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Relationship Education for Low Income Couples and Individuals: New Research Directions

Abstract

The current study implemented and evaluated an adapted version of the Within Our Reach program called FRAME. Participants were 173 low-income couples in committed relationships and caring for at least one child together. Participating couples were randomly assigned to one of the four study conditions (couples group, female group, male group, or control group). The impact of the program was investigated on a range of relationship and mental health outcomes. The present findings suggest that the FRAME workshop was helpful in reducing negative communication and improving positive bonding for our sample. Couples were able to benefit in some areas when only one partner attended the workshop. Overall the FRAME project was viewed as helpful and was well received by both male and female participants from various ethnic backgrounds. Associations between key variables were also examined and the results highlighted the negative impact of economic strain on individual and relationship functioning for men and women. Implications for future relationship education programs and research with low-income and ethnically diverse populations are discussed.

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RELATIONSHIP EDUCATION FOR LOW INCOME COUPLES
AND INDIVIDUALS: NEW RESEARCH DIRECTIONS

A Dissertation

Presented to
the Faculty of Social Sciences
University of Denver

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

by

Lindsey Einhorn

August 2010

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Title: RELATIONSHIP EDUCATION FOR LOW INCOME COUPLES AND INDIVIDUALS:
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ABSTRACT

The current study implemented and evaluated an adapted version of the Within Our Reach program called FRAME. Participants were 173 low-income couples in committed relationships and caring for at least one child together. Participating couples were randomly assigned to one of the four study conditions (couples group, female group, male group, or control group). The impact of the program was investigated on a range of relationship and mental health outcomes. The present findings suggest that the FRAME workshop was helpful in reducing negative communication and improving positive bonding for our sample. Couples were able to benefit in some areas when only one partner attended the workshop. Overall the FRAME project was viewed as helpful and was well received by both male and female participants from various ethnic backgrounds. Associations between key variables were also examined and the results highlighted the negative impact of economic strain on individual and relationship functioning for men and women. Implications for future relationship education programs and research with low-income and ethnically diverse populations are discussed.

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Specific Aims

The goal of this research was to evaluate the effectiveness of a new relationship education program for low-income couples with children. Couples participated in a randomized control trial of a shortened (16 hour) and revised version of the Within Our Reach program (WOR) called FRAME. Both WOR and FRAME are newly developed curricula based on the PREP (Prevention and Relationship Enhancement Program) approach. The program aims to teach couples skills for creating and maintaining healthy relationships, to cope with financial stress, and to enhance parenting skills. Current relationship education programs have primarily been offered to White, middle-class couples. By evaluating the impact of the program for a racially and ethnically diverse group of low-income couples and individuals, this research extended the marital and couples literature to an area currently under-investigated. The current research was designed to 1) assess links between income, economic strain, relationship functioning, and mental health symptoms, 2) evaluate the impact of the intervention program on a range of relationship outcomes and individual mental health outcomes, 3) assess the impact of the intervention delivered to individuals versus couples, and 4) examine consumer satisfaction with the program, attrition rates, and barriers to participation.

Primary Aims

Aim 1: Examine the relationships between reported income, economic strain, relationship functioning, and mental health symptoms at baseline.

1a. Examine the indirect effects of income on relationship quality through perceived economic strain.

1b. Examine if participating in the intervention moderates the relationship between economic strain and relationship quality.

Aim 2: Evaluate the effectiveness of a new relationship education program for couples with low incomes.

2a. Examine whether participants who receive the intervention in the couples and the individual groups experience improved relationship functioning in the areas of relationship adjustment and satisfaction, communication and interactional patterns, dedication, relationship confidence, and positive bonding as compared to a control group.

2b. Examine whether participants who receive the intervention experience improved individual functioning in the areas of depression and anxiety as compared to a control group.

Aim 3: Evaluate the effects of an individual versus couples delivered intervention on couple level outcomes.

3a. Examine differences in relationship functioning in the areas of relationship adjustment and satisfaction, communication and interactional patterns, dedication, relationship confidence, and positive bonding among participants who receive the intervention in the couples groups, those that receive the intervention in the individual male and female groups, and those that do not receive the intervention.

3b. Examine differences in individual functioning in the areas of depression and anxiety among participants who receive the intervention in the couples groups, those that

receive the intervention in the individual male and female groups, and those that do not receive the intervention.

3c. Examine differences in relationship functioning between participating and non-participating partners (e.g. compare female partners of males who attended the intervention with female partners who attended the intervention).

Aim 4: Complete a thorough evaluation of consumer satisfaction with the relationship education program and investigate barriers to participation, including obstacles that lead to increased no show and attrition rates.

4a. Use detailed program evaluation forms filled out by participants in the intervention groups to gain a better understanding of the ways in which the program impacted participants and of aspects of the program that participants found most and least useful.

4b. Use program evaluation forms filled out by participants who were assigned to the intervention groups, but did not attend the intervention to foster an understanding of barriers that inhibited these participants from attending the intervention.

4c. Examine differences in relationship functioning for intervention participants who attended the intervention and those that did not.

Background and Significance

Despite the fact that most people desire a satisfying relationship and/or marriage, 50% of marriages will end in divorce (Raley & Bumpass, 2003). When successful, relationships can yield high marital quality and family stability, which have profound effects on adult and child well-being. On average, people who are married live longer, have better physical and mental health, perform better financially, and report higher overall life satisfaction (Amato & Booth, 1997; Doherty et al., 2002; Nock, 1998; Waite & Gallagher, 2000). Children who grow up in a two-parent household tend to do better academically, emotionally, and socially (Amato, 2001).

Maintaining a healthy and stable relationship under ideal circumstances is challenging. This difficulty is compounded when couples are put in stressful situations. A number of factors, such as financial troubles, job loss, children, and mental health difficulties can create stress for individuals and their relationships (Armistead, Klein, & Forehand, 1995; Conger, Conger, Elder, Lorenz, Simons, & Whitbeck, 1992; Conger, Ge, Elder, Lorenz, & Simons, 1994; McLoyd & Wilson, 1990; Webster-Stratton, 1990). A wealth of literature has shown that individuals in marriages under stress report more severe relationship problems and lower marital quality than those not under stress, and are at increased risk of dissolution (Conger et al., 1990; Neff & Karney, 2004). Teaching at risk couples the skills and principles necessary for a successful relationship is one way to increase relationship and family stability and improve adult and child well-being. The

current study was specifically designed for couples who are low-income and reports on the implementation and evaluation of a shorter and revised version of the Within Our Reach (WOR) program called FRAME. Both WOR and FRAME are new adaptations of Markman and Stanley's Prevention and Relationship Enhancement Program (PREP; Markman, Stanley, & Blumberg, 2001), developed for couples struggling with economic hardship. In order to qualify, couples had to be involved in an ongoing committed relationship, living together, have at least one child together under the age of 18, and be defined as low income based on 200% of the federal poverty level. Interested couples were randomly assigned to either attend the relationship program with their partner in a couples group, to attend as an individual (either in a male group or in a female group), or to be in a control group.

The proposed study aimed to test and extend prior research in four directions. First, this study tested for replication of previous links between income, economic strain, relationship functioning, and mental health symptoms. This study extended previous research by testing whether participating in the FRAME workshops moderated well-established relationships between economic strain and relationship functioning. Second, relationship education programs have primarily been offered to White, middle-class couples. By evaluating the impact of FRAME on individual mental health and relationship outcomes for a diverse group of low-income couples, the current project extended the marital and couples literature and can inform policy makers and researchers of necessary program adaptations and areas to address when working with diverse populations. Third, the randomized and unique study design, longitudinal follow up, diversity of measured constructs and outcomes, and community level implementation

allowed for a thorough short and long term evaluation of the impact of the program. By offering the program to groups of couples and individuals, we were also able to test the effects of an individual versus couples delivered intervention on couple level outcomes. Finally, this project attempted to address methodological limitations of prior research by focusing on issues relevant to effective recruitment, program implementation, barriers to participation, and attrition.

New Direction 1: Linking Income, Economic Strain, Relationship Functioning, and Mental Health Symptoms

The Negative Impact of Being Poor or Near Poor

Compared to middle-class families, low-income families experience significantly more stressors and negative life events, are more likely to suffer mental health problems prior to and following these events, and are at greater risk for family instability (Fein, Burstein, Fein, & Lindberg, 2003; McLoyd, 1990). More specifically, growing up or living in a poor or low-income family puts people at risk for a variety of problems including physical and mental illness, incarceration, lower levels of education, relationship satisfaction, and relationship quality, and higher rates of debt, unemployment, and unstable work (Conger, Lorenz, Elder, Simons, & Ge, 1993; Conger, Rueter, & Elder, 1999; Fein et al., 2003; Ooms, 2002; Seefeldt & Smock, 2004). The high debt, unemployment, and unstable work often lead to financial struggle and economic strain. In addition, couples and families with low incomes are more commonly exposed to domestic violence, crime, drugs and alcohol, inadequate housing, dangerous neighborhoods, and less resources (Ooms, 2002). These aversive circumstances and

experiences can place enormous stress on the individual, the couple, and the family (Ooms, 2002).

The Impact of Being Poor on Marital Quality

The negative effects of being poor or near poor are far reaching. Couples who are poor face the same day to day responsibilities and expenses as middle-class and upper-class couples, though they must meet these responsibilities and expenses with less money, often with less education, and less access to resources. Decreased economic resources often lead to experiences of economic strain (Conger et al., 1990; Conger & Elder, 1994; Elder, Eccles, Ardelt, & Lord, 1995; Fox & Chancey, 1998), both of which cause stress for individuals and their relationships. The terms income, economic strain, and economic stress are often used in the poverty and stress literature as is marital quality, satisfaction, and stability in the couples field. Each of these terms will play an important role in the current study and therefore must be defined. Income refers to actual income level reported by participants. All participants in the FRAME project qualified as low income based on the fact that their incomes were at or below 200% of the federal poverty line. An income to needs ratio was used in the current study, which calculates the family status relative to the poverty line. Economic strain and economic stress are used interchangeably and refer to subjective experiences of difficulties in meeting basic economic needs (e.g. difficulty with paying bills) (Conger et al., 1990). Marital satisfaction simply refers to how happy or satisfied one is with their spouse, while stability refers to whether or not the couple stays together. Marital quality is the broadest of the terms, often encompassing satisfaction and stability, as well as, variables such as

communication, commitment, confidence, conflict, fun, and friendship (Fein et al., 2003; Kinnunen & Feldt, 2004).

