMS; Schumm et al., 1986), they found that a higher level of observed hostile behavior among men was related to increases in wives' symptoms of depression. This relationship was moderated by level of warmth expressed by husband and wife, such that at higher levels of expressed warmth, hostility at time 1 was not as strongly associated with depressive symptoms at time 2. Individuals' own hostility was not related to their own depression.

The examination of hostility in this study, which is an indicator of marital functioning, is a useful addition to the conceptualization of how the marital relationship might be related to depressive symptoms. Results of the Proulx et al. (2009) study indicate that individuals' hostile behavior does not influence their own depressive symptoms, but, for husbands, is related to wives' symptoms. This provides some support for the predictive relationship between marital quality and partner's depression. Additionally, consistent with the theorized explanation of the marital discord model, the study offers a potential mechanism whereby marital satisfaction may be related to depression. However, because intra-individual patterns had not been previously established regarding hostility and depressive symptoms, results of the study suggest that further work should be conducted to determine how one's behavior affects one's own symptomology. It may be helpful for other work to explicitly examine the relationship between hostility, satisfaction, and depression (rather than merely controlling for the effects of satisfaction on depression).

Proulx, Helms, and Buehler (2007) conducted a meta-analysis similar to that of Whisman (2001); however, in addition to depression they included in their examination multiple other measures of personal well-being (e.g., self-esteem, physical health, life satisfaction). They also included both longitudinal (k = 78) and cross-sectional studies (k = 137), with marital quality

and personal well-being representing the dependent variable in 53% and 47% of longitudinal studies, respectively. Findings from the cross-sectional studies provided continued support for a positive association between marital quality and personal well-being. Findings from the longitudinal studies indicated that the association between marital quality and personal well-being was stronger when personal well-being was treated as the dependent variable, rather than when marital quality was treated as the dependent variable.

Results from the studies reviewed and the Proulx et al. (2007) meta-analysis provide some indication that marital quality precedes depressive symptoms. However, the results of Proulx et al. (2007) are not definitive for depression because the authors collapsed several personal well-being variables into one in their analyses, rather than just examining depression. Additionally, the authors note that the average weighted effect size for the cross-sectional link appears more robust ($r = .37$) than the effect for the longitudinal link ($r = .25$). Hence, it appears that the compelling identification of one direction of effects as the predominant explanation for the link between depressive symptoms and marital satisfaction has not yet occurred in the research. Indeed, it may be that, even using longitudinal data, the bidirectional relationship between the two constructs is the most appropriate conceptualization.

Bidirectional relationship. Davila, Karney, Hall, and Bradbury (2003) utilized a sample of 172 newlywed couples (married less than 6 months) to specifically examine the bidirectional relationship between marital satisfaction and depressive symptoms over time. Participants provided assessments at baseline and every 6 months thereafter for 4 years, resulting in an 8-wave data collection. Marital satisfaction was measured using the MAT and a version of the semantic differential (SMD; Osgood, Suci, & Tannenbaum, 1957). Depressive symptoms were measured using the BDI. Assessments indicated that marital satisfaction declined over time,

whereas depressive symptoms did not change systematically over time. Mean scores for each timepoint indicated non-clinical levels of satisfaction and depression. Additionally, at each wave, the correlation between marital satisfaction and depressive symptoms was statistically significant (ranging from -.23 to -.53). Hierarchical linear modeling of growth was used to examine the effects of time-varying depressive symptoms on changes in marital satisfaction as well as the effects of time-varying marital satisfaction on changes in depressive symptoms. Deviations from the linear trajectory of marital satisfaction revealed that higher depressive symptoms between waves were associated with lower marital satisfaction, and lower depressive symptoms were associated with higher marital satisfaction. This relationship was significant for both spouses but stronger for women. Deviations from mean depressive symptoms at each wave were examined and revealed that higher marital satisfaction at each wave was associated with lower mean levels of symptoms. There were no differences for men and women. Additionally, the size of the association was similar to that of the effect of depressive symptoms on marital satisfaction.

The Davila et al. (2003) results provide methodologically sophisticated evidence that the relationship between marital satisfaction and depressive symptoms is bidirectional and that changes in these constructs over time are also bidirectional. However, because the sample had relatively high marital satisfaction scores and low mean levels of depressive symptoms, results may not be generalizable to a population of more relationally distressed and depressed couples. The ethnic and marital status homogeneity of the sample also precludes generalization to more diverse couples. Still, theirs has been the only within-subject examination across more than three waves of data, and supports the idea that the relationship between marital satisfaction and depression may best be conceptualized as bi-directional. Thus, the implication for treatment is

that intervention for depressive symptoms and/or marital satisfaction or quality may occur at either the individual or interpersonal level.

Treating Co-occurring Depression and Marital Dissatisfaction

The bidirectional nature of effects reviewed in the empirical literature and corresponding recommendation to treat depression and marital satisfaction as such (Mead, 2002) aligns with suggestions made by Cowan and Cowan (2002), who provided a framework for intervention and noted distinctions in the goals of empirical and intervention research. They suggested that if intervention in one area effects change in another construct, there is some evidence of risk and protective factors that may be targeted for effective intervention. They suggested that interventionists choose a theoretically-informed point of intervention (e.g., relationship skills) and then test whether change in that domain accounts for variation in the outcome of interest (e.g., depression). Results would, therefore, indicate the effectiveness of the intervention effort, rather than evidence of etiology. Thus, relational distress should be alleviated with treatment with a focus on depression, and depression should be alleviated with treatment for relational distress. A summary of such clinical examinations and their findings follows.

Comparing Individual and Couple Treatments. One of the earliest studies that addressed the difference between individual and marital therapy in treating depression was conducted by Jacobson, Dobson, Fruzzetti, Schmaling, and Salusky (1991). They examined treatment effects among 60 women diagnosed with major depression, and who received a score within the clinical range on the BDI. Participants received cognitive behavioral therapy (n=20), behavioral marital therapy (n=19), or a combination of the two (n=21). Assessments of depression and marital satisfaction were collected prior to treatment and again after 20 sessions. Depression was measured using the BDI and the Hamilton Rating Scale for Depression (HRSD;

Shaw, Vallis, & McCabe, 1985). Marital satisfaction was measured using the DAS. Changes in depression and marital satisfaction were investigated within and between groups. Results indicated that all three treatment approaches were effective in decreasing symptoms of depression, but that cognitive behavioral therapy was more effective than marital therapy in doing so when couples were maritally non-distressed (scoring above 97 on the DAS at pre-treatment). When couples were maritally distressed (scoring at or below 97 on the DAS at pre-treatment), comparable changes in depression were noted across groups. Similarly, all three treatment groups showed improvements in marital satisfaction; however, when couples were maritally distressed, only marital therapy was effective in increasing marital satisfaction.

This study provided some of the earliest evidence that individual and marital therapy can be effective treatments for depression, and that marital therapy may be particularly helpful if the couple is relationally distressed. Additionally, both individual and marital therapy are effective approaches to improving marital satisfaction when couples are not relationally distressed. These findings suggest that intervention at one level (e.g., individual-level) may improve functioning at the other level (e.g., marital relationship), providing some support for the directionality of effects within a treatment approach. However, because marital therapy was the only treatment to effectively improve marital satisfaction and was as effective as individual therapy in improving depression when couples were relationally distressed, findings suggest that relationally-focused treatments may be the most appropriate choice for addressing domains at both levels among more relationally distressed samples.

Similarly, O'Leary and Beach (1990) sought to compare the effectiveness of behavioral marital therapy to cognitive therapy among a sample of 36 clinically depressed or dysthymic women. Women were assigned to a marital therapy (n=12), individual cognitive therapy (n=12),

or waiting-list control group (n=12). Assessments were collected on depression (using the BDI) and marital satisfaction (using the DAS) prior to the study, after 15-16 weeks of treatment or 15 weeks of waiting in the control group, and at 1-year follow-up. Additionally, inclusion in the study required that one or both partners in the marriage reported clinical levels of relational distress on the DAS. Women who were in the two treatment groups experienced statistically significant and clinically meaningful reductions in depression. However, women in the marital therapy condition showed greater improvements in marital satisfaction, but not depression, than those in the other two conditions. These effects were sustained at follow-up. The authors argue that their findings indicate that marital therapy is the most appropriate treatment for coexisting marital dissatisfaction and depression. Indeed, it appears to mirror the findings of Jacobson et al. (1991) in that study participants who were relationally distressed reported better overall improvements if they received marital therapy. It was not clear in this study, however, whether changes in depression were due to changes in marital satisfaction or whether they were co-occurring changes because the therapy addressed each condition concurrently.

Beach and O'Leary (1992) replicated their 1990 findings with a sample of 45 couples complaining of marital conflict. Study participants were divided equally into the same three treatment conditions (marital therapy, individual cognitive therapy, or a wait-list control group). The wife in all couples met the diagnostic criteria for a depressive disorder, and both partners reported marital discord, with wives reporting clinically distressed relationship satisfaction scores on the DAS. Assessments of depression (using the BDI) and marital satisfaction (using the DAS) were collected prior to treatment and again after 15-20 weeks of treatment (or 15 weeks of waiting as a control). Again, findings indicated that women in both treatment groups experienced reductions in depression following treatment, but only those in marital therapy

experienced increases in marital satisfaction. Because there were changes in depression and marital satisfaction among those who received marital therapy, Beach and O'Leary (1992) further investigated patterns of change. Using Baron and Kenny's (1986) criteria for mediation, they found that changes in marital satisfaction mediated change in depression for women in the marital therapy condition (and did not test the alternate direction of effects). These findings provide some indication of the mechanism of change identified in previous studies (e.g., Jacobson et al., 1991; O'Leary & Beach, 1990), as they indicate that among relationally distressed samples, a focus on the treatment of the marital relationship can effectively increase relationship satisfaction, which is then related to improvements in individual symptoms. However, these findings do not address the mechanism whereby individual therapy improves depression without also improving the marital relationship. The lack of improvement in the marital relationship among recipients of individual therapy would suggest that, although individual therapy can be effective for treating depression, changes in depression may not lead to changes in marital satisfaction without a concurrent focus on the relationship. Very little work has been done to examine whether an individual focus on depression can improve relationship satisfaction or quality. We turn now to the few exceptions we could find in a review of the literature.

Individual treatment. Whisman (2001b) tested whether individual treatment for clinical depression among 64 participants resulted in improvements in marital adjustment. Participants were divided into four treatment conditions, interpersonal psychotherapy, individual cognitive therapy, medication, and a placebo. Assessments of depression (measured using the BDI) and marital adjustment (measured using the Marital Adjustment Scale of the Social Adjustment Scale, SAS; Weissman & Paykel, 1974) were collected prior to treatment and again after 15

weeks of treatment. Results of repeated measures analysis of variance indicated that marital adjustment improved after the 15 weeks, and that there was no treatment effect (including those receiving the placebo). When controlling for change in depression, the effect for Time was no longer significant, indicating that there was not a direct treatment effect on marital adjustment.

Whisman (2001b) argues that this supports the notion that individual treatments do not affect marital functioning; however, he ignores the fact that if shifts in depression explain shifts in marital adjustment among the groups receiving individual treatment, said treatment may be useful in addressing marital adjustment. Additionally, the lack of a Time X Treatment Group effect calls into question whether shifts can be attributed to treatment (especially since the placebo was equally as effective as the other treatments). Descriptive statistics were also not presented or interpreted, so we do not know whether participants of the study were relationally distressed or whether they were relatively non-distressed.

In a clinical examination of the direction of effects between depression and intimate relationship satisfaction, Burns et al. (1994) utilized a sample of 115 individuals receiving Cognitive Behavioral Therapy. Sixty percent were college graduates; ethnic information for the sample was not provided. Many (59%) were married, but they still received individual treatment for depression. Prior to receiving the intervention and 12 weeks later, study participants completed assessments of depression and relationship satisfaction. Depression was measured using the BDI. Clinical interviews at intake revealed that most of the sample (84%) met the diagnostic criteria for major depression or dysthymic disorder. Relationship satisfaction was measured using the Relationship Satisfaction Scale (RSAT; Burns & Sayers, 1988; Heyman, Sayers, & Bellack, 1994). Unmarried participants were instructed to rate their satisfaction with their closest intimate relationship, whereas married participants rated their marital satisfaction.

Marital status was included as a predictor of change in depression and relationship satisfaction. The authors did not provide enough evidence to interpret baseline levels of relationship satisfaction; however, preliminary results indicated substantial improvement in depression and modest improvement in relationship satisfaction. In order to test whether treatment effects were such that shifts in depression led to shifts in relationship satisfaction or vice versa, the authors fit two simultaneous structural equation models, each of which included either depression or relationship satisfaction as the outcome.

Results indicated that a relatively large increase in relationship satisfaction was associated with a statistically significant, yet clinically minimal, decrease in depression. Additionally, married individuals reported greater decreases in depression than their unmarried counterparts; tests of mediation indicated that this effect was not mediated by changes in relationship satisfaction. There was no effect of shifts in depression on shifts in relationship satisfaction. In fact, higher levels of dysthymia, a more chronic form of depression, were associated with lower levels of relationship satisfaction at 12-week follow-up. Although the shifts in depression did not directly predict shifts in relationship satisfaction, the findings provide some indication that individual treatment of depression can have effects on relationship satisfaction. It calls into question the mechanism whereby individual therapy would be effective at changing relationship satisfaction. No alternative explanation as to why individual therapy for depression might result in changes in relationship satisfaction was provided. Because no control groups were used, it is possible that relationship satisfaction shifts were an artifact of time or other factors not examined. Additionally, we do not know whether the relationships about which participants provided assessments were clinically distressed. Thus, lack of information regarding

the degree of distress/non-distress in their relationships suggests that improvements in the relationship must be interpreted with caution as they may not be clinically meaningful.

Taken together, these findings tell us that when couples are relationally non-distressed, depression may be effectively treated using individual therapy, and in some instances marital therapy. However, the extant literature does not provide much support that individual therapy is effective in treating the relationship when couples are relationally distressed, suggesting that marital therapy or couples treatment may be necessary to address clinical levels of relationship satisfaction. In other words, a focus on the treatment of depression may not improve distressed relationships. There is also an indication that couples treatment among relationally distressed couples can effectively treat depression. Thus, it may be necessary to use a couple's treatment approach for co-occurring depression and relationship distress. A review of studies examining this assumption follows.

Couples treatment. Barbato and D'Avanzo (2008) conducted a meta-analysis of eight studies investigating whether depression decreases in response to couple treatment. They were also interested in examining what mediates the effect of couple therapy on depression. Results indicated that couple therapy is equally as effective as individual therapy in improving depressive symptoms. The analysis also found that couple therapy is effective in reducing relationship distress, but that there is no association between the improvement in marital satisfaction and depression. The authors of the meta-analysis applied rigorous inclusion criteria and only included randomized or quasi-randomized clinical trials; however, their study was limited by a small sample, and only five of the eight studies provided measures of marital satisfaction, thereby decreasing the sample size for the analysis of the mediating effect of marital satisfaction. Additionally, only one study included in the analysis specifically examined the

mediating role of marital adjustment improvements in the treatment of depression (Beach & O'Leary, 1992). Thus, results indicate that couple therapy can improve depression, but they do not explain how.

Similar results were reported by Bodenmann and colleagues (2008) who investigated the effects of a Coping-Oriented Couples Therapy (COCT) versus cognitive behavioral therapy and interpersonal psychotherapy among couples in which one person was clinically depressed. Participants provided assessments of depression (measured using the BDI and HRSD) and marital quality (measured using the Partnership Questionnaire) prior to receiving treatment and again two weeks after the 20 weeks of treatment. Additionally, participants were asked to speak about their partners for five minutes, from which trained researchers coded positive and negative expressed emotion. Results found that participants in all conditions reported increased marital satisfaction and decreased depression, with no significant differences between treatments. There were improvements among partners of the depressed patients in observed levels of expressed negative and positive emotion, but only in the COCT group.

Bodenmann et al. (2008) noted that their sample was not relationally distressed; thus, the results suggest that even among relationally non-distressed couples, a couple-focused treatment can be helpful for treating depression. This may have been because each of the couple-focused treatments included a focus on educating the partner of the depressed individual about the nature of depression, and COCT was specifically designed to teach the partner to assist the depressed spouse. Therefore, even the couple treatments in this study contained a focus on depression as the primary problem. It is interesting that once again, recipients of individual cognitive therapy reported decreases in depression and increases in marital satisfaction. Unfortunately, the authors did not test a mediational hypothesis, nor did they examine the relationship between shifts in

depression and shifts in marital satisfaction for any of the treatment conditions; thus, we cannot determine the mechanisms whereby individual therapy (or the couple treatments) would have been successful.

Since that time, other studies have continued to provide more evidence that couple treatment has effects on depression. Atkins, Dimidjian, Bedics, and Christensen (2009) were interested in identifying the effect of treatment for relationship distress on depression and the effect of treatment for depression on relationship distress. Two samples were used to test these effects. Depression was measured using the BDI and marital satisfaction was measured using the DAS. All couples in the couple therapy sample reported levels below the cut-off on the DAS, indicating relational distress. All individuals in the depression treatment sample met the criteria for a diagnosis of clinical depression. Additionally, sample characteristics indicated that almost all participants in the depression treatment group had distressed relationships. Results indicated that participants in the marital therapy group showed improvements in marital satisfaction, and these changes were associated with small changes in depression. For those in the depression treatment group, there were no changes in marital satisfaction. Although the effects are small, and samples in each treatment condition differed in levels of marital distress and depression, this study provides further indication that treatment of a primary problem of relational distress can also result in changes in a secondary problem of depression. Because participants in the depression treatment group (most of whom were relationally distressed) did not report improvements in marital satisfaction, results appear to provide further support that co-occurring marital distress and depression would best be treated through the use of couple therapy.

Further evidence of the notion that couple therapy should be used in instances of comorbid depression and relational distress was provided by Tilden, Gude, and Hoffart (2010). They utilized a Norwegian, inpatient sample of relationally distressed participants (defined as scoring below the cut-off on the DAS) and examined changes in dyadic adjustment (using the DAS) and depression (using the Symptom Checklist 90; SCL-90; Derogatis, Lipman, & Covi, 1973) following systemic treatment for couples. Results indicated that participants reported improved dyadic adjustment after 12 weeks of treatment, with a trend toward women showing more improvement. Depression symptoms also improved, for men and women equally, after treatment. Further analyses revealed a correlation (r=.49) between changes in dyadic adjustment and changes in depression, providing support for the bidirectional nature of effects between these constructs. The authors did not test whether changes in depression could be attributed to changes in dyadic adjustment, suggesting that some caution is needed in the interpretation of findings; however, according to Cowan and Cowan's (2002) assertions of choosing an intervention point and assessing effects on related outcomes, these results provide further evidence for the efficacy of couple's treatment in addressing relational distress as well as individual symptomology.

Taken together, these studies provide consistent support for the notion that treatment of the couple relationship can result in changes in individual levels of depression. As is evident from the literature, there are multiple approaches to couple treatment (e.g., COCT, behavioral marital therapy, etc.). The majority of the literature has focused on the effectiveness of secondary interventions, but there is some emerging evidence that primary intervention approaches, specifically Couple and Relationship Education (CRE), may also be effective in changing the couple relationship. The evidence that CRE may be an effective tool in the treatment of distressed relationships will be reviewed next, after which the limited research

indicating CRE's potential benefits for individual symptomology will be reviewed. We will conclude with our summary of what still needs to be done, and how we will address the gaps in the literature.

CRE for Distressed Participants

Couple and Relationship Education (CRE) is another systemic approach to working with couples. It is an educational intervention designed to a) increase the skills necessary for developing and maintaining a healthy relationship, such as positive communication and problem-solving skills, and b) provide information regarding the factors that are related to relationship quality, such as issues of sexuality or financial management (Hawkins, Blanchard, Baldwin, & Fawcett, 2008). Because it is an educational approach, it has traditionally been viewed as a primary, or preventive, intervention, intended for individuals and couples who are not experiencing significant levels of distress that would best be treated in therapy. Indeed, many studies have excluded participants who score below the cut-off for relational distress on standardized assessment measures (e.g., Halford, Moore, Wilson, Farrugia, & Dyer, 2004).

In an early model of Family Life Education (FLE), Doherty (1995) specifically made recommendations intended to demarcate the boundaries between FLE (the domain within which CRE would fall) and therapy. His fundamental criteria for determining what work is appropriate or inappropriate for FLE is the level of involvement required of the professional and the level of emotional intensity accessed from participants through programmatic interventions, such as encouraging self-disclosure. According to the model he presented, FLE falls on a hierarchical continuum of service intensity between providing limited information at Level 1 and providing therapy for distressed families at Level 5. The fourth level of his model allowed for the provision of more intense solution-focused intervention, rather than merely educating and

supporting- but only for families with specific, special needs and only in parent education. He argued that work with couples on their relationship needs at this level would be inappropriate. In particular, he argued that participants' needs at higher levels of the hierarchical continuum required skills that only a therapist possesses. This distinction suggests that participants of FLE, or CRE, are not (or should not be) particularly distressed.

Although widely accepted, Doherty's model of Family Life Education (1995) has recently been criticized (Myers-Walls et al., 2011). Specifically, Myers-Walls and colleagues (2011) highlight that FLE and family therapy are related in such a way that there is often a cross-over or overlap between the two. They argue that, with varying intensity, each approach addresses needs that are self-identified by participants as well as those that are ascribed by research and program curricula. Ascribed needs in CRE would arise out of the existing research describing particular populations, whereas ascribed needs in therapy would arise from clinical assessments. Additionally, they highlight that both FLE and some therapy approaches address current, rather than just past or future, family needs and/or challenges (although when discussing therapy, they use the term "problems," rather than "needs" or "challenges"). Addressing self-identified and ascribed needs that couples are currently dealing with is, therefore, an intervention that occurs within CRE as well as therapy. Indeed, the theoretical rationale for CRE includes intervening on potential risk factors for future relationship difficulty (Markman & Rhodes, 2012). The overlap between CRE and therapy may, therefore, result in similar effects for some CRE participants and some therapy clients. Markman and Rhodes (2012) highlight this dynamic by pointing out that rates of divorce and relationship dynamics significantly change following CRE participation.

There is some, albeit limited evidence, of outcome similarity. Emmelkamp et al. (1988) used a sample of participants in Holland who were referred to a clinical psychology department by a community mental health center for treatment of marital problems. They classified the couples as distressed because the clients reported relationship problems; no screening measurement was included in the published study. Couples were assigned to either a communication skills training group or a cognitive therapy group and provided pre- and post-reports of marital adjustment, negative communication, relationship beliefs, and target problems in the relationship (e.g., expression of feelings, sexual relationship, extra-marital affairs). Results indicated that, for the most part, participation in communication skills training resulted in similar effects in the relational domain to participation in therapy. Women decreased in negative communication and irrational relationship beliefs and improved in their targeted relationship problem (e.g., sexual relationship) for both groups equally. For men, both treatments led to improvements in their targeted problem and negative communication. The one difference identified between treatment groups was that men in therapy also reported improvements in marital adjustment.

The Emmelkamp et al. (1998) study provides some indication that relationally distressed individuals can certainly experience clinical or therapeutic effects from CRE attendance. Similar support can be found in a study by Kaiser, Hahlweg, Fehm-Wolfsdorf, and Groth (1998) who examined a weekend cognitive-behavioral CRE program and included assessments of couple- and individual- level domains. The majority of their sample (70%) reported pre-program levels of distress on a questionnaire highly correlated with the DAS. They examined changes in reports of marital quality, communication, and depression 4 weeks after participation in the weekend program. Results indicated that positive communication increased and negative communication

and depression decreased following program participation, regardless of relationship distress level. They caution interpretation of these findings because their non-distressed group was small enough that they may not have had sufficient power to detect between-group differences. Still, improvements in a predominantly relationally distressed group are suggestive that CRE can be beneficial even for traditionally clinical samples.

Blanchard, Hawkins, Baldwin, and Fawcett (2009) conducted a meta-analysis examining the effect of CRE on communication skills, and although many studies included in their overall analyses did not report sample distress levels (45%), they were able to draw some conclusions from the studies that included this information. Levels of distress were usually determined by pre-treatment cut-off scores on standardized instruments, such as the DAS. Studies in which 26% to 100% of participants reported being distressed were included in the analyses of CRE effects among a distressed population. The analysis of experimental studies that fit these criteria provided modest evidence that communication skills improve following program participation and at short-term follow-up (within 6 months). Quasi-experimental studies showed similar patterns, where modest improvements in communication skills were found at post-test and follow-up. Although Blanchard et al. (2009) did not differentiate between studies in which the majority of participants were distressed and those in which just over a quarter of the sample was distressed (nor did they address whether individual studies examined or controlled for between-group differences), their results provide some further indication that relationally distressed couples can benefit from CRE attendance.

Despite the limitations of these studies, they provide enough evidence that CRE may not actually be contraindicated for some relationally distressed couples. It is also clear that despite the attempt to restrict CRE to relationally non-distressed couples (or at least minimize the

attendance of distressed couples through screening and referrals; Doherty, 1995), distressed couples are nonetheless choosing to attend CRE. It is possible that because therapy still carries with it a negative stigma, individuals who are distressed may choose to attend CRE as a proxy for therapy. Indeed, more couples report having received CRE than therapy (Markman & Rhodes, 2012). CRE also tends to be more affordable as it is offered in community classes and settings that do not generally carry a rate similar to that of a private practitioner; thus, it is more likely that lower SES couples who are relationally distressed may seek out CRE rather than therapy (Ooms & Wilson, 2004). Indeed, Blanchard et al. (2009) noted that among quasi-experimental studies, couples who were distressed on measures of communication and relationship quality were more likely to self-select into a CRE treatment group than comparison/control groups. Whether couples are more likely to attend CRE than therapy (or vice versa) was not studied and is unknown; however, findings of the Blanchard et al. (2009) meta-analysis indicate that distressed couples are seeking out intervention in the form of CRE.

That distressed couples might be seeking out CRE was explicitly investigated by DeMaria (2005), who examined the baseline characteristics of married couples who enrolled in a CRE course. Among others, she collected measures of marital distress (RDAS; Busby, Christensen, Crane, & Larson, 1995) and couple agreement (ENRICH; Fournier, Olson, & Druckman, 1983). She found that almost the entire sample could be classified as relationally distressed. The mean on the RDAS was below the cut-off for distressed couples; additionally, compared to norming criteria developed for ENRICH, 93% of couples were categorized as Devitalized or Conflicted (i.e., relationally distressed). The majority of the sample (approx. 60%) also reported having attended individual or couple therapy prior to program enrollment, and an additional 16% reported current participation in therapy. Because of participants'

involvement in therapy, the argument may not be made that these couples were using CRE as a proxy for therapy, but it is strong evidence that distressed couples seek out CRE. Indeed, the most distressed couples may be seeking out both service types (therapy and CRE). It should be noted that the sample of the DeMaria (2005) study was not particularly diverse. Detailed demographic information was not provided, but she reports that the sample was largely European American, middle to high income, and college-educated. Thus, our ability to conclude whether distressed couples of diverse backgrounds are likely to choose CRE is limited.