Previous research has investigated the relationship between actual income level and marital quality, although these results have been inconsistent. Multiple studies in the 1950s and 60s revealed that couples with low incomes were more likely to express marital dissatisfaction and to separate and divorce (e.g. Bernard, 1966; Williamson, 1954). More recent research has found that income was related to greater marital happiness and lower conflict (Brody, Stoneman, Flor, McCrary, Hastings, & Conyers, 1994; Wilcoxon & Hovestadt, 1983). Yet, other studies have revealed a weak or no effect between income and marital quality (Broman & Forman, 1997; Clark-Nicolas & Gray-Little, 1991). Fein and colleagues reviewed twelve studies investigating the relationship between economic status and marital disruption (Fein et al., 2003). Five out of the 12 studies found reduced levels of marital disruption for couples with husbands who reported higher economic status (e.g. Sayer & Bianchi, 2000). No effects were found in the remaining 7 studies (Fein et al., 2003). Due to these inconsistent findings, a closer examination of the association between income and relationship quality is in order. The current study used baseline data to assess this relationship. It was hypothesized that higher reported income (based on an income to needs ratio) would be related to better relationship functioning in the areas of relationship adjustment and satisfaction, communication, dedication, confidence, positive bonding, and danger signs (e.g. escalation, invalidation, withdrawal, and negative interpretations).

In addition to income level, economic strain has received significant attention in the literature. The links between economic strain and marital quality are clear, with individuals exposed to strain reporting lower levels of marital quality (Conger et al., 1999; Cutrona et al., 2003; Fox & Chancey, 1998; Karney, Story, & Bradbury, 2005; Kinnunen & Feldt, 2004; Voydanoff, 2004). Additional research has shown that economic pressure and chronic stress were significantly related to marital distress and low marital quality for white, lower-middle and middle-class families (Conger et al., 1999; Karney et al., 2005). A significant effect of family financial strain on marital quality was also found for African American men and women with couples who experienced economic difficulties evaluating their marriages less positively than those who were not exposed to economic adversity (Cutrona et al., 2003). Economic strain also predicted decreased marital adjustment (Kinnunen & Feldt, 2004) and was negatively correlated with marital quality, which was measured by marital happiness, disagreements, and number of activities with spouse (Voydanoff, 2004).

In conclusion, it appears income levels may or may not impact marital quality while couples that report economic strain are consistently experiencing reduced relationship functioning. Therefore, income level is detrimental in so far as it increases the likelihood that the couple will experience economic strain (Conger et al., 1990). Research conducted by Conger and colleagues have investigated the indirect effects of income loss and financial stress on relationship quality. This relationship was found to occur through parental psychological functioning (Conger & Elder, 1994). In numerous studies, Conger and Elder's Family Stress Model has revealed a causal relationship

between higher levels of stress such as poverty and financial instability and increases in parental depression. Parental depression in turn leads to increased marital conflict (Conger, Conger, Elder, Lorenz, Simons, & Whitbeck, 1992; Conger, Conger, & Simons, 1992; Conger, Lorenz, Elder, Melby, Simons, & Conger, 1991). The Family Stress Model has been replicated with a variety of populations including low-income rural whites (Conger et al., 1999), African Americans (Conger et al., 2002), and Latinos (Mistry, Vandewater, Huston, & McLoyd, 2002).

In addition to income level, the current study examined the association between economic strain and relationship quality. It was hypothesized that economic strain would be related to poorer relationship functioning in the areas of relationship adjustment and satisfaction, communication, dedication, confidence, positive bonding, and danger signs. This study also tested the indirect effect of income on relationship quality through perceived economic strain. It was hypothesized that economic strain would mediate the relationship between income and relationship quality, such that lower income levels would lead to more reported economic strain, which would be negatively related to relationship quality. This study aimed to replicate this link, which has been well established by Conger and colleagues. Much less work, if any, has investigated the impact of participating in an intervention and learning skills on the association between economic strain and relationship quality. According to the stress-buffering hypothesis, social resources and support serve as protective factors and buffer against the deleterious effects of stress and stressful events (DeGarmo, Patras, & Eap, 2008). The perception that resources and support are available makes a situation seem less threatening and bolsters one's perceived ability to cope with stress (Thoits, 1986). Participating in a workshop

that focuses on teaching communication and coping skills and improving relationships may also be protective against stress. It was hypothesized that participating in the FRAME intervention, which intervenes on stress and increases protection, would moderate the well-established relationship between economic strain and relationship quality. The current study extended previous research by testing this moderation model.

The Impact of Being Poor on Mental Health

In addition to putting couples at risk for poor marital outcomes (e.g. decreased relationship quality and stability), being poor or near poor and/or experiencing economic strain has been linked to a host of mental health problems, including depression, anxiety, and substance use (Conger et al., 1993; Conger et al., 1994; Dressier, 1985; Lorant, Deliege, Eaton, Robert, Philippot, & Anseau, 2003; McLoyd, 1990; McLoyd & Wilson, 1990; Zimmerman & Katon, 2005). Many studies have found a positive relationship between low socioeconomic status and various forms of psychological distress and mental health disorders (Lorant et al., 2003; McLoyd & Wilson, 1990). In Zimmerman and Katon's (2005) study, both economic strain and employment status were significantly related to depression for men and women. In addition to depression, economic strain produces states of anxiety and irritability among parents (McLoyd, 1990). Among African American samples, chronic economic strain and lower income predicted depression and psychological distress (Dressier, 1985; McAdoo, 1986).

In summary, the damaging effects of being low income and/or experiencing economic strain are far-reaching. Among other things, couples are at increased risk for developing psychological disorders and decreased relationship quality, and are more likely to be negatively affected by day-to-day stressors. Because of the income guidelines

required to take part in the current study, participants may be more likely to experience and report mental health difficulties. Therefore, this project examined the relationship between income to needs, economic strain, and mental health symptoms. It was hypothesized that income to needs would be negatively related to depression and anxiety symptoms and that economic strain would be positively related to symptoms.

Marital Quality and Mental Health

The current study also examined the associations between individual mental health symptoms and relationship functioning. Relationship quality can impact the psychological well-being of both members of the couple. Likewise, mental health symptoms of one or both members of the couple can influence relationship quality. Previous research has shown that individuals who report being discontent in their marriages also endorse relatively high levels of depression (Beach, Nelson, & O’Leary, 1988; Birtchnell & Kennard, 1983; Whisman, 1999) and depressed individuals and their spouses report stressful, unfulfilling marriages (Birtchnell, 1988; Coyne, Kahn, & Gotlib, 1987; Gotlib & Whiffen, 1989). More specifically, when compared to control couples, couples with a depressed partner reported two times as many specific complaints about their relationship, reported that their marriage was unhappy, and that their sexual relationship was unsatisfying (Merikangas, Prusoff, Kupfer, & Frank, 1985). Depression is thought to affect the couple relationship through negative relationship perceptions and negative verbal and non-verbal behaviors that depressed spouses bring to the relationship (Beach & O’Leary, 1993; Ruscher & Gotlib, 1988).

Although these associations have been found for both men and woman (O’Leary, Christian, & Mendell, 1994), Whisman’s (2001) meta-analysis revealed a stronger

relationship between marital dissatisfaction and depression for women. Likewise, Whitton et al. (2007) found a clear link between marital confidence before marriage and depressive symptomatology scores in early marriage for women but not for men.

Relationships have also been found between family dissolution and increased distress, helplessness, loneliness, lack of control, and anger for woman (Clarke-Stewart, 2000).

Poor relationship quality has also been linked to anxiety symptoms (Whisman, 1999; Whisman & Uebelacker 2005). Individuals in distressed relationships were two to three times more likely to experience depression, anxiety, or substance abuse than individuals in functional relationships (Whisman, 1999; Whisman & Uebelacker 2004). Baucom and colleagues conducted a study investigating the impact of anxiety disorders on relationships. Results from this study revealed that the presence of an anxiety disorder negatively impacted communication between partners, increased conflict, and decreased relationship activities (Baucom, Stanton, & Epstein, 2003).

Previous literature has established a clear relationship between mental health difficulties and relationship quality. By examining the link between depression and anxiety symptoms and relationship functioning among a low income and economically strained sample, the proposed study sought to replicate and extend previous findings. It was hypothesized that reported depression and anxiety symptoms at baseline would be positively related to reported conflict and negatively related to relationship adjustment and satisfaction, effective communication, dedication, confidence, and positive bonding.

New Direction 2: Extending Relationship Education to Low Income Populations

The primary aim of the current project was to evaluate a relationship education program for couples and individual members of couples with low incomes. Thus, a thorough review of the literature on relationship education programs follows.

Relationship Education Programs

One of the most promising areas for intervention is the way in which couples interact, particularly in terms of couple communication and managing negative affect. Effective communication predicts relationship satisfaction, buffers against the declines in marital satisfaction that commonly occur over time, and is associated with decreased risk of divorce (Clements, Cordova, Markman, & Laurenceau, 1997; Gottman, 1993; Karney & Bradbury, 1995). It is believed that relationships benefit when couples are able to communicate and regulate their emotions. Moreover, research shows that couples can successfully be taught these kinds of skills (Stanley, Markman, & Jenkins, 2002). Relationship education programs have been effective in producing immediate and long term gains in interpersonal and communication skills and overall relationship quality, in reducing negative interactions, and in a few studies preventing break-up and divorce (e.g., Carroll & Doherty, 2003; Halford, Markman, Kline, & Stanley, 2003; Hahlweg & Markman, 1988; Jakubowski, Milne, Brunner, & Miller, 2004; Stanley, Markman, & Jenkins, 2002). More specifically, Carroll and Doherty (2003) concluded that relationship programs lead to significant immediate gains in communication, conflict management, and overall relationship quality and that these gains continue for at least 6 months to 3 years. Mean effect sizes of .80 and .44 have been found for premarital relationship programs and marriage enrichment programs respectively (Carroll & Doherty's, 2003;

Cohen, 2003). While all couples may benefit from learning relationship skills, much of the couples literature is based on research with White, middle-class samples. Couples who are low income, with their high rates of unemployment, increased stress levels, and less time to spend together, may have an even greater need for learning relationship skills.

Much less work has focused on evaluating programs for low-income and diverse samples. Low-income families experience significantly more major stressors than middle-class families (Fox & Chancey, 1998) and are at greater risk for single parenthood, family instability, marital distress, and lower relationship quality (Conger et al., 1999; Johnson, Stanley, Glenn, Amato, Nock, Markman et al., 2002; Karney, Garvan, & Thomas, 2003; Ooms, 2002). In addition, a variety of studies have shown that poverty and minority group status are negatively associated with relationship satisfaction (Brown & Booth, 1996; Johnson et al., 2002; Karney & Bradbury, 1995). Individuals with low income are less likely than middle and high income individuals to get married and to remain married (Ooms, 2002). Despite these increased risks, low-income populations highly value marriage and a large majority express interest in learning how to improve their relationships (Johnson et al., 2002; Karney et al., 2003; Ooms & Wilson, 2004).

As noted earlier, there have been many studies of research based relationship education programs with middle class and White couples. Until recently, minimal work had been done with families in poverty or families of color and even less work had been done to evaluate the effectiveness of programs used with these populations. Over the past decade, adapted versions of PREP have been implemented in the military (Stanley, Allen, Markman, Saiz, Bloomstrom, Thomas et al., 2005) and in Oklahoma correctional

facilities (Einhorn, Williams, Stanley, Wunderlin, Markman, & Eason, 2008). Both of these samples reported significant gains from the program, leading researchers to conclude that individuals from a wide range of economic and ethnic backgrounds can benefit from adaptations of research based marriage education programs like PREP.

In addition to the military and prison work, Stanley and colleagues recently conducted a 3,000 person random digit phone survey across four states (Oklahoma, Kansas, Arkansas, and Texas). Overall positive effects were found for couples who participated in premarital education (e.g. more marital satisfaction and commitment, less destructive conflict) and all individuals, regardless of their socioeconomic status or racial/ethnic background, seemed to benefit from premarital education (Stanley, Amato, Johnson, & Markman, 2006). This finding is especially important since concerns have been raised about using marriage education initially tested on primarily White, middle-class samples with diverse populations (Markman, Stanley, & Kline, 2003).

Given the evidence that marriage education has generally positive effects on marital and relationship quality (e.g., Carroll & Doherty, 2003; Halford et al., 2003) and that the majority (93%) of Americans strongly desire a “happy marriage” (Waite & Gallagher, 2000), it seems likely that couples with low incomes would benefit from a program that targets relationship skills. As noted earlier, the low income couples in the current study, who we expected would have high levels of economic strain, are at higher risk for relationship distress and are more in need of programs (like PREP/WOR) that teach skills to help partners cope together with relationship challenges and with economic strain. The need to extend relationship education programs to diverse and higher risk populations is clear (e.g., Halford et al., 2003). Couples with low incomes value

marriage, are interested in learning relationship skills (Johnson et al., 2002; Ooms & Wilson, 2004), and the few studies that offered relationship services to low income populations found positive results (e.g., Stanley et al., 2005). By evaluating the impact of FRAME for a diverse group of low-income couples, the current project extended the marital and couples literature. It was hypothesized that participants who received the intervention would report improved relationship functioning, with increases in relationship satisfaction, relationship adjustment, dedication, confidence, and positive bonding, and decreases in negative communication and danger signs (escalation, invalidation, withdrawal, and negative interpretations), as compared to a control group.

Relationship Education and Mental Health

In addition to relationship and marital gains, working with couples can impact mental health functioning. Couple therapy can reduce a number of difficulties including depressive and anxiety symptoms, substance abuse, chronic pain, and health problems (Baucom, Shoham, Mueser, Daiuto, & Stickle, 1998; Beach, Fincham & Katz, 1998; Beach, Smith, & Fincham, 1994; Cordova & Gee, 2001; Denton, Golden, & Walsh, 2003; Snyder, Castellani, & Whisman, 2006). Much less work has investigated if relationship education programs, as opposed to therapy, also reduce mental health symptoms. In one study, participants who received an electronic version of PREP (ePREP) reported significantly less depressive and anxiety symptoms and significant improvements in relationship distress compared to controls. However, improvements for the ePREP group were not significantly different than gains made by a comparison cognitive behavioral psychotherapy group (CBASP). Thus, there may be some common factors in relationship and mental health interventions that allows the teaching of

relationship skills to also reduce mental health symptoms (Braithwaite & Fincham, 2007).

Given the strong links between low income, economic strain, relationship quality, and mental health problems and the knowledge that couples can benefit from being taught relationship skills (Coie et al., 1993; Halford & Bouma, 1997; Stanley, Markman, & Jenkins, 2002; Whisman, 2001), using a relationship education program to teach couples how to better communicate, how to regulate their emotions, and how to support their partners will likely have positive spillover effects in improving mental health symptoms (Beach et al., 1998; Snyder et al., 2006). More research is needed to determine the impact of relationship education programs on mental health symptoms in general and for low-income populations who are specifically at risk for both relationship and mental health difficulties. By providing couples with a relationship intervention and evaluating pre, post, and follow-up levels of depression and anxiety symptoms, the current study added to an already existing literature on the impact of couples work on mental health difficulties and extended the literature by investigating the impact of a relationship education program, as opposed to therapy, on mental health symptoms. It was hypothesized that participants who received FRAME would report improved individual functioning, with decreases in depressive and anxiety symptoms.

New Direction 3: Strengths of the Study Design

The current study was the first randomized control trial evaluating the FRAME program. The longitudinal follow up, the wide range of measured constructs and outcomes, and the community level implementation added to the strength of the project. A big contribution of this study came from the unique design. As previously mentioned,

the FRAME intervention was offered to couples groups as well as male and female groups. The rationale for three intervention groups is as follows: While couples clearly benefit from receiving an educational program together, there are often challenges that inhibit couples from attending. The biggest challenge seems to be getting both partners in the room at the same time (Markman, 2007; Stanley, 2006). One way to overcome this challenge is to offer relationship education programs for individuals as well as couples. With this model, only one member of some couples will attend the intervention, which should be more feasible given commonly reported work and childcare restraints. In addition to being more feasible, participants may prefer attending a male or female only group (Lengua, Roosa, Schupak-Neuberg, Michaels, Berg, & Weschler, 1992).

A few studies exist on the impact of couples work when offered to individuals. Bennun (1985) compared the effectiveness of behavioral marital therapy when delivered in three groups (to both partners, to both partners in a group setting, and to one member of the couple). The results revealed no significant differences between the three conditions after treatment or at follow-up (Bennun, 1985). Thus, couples seem able to benefit from therapy in a variety of contexts, one being individually. Based on a systems theory perspective there is reason to believe that working with individual members of a couple will translate into changes within the couple (Fraenkel, 1997). Although less common in the couples field, work in other areas (e.g. parent training, people with disabilities) has depended on the ability of individuals to learn and apply skills on the behalf of others (Boise, Congleton, & Shannon, 2005; McConkey, Marigada, Braadland, & Mpole, 2000).

Randomly assigning participants in the current study to individual and couple groups helped determine if couples could benefit when only one member of the couple received an intervention and whether or not it made a difference if it was the male or female partner. If relationship skills can be effectively learned and applied in both couples groups as well as individual groups, then more people can be reached, resulting in an increase in available services. Offering individual groups may be especially relevant for couples in which one person has increased mental health difficulties or economic strain. This study hypothesized that all three intervention groups would report improved individual and relationship functioning compared to the control group and that the couples group would report improvement above and beyond the male and female groups. Differences in relationship functioning between participating and non-participating partners (e.g. compare female partners of males who attended the intervention with female partners who attended the intervention) were also evaluated.

New Direction 4: Recruitment, Program Implementation, Participation Barriers, and Attrition

Along with evaluating the links between income, economic strain, relationship functioning, and mental health symptoms, and the impact of FRAME on individual and relationship outcomes, this project sought to address methodological limitations of prior research by focusing on issues relevant to participation, effective recruitment, program implementation, and attrition.

Barriers to Participation

As previously mentioned, one challenge with couples work is getting both members of the couple in the room at the same time (Markman, 2007; Stanley, 2006).

Additional barriers include logistical barriers such as demanding and/or inflexible work schedules, childcare needs, and transportation, and philosophical barriers, such as a partner's lack of interest in the intervention program or partners having different expectations and goals for the program (Lengua et al., 1992; Ooms & Wilson, 2004; Turbiville & Marquis, 2001). These barriers are magnified for poor and near poor families. In the Oklahoma Marriage Initiative, data from a large scale, baseline survey covering the states of Oklahoma, Arkansas, Texas, and Kansas revealed that less educated couples and lower income couples were less likely to have participated in premarital education (Stanley, Amato, Johnson, & Markman, 2006). However, evidence from this large survey suggests that those with lower incomes expressed as much or more interest in premarital education than middle class couples, yet access to such services is limited (Johnson, et al., 2001). Ooms and Wilson (2004) make this same point more broadly. Perhaps lower levels of participation can be attributed to some of the previously mentioned challenges and a lack of access rather than a lack of interest (Markman, 2000). Knowing that these challenges are magnified for poor and near poor families and that the current study will specifically be targeting couples with low income, it is particularly important to reduce these barriers.