Similar findings were reported by Duncan, Holman, and Yang (2007). Using information obtained from an on-line survey (RELATE; Busby, Holman, & Taniguchi, 2001), they first conducted confirmatory factor analyses on the data from over 7,000 premarital couples for 200+ items to determine a more manageable and comprehensive grouping of factors. They identified a factor indicative of relationship problems, inclusive of such items as problems with finances, rearing children, and sexuality, and then conducted a logistic regression to answer whether increased relationship problems were related to marriage preparation program attendance. Results indicated that for every unit increase in relationship problems, participants were approximately 17% more likely to have attended a marriage preparation program; therapy attendance was not measured. These findings do not specifically address relationship distress, and we do not know if the pattern of the finding is linear (It is possible that likelihood of attending a program is only higher until a certain level of relationship problems is reached.). However, the study provides yet another indication that couples, even those with problems and who may be relationally distressed, seek out CRE programs. Indeed, the authors concluded that couples who are committed to each other and see their problems as solvable are likely to seek out CRE.

The literature indicating that relationally distressed couples attend CRE and report improved communication, marital adjustment, and decreased couple problems following program participation parallels the general literature on CRE participants (see Hawkins, Blanchard, Baldwin, & Fawcett, 2008). Because there has been some indication that CRE is also related to improvements in individual-level outcomes for a broad population of CRE participants (e.g., individual functioning; see Adler-Baeder et al. 2010), it is possible that relationally distressed couples have similar improvements following program participation. Additionally, the strong correlation between marital satisfaction and depression would suggest that improvements in couple-level domains would lead to improvements in individual-level domains. The extant literature, however, does not adequately address changes in individual-level variables among samples of relationally distressed CRE participants. Only a few studies were identified that address individual-level variables among any CRE participants, relationally distressed or not. In fact, of the hundreds of CRE studies, very few assess outcomes other than couple relationship satisfaction or communication (Hawkins et al., 2008).

Kaiser et al. (1998) provided the clearest indication that relationally distressed CRE participants can experience improvements in depression following program participation. In their sample comprised of 70% relationally distressed participants, individuals reported decreases in depression. There was no difference between groups (relationally distressed or non-distressed). Lack of marital status and ethnic diversity also precludes understanding whether these effects are generalizable to other audiences. Bodenmann, Charvoz, Cina, and Widmer (2001) utilized a sample of participants who attended a CRE program focused on teaching traditional CRE knowledge and skills as well as improving individual and dyadic coping (Couple's Coping Enhancement Training [CCET]; Bodenmann, 1997). The emphasis on coping

arises out of the literature on coping with stress and marital satisfaction. All participants of the sample reported low marital satisfaction on a standardized instrument used with German-speaking participants, the Partnership Questionnaire. Results indicated that, compared to controls, treatment group participants had moderate to large improvements in individual coping (as well as couple-level constructs). They did not examine whether changes in individual coping were related to changes in relationship satisfaction, but gains in all constructs were sustained at one-year follow-up.

In a related examination, CCET was compared to a shortened version in which the models on individual coping were excluded (see Bodenmann & Shantinath, 2004). Again, participants reported low marital satisfaction prior to program start. Following participation, individuals in both conditions reported improved individual coping skills and marital quality. Interestingly, those in the course inclusive of the individual coping material reported significantly greater gains in marital quality than those in the shortened version, suggesting that improvements in individual coping (an individual-level domain) may be as important to marital quality as improvements in dyadic coping. Because the authors did not specifically test mediation, we cannot assert whether it is a change in individual constructs that are important for couple quality, whether a change in couple quality leads to changes in individual constructs, or whether changes in these constructs are bi-directionally related. However, the study provides some indication of the connection between couple-level CRE interventions and change in individual- and couple- level domains.

Current Study

Because depression is consistently correlated with lower marital satisfaction, implications for couples seeking intervention for co-occurring relational and individual distress are important.

Systems theory suggests that treatment of dyadic processes can result in changes in individual domains. Thus, relationally distressed couples who seek treatment for the couple relationship may also experience improvements in depression even if program content does not address individual coping. The couple therapy literature provides some support for this notion; however, it is likely that many relationally distressed couples do not attend therapy and seek an alternative, less stigmatized intervention.

Although CRE has traditionally avoided inclusion of relationally distressed couples in programmatic efforts and research samples (e.g., Halford et al., 2004), the argument has been made that many of the needs addressed in therapy and CRE are similar (Markman & Rhodes, 2012; Myers-Walls et al., 2011). Additionally, the literature indicates that relationally distressed couples are likely to choose CRE program participation (Blanchard et al., 2009; Morris et al., 2011) and report improvements in couple domains. There is also some indication that there are improvements in individual domains following CRE program participation (e.g., Adler-Baeder et al., 2010), but the extant literature on this is scant. Literature searches revealed only one study that specifically examined changes in depressive symptoms in a sample of relationally distressed participants of CRE (Kaiser et al., 1998); however that study did not conduct analyses to differentiate between the experiences of their relationally distressed participants (70% of the sample) and non-distressed participants, nor did it explicitly examine the relationship between shifts in depressive symptoms and shifts in marital quality.

The current study is an important first step in identifying patterns of intra-individual shifts in individual and relationship domains after CRE participation. The empirical literature has consistently found that marital dissatisfaction is predictive of depression (Marital Discord Model) and that depression is predictive of marital dissatisfaction (Stress Generation Model).

Thus, it is likely that relationship quality gains would predict decreases in depressed affect and that decreases in depressed affect would predict increases in relationship quality. The intervention research conducted in clinical samples has only found consistent support for the Marital Discord Model; thus, we specifically examine whether relationally distressed couples attending CRE report decreases in depressed affect that are predicted by increases in relationship quality. However, despite its focus on couple dynamics, the CRE program we utilized also includes content on individual-level domains (i.e., self-care). Because self-care is correlated with relationship quality (Adler-Baeder & Futris, 2005), addressing this domain in the context of couple intervention may result in individual-level domain shifts influencing couple-level domain shifts. Thus, we are also interested in examining whether shifts in depressed affect among participants predict shifts in relationship quality as would be hypothesized by the Stress Generation Model. Because our intervention is directed toward the couple relationship, we recognize that the effects we detect may be stronger when testing whether shifts in relationship quality predict shifts in depressed affect. Thus, we do not compare or examine the bidirectionality of effects; instead, we seek only to examine whether associations can be identified for each direction of effects.

There has also been some indication in the literature that the association between relationship quality and depression varies based on sex, ethnicity, and marital status; therefore, we will control for the main effects of these variables, and in later models, consider them as potential moderators of the relationship between shifts in each construct. Additionally, because there has been some indication that relationship length (Proulx et al., 2007) moderates the relationship between individual constructs and couple quality, we will control for its effect. SES will also be included as a covariate and controlled. The following research questions, organized

by the predominant theories of the association between relationship satisfaction and depressive symptoms, guided our study:

Marital Discord Model Assumptions

1) Do relationally distressed participants report decreases in depressive symptoms after program participation?

2) Controlling for SES and relationship length, is the shift in depressive symptoms after program participation predicted by/ related to an increase in relationship quality after program participation?

3) Controlling for SES and relationship length, does sex, ethnicity, or marital status moderate the effect of increases in relationship quality on decreases in depressive symptoms?

Stress Generation Model Assumptions

4) Do relationally distressed participants report increases in relationship quality after program participation?

5) Controlling for SES and relationship length, is the shift in relationship quality after program participation predicted by/ related to a decrease in depressive symptoms after program participation?

6) Controlling for SES and relationship length, does sex, ethnicity, or marital status moderate the effect of decreases in depressive symptoms on increases in relationship quality?

Methods

Participants

The analytic sample is comprised of 500 individuals (250 couples) and is drawn from an overall sample of 1,400 individuals (700 couples) who attended community-based CRE programs between 2007 and 2011. Because ethnicity will be examined as a moderator and due to extremely small numbers in the sample (n= 74; 37 couples), participants who reported an ethnicity other than European American or African American are excluded from analyses, as were their partners. An additional 826 individuals (413 couples) were excluded because they are not considered relationally distressed.

Due to the effect of marital dissatisfaction on relationship stability (see Karney & Bradbury, 1995), our determination of which couples are distressed and included in our analyses was done using an item assessing relationship stability at pre-program. Respondents answered on a 3-point Likert scale, with 1 (Yes, recently), 2 (Yes, in the past but not recently), or 3 (Never) to the following question: "Have you or your partner ever seriously suggested the idea of divorce or separation?" If either partner in the relationship reported "Yes, recently" to this question, the couple is considered distressed (n=500; 250 couples). All others, where both individuals in the couple had a score of 2 or above are considered non-distressed (n=826; 413 couples). Approximately one-quarter (24.8%) of couples (n=62) had one partner who reported they had recently considered separation or divorce; the remaining 75.2% (n=188) were couples in which both partners agreed that they had recently considered separation or divorce. The

original sample contained 37.7% relationally distressed couples and 62.3% non-distressed couples. Non-parametric tests indicated that relationally distressed participants were more likely to be low SES (falling at or below 200% of the federal poverty level) than would be expected by chance. They were also more likely to be in non-married relationships than would be expected by chance. Thus, the final analytic sample, comprising African American and European American couples in distressed relationships, is 500 participants (250 couples).

At pre-program, participants reported their demographic information. Of the analytic sample, 71.2% (n=356, 178 couples) are married, and the remaining 28.8% (n=144, 72 couples) are in a non-married relationship. Breakdown of demographics by marital status at pre-program can be found in Table 1. The analytic sample is ethnically balanced, consisting of 53.8% of men who are European American and 46.2% who are African American. Similarly, 54.3% of women are European American and 45.7% are African American. At the couple level, 51.7% are couples in which both partners are European American; 42.7% are couples in which both partners are African American; and, 5.6% are interracial couples.

Among men, 13.2% reported not having a High School degree; 31.6% completed High School or received a GED as their highest level of education; 10.3% completed a 2-year college or Technical degree; 26.5% completed some college; 11.5% completed a 4-year degree, and 6.8% completed a post-college degree such as a Master's or Ph.D. Among women, 9.3% reported not having a High School degree; 19.5% completed High School or received a GED; 16.1% completed a 2-year college or Technical degree; 27.1% completed some college; 15.3% completed a 4-year degree, and 12.7% completed a post-college degree such as a Master's or Ph.D.

Participants also reported their annual household income range. Among men, 11.6% reported an annual household income below $7,000; 7.6% reported an income between $7,000 and $13,999; 19.2% reported earning between $14,000 and $24,999; 17.4% reported an income between $25,000 and $39,999; 29.0% reported an annual income between $40,000 and $74,999; 6.7% reported an income between $75,000 and $100,000; the remaining 8.5% reported an annual income above $100,000. Among women, 13.5% reported a household income below $7,000; 10.8% reported an income between $7,000 and $13,999; 17.1% reported earning between $14,000 and $24,999; 17.1% reported an income between $25,000 and $39,999; 23.0% reported an annual income between $40,000 and $74,999; 11.7% reported an income between $75,000 and $100,000; the remaining 6.8% reported an annual income above $100,000. Analyses indicated that partners in 41.6% of married couples did not agree on their total annual household income. Because analyses will be conducted and results interpreted at the individual-level, and income will only be included as a covariate and controlled, this discrepancy in reporting does not pose a methodological concern for the current study.

Table 1

Sample Demographics (N=500; 250 couples)

	Married (n=356)	Non-married (n=144)
Ethnicity		
European American	201 (58.6%)	59 (42.8%)
African American	142 (41.4%)	79 (57.2%)[a]
Education		
No HS degree	32 (9.5%)	21 (15.7%)
HS degree or GED	87 (25.9%)	33 (24.6%)
2-year college degree	44 (13.1%)	18 (13.4%)
Some college	80 (23.8%)	46 (34.3%)
4-year college degree	52 (15.5%)	11 (8.2%)
Post-college degree	41 (12.2%)	5 (3.7%)[b]
Income		
Less than $7,000	27 (8.4%)[b]	29 (23.4%)[a]
$7,000-$13,999	26 (8.1%)	15 (12.1%)
$14,000-$24,999	44 (13.7%)	37 (29.8%)[a]
$25,000-$39,999	54 (16.8%)	23 (18.5%)
$40,000-$74,999	100 (31.1%)	16 (12.9%)[b]
$75,000-$100,000	37 (11.5%)	4 (3.2%)[b]
More than $100,000	34 (10.6)	0[b]

Note: The sum of subsample ns may not equal full sample size due to missing data. The percentages represent valid per cent breakdown of data provided.

[a] Non-parametric tests indicate that there are more individuals in this cell than would be expected by chance (standard residual > 2.0)

[b] Non-parametric tests indicate that there are fewer individuals in this cell than would be expected by chance (standard residual > 2.0)

Procedure

Participants were recruited by community agencies in a moderately-sized Southeastern state (at the middle of the population range for the United States) to attend Couple and Relationship Education classes, free of charge. Classes were taught by a male/female team of trained CRE educators. Programs lasted for six to eight weekly, 2-hour sessions. Participants completed one of four possible curricula (*Together We Can*, *Smart Steps for Stepfamilies*, *Basic Training for Black Marriages*, or *Mastering the Mysteries of Love*) that were chosen due their inclusion of the seven core relationship topics/skills identified by the National Extension Relationship Marriage and Education Network (NERMEN) through an assessment of the research on predictors of marital quality and stability (Adler-Baeder & Futris, 2005). One of the predictors of marital quality identified and included is a unique emphasis on *caring for self* through promoting awareness of the importance of individual wellness, increasing skills to nurture individual psychological well-being (e.g., focusing on being more positive), and giving attention to the importance of physical self-care and health. The other core concepts are categorized as *Choose*- the use of intentionality in relationships; *Know*- the development of intimate knowledge of partner; *Care*- the demonstration of kindness, affection, and support; *Share*- development of friendship and "we-ness"; *Connect*- engagement of social support and sources of personal meaning; and *Manage*- use of strategies for handling differences and stresses.