Recruitment and Attrition

There are a number of additional things to consider when recruiting a sample of low-income participants (Ooms & Wilson, 2004). First, the time and location of the services offered will be very important. Previous research has revealed that time demands and scheduling conflicts were the most significant barriers to program participation (Hogue, Johnson-Leckrone, & Liddle, 1999). Participants will be more likely to attend

the workshop if it is offered at a convenient time and place. The cost of services is also a factor, with couples more likely to participate if the program offered is free or a minimal fee. Successful programs commonly offer incentives. For example, meals, assistance with childcare, prizes, transportation assistance, and subject payments all increase the likelihood of continued participation (Prinz & Miller, 1996). Also recommended is utilizing community agencies to recruit couples and hiring high quality and diverse leaders with community ties (Springer, Wright, & McCall, 1997). Finally, initial interest and continued attendance in a program will be affected by participants' perceived benefits of the program (Hogue et al., 1999). Although recruitment challenges hold true for both men and woman, recruiting and keeping men is especially challenging (Lengua et al., 1992). Because the current study recruited a sample consisting of men and women with low incomes, it was extremely important to address as many of these challenges as possible.

The current research team spent a significant amount of time recruiting couples, making community contacts, and hiring appropriate and culturally sensitive staff. We provided breakfast, lunch (or dinner), childcare stipends, prizes, and subject payments to participating couples. Despite all of the planning and incentives, attendance and attrition were still anticipated problems. Low levels of workshop and assessment attendance can lead to poor program participation and selection biases, which can further impact the generalizability of the results (Biglan, Hood, Brozovsky, Ochs, Ary, & Black, 1991). In addition, large amounts of participants missing workshop sessions could affect the FRAME group dynamics. Thus, addressing reasons for missing workshops and attrition was important. This study used detailed program evaluations given to those that attended

and those that chose not to attend the workshops to investigate various barriers to participation. Couples were asked about obstacles that made it difficult and things that helped make it possible to attend the FRAME workshops (e.g. childcare assistance, time-off from work, transportation, time/length of workshop). Couples who were assigned to but did not attend the intervention, yet came in for their post assessment were asked in an open-ended format why they were not able to attend the workshop. They were also asked about obstacles that made it difficult to attend the workshop and if it would have been easier if they were assigned to a different group. Obtaining this type of feedback from participants is extremely valuable and will help increase attendance rates, decrease attrition rates, and inform future research. Differences in relationship functioning for participants who attended the workshops and those who did not were also examined. It was hypothesized that participants who were assigned to the intervention groups, but were not able to attend the intervention would report lower levels of relationship adjustment, relationship satisfaction, dedication, relationship confidence, and positive bonding, and higher levels of negative communication and danger signs when compared to participants who attended the intervention.

Summary of the Proposed Project

The negative effects of being poor or near poor are far reaching. The economically disadvantaged are at increased risk for a variety of difficulties, all of which place substantial stress on the individual, the couple, and the family (Conger et al., 1993; Conger et al., 1999; Ooms, 2002; Seefeldt & Smock, 2004). Providing at risk couples and individuals with a relationship education program and teaching relationship skills and principles is one way to increase individual and relationship functioning (e.g. Halford et

al., 2003). The proposed study offered a relationship education program to low-income couples involved in an ongoing committed relationship and co-parenting a child together. The impact of the program was evaluated on a range of individual mental health and relationship outcomes. The current study also examined consumer satisfaction with the program, issues related to recruitment and attrition, and assessed links between income, economic strain, relationship functioning, and mental health symptoms. This project both built upon and extended prior research findings. Evaluating the impact of FRAME for a diverse group of low-income couples and individuals extended the marital and couples literature to an area currently under-investigated. In addition, this research represented a strong methodological study due to the randomized design, control group comparison, longitudinal follow up, diversity of measured constructs and outcomes, community level implementation, and ability to test effects of an individual versus couples delivered intervention on couple level outcomes. The present study sought to expand the literature by making the following hypotheses:

Hypothesis 1: At the baseline assessment, income to needs will be negatively related to economic strain and mental health symptoms and positively related to relationship functioning.

Hypothesis 2: At the baseline assessment, reported economic strain will be negatively related to relationship functioning and positively related to reported depression and anxiety symptoms.

Hypothesis 3: At the baseline assessment, reported depression and anxiety symptoms will be positively related to reported conflict and negatively related to relationship

adjustment, relationship satisfaction, effective communication, dedication, confidence, and positive bonding.

Hypothesis 4: Economic strain will mediate the relationship between income (as measured by an income to needs ratio) and relationship quality, such that lower income levels at baseline will lead to more reported economic strain, which will be negatively related to relationship quality.

Hypothesis 5: Intervention participation will moderate the relationship between economic strain and relationship quality such that participation in the intervention will lessen the detrimental impact of economic strain on relationship quality.

Hypothesis 6: Compared to the control group, participants who receive the intervention in the couples and the individual groups will report improved relationship functioning, with increases in relationship adjustment, satisfaction, relationship confidence, dedication, and positive bonding, and decreases in negative communication and danger signs.

Hypothesis 7: Compared to the control group, participants who receive the intervention in the couples and the individual groups will report improved individual functioning, with decreases in depressive and anxiety symptoms.

Hypothesis 8: Participants who receive the intervention in the couples group will report improvements in relationship adjustment, satisfaction, relationship confidence, dedication, and positive bonding, and decreases in negative communication and danger signs above and beyond improvements gained in the individual male and female groups, and the control group.

Hypothesis 9: Participants who receive the intervention in the couples group will report improved individual functioning, with decreases in depressive and anxiety symptoms above and beyond improvements gained in the individual male and female groups, and the control group.

Hypothesis 10: Participants who were assigned to the intervention groups, but were not able to attend the intervention will report lower levels of relationship adjustment, relationship satisfaction, confidence, dedication, and positive bonding, and higher levels of negative communication and danger signs at pre assessment when compared to participants who attended the intervention.

Exploratory Analyses:

1. Differences will be examined between men who attended the intervention in the male group and men whose partners attended the intervention in the female group and between women who attended the intervention in the female group and women whose partners attended the intervention in the male group on key relationship variables of interest.

Qualitative Analyses:

1. Detailed program evaluation forms filled out by participants in the intervention groups will be used to gain a better understanding of the ways in which the program impacted participants and of aspects of the program that participants found most and least useful. Evaluations will also foster an understanding of things that made it difficult and helped make it possible to attend the FRAME workshops. Program evaluation forms will provide qualitative data to supplement the proposed quantitative analyses.

2. Program evaluation forms filled out by participants who were assigned to the intervention groups, but did not attend the intervention will be used to foster an understanding of barriers that inhibited these participants from attending the intervention.

Research Design and Methods

Design Overview

This evaluation was a randomly assigned, longitudinal, community level research study that investigated the efficacy and impact of the FRAME/WOR program conducted for low income couples and individuals in ongoing committed relationships with children. The current project was part of a larger longitudinal intervention project.

Participants

Participants in this study were 173 low-income couples in committed relationships and caring for at least one child together. All participants were defined as low income based on 200% of the federal poverty line (e.g., income at or below \$35,200 for a three-person household; \$42,400 for a four-person household; \$49,600 for a five-person household). There was a small portion of the sample that fell above the income guidelines, but these couples demonstrated areas of debt that determined they qualified. Pre data was collected from 175 couples. Out of the 175 couples, data from 11 couples and 3 individuals were deemed unusable for a number of reasons. First, 2 couples had language barriers that inhibited them from participating and they were not randomized to an intervention group. Pre data was unusable for these two couples. Two couples were disappointed with randomization and switched places for the workshop (so the couple in the control group could attend) and for post assessment. Because of this their data was unusable and both couples were removed from the study. One couple and 3 male partners

did not meet the specifications of the study due to language/cognitive concerns and their data were deemed invalid and unreliable. Six additional couples were removed from pre-post analyses because they broke up between pre and post. A decision was made to omit break up couples rather than impute their data. Future analyses with this dataset will impute and analyze break up data to see if there are any differences with these two methods. The final pre sample consisted of 170 females and 167 males. Because of break ups, the sample size was reduced to 164 females and 161 males for analyses including post data. Out of the 173 eligible pre couples, 149 came in for their post assessment (86.1%). At the time of data analysis, 5 out of 6 waves had come in for their follow-up 1 assessment (FU1). FU1 data was collected for 107 out of 141 couples (75.8%). Ten additional couples were removed from follow up analyses because they broke up between post and FU1.

Participants were from diverse backgrounds (33.3% Caucasian, 31.3% African-American, 20.6% Hispanic, 7.7% American Indian, .6% Asian, 5.3% Biracial/Multiracial, and 1.2% Other) with the males averaging 34.8 ($SD=9.4$) years of age and females averaging 31.7 years ($SD=8.7$). The whole sample ranged in age from 18 to 74 ($M=33.3$; $SD=9.2$). Sixty-eight percent of the sample reported being married, 15.3% were engaged, and 16.8% were dating. Participants reported being in their current relationship for an average of 7.5 years ($SD=6.3$) and having an average combined family income of \$23,775.80 ($SD = \$15,459.26$) and 2.17 ($SD = 1.10$) children.

Procedure

Couples were recruited through a number of means: flyers, newspaper advertisements, media interviews, and collaboration with community leaders and

organizations in the Denver area. Couples who called and expressed an interest in the study were screened for the following criteria: involved in an ongoing committed relationship, living together for at least six months, having at least one child together under the age of 18, and defined as low income based on 200% of the federal poverty level. In addition participants were screened for prior experiences with the PREP program. Participants were clearly informed that 75% of couples in the study would be randomly chosen to participate in one of the intervention groups (traditional couples group, group for male partners only, and group for female partners only) and that 25% of couples would be assigned to a control group. Participants needed to agree to these procedures and be willing and available to serve in any intervention condition before being signed up for the study. All participants were asked to remain in the study over a five-year period.

The researchers then scheduled a time for the couple to come in to the University of Denver and fill out a packet of questionnaires. Questionnaires gathered information on individual and relationship functioning, parenting, and child emotional/behavioral functioning and took 1-2 hours to complete. Upon completion of the pre assessment, couples were randomly assigned to one of the four study conditions (couples group, female group, male group, or control group). The first FRAME workshop (Wave 1) took place in 2007. Thirty couples joined the study at this time. Waves 2 and 3 also occurred in 2007 with twenty-two and twenty-nine couples participating respectively. Waves 4, 5, and 6 took place in 2008 with twenty-four, thirty-five, and thirty-three couples participating respectively. One hundred and thirty-one couples were randomized to intervention groups, 45 in which both members of the couple attend the intervention, 47

in which only the female partner attends the intervention, and 39 in which only the male partner attends. The remaining 42 couples served in the control condition. After randomization all couples were given an extensive referral list. After all couples completed their pre session (two weeks was allotted), files were screened for psychological and physical domestic aggression (using the conflict tactics scale) and the intervention began. The intervention either lasted 3 weeks, in which participants were expected to attend 3 Saturday workshops from 9am to 3pm or 5 weeks, in which participants attended 5 weeknight workshops from 5pm to 8:30pm. Breakfast, lunch, and a childcare stipend were provided for those who attended the Saturday workshops. Weeknight workshop attendees received dinner and a childcare stipend. Participants who were unable to attend a specific session were given an opportunity to make up the session. In the two weeks following the workshops, intervention and control couples came back in to the University of Denver and completed post assessments. Six months after the post assessment, couples completed a follow up (FU1). Subsequent follow-up assessments occurred yearly. All intervention couples and individuals were also invited to attend booster sessions (e.g., involving additional skill training and practice) three months following completion of their post assessment and every six months after that.

All assessments were administered by research personnel at the University of Denver. Researchers conducting the data collection were not involved in the workshops. Participants were assured of complete confidentiality via informed consent procedures. Couples were assigned a unique identifying number and spouses filled out questionnaires in separate rooms. Each member of the couple was paid \$30 for pre assessments, \$70 for post assessments, \$60 for follow up one and two, and \$70 for follow up three and

beyond. Couples with a child between the ages of 11 and 18 were given the opportunity to bring home a packet of questionnaires for their child to complete. Children who returned the questionnaires in a sealed and confidential envelope were mailed a \$10 gift card. For pre/post analyses, the current project utilized data from waves 1-6. Waves 1-5 were utilized for FU1 analyses.

The Intervention

The FRAME program is based on the *Within Our Reach* (WOR) curriculum, which is a new adaptation of PREP, developed specifically to meet the needs of lower income and higher risk couples (Stanley, Markman, Jenkins, Rhoades, Noll, & Ramos, 2006). The curriculum is designed to build on the existing strengths of couples and add critical life and relationship skills that will help participants create safer, more stable couple relationships and better environments for their children. One of the overarching conceptual principles behind the curriculum is that individuals, marriages, and families thrive in the context of various types of safety (physical, emotional, commitment, & community) (see Stanley, Markman, & Whitton, 2002; Stanley, Pearson, & Kline, 2005).

WOR was created with extensive contact, interviews, and piloting in ethnically and financially diverse communities and with those who work extensively with these communities. Like PREP, *WOR* and therefore FRAME have a strong skill base rooted in research on how couples communicate and handle conflict. Curriculum adaptations from PREP include several new emphases such as helping couples to identify and plan for overcoming barriers to meeting their goals, learning new ways to cope with the specific stressors of economic strain, and units designed to foster parenting skills, community connection and involvement, and thinking about the future. *WOR* also incorporates more

activities, discussions, and practice designed to teach skills and principles. The current study used 16-hour versions (FRAME for couples and FRAME for individuals) of the 36-hour program. The 16-hour versions omitted certain modules and activities from *WOR*, reduced time on lectures, decreased redundant material, and shortened practice times. We also added materials on parenting and coping with economic stress, based on the work of Wadsworth and her colleagues and students (Raviv & Wadsworth, 2006; Wadsworth & Santiago, 2008). The same materials and skills were presented and practiced in FRAME for couples and for individuals, just in a slightly different manner. For example, both groups were taught the speaker-listener technique (a technique used to communicate). However, participants in the couple group practiced the skill by discussing a relationship issue with their partner, while participants in the individual groups paired up with another group member. All participants were assigned homework after each session (e.g. practicing the skills learned in the session, going on a date). In addition, members of the male and female groups were instructed to talk with their partners about what they learned in the session.

Measures

Descriptive Information. A demographics questionnaire gathered descriptive information about the sample (e.g. age, race/ethnicity, income, years of education, children, religiosity, etc.). Follow up demographic questionnaires also included assessments of relationship stability (separations or divorce) and relationship enhancement activities (e.g. attending other relationship workshops, reading books on marriage).

Income. During the initial phone screening to determine if couples qualified for the study, participants were asked their combined family income. Only the first member of the couple being qualified was asked this question. Couples also completed a series of questions assessing income when they filled out assessment questionnaires. After much discussion and investigation, it was determined that reported income from the initial phone screening was the most accurate assessment of income and was therefore used in the current study. Reported income was used to calculate the income to needs ratio. Income was not used directly in any of the analyses.

Income to Needs. An income to needs ratio was calculated to get a measure of family status relative to the poverty line. Each couples' income was divided by the poverty guidelines provided by the U.S. Census Bureau for the year in which they joined the study. This ratio takes into account the size of the family and provides a standard for evaluating whether the family's income is below, at, or above the relative needs of a family of that size (Conger, R. et al., 1990). All income related analyses in the current paper utilized the income to needs ratio.

Economic Strain. The following two items were used to assess economic strain: How much difficulty have you had paying bills? 1 (*no difficulty at all*) to 5 (*a great deal of difficulty*) and At the end of each month did you end up with: 1 (*more than enough money left over*) to 4 (*not enough to make ends meet*).

Relationship Adjustment. A 7 item version of the Dyadic Adjustment Scale (DAS; Spanier, 1976) was used as a measure of relationship adjustment. The DAS is widely used and the 7-item version of this measure has proven reliable (internal consistency of .79 for women and .75 for men) and has shown concurrent validity by

correlating highly with other measures of relationship adjustment and with emotional self-disclosure within relationships (Hunsley, Pinsent, Lefebvre, James-Tanner, & Vito, 1995). In the current sample, internal consistency was .84.

Relationship Satisfaction. There was one item that assessed the individuals' global satisfaction with their relationship, rated on a scale of 1 (*extremely unhappy*) to 7 (*perfectly happy*). This item ("Please indicate the degree of happiness, all things considered, of your relationship?") was taken from the 7-item Dyadic Adjustment Scale (DAS; Spanier, 1976).

Danger signs. The 8-item Danger Signs Scale (Stanley & Markman, 1997) is designed to assess "danger signs" (e.g. behaviors/cognitions predictive of marital distress and dissolution) such as escalation, invalidation, and withdrawal. This measure has demonstrated reliability (coefficient alpha of .84) and validity (Stanley & Markman, 1997). In the current sample, internal consistency was .87.

Communication Skills. The Communication Skills Test (Saiz & Jenkins, 1995) consists of 32 questions about various negative and positive communication patterns, answered on a 7-point Likert scale. Based on reliability analyses and factor analyses of the items, seven subscales were formed from the larger pool of items used in other research (e.g. Stanley et al., 2001). This study utilized the negative communication subscale. In the current sample, internal consistency was .92.

Commitment. The 55-item Commitment Inventory (CI; Stanley & Markman, 1992) was used to assess both dedication and constraint commitment. The CI has high levels of internal consistency across a range of samples (e.g. dedication alpha .95 and constraint alpha .92 in Stanley and Markman, 1992) and has demonstrated validity through

theoretically consistent relationships with many variables, such as type and stage of relationship and other self report measures of commitment, alternative quality, and relationship satisfaction (Adams & Jones, 1997; Stanley & Markman, 1992). The current project utilized the dedication subscale (e.g. couple identity, long-term view, priority of the relationship, sacrifice) of the Commitment Inventory. In the current sample, internal consistency was .87.

Relationship Confidence. The Confidence Scale (Stanley, Hoyer & Trathen, 1994) is a 10-item scale measuring a person's level of confidence that the couple can handle what's in their future and stay together. This measure has demonstrated high reliability and validity (e.g. Kline et al., 2004; Trathen, 1995; Stanley et al., 2001). In the current sample, internal consistency was .94.

Positive Bonding. The Positive Bonding Scale consists of 8 questions that assess the ways that couples are maintaining positive aspects of the relationship. Questions assess the friendship, fun, felt support, and sensual/sexual relationship of the couple, answered on a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Example questions include "We regularly have conversations where we just talk as good friends," and "I feel emotionally supported by my partner." In the current sample, internal consistency was .89.

Anxiety. The Brief Symptom Inventory (BSI; Derogatis, 1993) was used to assess current symptoms of anxiety. This measure asks participants to indicate how much they have felt each item in the past week on a 5-point Likert scale. It provides nine primary symptom dimensions and three global indices. The anxiety scale was of most interest in the current study. This measure has demonstrated acceptable reliability and validity

(Derogatis, 1993; Derogatis & Savitz, 2000). In the current sample, internal consistency was .84.

Depression. The Center for Epidemiologic Studies Depression Scale (CES-D; (Radloff, 1977) is a 20 item self-report scale designed to measure depressive symptomatology in the general population. Participants were asked to rate how often they have felt or behaved a certain way in the past week on a 4-point Likert scale. Mean CES-D scores were used in analyses. In the current sample, internal consistency was .91.

Satisfaction with FRAME and program leaders and Barriers to Participation. After each session, all intervention individuals filled out forms asking them to evaluate the content of each session and their satisfaction with the workshop.

Couple's satisfaction with the FRAME program and leaders, their perceptions of what aspects of their relationship were impacted by FRAME, and barriers to participation were assessed at the post assessment period. For satisfaction, couples were asked about their overall satisfaction with the program, the perceived helpfulness of the program, and whether they would recommend the program to others. Perceptions of the impact of FRAME were assessed by asking "As a result of this program..." followed by statements such as "I have confidence that my partner and I can talk about things constructively," and "I have a stronger commitment to our relationship." Participants were also asked in an open-ended format about aspects of the FRAME workshop they found most and least helpful. In addition, all individuals were asked to rate overall leader quality and effectiveness. Couples were asked about obstacles that made it difficult and things that helped make it possible to attend the FRAME workshops (e.g. childcare assistance, time-off from work, transportation, time/length of workshop).

Participants who were assigned to but did not attend the intervention, yet came in for their post assessment filled out a form that asked in an open-ended format why they were not able to attend the workshop. They were also asked about obstacles that made it difficult to attend the workshop (e.g. childcare assistance, time-off from work, transportation, time/length of workshop) and if it would have been easier if they were assigned to a different group.