Prior to program participation, participants completed self-report questionnaires assessing domains of individual, couple, and family functioning. Demographic information was also included in the pre-program questionnaire. Immediately after program completion, participants completed a post-program questionnaire assessing the same domains. Signed informed consent

forms were obtained from participants for the use of their responses in research; protection of participants was regulated by an Internal Review Board at an accredited institution.

Measures

For all measures, reports from each individual (i.e., men and women in couples) were collected. Because our research questions are of intra-individual processes, we used each individual's reports in our analyses. Relationship length and marital status were couple-level variables, where men's and women's reports were the same.

SES. SES at pre-program was represented by an income-to-needs ratio that was computed using the median income of participants' reported range of total annual household income and their reported household size. For participants' reported household size, the mid-point of the income range they reported was divided by the 2011 federal poverty level for that specified household size. This yielded an income-to-needs ratio, which was included as a covariate and controlled.

Relationship length. At pre-program, participants reported how many years they had been married or in their current couple relationship. The length of the relationship in years was also included as a covariate and controlled.

Ethnicity. Ethnicity was a dummy-coded variable derived from demographic information provided at pre-program. Participants who reported European American ethnicity were given a code of '1,' and those who reported African American ethnicity were given a code of '0.'

Sex. Sex was also a dummy-coded variable. Women were assigned a '1,' and men were assigned a '0.'

Marital status. Because programs lasted an average of 6 weeks, only one married couple ended the program reporting they were no longer married and an additional two unmarried couples at pre-program were married by program completion. Thus, we utilized participants' pre-program reports of marital status. Participants who reported being married were coded '1,' and those who are in an unmarried relationship were coded '0.'

Relationship quality. Relationship quality was assessed at pre-program and again at post-program using five items from the Quality of Marriage Index (QMI; Norton, 1983). Previous pilot work informed the reduction of the original scale. Psychometric analyses (i.e., confirmatory factor analysis) allowed for the selection of fewer items to assess a measure of relationship quality without compromising reliability. Participants responded on a seven-point Likert scale, from of 1 (Strongly disagree) to 7 (Strongly agree) to the following items: "We have a good marriage/relationship;" "I feel like part of a team with my spouse/ significant other;" "My relationship with my spouse/ significant other is very stable;" "Our marriage/ relationship is strong;" and "My relationship with my spouse/ significant other makes me happy." Mean scores were computed for pre-test responses and post-test responses for use in the analyses. Alpha coefficients were $\alpha = .92$ and $\alpha = .94$ at pre-test and $\alpha = .95$ and $\alpha = .96$ at post-test for men and women, respectively.

Depressed affect. Depressed affect was measured at pre-program and again at post-program using three items from the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977). Again, previous pilot work informed the reduction of the original depression scale. Participants responded on a four-point Likert scale, from 0 ("None") to 3 ("3 + times") to the items, "In the past week, I felt sad that I could not shake off the blues even with the help of my family and friends;" "In the past week, I felt depressed;" and "In the past week, I felt sad."

Mean scores were computed for pre-test responses and post-test responses for use in the analyses. Alpha coefficients are $\alpha = .87$ and $\alpha = .88$ at pre-test and $\alpha = .87$ and $\alpha = .89$ at post-test for men and women, respectively.

Analytic Strategy

Preliminary analyses using paired-sample t-tests will be conducted for men and women separately to determine whether men and/or women report shifts in depressed affect and/or relationship quality after program participation. Then, after shifts have been confirmed, in order to model shifts simultaneously for men and women, a multi-level model will be fit in which the post-program score will be regressed on the pre-program score.

Because couple data are included in the dataset, individual observations are not independent from each other; thus, the variance that exists due to linked or partnered data must be accounted for when conducting analyses to answer the research questions. This will be done using multi-level modeling techniques, in which men and women's scores will be modeled simultaneously. Individuals will act as the lower level (i.e., level 1), and they will be nested within couple, which will be the upper level (i.e., level 2) of the multi-level model. This technique allows for the modeling of dependent data without violating the assumptions of independence as it accounts for within-couple covariance of scores. The use of multi-level model regression to answer most research questions, as well as the inclusion of predictors that represent shifts in constructs from pre- to post- program, will result in the use of both auto-regressive and difference score techniques. In other words, for each model, we regress post-program scores on pre-program scores, and post-program scores are regressed on shifts in the central predictor, operationalized as a difference score.

Each multi-level model will be nested within the next allowing for the comparison of models as individuals' reported predictor variables are included. Deviance fit statistics (AIC and BIC) will be compared and delta chi-square tests will be conducted to determine best model fit. A decrease in the AIC and BIC from one model to the next, and a significant delta chi-square test, suggests that the subsequent model is better fitting than the previous. Two series' of models will be fit, each one testing a hypothesized theory of direction of effects. Additionally, the chi-square value will be examined as an indicator of model fit.

Marital Discord Model. For the first research question, paired sample t-tests will be conducted to answer whether there are statistically significant shifts in depressed affect. The first multi-level model, in which post-program depressed affect will be regressed on pre-program depressed affect will also be fit. To answer the second research question, level-1 and level-2 variables will be included. Level 1 controls will be SES (due to the discrepancy in reporting between husbands and wives), sex, and ethnicity. Level 2 controls will be relationship length and marital status. We will then include the observed difference in relationship quality as a predictor (operationalized as the post-program score minus the pre-program score). Because our examination of this model focuses on intra-individual effects, the relationship quality difference score will be a level-1 predictor (see Figure 1).

The following are Level 1 and Level 2 specifications for the main effects models.

Level 1 $$Y_{ij} = \pi_{0j} + \pi_{1j}(T1Dep_{ij}) + \pi_{2j}(RQGains_{ij}) + \pi_{3j}(SES_{ij}) + \pi_{4j}(Female_{ij}) + \pi_{5j}(EA_{ij}) + \varepsilon_{ij}$$

Level 2 $$\pi_{0j} = \gamma_{00} + \gamma_{06}(RelLength_j) + \gamma_{07}(Married_j) + \zeta_{0j}$$

$$\pi_{1j} = \gamma_{10} + \gamma_{11}(RelLength_j) + \gamma_{12}(Married_j) + \zeta_{1j}$$

$$\pi_{2j} = \gamma_{20} + \gamma_{21}(RelLength_j) + \gamma_{22}(Married_j) + \zeta_{2j}$$

$$\pi_{3j} = \gamma_{30} + \gamma_{31}(\text{RelLength}_j) + \gamma_{23}(\text{Married}_j) + \zeta_{3j}$$

$$\pi_{4j} = \gamma_{40} + \gamma_{41}(\text{RelLength}_j) + \gamma_{24}(\text{Married}_j) + \zeta_{4j}$$

$$\pi_{5j} = \gamma_{50} + \gamma_{51}(\text{RelLength}_j) + \gamma_{25}(\text{Married}_j) + \zeta_{5j}$$

For the third question, three subsequent models will be fit. First, the interaction term for Sex X Relationship Quality difference will be added to the model. Coefficients will be examined to investigate direct and moderation effects. In a subsequent model, the interaction effect for Sex X Relationship Quality difference will be removed, the interaction term for Ethnicity X Relationship Quality difference will be added, and direct and moderation effects will be examined. Finally, the Ethnicity X Relationship Quality difference interaction term will be removed, and the Marital Status X Relationship Quality difference interaction term will be added and coefficients will be examined.

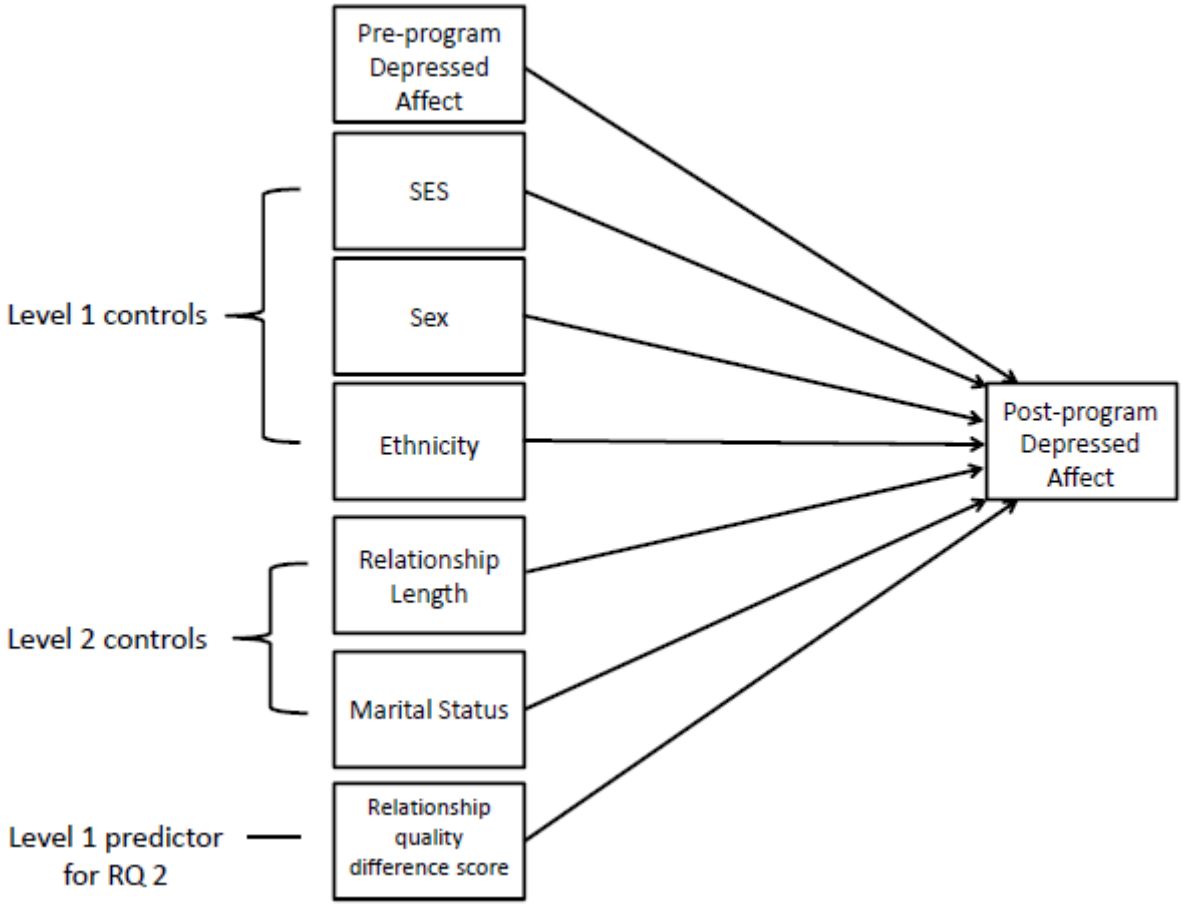

Figure 1. Proposed model testing assumptions of the Marital Discord Model

Note. Additional interaction terms for Sex X Relationship Quality difference, Ethnicity X Relationship Quality difference, and Marital Status X Relationship Quality difference will be added to subsequent models for research question 3.

Stress Generation Model. For the fourth research question, paired sample t-tests will be conducted to answer whether there are statistically significant shifts in relationship quality. The first multi-level model, in which post-program relationship quality will be regressed on pre-program relationship quality, will also be fit. To answer the fifth research question, level-1 and level-2 variables will be included. Level 1 controls will be SES (due to the discrepancy in reporting between husbands and wives), sex, and ethnicity. Level 2 controls will be relationship length and marital status. We will then include the observed difference in depressed affect as a predictor (operationalized as the pre-program score minus the post-program score). Because our test of this model concerns intra-individual effects, the depressed affect difference score will be a level-1 predictor (see Figure 2).

The following are Level 1 and Level 2 specifications for the main effects models.

Level 1 $Y_{ij} = \pi_{0j} + \pi_{1j}(T1RQ_{ij}) + \pi_{2j}(DepDecrease_{ij}) + \pi_{3j}(SES_{ij}) + \pi_{4j}(Female_{ij}) + \pi_{5j}(EA_{ij}) + \varepsilon_{ij}$

Level 2 $\pi_{0j} = \gamma_{00} + \gamma_{06}(RelLength_j) + \gamma_{07}(Married_j) + \zeta_{0j}$

$\pi_{1j} = \gamma_{10} + \gamma_{11}(RelLength_j) + \gamma_{12}(Married_j) + \zeta_{1j}$

$\pi_{2j} = \gamma_{20} + \gamma_{21}(RelLength_j) + \gamma_{22}(Married_j) + \zeta_{2j}$

$\pi_{3j} = \gamma_{30} + \gamma_{31}(RelLength_j) + \gamma_{23}(Married_j) + \zeta_{3j}$

$\pi_{4j} = \gamma_{40} + \gamma_{41}(RelLength_j) + \gamma_{24}(Married_j) + \zeta_{4j}$

$\pi_{5j} = \gamma_{50} + \gamma_{51}(RelLength_j) + \gamma_{25}(Married_j) + \zeta_{5j}$

For the sixth question, three subsequent models will be fit. First, the interaction term for Sex X Depressed Affect difference will be added to the model. Coefficients will be examined to

investigate direct and moderation effects. In a subsequent model, the interaction effect for Sex X Depressed Affect difference will be removed, the interaction term for Ethnicity X Depressed Affect difference will be added, and direct and moderation effects will be examined. Finally, the Ethnicity X Depressed Affect difference interaction term will be removed, and the Marital Status X Depressed Affect difference interaction term will be added and coefficients will be examined.