Additional measures not included in the current study were used in the larger longitudinal intervention project.

Results

Preliminary Analyses

Preliminary analyses included plots of data, evaluation of statistical assumptions (e.g. dependence), dealing with outliers, testing skewness and kurtosis, and reliability analyses (e.g. alphas) to better understand the data and its limitations. As previously mentioned, among the 173 couples that completed pre, 149 couples completed post (86.1%). At the time of analyses, 107 out of 141 possible couples completed FU1 (75.8%). Analyses comparing participants that completed post assessment and those that did not complete post found significant differences on some variables, including ethnicity, relationship status, relationship confidence, dedication, and the income to needs ratio. Based on the attrition analysis, there were significant differences among ethnic groups ($X^2 = 15.14, p < .05$) and relationship status ($X^2 = 19.70, p < .001$) with Native Americans less likely to complete post assessment than any other ethnic group and those in dating relationships less likely to come in for post than married and engaged couples. Participants who completed post were also higher on relationship confidence ($F = 5.97, p < .05$; completers $M = 5.48$; non-completers $M = 4.87$) and dedication ($F = 4.54, p < .05$; completers $M = 5.58$; non-completers $M = 5.23$) at pre than those who did not complete post. Finally, when compared to those that did not complete post, participants who completed post had a higher income to needs ratio ($F = 9.72, p < .01$; completers $M = 1.22$; non-completers $M = .70$). A significant difference was not found for group

assignment, indicating no attrition effects by group. Missing data was handled using data imputation. Single imputation was conducted with PRELIS (Lisrel 8.52; Joreskog & Sorbom, 2002). This approach yields unbiased and efficient estimates and is superior to listwise deletion and mean-substitution (Graham et al., 2003). A decision was made to impute missing post and FU1 data based on pre data. Because such a small percent of data was missing at pre, it is unlikely that pre estimates were biased and therefore, there was not a good rationale for imputing pre data. The program successfully imputed all missing post and FU1 values. All analyses were run with non-imputed and imputed data. The analyses revealed very similar results. There is debate in the field about the best way to handle missing data. Because the results did not differ, a decision was made to use the actual collected data and report the non-imputed results. Using listwise deletion, those that did not complete post were removed from the non-imputed analyses. We did not control for the variables that were systematically different. Controlling for these variables would have reduced power substantially. The fact that there were no systematic differences among the intervention groups meant that the differences were equally distributed across groups and therefore the analyses of interest were not capitalizing on these differences.

Workshop Attendance

After random assignment, 19% of participants assigned to an intervention group never showed up for the intervention. Eighty-one percent of intervention participants attended at least one session. Once participants showed up to the first session, attendance remained high, with only 6-18% missing any sessions across the three intervention groups. Broken down by group, 6% of females, 14% of couples, and 18% of males

missed subsequent sessions after attending the first session. One hundred out of 131 intervention participants (76.3%) attended more than 50% of the workshops. Makeup sessions were considered workshop attendance so participants who completed a session through a makeup were counted as attending the session. Thirty-one out of 131 participants (23.7%) attended less than 50% of the workshops. A further examination of the non-completers (those that attended less than 50% of the workshops) revealed that 33.3% of men assigned to the male group attended less than 50% of the workshop, compared to 28.8% of couples, and 10.6% of females.

Primary Analyses

Hypothesis 1: At the baseline assessment, income to needs will be negatively related to economic strain and mental health symptoms and positively related to relationship functioning.

Hypothesis 2: At the baseline assessment, reported economic strain will be negatively related to relationship functioning and positively related to reported depression and anxiety symptoms.

Hypothesis 3: At the baseline assessment, reported depression and anxiety symptoms will be positively related to reported conflict and negatively related to relationship adjustment, relationship satisfaction, effective communication, dedication, confidence, and positive bonding.

Pre data was used to test hypotheses 1, 2, 3, and 4. All couples with valid pre data, including those who did not complete post or who broke up between pre and post, were included in analyses. As previously mentioned, participants reported having an average family income of \$23,775.80 ($SD = \$15,459.26$) and an average income to needs ratio of

1.12. On average, the FRAME sample is living close to the poverty line. Participants in this sample reported economic strain and endorsed the following: On a 1-5 scale, how much difficulty have you had paying your bills (men $M = 3.48$, $SD = 1.01$; women $M = 3.83$, $SD = 1.05$) and at the end of each month, did you end up with 1 (*more than enough money left over*) to 4 (*not enough to make ends meet*) (men $M = 3.01$, $SD = .74$; women $M = 3.36$, $SD = .66$).

Bivariate correlations were used to examine the associations between income (as measured by an income to needs ratio), economic strain, relationship functioning, and mental health symptoms as pre predicted in hypotheses 1, 2, and 3. The following variables were correlated: income to needs, economic strain, relationship adjustment, relationship satisfaction, relationship confidence, dedication, positive bonding, negative communication, danger signs, depression, and anxiety. Correlations were run separately for males and females and are presented in appendix 1. Male and female report of economic strain was significantly correlated ($r = .34$, $p < .001$). Male reports on all key relationship variables were significantly correlated with female reports on each of those variables (r range = .26 to .48, $p < .01$). Males and females were not significantly correlated on reported depression and anxiety. It is important to note that we would expect relationship adjustment to be highly correlated with relationship satisfaction because the relationship satisfaction item is one of the seven items included in the relationship adjustment scale.

For men, income to needs was significantly related to positive bonding ($r = -.20$, $p < .05$) and reached marginal significance for relationship adjustment ($r = -.16$, $p = .051$). For women, income to needs was significantly related to danger signs ($r = .17$, $p < .05$),

relationship satisfaction ($r = -.17, p < .05$), and positive bonding ($r = -.20, p < .01$).

Income was not significantly related to economic strain, mental health symptoms, or other key relationship variables for men or women. Although inconsistent with hypothesis 1, these results are not surprising given the mixed literature on the relationship between income and individual and relationship functioning.

As predicted in hypothesis 2, for men, economic strain was significantly related to negative communication ($r = .29, p < .001$), danger ($r = .18, p < .05$), relationship adjustment ($r = -.22, p < .01$), positive bonding ($r = -.18, p < .05$), dedication ($r = -.17, p < .05$), depression ($r = .40, p < .001$), and anxiety ($r = .30, p < .001$). For women, economic strain was significantly related to negative communication ($r = .29, p < .001$), danger ($r = .21, p < .01$), relationship adjustment ($r = -.26, p < .01$), relationship satisfaction ($r = -.24, p < .01$), positive bonding ($r = -.24, p < .01$), depression ($r = .33, p < .001$), and anxiety ($r = .30, p < .001$). Significant associations were not found for confidence (for men and women), relationship satisfaction (for men), and dedication (for women). Associations were in the expected direction for all variables.

As hypothesized, reported depression and anxiety was significantly related to all relationship variables in the expected direction for men (depression r range = $-.34$ to $.55, p < .01$; anxiety r range = $-.27$ to $.40, p < .05$). Reported depression was significantly related to all relationship variables in the expected direction for women (depression r range = $-.47$ to $.46, p < .001$). Reported anxiety was significantly related to all relationship variables (except dedication) in the expected direction for women (anxiety r range = $-.28$ to $.30, p < .05$).

Hypothesis 4: Economic strain will mediate the relationship between income (as measured by an income to needs ratio) and relationship quality, such that lower income levels at baseline will lead to more reported economic strain, which will be negatively related to relationship quality.

Structural equation modeling (SEM) was used to test hypothesis 4. Relationship outcomes were tested using a composite variable, which consisted of the following observed variables (relationship confidence, dedication, relationship adjustment, positive bonding, negative communication, and danger signs). Economic strain was also tested using a composite variable based on the following observed variables: How much difficulty have you had paying bills (*no difficulty at all to a great deal of difficulty*) and at the end of each month did you end up with (*more than enough money left over to not enough to make ends meet*). Confirmatory factor analysis was first performed to investigate the relationship quality construct. To account for the dependency of the data, models were run separately for men and women. Each indicator loaded adequately on the male relationship quality latent variable and the female relationship quality latent variable suggesting reliable constructs. The economic strain construct was also evaluated and both economic strain indicators loaded adequately on the male and female economic strain latent variables.

Path models run in Amos were used to examine whether income exerts indirect effects on relationship quality through perceived economic strain. This type of analysis was chosen because of SEM's ability to model latent constructs. Model fit is reported, however, we were most interested in the path coefficients between constructs. Results revealed a non-significant relationship between income to needs and economic strain for

men ($\beta = -.08, p > .05$) and for women ($\beta = .06, p > .05$). A significant path between income and economic strain was necessary to test this model. Research on the impact of actual income has yielded inconsistent results. Therefore, this non-significant path was not surprising. Because income and economic strain were not significantly related, a decision was made to remove income from the model and examine the associations between economic strain and the relationship quality composite.

We hypothesized that economic strain would be negatively related to relationship quality for men and women. Appendix 2 (for men) and 3 (for women) shows the structural models used to test this hypothesis and includes the factor loadings and the direct standardized path coefficients for each model. Both models demonstrated a moderate fit with the data: For the men's model $X^2(19, N = 170) = 65.3, p < .001$; CMIN/DF = 3.44; normed fit index (NFI) = .90; comparative fit index (CFI) = .93; and 1 - RMSEA = .88. For the women's model $X^2(19, N = 170) = 123.8, p < .001$; CMIN/DF = 6.51; normed fit index (NFI) = .86; comparative fit index (CFI) = .88; and 1 - RMSEA = .82. As expected, the parameter estimates of both models revealed significant direct path coefficients between economic strain and the relationship quality construct (Men $\beta = -.27, p < .01$; Women $\beta = -.31, p < .01$), revealing that men and women who are reporting higher levels of economic strain are more likely to report lower relationship quality.

Hypothesis 5: Intervention participation will moderate the relationship between economic strain and relationship quality such that participation in the intervention will lessen the detrimental impact of economic strain on relationship quality.