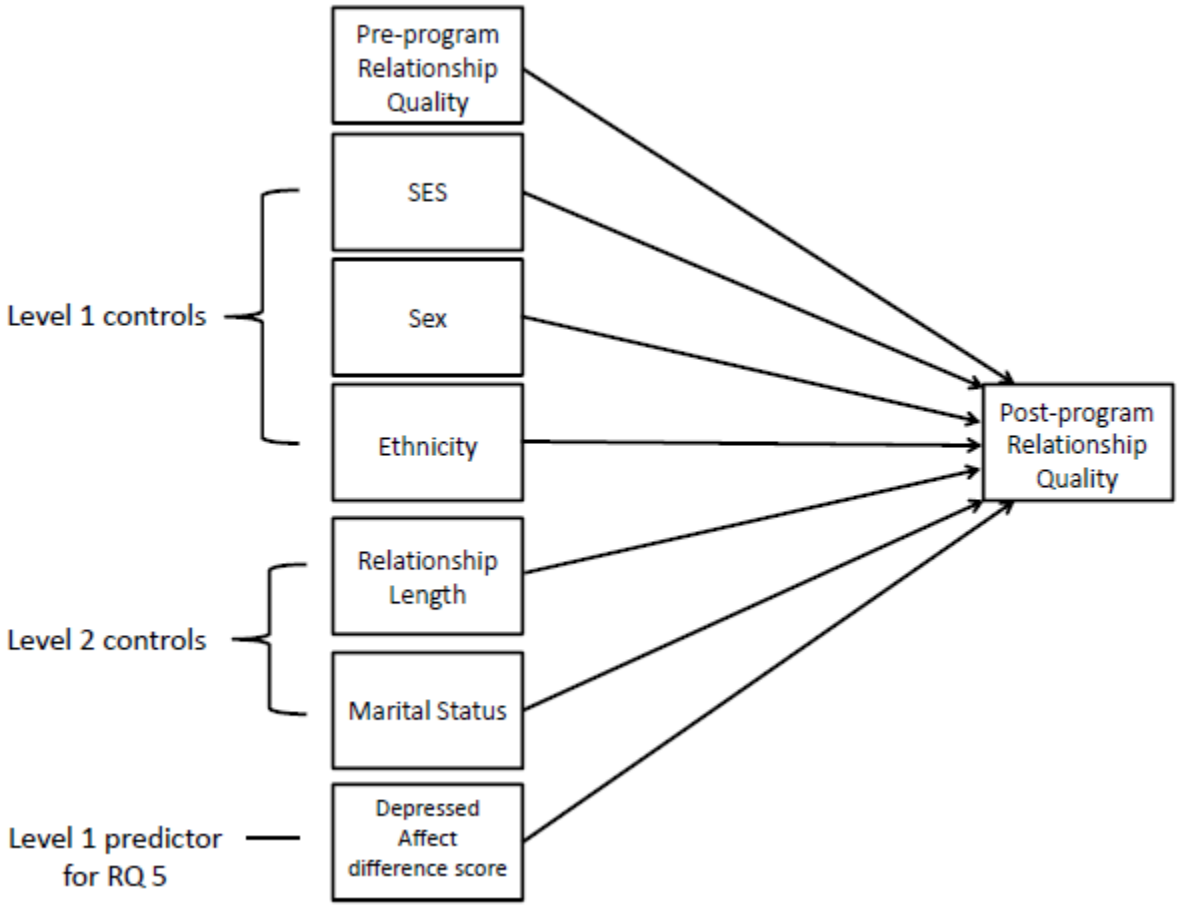

Figure 2. Proposed model testing assumptions of the Stress Generation Model

Note. Additional interaction terms for Sex X Depressed Affect difference, Ethnicity X Depressed Affect difference, and Marital Status X Depressed Affect difference will be added to subsequent models for research question 6.

Results

Preliminary Analyses

Curricula were chosen due to their inclusion of seven core concepts identified as vital to programmatic efforts for improving marital stability and quality (see Adler Baeder & Futris, 2005). To confirm that outcomes (post-program depressive symptoms and post-program relationship quality) did not differ based on curriculum, we conducted multivariate analyses of covariance (MANCOVA) for men and women separately. Multivariate tests, rather than multiple Univariate tests, were conducted to reduce the probability of making Type I error and to account for the possible correlation between post-program depressive symptoms and post-program relationship quality. Pre-program scores for depressive symptoms and relationship quality were treated as covariates and controlled. Results indicated that there were no differences between curricula on the measured outcomes for men [F (12, 310) = .911, p = .536] or women [F (12, 316) = .738, p = .716], allowing us to condense all curricula into one treatment condition/approach.

Descriptive statistics for the independent and dependent variables (pre- and post-program depressed affect and relationship quality) can be found in Table 2. Correlations were small to moderate in size. There was no statistically significant long-term association between depressed affect and relationship quality for women, and for men, the correlation between pre-program depressed affect and post-program relationship quality only approached significance (see Tables 3 and 4).

Table 2

Descriptive statistics (N=500).

	Full Sample		Men (*n*=250)		Women (*n*=250)	
	Mean (SD)	N	Mean (SD)	n	Mean (SD)	n
Depressed Affect-pre-program	1.53 (1.06)	489	1.43 (1.08)*	243	1.62 (1.04)*	246
Depressed Affect-post-program	1.15 (1.01)	343	1.02 (.98)*	169	1.28 (1.02)*	174
Rel. Quality-pre-program	4.20 (1.25)	492	4.31 (1.20)	246	4.08 (1.29)	246
Rel. Quality-post-program	4.93 (1.25)	342	5.06 (1.15)	168	4.81 (1.33)	174
Controls						
SES (Income-to-needs ratio)	2.41 (1.85)	446	2.54 (1.90)	224	2.28 (1.79)	222
Rel. Length (yrs.)	7.70 (8.14)	478	7.70 (8.14)	238	7.70 (8.14)	238

Note: * Statistically significant differences ($p < .05$) between men on women were detected through multivariate analysis of variance.

Table 3

Bivariate correlations for men

	1	2	3	4
1. Depressed Affect-pre-program	1.00			
2. Depressed Affect-post-program	.37***	1.00		
3. Relationship quality-pre-program	-.18**	-.11	1.00	
4. Relationship quality-post-program	-.14†	-.35***	.53***	1.00

Note: $^{\dagger}p < .10$, **$p < .01$, ***$p < .001$

Table 4

Bivariate correlations for women

	1	2	3	4
1. Depressed Affect-pre-program	1.00			
2. Depressed Affect-post-program	.39***	1.00		
3. Relationship quality-pre-program	-.24**	.00	1.00	
4. Relationship quality-post-program	-.10	-.32***	.62***	1.00

Note: **$p < .01$, ***$p < .001$

Marital Discord Model Assumptions

In order to answer the first three research questions (that were informed by the Marital Discord Model and the intervention design that is primarily focused on couple relationship skills), and to account for shared variance within couples, a series of nested multi-level models was fit. See Table 7. The lower level (Level 1) of the model was individual, and individuals were nested within the upper level (Level 2), which was couple. The intraclass correlation ($\rho = \sigma^2_0 / \sigma^2_0 + \sigma^2_\varepsilon$), derived from the unconditional means (Model A) model, indicated that individuals' scores within couples are correlated at .158, or that approximately 15.8% of the variance in post-program depressive symptoms is due to between-couple differences, and the remaining 84.2% is due to within-couple differences. Because our research questions focus on Level-1 effects, we only interpreted the fixed effects for Level-1 variables, although some Level-2 variables were estimated as covariates and controlled. Each model was nested in its subsequent model, allowing for the comparison of models using model fit statistics (delta chi-square, AIC, BIC). Model fit statistics, in addition to the relationships between included predictors and the outcome aided in the determination of the final model.

Research Question 1: Do relationally distressed participants report decreases in depressed affect following program participation? Due to the non-independence of observations in the data, shifts were examined for men and women separately. Results of paired sample t-tests examining depressed affect revealed a significant shift between pre- and post-program for men [t (165) = 4.15, $p < .001$, $d = .37$] and women [t (171) = 4.84, $p < .001$, $d = .42$]. Effect size estimates indicated that shifts in depressed affect were small to moderate (Cohen, 1977); and, according to Wolf's (1986) interpretation of effect sizes for educational programs, shifts are above .25, indicating a positive practical difference (see Tables 5 and 6).

Model A in the series of multi-level models indicated that on average, participants had a mean score of 1.16 on depressed affect at post-program (see Table 7). Model B confirms the relationship between pre- and post- program scores in a more rigorous test in which mean shifts for individuals nested within couple were estimated, thus accounting for within-couple covariance of scores. Results indicated that pre-program depressed affect scores were related to post-program depressed affect [$\gamma_{01} = .38$ (.05), $p < .001$], such that higher pre-program depressed affect predicted higher post-program depressed affect. Analysis of the residual variances in the unconditional means model and the model including pre-program depressed affect yielded a Pseudo-R^2 [σ^2_ε (model A) - σ^2_ε (model B) / σ^2_ε (model A)] value of .188, indicating that approximately 18.8% of the variance in post-program depressed affect was explained by pre-program depressed affect. Additionally, inclusion of pre-program depressed affect in the model yielded fit statistics indicating better model fit than the previous model, suggesting that post-program depressed affect scores in this sample are best examined when accounting for pre-program depressed affect.

Table 5

Paired sample t-tests for men

	Pre-program Mean (SD)	Post-program Mean (SD)	Mean Diff. (SD)	*N*	*t*	*d*
Depressed Affect	1.40 (1.05)	1.03 (.99)	.37 (1.15)	166	4.15***	.37
Relationship Quality	4.32 (1.18)	5.06 (1.15)	-.73 (1.13)	166	-8.37***	.69

Note: ***$p < .001$

Table 6

Paired sample t-test for women

	Pre-program Mean (SD)	Post-program Mean (SD)	Mean Diff. (SD)	*N*	*t*	*d*
Depressed Affect	1.69 (1.03)	1.27 (1.01)	.42 (1.13)	172	4.84***	.42
Relationship Quality	4.08 (1.29)	4.81 (1.34)	-.73 (1.15)	170	-8.35***	.64

Note: ***$p < .001$

Table 7

Taxonomy of Models testing assumptions of the Marital Discord Model of Depression (i.e., shifts in relationship quality predict shifts in depressed affect)

Model		A	B	C	D	E	F	G
df		3	4	9	10	11	11	11
Fixed Effects								
Intercept (π_{0j})	γ_{00}	1.16*** (.06)	.57*** (.09)	.44*** (.17)	.62*** (.16)	.55*** (.16)	.61*** (.16)	.61*** (.16)
T1Dep	γ_{01}		.38*** (.05)	.37*** (.05)	.40*** (.05)	.40*** (.05)	.40*** (.05)	.40*** (.05)
RQ gains	γ_{02}				-.29*** (.04)	-.21** (.06)	-.27*** (.06)	-.28** (.08)
Covariates								
Level 1								
SES	γ_{03}			.002 (.03)	-.01 (.03)	-.01 (.03)	-.01 (.03)	-.01 (.03)
Female	γ_{04}			.21* (.10)	.22* (.09)	.34** (.11)	.22* (.09)	.22 (.09)
EA	γ_{05}			.03 (.12)	.008 (.11)	.01 (.11)	.04 (.13)	.006 (.11)
Level 2								
Rel. Length	γ_{06}			-.005 (.01)	-.002 (.01)	-.002 (.006)	-.002 (.01)	-.002 (.01)
Married	γ_{07}			.04 (.14)	.08 (.13)	.08 (.13)	.08 (.13)	.09 (.14)
Interactions								
RQ X Female	γ_{08}					-.15† (.08)		
RQ X EA	γ_{09}						-.04 (.09)	
RQ X Married	γ_{10}							-.01 (.10)
Random Effects								

Level 1 Within-person	σ^2_ε	.85*** (.10)	.69*** (.08)	.68*** (.16)	.60*** (.07)	.59*** (.07)	.60*** (.07)	.60*** (.07)
Level 2 Intercept	σ^2_0	.16* (.08)	.17* (.07)	.16* (.08)	.12* (.06)	.12* (.06)	.11† (.06)	.12* (.06)
Model Fit								
Deviance		973.62	902.14	764.60	713.73	710.37	713.49	713.72
$\Delta\chi^2$			71.48***	137.54***	50.87***	3.36	.11	.01
AIC		979.92	910.14	782.60	733.73	732.37	735.49	735.72
BIC		991.13	925.44	815.59	770.29	772.58	775.70	775.93
ΔPseudo R^2			18.8%	1.4%	11.8%	1.7%	0%	0%

Note †p<.10, *p<.05, **p<.01, ***p<.001, Model A: Unconditional Means; Model B: Decrease in Depressed Affect; Model C: Decrease in Depressed Affect, adding controls; Model D: Decrease in Depressed Affect, controlling for SES, length of relationship, sex, ethnicity, and marital status, adding Gains in Relationship Quality as a predictor; Model E: Testing Sex Moderation; Model F: Testing Ethnicity Moderation; Model G: Testing Marital Status Moderation

Research Question 2: Is the shift in depressed affect after program participation predicted by/ related to an increase in relationship quality after program participation? In Model D, the predictor, increases in relationship quality, was added to the previous models including controls. Model fit statistics indicated that the previous model may be rejected in favor of this one. Because pre-program depressed affect was controlled, the outcome variable was a representation of residual change (i.e., decrease) in depressed affect. Examination of coefficients indicated that, controlling for pre-program depressed affect, increases in relationship quality were negatively related to post-program depressed affect [γ_{04} = -.29 (.04), $p < .001$, t = -7.25]. In other words, greater increases in relationship quality were related to decreased depressed affect after program participation.

Research Question 3: Do sex, ethnicity, or marital status moderate the effect of increases in relationship quality on decreases in depressed affect? In order to test whether

sex moderated the effect of relationship quality increases on decreases in depressed affect, the interaction term Sex X Relationship Quality Difference was included in the model (Model E). Model fit statistics indicated that the previous model may not be rejected in favor of this one. Additionally, examination of coefficients indicated that the interaction effect of Sex X Relationship Quality Difference was not statistically significant at the 95% confidence level. Thus, this model was not accepted in favor of Model D, indicating that increases in relationship quality predicted decreases in depressive symptoms.

In order to test whether ethnicity moderated the effect of relationship quality increases on decreases in depressed affect, the interaction term Ethnicity X Relationship Quality Difference was included in the model (Model F). Model fit statistics indicated that Model D may not be rejected in favor of this one. Additionally, the interaction effect of Ethnicity X Relationship Quality Difference was not statistically significant, indicating that ethnicity does not moderate the effect of shifts in relationship quality on shifts in depressed affect. Thus, Model D will be retained for subsequent model testing.

Similarly, the test of whether marital status moderated the effect of relationship quality increases on decreased depressed affect was conducted by including the interaction term Marital Status X Relationship Quality Difference in the model (Model G). Again, model fit statistics indicated that Model D may not be rejected in favor of this one. The interaction term was also statistically non-significant, indicating that marital status does not moderate the effect of shifts in relationship quality on shifts in depressed affect.

Thus, Model D was chosen as the final model for tests of the Marital Discord Model, indicating that, controlling for SES, relationship length, sex, ethnicity, and marital status, gains in relationship quality predict decreases in depressed affect among relationally distressed CRE

participants. This relationship is not moderated by sex, ethnicity, or marital status. Analysis of the residual variance in the final model yielded a Pseudo-R^2 [σ^2_ε (model C) - σ^2_ε (model D) / σ^2_ε (model C)] value of .118, indicating that approximately 11.8% of the variance in post-program depressed affect was uniquely explained by increases in relationship quality. The chi-square value for this model was 723.45; the AIC and BIC were 737.45 and 763.10, respectively.

Stress Generation Model Assumptions

In order to answer the next three research questions (that were informed by the stress generation model and the inclusion of self-care information in the programs offered), and to account for shared variance within couples, a series of nested multi-level models was fit. See Table 8. The lower level (Level 1) of the model was individual, and individuals were nested within the upper level (Level 2), which was couple. The intraclass correlation ($\rho = \sigma^2_0 / \sigma^2_0 + \sigma^2_\varepsilon$) derived from the unconditional means (Model A) model indicated that approximately 58.2% of the variance in post-program relationship quality symptoms is due to between-couple differences, and the remaining 41.8% is due to within-couple or inter-individual differences. This suggests that there would be a benefit to examining within-couple and between-couple variables related to post-program relationship quality. Because our research questions focus on individual effects, we only interpreted the fixed effects for level-1 variables, although some level-2 variables were estimated as covariates and controlled. Each model was nested in its subsequent model, allowing for the comparison of models using model fit statistics (delta chi-square, AIC, BIC). A significant delta chi-square test and decreases in the AIC and BIC allow for the rejection of the previous model as better fitting than the current model being tested. Model fit statistics, in addition to the relationships between included predictors and the outcome aided in the determination of the final model.

Research Question 4: Do relationally distressed participants report increases in relationship quality following program participation? Paired sample t-tests indicated that after program participation, statistically significant increases in relationship quality were reported by men [t (165) = -8.37, $p < .001$, $d = .69$] and women [t (169) = -8.35, $p < .001$, $d = .64$]. Effect size estimates indicated that shifts in relationship quality were moderate to large (Cohen, 1977). Additionally, Wolf (1986) suggested that due to the nature of educational interventions and the brief period over which they are offered, effect sizes above .50 provide some indication that shifts may be attributed to the educational program delivered to participants (i.e., he considers effect sizes of this magnitude a representation of a positive educational difference). See Tables 5 and 6.

Model A indicated that on average, participants had a mean score of 4.90 on relationship quality at post-program (see Table 8). Model B confirms the relationship between pre- and post-program scores in a more rigorous test in which mean shifts for individuals nested within couple were estimated, thus accounting for within-couple covariance of scores. Results indicated that pre-program relationship quality was related to post-program relationship quality [$\gamma_{01} = .54$ (.04), $p < .001$], such that higher pre-program relationship quality predicted higher post-program relationship quality. Analysis of the residual variances in the unconditional means model and the model including pre-program relationship quality yielded a Pseudo-R^2 [σ^2_ε (model A) - σ^2_ε (model B) / σ^2_ε (model A)] value of .197, indicating that approximately 19.7% of the variance in post-program relationship quality scores was explained by pre-program relationship quality. Additionally, inclusion of pre-program relationship quality in the model yielded fit statistics indicating better model fit than the previous model, suggesting that post-program relationship

quality scores in this sample are best examined when accounting for pre-program relationship quality.

Table 8

Taxonomy of Models testing assumptions of the Stress Generation Model (i.e., shifts in depressed affect predict shifts in relationship quality)

Model		A	B	C	D	E	F	G
df		3	4	9	10	11	11	11
Fixed Effects								
Intercept (π_{0j})	γ_{00}	4.90*** (.08)	2.65*** (.20)	2.73*** (.28)	2.45*** (.27)	2.47*** (.27)	2.44*** (.27)	2.51*** (.27)
T1RQ	γ_{01}		.54*** (.04)	.51*** (.05)	.54*** (.05)	.55*** (.05)	.54*** (.05)	.54*** (.05)
Dep. decrease	γ_{02}				.25*** (.05)	.17** (.06)	.26*** (.07)	.14 (.08)
Covariates								
Level 1								
SES	γ_{03}			-.02 (.04)	-.004 (.03)	-.01 (.03)	-.004 (.03)	.000 (.03)
Female	γ_{04}			-.10 (.10)	-.07 (.09)	-.13 (.09)	-.07 (.09)	-.07 (.09)
EA	γ_{05}			-.02 (.14)	-.05 (.13)	-.07 (.13)	-.04 (.14)	-.07 (13)
Level 2								
Rel. Length	γ_{06}			.01 (.01)	.01 (.01)	.01 (.01)	.01 (.01)	.01 (.01)
Married	γ_{07}			.15 (.17)	.17 (.16)	.16 (.16)	.17 (.16)	.10 (.17)
Interactions								
Dep. X Female	γ_{08}					-.16† (.09)		
Dep. X EA	γ_{09}						-.02 (.09)	
Dep. X Married	γ_{10}							.16 (.10)
Random Effects								
Level 1								

Within-person	σ^2_ε	.66*** (.08)	.53*** (.06)	.52*** (.07)	.49*** (.07)	.49*** (.07)	.49*** (.07)	.48*** (.07)
Level 2 Intercept	σ^2_0	.92*** (.14)	.52*** (.10)	.51*** (.11)	.44*** (.10)	.43*** (.10)	.44*** (.10)	.45*** (.10)
Deviance		1062.00	927.04	789.04	760.55	757.16	760.49	758.01
$\Delta\chi^2$			134.96***	138.00***	28.49***	3.39	.06	2.54
AIC		1068.00	935.04	807.04	780.55	779.16	782.49	780.01
BIC		1079.51	950.31	839.97	817.11	819.38	822.70	820.22
ΔPseudo R^2			19.7%	1.9%	5.8%	0%	0%	2.0%

Note †p<.10, *p<.05, **p<.01, ***p<.001, Model A: Unconditional Means; Model B: Increase in Relationship Quality; Model C: Increase in Relationship Quality, adding controls; Model D: Increase in Relationship Quality, controlling for SES, length of relationship, sex, ethnicity, and marital status, adding Decrease in Depressed Affect as a predictor; Model E: Testing Sex Moderation; Model F: Testing Ethnicity Moderation; Model G: Testing Marital Status Moderation

Research Question 5: Is the shift in relationship quality after program participation predicted by/ related to a decrease in depressed affect after program participation? In Model D, the predictor, decreases in depressed affect, was added to a previous model including controls. Model fit statistics indicated that the previous model may be rejected in favor of this one. Because pre-program relationship quality was controlled, the outcome variable was a representation of residual change (i.e., increase) in relationship quality. Examination of coefficients indicated that, controlling for pre-program relationship quality, decreases in depressed affect were positively related to post-program relationship quality [γ_{04} = .25 (.05), p < .001, t = 5.0]. Otherwise stated, greater decreases in depressed affect were related to greater increases in relationship quality after program participation.

Research Question 6: Do sex, ethnicity, or marital status moderate the effect of decreases in depressed affect on increases in relationship quality? In order to test whether sex moderated the effect of depressed affect decreases on increases in relationship quality, the

interaction term Sex X Depressed Affect Difference was included in the model (Model E). Model fit statistics indicated that the previous model may not be rejected in favor of this one. Additionally, examination of coefficients indicated that the interaction effect of Sex X Depressed Affect Difference was not statistically significant at the 95% confidence level. Thus, sex does not moderate the effect of depressed affect decreases on relationship quality increases. This model will not be accepted in favor of Model D.

In order to test whether ethnicity moderated the effect of depressed affect shifts on increases in relationship quality, the interaction term Ethnicity X Depressed Affect Difference was included in the model (Model F). Model fit statistics indicated that Model D may not be rejected in favor of this one. Additionally, the interaction effect of Ethnicity X Depressed Affect Difference was not statistically significant, indicating that ethnicity does not moderate the effect of shifts in depressed affect on shifts in relationship quality. Thus, Model D will be retained for subsequent model testing.

Similarly, the test of whether marital status moderated the effect of depressed affect decreases on increases in relationship quality was conducted by including the interaction term Marital Status X Depressed Affect Difference in the model (Model G). Again, model fit statistics indicated that Model D may not be rejected in favor of this one. The interaction term was also statistically non-significant, indicating that marital status does not moderate the effect of shifts in depressed affect on shifts in relationship quality.

Thus, Model D was chosen as the final model for tests of the Stress Generation Model, indicating that, controlling for SES, relationship length, sex, ethnicity, and marital status, decreases in depressed affect predict increases in relationship quality among relationally distressed CRE participants. This relationship is not moderated by sex, ethnicity, or marital

status. Analysis of the residual variance in the final model yields a Pseudo-R^2 [σ^2_ε (model C) - σ^2_ε (model D) / σ^2_ε (model C)] value of .058, indicating that approximately 5.8% of the variance in post-program relationship quality is uniquely explained by decreased depressed affect. The chi-square value for this model was 765.86; the AIC and BIC were 779.86 and 805.50, respectively.

Discussion

Depression affects a significant portion of the population and represents a major cost to families and society (Hall & Wise, 1995). Because its effects can be so devastating, it is important to identify correlates and possible treatment approaches. The literature has consistently identified marital dissatisfaction as a strong correlate of depression (Whisman, 2001; Whisman, Uebelacker, & Weinstock, 2004). Two theories have been proposed to explain the link between marital satisfaction and depression. The Marital Discord Model of depression (Beach et al., 1990) suggests that the antecedent of depression is marital discord or marital dissatisfaction, while the Stress Generation Model (Hammen, 1991) suggests that depression precedes and leads to the development of marital dissatisfaction. In cross-sectional and longitudinal studies, scholars have successfully found evidence for both theories (Beach et al., 1990; Davila et al., 1997; Fincham et al., 1997; Whisman, 2001), providing continued support for the notion that effects are bi-directional.

However, the evidence in intervention research is less balanced, particularly with samples of distressed individuals and couples. Assuming the hypothesis of the Marital Discord Model, clinical studies have been conducted to test whether intervention at the marital level can improve symptoms of depression (e.g., Jacobson et al., 1991). Results indicate that marital therapy is an especially appropriate treatment approach for depression when couples are relationally distressed, but when they are not relationally distressed, individual therapy for depression is more effective. Some attempts have also been made to identify whether the assumptions of the

Stress Generation Model can effectively inform treatment, but results thus far do not indicate that treatment of depressive symptoms alone can improve marital satisfaction (e.g., Atkins et al., 2009; Beach & O'Leary, 1992; Jacobson et al., 1991). The extant literature, however, is limited to clinical studies utilizing samples of married couples. Much is still unknown regarding couple-focused approaches for non-clinical samples that include unmarried participants. This study provides several novel elements and contributes to the broadening of intervention research focused on the promotion of relationship quality and the reduction of depressed affect. First, it incorporates the suggestion of Cowan and Cowan (2002) to utilize systemic interventions to examine shifts in related constructs. Consistent with their recommendations, our intervention approach was less about determining etiology, but rather, was focused on finding successful points of intervention and areas of focus for CRE content. We are the first to specifically examine the relationship between shifts in relationship quality and shifts in depressed affect in a non-clinical/therapy setting. Because our program included content area in an individual-level domain (i.e., self-care), we also examined whether shifts in depressed affect predicted shifts in relationship quality. Second, we sought to identify whether these effects are documented among relationally distressed married and unmarried, coupled participants who attended a Couple and Relationship Education program, expanding the knowledge we have to include samples of non-married participants. Third, because there has also been some empirical indication that the association between relationship quality and depression may differ based on demographic factors (eg., Davila et al., 1997; Fincham et al., 1997, Plant & Sachs-Ericcson, 2004), we also considered whether effects in an intervention context were moderated by sex, ethnicity, or marital status.

Preliminary Findings

Unlike the longitudinal findings on the link between depression and marital dissatisfaction (e.g., Beach et al., 2003), our preliminary results indicated that there were no long-term associations between the constructs measured. Pre-program depressed affect was not significantly correlated with post-program relationship quality, and pre-program relationship quality was not correlated with post-program depressed affect. There was, however, a correlation between constructs measured at the same time point. Because we did not use a control group, we cannot assert that this effect is a treatment effect; however, it is possible that our results are an indication of a treatment effect. Future work should be conducted to determine whether longitudinal associations between constructs vary when an intervention is used.