To determine whether intervention participation moderated the relationship between economic strain and relationship functioning, multiple group modeling was

conducted in Amos. The two groups consisted of an intervention group (which included participants in the couples group, male group, and female group) and a control group. The two structural models (for men and for women) described in hypothesis 4 were estimated two different ways: an unconstrained model where the path from economic strain to relationship quality was free to vary and a group invariant model where the path from economic strain to relationship quality was set to be equal. The unconstrained model was compared to the group invariant model using a X^2 difference test to determine whether the relations among the variables in the models differed according to intervention participation. The X^2 difference for the men's model was 1.2 and the X^2 difference for the women's model was 2.4. Contrary to hypothesis 5, moderation analyses revealed no significant differences between the intervention group and the control group. Therefore intervention participation did not moderate the relationship between economic strain and relationship quality for men or women.

ANOVA Results

A series of repeated measures ANOVAs were used to test hypotheses 6, 7, 8 and 9. To ensure a full exploration of the data, the ANOVAs were run a variety of different ways. First, ANOVAs were conducted with non-imputed data. The first set of analyses looked at pre/post changes with the full sample. The full sample means that all participants were analyzed based on the group they were randomly assigned to at pre regardless of whether or not they actually attended the workshop. So participants that no showed the intervention were included in these analyses. This approach follows the once randomized always analyzed philosophy. No showing the intervention was defined as those that attended less than 2/3 of the Saturday workshop and less than 3/5 of the

weeknight workshop. Attending one Saturday session or 1 or 2 weeknight sessions did not seem like enough of a dose to attribute any found changes to the impact of the intervention. Therefore 2/3 and 3/5 were chosen as the attendance cutoffs. These analyses were done twice – with 2 groups (all intervention groups versus control to test hypotheses 6 and 7) and with 4 groups (couples, male, female, and control group to test hypotheses 8 and 9). The same analyses were also conducted excluding participants who no showed the intervention (using the 2/3 and 3/5 cutoffs). To ensure the 2/3 and 3/5 cutoffs were not too stringent, analyses were also conducted defining no shows as those that attended at least one session. ANOVAs were also conducted using Pre/Post/FU1 data with the full sample, which included all participants regardless of whether or not they attended the workshop. Each Pre/Post/FU1 ANOVA was run using 2 groups and 4 groups. The next set of analyses consisted of running each of the previously described repeated measures ANOVAs with imputed data. The imputed/non-imputed and the full sample/non-full sample analyses revealed similar results and a decision was made to report the non-imputed, full sample results. Pre and post data are presented followed by a description of the results when FU1 data was analyzed. Results are written up with 2 groups and with 4 groups with the main focus on an exploration of group differences among the 4 groups. Pre, Post, and FU1 means and standard deviations are listed in appendices 4 (means for 2 groups) and 5 (means for 4 groups). ANOVA results are presented in appendices 6-9. In an effort to keep the ANOVA results concise and easily understandable, results are organized and reported by effect (e.g. all variables with a main effect of time) rather than reporting results model by model. Univariate findings and planned comparisons are reported.

Pre/Post Results

Hypothesis 6: Compared to the control group, participants who receive the intervention in the couples and the individual groups will report improved relationship functioning, with increases in relationship adjustment, satisfaction, relationship confidence, dedication, and positive bonding, and decreases in negative communication and danger signs.

To test hypothesis 6, a 2 (group) x 2 (time) x 2 (gender) analysis of variance (ANOVA) model was used. Comparisons were made between all three intervention groups and the control group. The time factor represented pre and post workshop measurement. Time and gender were treated as within-subjects factors and group as a between-subjects factor. Treating gender as a within-subjects factor accounted for the dependency of the data. The group factor represented the study conditions – all intervention groups (couples, male, and female) versus the control group. ANOVA models were conducted for the following outcomes: negative communication, danger signs, relationship satisfaction, positive bonding, dedication, relationship adjustment, and confidence. Because listwise deletion removes those with missing data from analyses, running all of the outcome variables in one MANOVA model would have led to a reduced sample size. Although running multiple ANOVAs does capitalize on chance findings, a decision was made to use ANOVAs because we were most interested in univariate effects.

Results of the ANOVAs (see appendices 6-8) revealed significant main effects of time for negative communication $F(1, 135) = 26.08, p < .001$, danger signs $F(1, 139) = 27.77, p < .001$, relationship satisfaction $F(1, 133) = 12.58, p < .01$, positive bonding $F(1,$

139) = 5.94, $p < .05$, and relationship adjustment $F(1, 119) = 11.15, p < .01$. Changes within the intervention groups were in the expected directions revealing that participants in the intervention groups reported less negative communication and danger signs and improvements in relationship satisfaction, positive bonding, and relationship adjustment at post. Unexpected changes were found within the control group. Participants in the control group also reported less negative communication and danger signs and improvements in relationship satisfaction, positive bonding, and relationship adjustment at post. Significant main effects of gender were found for relationship satisfaction $F(1, 133) = 5.11, p < .05$, relationship adjustment $F(1, 119) = 6.72, p < .05$, and confidence $F(1, 138) = 4.33, p < .05$, with men having higher scores than women on each of these measures at pre and post assessment. Positive bonding $F(1, 139) = 3.03, p = .084$ and danger signs $F(1, 139) = 3.48, p = .064$ reached marginal significance.

ANOVA results revealed a significant time X group interaction for negative communication $F(1, 135) = 8.45, p < .01$. The intervention group's negative communication score (pre $M = 3.67$; post $M = 3.17$) decreased significantly more from pre to post than the control group's negative communication score (pre $M = 3.88$; post $M = 3.75$). There was also a significant time X group interaction for positive bonding $F(1, 140) = 5.18, p < .05$. The intervention group's positive bonding score (pre $M = 3.59$; post $M = 3.80$) increased significantly more from pre to post than the control group's positive bonding score (pre $M = 3.62$; post $M = 3.62$). Contrary to predictions, there were no significant time X group interactions on other relationship variables tested. Effect sizes from pre to post were calculated for all variables. The effect sizes for negative communication were .43, .18 for positive bonding, .22 for danger signs, .17 for

relationship confidence, and .13 for dedication. The control group showed stronger effects on relationship adjustment ($d = .05$) and relationship satisfaction ($d = .16$).

In several recent large-scale evaluations of relationship education programs, the federal government has been reporting p values less than .25. When using these liberal cutoffs in the current study, two new interactions emerged: a time X group X gender interaction for relationship adjustment $F(1, 119) = 2.64, p = .11$ and a time X group X gender interaction for danger signs $F(1, 139) = 1.67, p = .20$.

Hypothesis 7: Compared to the control group, participants who receive the intervention in the couples and the individual groups will report improved individual functioning, with decreases in depressive and anxiety symptoms.

The same 2 (group) x 2 (time) x 2 (gender) repeated measures analysis of variance (ANOVA) model described for hypothesis 6 was used to test hypothesis 7. ANOVA models were run to test the following outcomes: depression and anxiety symptoms. The time factor represented pre and post workshop measurement. Time and gender were treated as within-subjects factors and group as a between-subjects factor. The group factor represented the study conditions – all intervention groups (couples, male, and female) versus the control group.

Results of the ANOVA (see appendix 9) revealed significant main effects of time for depression $F(1, 139) = 15.73, p < .001$ and anxiety $F(1, 134) = 23.42, p < .001$. Changes were in the expected direction for intervention couples. Unexpected changes were found for control couples. Thus all participants reported decreased depression and anxiety at post. Significant main effects of gender were found for depression $F(1, 139) = 5.45, p < .05$ and anxiety $F(1, 134) = 8.37, p < .01$, with women having higher scores

than men on both measures at pre and post assessment. The time X gender interaction for anxiety reached marginal significance $F(1, 134) = 3.20, p = .076$, with men's anxiety scores (pre $M = .71$; post $M = .39$) decreasing from pre to post more than women's (pre $M = .89$; post $M = .75$) anxiety scores. There were no time X group interactions found for depression or anxiety. The pre-post effect sizes for depression were .13 and .16 for anxiety.

Hypothesis 8: Participants who receive the intervention in the couples group will report improvements in relationship adjustment, satisfaction, relationship confidence, dedication, and positive bonding, and decreases in negative communication and danger signs above and beyond improvements gained in the individual male and female groups, and the control group.

To test hypothesis 8, a 4 (group) x 2 (time) x 2 (gender) repeated measures analysis of variance (ANOVA) model was used. Comparisons were made between all four groups. The time factor represented pre and post workshop measurement. Time and gender were treated as within-subjects factors and group as a between-subjects factor. The group factor represented the four study conditions – the couples group, the male group, the female group, and the control group. ANOVA models were conducted for the following outcomes: negative communication, danger signs, relationship satisfaction, positive bonding, dedication, relationship adjustment, and confidence.

Results of the ANOVAs (see appendices 6-8) revealed significant main effects of time for negative communication $F(1, 133) = 53.67, p < .001$, danger signs $F(1, 137) = 43.44, p < .001$, relationship satisfaction $F(1, 131) = 14.84, p < .001$, positive bonding $F(1, 137) = 16.72, p < .001$, and relationship adjustment $F(1, 117) = 13.55, p < .001$. All

participants reported less negative communication and danger signs and improvements in relationship satisfaction, positive bonding, and relationship adjustment at post.

Dedication reached marginal significance $F(1, 136) = 3.32, p = .071$. Significant main effects of gender were found for relationship satisfaction $F(1, 131) = 8.99, p < .01$, positive bonding $F(1, 137) = 8.30, p < .01$, relationship adjustment $F(1, 117) = 8.17, p < .01$, and confidence $F(1, 136) = 10.87, p < .01$, with men having higher scores than women on each of these measures at pre and post assessment. Danger signs reached marginal significance $F(1, 133) = 3.80, p = .053$.

Results of the ANOVAs revealed a significant time X group interaction for negative communication $F(3, 133) = 2.90, p < .05$. Planned comparisons revealed a significant difference between the couples group and the control group ($p < .05$), between the female group and the control group ($p < .01$), and between the male group and the control group ($p < .05$). The couples groups' negative communication score (pre $M = 3.65$; post $M = 3.12$), the female group's negative communication score (pre $M = 3.48$; post $M = 2.96$), and the male group's negative communication score (pre $M = 3.94$; post $M = 3.49$) all decreased significantly more from pre to post than the control groups' negative communication score (pre $M = 3.88$; post $M = 3.75$). Significant differences were not found between the three intervention groups. Appendices 10 and 11 show the time X group interaction for negative communication plotted separately by gender. Contrary to predictions, no other time X group interactions were found and there were no time X gender X group interactions.