Results also indicated that participants reported small to moderate decreases in depressed affect and moderate to large increases in relationship quality after program participation. A particularly important aspect of our study is that results were found among relationally distressed participants. Despite the suggestion that CRE is inappropriate for relationally distressed couples (Doherty, 1995), previous studies have found that such participants can benefit from program attendance (e.g., Emmelkamp et al., 1988; Kaiser et al., 1998). Ours is the first study to partial out couples who reported relational distress (such that they had recently considered separation or divorce) and examine their particular experiences in CRE. Therapy has traditionally been reserved as the intervention of choice for relationally distressed couples. It has distinguishing characteristics from an educational program (e.g., one therapist for one couple versus the workshop setting of CRE, not as manualized as CRE, provided in person rather than through the multiple media CRE is currently available in; Markman & Rhodes, 2012; Ooms, 2010); however, we provide some evidence that CRE efforts may not necessarily be contraindicated for

all relationally distressed couples. Indeed, comparison of our effect sizes for shifts in relationship quality (.69 and .64 for men and women, respectively) to those reported previously for shifts in commitment/relationship quality in similar one-sample pre-post designs (.29; Hawkins & Fackrell, 2010) as well as those reported for shifts in communication in quasi-experimental designs of distressed participants (.36; Blanchard et al. 2009) suggests that relationally distressed participants may actually gain more from CRE participation than their non-distressed counterparts. Future between-group analyses should be conducted to confirm this assumption. Still, it appears that CRE may be a vehicle whereby relationally distressed couples can gain the help needed to improve their relationships and individual levels of distress. More focus on potential areas of overlap, where the boundaries of CRE and therapy are blurred, may help uncover unexpected program benefits for different populations.

It should be noted that our approach to CRE programming is somewhat unique from other approaches. Much of the current CRE literature includes evaluations of curricula and programming focused on a few specific key skills (e.g., coping skills; CCET; Bodenmann & Shantinath, 2004; communication skills; Couple Communication; Miller, Miller, Nunnally, & Wackman, 1991). Although there is research to validate the usefulness of these approaches in adjusting the areas they specifically target, our use of an empirically-derived model of relationship and marriage education (see Adler-Baeder & Futris, 2005) informed the use of curricula that included content in multiple areas relevant to couple and individual functioning. It is possible that the delivery of a broader base of relevant information and skills training facilitated especially meaningful shifts for participants who may have been experiencing distress in multiple facets of their relationships and lives.

Marital Discord Model

In our first series of tests, we examined whether the assumptions of the Marital Discord Model would be supported in a CRE intervention approach. Namely, we tested whether documented decreases in depressed affect were predicted by documented increases in relationship quality. Results supported these assumptions, such that increases in relationship quality uniquely predicted 11.8% of the variance in decreased depressed affect after program participation. Because our sample was relationally distressed, our findings generally replicate those of Jacobson and colleagues (1991), who emphasized that among distressed couples, couple-focused treatment can be effective in increasing relationship satisfaction and decreasing depression. Our study adds to the literature by a) confirming that participants of a CRE couple-focused program also report decreases in depressed affect (which has only been reported in one study to date; Kaiser et al., 1998); b) identifying that the shifts in depressed affect is associated with shifts in relationship quality, which has not yet been done in CRE research; and c) finding these effects among relationally distressed participants of CRE.

Because CRE studies do not often measure outcomes beyond communication and relationship satisfaction (Hawkins et al., 2008), the evidence that couple-focused programs can result in shifts in individual-level domains is scant. Only a few studies have addressed and uncovered shifts in individual outcomes after program participation (e.g., individual functioning; Adler-Baeder et al., 2010; depression; Kaiser et al., 1998). This is surprising given that the link between couple and individual constructs, especially between the couple relationship and depression, would suggest that intervention in one domain might influence the other (e.g., Atkins et al., 2008). Indeed, it has been argued that the literature points to the need for practitioners to use a couple-focused approach in addressing symptoms of psychopathology (Whisman &

Baucom, 2012). Our finding that reported levels of depressed affect decrease following couple-focused program participation underscores the notion that attention to the couple relationship can improve individual-level outcomes, and highlights that among some populations, such attention might not need to be limited to clinical interventions. While clinical depression has traditionally and effectively been treated with psychopharmacological and psychotherapeutic approaches (DeRubeis, Gelfand, Tang, & Simons, 1999), our findings suggest that couples who experience somewhat lower levels of intra- and inter- individual distress may benefit from inclusion of CRE in treatment planning and intervention efforts. Because this is the first of such studies, more work is needed to determine cases and levels of depressed affect at which CRE can be helpful and those in which strict adherence to clinical methods remain most appropriate.

The potential link between attention to the couple relationship and subsequent shifts in individual psychopathology was further supported by the finding that the shifts in depressed affect were predicted by increases in reported relationship quality. Because we analyzed cross-sectional data, some caution should be used in the interpretation of direction of effects; however, utilization of a program primarily designed to improve relationship quality (X) provides some support for the notion that X (relationship quality gains) → Y (depressed affect decreases) (Cowan & Cowan, 2002).

Further testing is needed to confirm the mechanisms whereby shifts in these constructs are related to each other. Participants may have experienced behavioral or cognitive changes that could explain the links identified. The Marital Discord Model suggests that marital dissatisfaction leads to depression because of lower levels of spousal support and greater expressed negativity in distressed relationships (Beach et al., 1990). It is possible that our sample participants' reports of improved relationship quality represent changes in behaviors that

might otherwise lead to depressive symptomology (e.g., negative interaction; see Adler-Baeder, Calligas, Keiley, Skuban, Ketring, & Smith, under review). In fact, the primary goals of our CRE program were to increase knowledge and skills that are essential for relationship quality. The acquisition of key relationship skills could both translate into improved relationship quality, as well as decrease behaviors that had previously caused depressed affect.

Similarly, increases in relationship quality may represent increased support and understanding between partners. This improved support may have facilitated inter-individual encouragement and strategizing to implement the behaviors discussed in the course. Because our programs included some content related to the importance of and development of self-care strategies, improvements in the relationship may have led participants to encourage each other and help devise strategies to more effectively self-care. An improvement in self-care might then translate into lower levels of depressed affect.

It is also possible that the association between decreases in depressed affect and increases in relationship quality is due to cognitive processes. It has been argued that appraisals of experiences create meaning whereby emotion is elicited (Smith & Lazarus, 1992). If couples' relationships improve after CRE participation, their appraisals of their circumstances may be more positive. This positive appraisal may in turn create a different meaning for them regarding their lives, thereby eliciting a more positive, less depressed feeling. Thus, improved relationship quality may lead to decreased depressed affect by way of cognitive processes such as positive appraisals.

Stress Generation Model

To answer our second set of research questions, we examined the inverse direction of effects (from the first set of questions) in order to test whether the assumptions of the Stress

Generation Model could be supported in a CRE intervention approach. In other words, we tested whether documented shifts in relationship quality were predicted by shifts in depressed affect. Results also supported these assumptions, such that reports of decreased depressed affect uniquely predicted 5.8% of the variance in increased relationship quality after program participation. Although it appears from the most recent literature that studies tend to focus on the effect of relationship quality changes on shifts in depression (see Whisman & Baucom, 2012), these findings suggest that attention to the potential for shifts in depressed affect to influence relationship quality may still be warranted.

Interestingly, individual-focused treatments for depression have consistently been unable to produce significant changes in the couple relationship, despite improvements in depression (see Whisman & Baucom, 2012). The question then arises as to why participation in a couple-focused intervention might be different and allow for the identification of pathways leading from decreases in individual-level distress to shifts in relationship distress. Again, the use of cross-sectional data precludes us from definitively asserting that shifts in depressed affect preceded shifts in relationship quality; however, because modeling the data in this direction resulted in significant effects (mirroring the empirical literature; e.g., Davila et al., 1997), there is some indication that shifts in depressed affect can lead to shifts in relationship quality. Because we found evidence to support either direction (A→ B and B→A), we will reserve further discussion of these findings and their implications until later in this section, and focus now on the results from the latter (Stress Generation) model.

Two areas of mediating effects that should be discussed emerge from these results. The first is the potential mechanisms whereby a couple-focused intervention can improve depressed affect or other individual-level variables. The second is the potential mediators whereby shifts in

depressed affect predict shifts in relationship quality. Future work is needed to confirm what mechanisms might be responsible for these effects, but we highlight some possibilities.

Mediators of couple-focused intervention effect on depressed affect. Although the primary goal of our CRE program was to improve relationship quality, program content and instruction included information on the importance of self-care. As noted previously, this is a unique emphasis within our CRE efforts as many curricula do not include such information. It is possible that the inclusion of this content led participants to engage in healthy self-care activities, which might have lowered their levels of depressed affect. Thus, the shift in depressed affect may be the result of our unique inclusion of a focus on individual-level domains.

It is also possible that participants understood and assimilated the programmatic foci on the foundational NERMEN concepts (choose, know, care, share, self-care, connect, and manage; Adler-Baeder & Futris, 2005) in an individual and personally meaningful way. The message that participants are responsible for their relationships and accountable for many of their relationship dynamics, together with the skills they are taught in classes, may have given participants a sense of personal responsibility and self-empowerment. Indeed, Adler-Baeder and colleagues (2010) identified that participants of CRE reported gains in individual functioning, a latent construct measured in part by an individual empowerment scale. Thus, participants may feel more self-efficacious and less personally distressed after program participation, resulting in reports of decreased depressed affect.

It is also possible that our couple-focused intervention produced decreases in depressed affect by influencing shifts in participants' hope. Hope has been described as a positive expectation that goals can be attained and carries with it the perceived ability to find ways to reach those goals (see Arnau, Rosen, Finch, Rhudy, & Fortunato, 2007). Longitudinal

examinations have also found hope to be related to decreased levels of depression at later time points (Arnau et al., 2007). If, during program participation, participants' expectations about reaching personal and couple goals increased, they may have experienced increased levels of hope. These higher levels of hope may have translated into decreased levels of depressed affect after program participation.

Mediators of depressive symptom decrease effect on relationship quality increase. Just as more work is needed to determine how a predominantly couple-focused intervention can result in changes in individual-level variables, future studies should also examine the potential mechanisms whereby shifts in depressed affect can predict shifts in relationship quality. These mechanisms might be behavioral or cognitive in nature. The Stress Generation Model (Hammen, 1991) asserts that individuals who experience depression engage in negative behaviors that obstruct healthy relationship interactions and cause interpersonal distress. That interpersonal distress then perpetuates the individual's intrapersonal level of distress. It is possible that the relational distress experienced by participants of our study was just the byproduct of depressed affect among individuals. If participants experienced intra-individual levels of distress, captured in our measure of depressed affect, they may have engaged in negative behaviors that affected the relationship, such as emotional withdrawal, negativity, or decreased conflict management. Thus, decreases in depressed affect may have decreased participants' negative behaviors, which in turn could have improved relationship quality.

Intra-individual cognitive processes may also explain the relationship between shifts in depressed affect and shifts in relationship quality. For instance, we have described hope as a potential mediator of programmatic change in individual-level constructs, but because one element of hope is the perceived ability to find ways to reach goals, it is possible that increased

hope due to lowered depressed affect translated into a level of self-efficacy that led to the actual attainment of relationship goals. Reaching relationship goals would have improved the participants' perceptions of their relationship quality at program completion. Continued work would be needed to determine whether hope acts as a mediator between depressed affect and relationship quality or whether it acts as a spurious, intervening variable leading to program effects and partially explaining the link between depressed affect and relationship quality.

Additionally, research has indicated that depressed individuals have more negative attributional styles (Barnett & Gotlib, 1988), and that negative attributions are linked to marital dissatisfaction (Fincham, Beach, & Bradbury, 1989; Fincham & Bradbury, 1993). Indeed, it has been noted that distressed marriages are marked by more negative attributions (see Bradbury & Fincham, 1990). Thus, it is possible that the link between depressed affect and marital dissatisfaction is mediated in part by attributions. It may be that the shift in depressed affect among our participants accompanied a decrease in negative attributions (or an increase in positive attributions), which may have then improved participants' reports of relationship quality. Further testing is needed to confirm these behavioral and cognitive, as well as other, mechanisms whereby shifts in depressed affect are related to shifts in relationship quality.

Differences by Sex, Ethnicity, and Marital Status

It is important to note that none of our tests of moderation were statistically significant. Sex, ethnicity, and marital status did not moderate the effect of shifts in relationship quality on shifts in depressive symptoms, nor did they moderate the inverse effect. This was somewhat surprising given that we found some indication in the literature to suggest that program effects and the relationship between the variables under study may be moderated by demographics (Adler-Baeder et al., 2010; Fincham et al., 1997; Plant & Sachs-Ericcson, 2004). Still, the

literature upon which we based our hypotheses was relatively limited; thus, our analyses were more exploratory in nature. It has been suggested that research with diverse populations (such as the sample we used) be conducted utilizing an ecocultural lens, recognizing that diverse families have unique cultures and seeking to understand and be sensitive to these cultures in their work (Phenice, Griffore, Hakoyama, & Silvey, 2009). As such, it is important for future efforts to use an ecocultural lens and continue examinations of whether effects identified are the same across all groups, or whether there are indeed demographic moderators.

For instance, we could not reject the null hypothesis when testing whether sex moderated the effect of shifts in relationship quality on shifts in depressed affect and vice versa, but we can note that the main effect for sex on each outcome was significant, indicating that men and women reported differences in their shifts in depressed affect and relationship quality after program participation. Additionally, although we could not detect significant moderation effects in our tests, the interaction terms for Sex X Relationship Quality Difference and Sex X Depressed Affect Difference approached statistical significance. This would suggest that under other conditions (not tested here) the effect of shifts in each construct on the other might differ for men and women. It might be that the inclusion of other factors (e.g., history of depression, re-marriage status) elucidates the role of sex on the relationships we examined. Or, it may be that there are important three-way interactions to consider (e.g., Sex X Ethnicity X Relationship Quality Difference). Differences by sex would be consistent with sex differences previously reported (e.g., Fincham et al., 1997; Whisman, 2001), so we encourage further examination of sex as a potential moderator of effects, while controlling for or examining the influence of other pertinent variables.

Implications for Intervention

Considering Cowan and Cowan's (2002) contribution to our understanding of intervention, we see our results as an indication that couple-focused treatment for distressed relationships can be effective at decreasing the risks associated with decreased relationship quality and increased depressed affect. Approximately one-third of the original sample was considered relationally distressed, meaning that they had recently considered separation or divorce. These couples were more likely to be low income, further increasing their risk for relational difficulties (see Ooms & Wilson, 2004), and they were more likely to be non-married. In conjunction with other findings (Blanchard et al., 2009; DeMaria, 2005; Morris et al., 2011), this indicates that program participation is not limited to consumers seeking relationship enhancement but includes consumers seeking relief from levels of relationship distress. This presents program administrators who seek to broaden their impact two options. First, they may screen participants and group them into more homogenous classes based on relational distress level. Second, they may instruct facilitators to make needed adjustments such that instruction is sensitive to participants at varying levels of relationship distress. Although our analyses were conducted using a sample of relationally distressed participants, the sample was actually a sub-sample of a larger sample, including couples who were not relationally distressed. This indicates that grouping program participants by relationship distress level may not be necessary, as gains are reported by relationally distressed participants in heterogeneous courses. (Whether non-distressed participants report similar outcomes was not examined and will be discussed as a direction for future research). Program administrators and facilitators can use this information to encourage participation by those with varying levels of distress (rather than excluding

relationally distressed participants) and highlight potential benefits in relational and individual domains for participants.

Our results also suggest that previous scholarly attention to the bi-directionality of effects may be most efficacious in treatment planning and approaches (Mead, 2002; Whisman, 2001). Shifts in relationship quality predicted shifts in depressed affect (A→B) and shifts in depressed affect predicted shifts in relationship quality (B→A). Because the AIC and BIC were approximately 45 points lower for the test of the Marital Discord Model, and because a greater proportion of the variance in its respective outcome was explained by this model (versus the Stress Generation Model test), one might be inclined to believe that intervention for levels of relational and individual distress should be targeted at the couple level. However, we caution against the tendency to do so. Because our intervention was couple-focused, with some limited inclusion of individual-level information, these results are not surprising; we would expect a greater impact of the shifts in relationship quality (the effect sizes of which were higher than those of depressive symptom shifts). Indeed, the intra-class correlation of the Stress Generation Model indicated that half of the variance in post-program relationship quality was due to dyadic or between-couple variables, which could explain why a lower proportion of its variance was explained by the individual-level depressed affect predictor. It might be that an individually-focused intervention for depression, such as individual therapy, with some limited inclusion of relationship or couple-level information would produce effects in which tests of the Stress Generation Model would produce a better-fitting model compared to tests of the Marital Discord Model. Thus, our examination using a couple-focused intervention does not provide a strong, controlled test of whether one direction of effects is most informative of effective intervention. Instead, it highlights Cowan and Cowan's (2002) assertion that a point of intervention can be

chosen (in our case, CRE that includes content on multiple indicators of relationship quality, including individual-level domains) and that correlated outcomes should be examined (i.e., depressed affect) to address intervention effectiveness. Hence, the tendency of some scholars to choose one empirical, theoretical model in favor of another (Marital Discord Model vs. Stress Generation Model) may not be necessary.

Rather than choosing strict adherence to one empirical model, we suggest that couple-focused interventionists consider an inclusive approach. Providing information and skills training for couple-level areas (such as communication) is fundamental to CRE, but an important component may be the inclusion of information and skills training in some individual-level areas (such as self-care). Indeed, it has been noted that individual-level traits and behaviors are important indicators of relationship quality (Larson & Holman, 1994), and suggestions have been made to incorporate some content regarding individual traits in CRE programs (Adler-Baeder, Higginbotham, & Lamke, 2004). Thus, it appears that couple-level interventions, focused on dyadic processes, should include some attention to individual-level variables, thereby facilitating the interrelated shifts in relationship quality and depressed affect.

For therapists, an inclusive approach might mean including the explicit discussion of an individual's depression and work toward improving depressed affect in couple sessions, much like that reported by Bodenmann et al. (2008). Mead (2002) reviewed the literature on utilizing behavioral marital therapy for the treatment of co-occurring marital distress and depression. Among his suggestions were education about the nature of depression and marital distress, teaching spouses how to be supportive and responsive, increasing acceptance in the relationship, increasing positive interchanges, decreasing negative thinking about self and partner interchanges, and trouble-shooting for potential problems in the future. We refer the reader to

Mead's (2002) article for more detail on potential therapeutic approaches and turn our focus to implications for CRE providers.

Because relationship educators presumably already focus on ways participants can improve their relationships but don't tend to address individual symptomology, an inclusive approach might mean supplementing their current program content with some attention to teaching knowledge and skills associated with decreases in depressive symptoms. For example, highlighting the importance of self-care and discussing ways to implement specific self-care behaviors can improve participants' individual and interpersonal distress. Facilitators can teach participants about cognitive processes and discuss strategies for meta-cognition and resulting efforts toward behavior change. Discussing attributional style and encouraging an active effort to make more positive attributions may be one content area they discuss. Similarly, rumination has been identified as a factor that perpetuates individual depression (Nolen-Hoeksema, 1991), so discussing ways to stop ruminative patterns or negative thinking processes could be helpful. It is not necessary (or even appropriate) for the inclusion of content on individual-level variables to become the focus of CRE programs; however some attention to these factors appears to be beneficial. Program facilitators can successfully integrate the two program content areas (individual- and couple- level) by including in their instruction a discussion of how individual-level variables are linked to relationship quality, thereby ensuring that the addition of individual-level content area does not overshadow the primary goal of improving the couple relationship.

The finding that CRE may be an effective intervention for improving depressed affect and enhancing relationship quality among distressed couples could also be an important tool for efforts made toward marketing and public relations. Program directors can advertise classes that are designed to improve relationship and individual distress, which may attract a wider range of

participants. Additionally, collaborations between primary- and secondary- treatment providers may continue to be forged such that the existing blurred boundaries between CRE and therapy promote greater use of partnerships in which practitioners learn to integrate the skills and techniques used by each other (see Markman & Rhodes, 2012).

Limitations

As noted previously, although our examinations were conducted to determine whether shifts in one construct predicted shifts in another, we are limited in our ability to infer whether shifts in one construct produced shifts in another by our test of concurrent shifts. Measurements for each construct were collected simultaneously prior to program participation and again after program participation. So, although the data are longitudinal, shifts in each construct were measured simultaneously. Thus, we cannot assert that a shift in one construct necessarily preceded or followed the shift in the other. Lack of an experimental design also limits our ability to infer causal influences between shifts in each construct. Future work that includes control groups and assessments at later time points would allow us to more effectively test the direction of effects, and may allow for the use of more sophisticated models to better describe the relationship between programmatic changes. This would also allow for the determination of whether shifts were due to program attendance, rather than a spurious variable. There has been some indication that quasi-experimental and one-sample pre-/post- designs have similar effect sizes (Blanchard et al., 2009); however, without a (quasi- or true) experimental design, we cannot conclusively assert that our findings are due to program attendance. Additionally, a design in which participants are randomized into treatment versus a comparison group would allow us to control for potential selection effects. The research that indicates that self-selected participants of CRE are more distressed than those who serve as self-selected comparisons

(Blanchard et al., 2009) suggests the importance of examining how a) relationally distressed participants choosing CRE are different from other groups, and b) whether effects identified can be generalized to the broad population of CRE participants.

Another limitation is in our determination of which participants were relationally distressed. We maintain that a couple's recent consideration to dissolve the relationship is an indicator of marked distress (see Karney & Bradbury, 1995); however, we do not know whether these couples would have scored in a clinically distressed range on standardized measures. Indeed, the sample mean for the Relationship Quality measure was mid-range on the scale, indicating that couples generally felt "mixed" about their level of agreement or disagreement on the items measured. This suggests that study participants certainly had the potential for important relationship improvement; however, it appears that they may not have been chronically or severely distressed at the time of pre-program assessment. As such, we do not know how generalizable our findings are to couples who are severely or clinically distressed.

Duncan and colleagues (2007) have suggested that couples who see their relationship problems as surmountable may be more likely to attend CRE. It is possible that the couples in our sample were recently more distressed, but had since made an extra effort to improve their relationship, and were attending CRE as part of that effort. Thus, their pre-program relationship quality reports may have already indicated results of on-going efforts for relationship improvement. Still there is some evidence that overall, couples attending CRE are more distressed than those who do not (Blanchard et al., 2009; Morris et al., 2011).

Because we used only a few indicators of depression from the CES-D rather than a standardized assessment tool, we are limited in our ability to make inferences about shifts in depression among CRE participants. Our measure measured only one symptom of depression,

depressed affect, which does not inform us as to whether participants were clinically depressed, dysphoric, or experiencing some other sub-clinical degree of depression at pre-program. And, although our calculated effect sizes indicated moderate shifts in depressed affect which indicated positive practical differences (Wolf, 1986), we do not know whether these decreases represent clinically meaningful changes. Thus, we must highlight that our results are limited to the experience of depressed mood or affect, and do not inform us regarding other symptoms of depression. Future examinations should include measures of other depressive symptomology, examine potential differences in degree of individual symptomology, and address the clinical meaningfulness of documented shifts.

Future Directions

Our findings suggest that for certain relationally distressed participants, CRE may be considered an unconventional, yet useful, treatment approach. However, because levels of depressed affect and relationship distress vary, and some participants may experience more severe problems, we cannot definitively prescribe CRE as an intervention approach. We recommend the use of adequate intake assessments (e.g., standardized measures) to determine whether CRE is an appropriate choice for participants. Future research should also be conducted to identify which groups of relationally distressed participants are better served in therapy and which groups could benefit from CRE. In some instances, an integration of the techniques and foci utilized in therapy and CRE may be useful for maximized program impact. Until a method whereby these approaches can successfully be integrated is developed and validated, facilitators should cultivate the skills needed to make appropriate referrals and ensure that CRE classes do not become a group therapy setting (e.g., in which participants disclose extremely personal and sensitive information that might make others in the class uncomfortable and stop attending).

In our effort to first establish a pattern of effects for CRE participants, we focused our tests on intra-individual shifts; we did not examine inter-individual/ intra-couple patterns. However, our use of a multi-level model revealed a large intra-class correlation for couples when examining shifts in relationship quality. Thus, we recommend that future work examine the nature of couple-level variables and their effects on couple outcomes. Additionally, because the literature has identified inter-individual effects of relationship quality on partner's depression (Beach et al., 2003) and individual depression on partner's depression (Whisman et al., 2004), we recommend that future work identifying associations in shifts between constructs be conducted to examine inter-individual/ intra-couple processes.

Future work can also conduct between-group examinations. Because there is some indication from the clinical literature that marital therapy is only more beneficial in addressing depressive symptomology when couples are relationally distressed (Jacobson et al., 1991), it would be important to conduct between-group comparisons among CRE samples. The CRE literature including distressed couples does not adequately compare the two groups, so it would be important to determine whether effects identified are the same across groups.

Finally, it should be noted that our program has a specific focus on covering the core NERMEN principles (Adler-Baeder & Futris, 2005). Therefore, we do not know if studies of other CRE programs would reveal the same or similar effects. For example, communication skills training programs can improve communication patterns (see Hawkins et al., 2008), but we do not know whether those changes alone would result in shifts in depressed affect or whether an approach similar to ours, in which use of the NERMEN model included some focus on self-care, would be necessary. Only one other study (Kaiser et al., 1998) was able to identify shifts in depression, and the details of that program (i.e., whether it includes an emphasis on individual-

level domains) are unknown. Both the Stress Generation and Marital Discord models suggest that depression and poor relationship quality increase negative relational behaviors. Thus, examinations should be conducted to determine whether shifts in negative interaction can explain these linkages. In order to inform programmatic efforts such that they maximize individual- and couple- level improvements, we recommend further work be done to identify and understand the mechanisms whereby shifts in relationship quality and shifts in depressed affect are related.

Conclusion

The negative association between depression and marital satisfaction has been clearly documented. Despite some attempts at identifying etiology (i.e., which comes first- depression or marital dissatisfaction), studies tend to support a bi-directional relationship. Marital therapy approaches have found that couples who are relationally distressed report increased relationship satisfaction and decreased depression following treatment (Jacobson et al., 1991). Studies of individual therapy have not been able to show similar effects (see Whisman & Bruce, 2012). It is likely, though, that many relationally distressed people do not attend therapy. Because there is evidence that relationally distressed couples are attending Couple and Relationship Education (Blanchard et al., 2009), it is possible that similar, systemic changes as those reported by Jacobson and colleagues (1991) are occurring for participants of CRE. This study was the first to utilize an ethnically diverse sample of relationally distressed, married and unmarried, couples to examine a) whether shifts in depressed affect and/or relationship quality are documented after CRE program participation, b) whether shifts in depressed affect were predicted by shifts in relationship quality, and c) whether sex, ethnicity, or marital status moderate the relationship between shifts in one construct and shifts in the other. Because our CRE program included content in an individual-level domain (i.e., self-care), we were also interested to see whether shifts in an individual-level construct (i.e., depressed affect) would predict shifts in relationship quality. Moderation by sex, ethnicity, and marital status was also examined for this direction of effects.

We found that relationally distressed participants reported decreased depressed affect and increased relationship quality after program participation. Additionally, we found that 5.8% of the variance in increased relationship quality was predicted by decreased depressed affect, and 11.8% of the variance in decreased depressed affect was predicted by increases in relationship quality. Neither sex, ethnicity, nor marital status moderated these effects.

We suggest that when practitioners have relationally distressed participants in classes, they assume an inclusive approach, addressing issues related to relationship quality as well as depressive symptoms. Practitioners can educate regarding the nature of relationship distress and individual distress, teach coping and support strategies, and work to improve communication and interaction patterns. Future work should be conducted to replicate these findings among different CRE programs and identify the potential mechanisms whereby shifts in relationship quality and depressed affect are related to each other.

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