When using liberal cutoffs ($p < .25$) as the federal government is doing, four new interactions emerged: a time X group interaction for positive bonding $F(3, 137) = 1.76, p$

= .16, with the couples, male, and female groups improving from pre to post and the control group remaining the same, and time X group X gender interactions for relationship satisfaction $F(3, 131) = 1.54, p = .21$, danger signs $F(3, 137) = 1.58, p = .20$, and confidence $F(3, 136) = 1.45, p = .23$.

Hypothesis 9: Participants who receive the intervention in the couples group will report improved individual functioning, with decreases in depressive and anxiety symptoms above and beyond improvements gained in the individual male and female groups, and the control group.

The same 4 (group) x 2 (time) x 2 (gender) repeated measures analysis of variance (ANOVA) model described for hypothesis 8 was used to test hypothesis 9. ANOVA models were run to test the following outcomes: depression and anxiety symptoms.

Results of the ANOVA (see appendix 9) revealed significant main effects of time for depression $F(1, 137) = 15.25, p < .001$ and anxiety $F(1, 132) = 26.88, p < .001$. Participants in all four groups reporting lower levels of depression and anxiety at post. Significant main effects of gender were found for depression $F(1, 137) = 7.82, p < .01$ and anxiety $F(1, 132) = 9.72, p < .01$, with women having higher scores than men on both measures at pre and post assessment. A significant time X gender interaction was found for anxiety $F(1, 132) = 5.54, p < .05$, with men's anxiety scores (pre $M = .74$; post $M = .42$) decreasing more from pre to post than women's anxiety scores (pre $M = .90$; post $M = .78$). Contrary to predictions, there were no time X group interactions found for depression or anxiety.

Using liberal cutoffs ($p < .25$) revealed a time X group interaction for depression $F(3, 137) = 1.60, p = .19$. All four groups' depression scores decreased from pre to post. However, the biggest decreases were seen in the female and control groups.

Pre/Post/FU1 Results

Hypothesis 6: Comparing all three intervention groups with the control group on post and FU1 intervention relationship variables.

To test hypothesis 6 using pre, post, and FU1 data, a 2 (group) x 3 (time) x 2 (gender) repeated measures analysis of variance (ANOVA) model was used. Comparisons were made between all three intervention groups and the control group. The time factor represented pre, post, and FU1 workshop measurement. Time and gender were treated as within-subjects factors and group as a between-subjects factor. Treating gender as a within-subjects factor accounted for the dependency of the data. The group factor represented the study conditions – all intervention groups (couples, male, and female) versus the control group. ANOVA models were conducted for the following outcomes: negative communication, danger signs, relationship satisfaction, positive bonding, dedication, relationship adjustment, and confidence.

Much of the pre/post findings replicated when FU1 data was included in the ANOVAs (see appendices 6-8). The following differences were found with the addition of FU1 data: 1) the group X time interaction for negative communication went from significant to marginally significant $F(2, 81) = 3.38, p = .070$; 2) the gender main effect for relationship satisfaction went from significant to marginally significant, $F(1, 79) = 2.87, p = .094$; 3) the gender main effect for positive bonding went from significant to non-significant; 4) the time main effect for dedication went from non-significant to

marginally significant $F(2, 83) = 2.71, p = .069$; 5) the significant gender main effect for confidence was no longer evident; 6) a trend for a time X group X gender interaction emerged for confidence $F(2, 83) = 2.79, p = .064$; 7) the overall time X group interaction for positive bonding reached marginal significance $F(2, 84) = 2.64, p = .074$, however, when analyzing the quadratic time X group interaction, a significant interaction emerged for positive bonding $F(1, 84) = 4.29, p < .05$, with the control group reporting a decrease in positive bonding at post and FU1 and the intervention group reporting an increase in positive bonding from pre to post and then a decrease from post to FU1 (Intervention pre $M = 3.55$; post $M = 3.79$; FU1 $M = 3.64$; Control pre $M = 3.65$; post $M = 3.62$; FU1 $M = 3.59$); and 8) a trend for a time X group interaction (quadratic) emerged for relationship satisfaction $F(1, 79) = 3.07, p = .084$, with intervention and control couples both reporting increases in satisfaction from pre to post and declines in satisfaction from post to FU1. The control group had a steeper decline than the intervention group from post to FU1 (Intervention pre $M = 4.27$; post $M = 4.61$; FU1 $M = 4.51$; Control pre $M = 4.45$; post $M = 4.97$; FU1 $M = 4.40$).

Hypothesis 7: Comparing all three intervention groups with the control group on post and FU1 intervention mental health symptoms.

The same 2 (group) x 3 (time) x 2 (gender) repeated measures analysis of variance (ANOVA) model described above was used to test pre, post, and FU1 data in hypothesis 7. ANOVA models were run to test the following outcomes: depression and anxiety symptoms. The only differences found with the addition of FU1 data (see appendix 9) were that the gender main effects for depression and anxiety were no longer significant.

Hypothesis 8: Comparing all four study conditions on post and FU1 intervention relationship variables.

To test hypothesis 8 using pre, post, and FU1 data, a 4 (group) x 3 (time) x 2 (gender) repeated measures analysis of variance (ANOVA) model was used. Comparisons were made between all four groups. The time factor represented pre, post, and FU1 workshop measurement. Time and gender were treated as within-subjects factors and group as a between-subjects factor. The group factor represented the four study conditions – the couples group, the male group, the female group, and the control group. ANOVA models were conducted for the following outcomes: negative communication, danger signs, relationship satisfaction, positive bonding, dedication, relationship adjustment, and confidence.

The following differences were found with the addition of FU1 data (see appendices 6-8): 1) the time X group interaction for negative communication was no longer significant; 2) the time main effect for dedication went from marginally significant to non-significant; 3) the gender main effect for relationship satisfaction went from significant to marginally significant, $F(1, 77) = 2.81, p = .098$; 4) the significant gender main effect for confidence became marginally significant $F(1, 81) = 3.24, p = .076$; and 5) a significant group X gender interaction emerged for dedication $F(3, 81) = 4.35, p < .01$.

Hypothesis 9: Comparing all four study conditions on post and FU1 intervention mental health symptoms.

The same 4 (group) x 3 (time) x 2 (gender) repeated measures analysis of variance (ANOVA) model described above was used to test pre, post, and FU1 data in hypothesis

9. ANOVA models were run to test the following outcomes: depression and anxiety symptoms. When FU1 data was included in the ANOVA (see appendix 9), there was no longer a significant main effect of gender for depression. The gender main effect for anxiety went from significant to a trend $F(1, 78) = 2.17, p = .14$. The time X gender interaction for anxiety went from marginally significant to significant $F(2, 78) = 4.44, p < .05$.

Additional ANOVA findings

As previously mentioned, pre/post ANOVAs were also run removing participants who attended less than 50% of the workshops. Results with and without no shows were consistent for analyses run with 4 groups. The only difference found when analyses were run with 2 groups was a significant time X group X gender interaction emerged for relationship adjustment $F(1, 104) = 3.99, p < .05$. This interaction revealed that intervention females improved more from pre to post than control females on relationship adjustment, but control males improved more from pre to post than intervention males. These analyses were also run defining no shows as those who did not attend a single workshop session. The results were the same when no shows were defined this way. When pre/post ANOVAs were run with 2 groups (intervention versus control) using imputed data, the significant time X group interactions for negative communication and positive bonding remained. No additional time X group interactions emerged. When all four groups were compared using imputed data, the significant time X group interaction for negative communication remained. In addition, a significant time x group interaction emerged for depression $F(3, 156) = 2.67, p < .05$. Significant differences were found between the female group and the male group ($p < .05$) and between the control group

and male group ($p < .05$), with depression scores decreasing significantly more from pre to post for the female group and the control group, but not for the male group. Finally, a trend for a time x group interaction emerged for positive bonding $F(3, 157) = 2.09, p = .104$, with all three intervention groups' positive bonding scores increasing from pre to post compared to the control group who did not change.

Paired Samples T Tests

Given the preliminary nature of the study, a series of paired samples t-tests were conducted to further examine changes in relationship variables from pre to post in order to assess changes within the intervention groups regardless of how these differences compared to those in the control group. Paired samples t-tests were conducted for all four groups (the couples group, male group, female group, and control group) and were run separately for men and women to examine differences in change according to participants' group and gender. Results revealed the most striking findings for negative communication, followed by positive bonding, and danger signs, with changes evident among the intervention groups that were not evident for the control group.

A significant decrease in negative communication was found for men and women in the couples group (men $t(32) = 2.38, p < .05$; women $t(33) = 3.76, p < .01$), men and women in the male group (men $t(30) = 3.55, p < .01$; women $t(29) = 2.34, p < .05$), and for men and women in the female group (men $t(39) = 2.92, p < .01$; women $t(40) = 5.36, p < .001$); however, no significant change was found for men or women in the control group.

A significant increase in positive bonding was found for men and women in the couples group (men $t(33) = -2.04, p < .05$; women $t(35) = -2.19, p < .05$), men in the male

group $t(30) = -2.24, p < .05$, and for women in the female group $t(40) = -2.87, p < .05$; there was a trend for women whose partners were in the male group $t(30) = -1.87, p = .072$; however, no significant change was found for men or women in the control group.

A significant decrease in danger signs was found for men and women in the couples group (men $t(33) = 2.84, p < .01$; women $t(35) = 2.45, p < .05$), men and women in the male group (men $t(30) = 2.23, p < .05$; women $t(30) = 5.21, p < .001$), and for men in the female group $t(39) = 3.63, p < .01$; however, no significant change was found for men in the control group. There was a significant change for women in the control group $t(30) = 2.34, p < .05$.

A significant increase in relationship adjustment was found for women in the couples group $t(33) = -2.24, p < .05$. This significant increase was also found for men in the control group $t(30) = -2.84, p < .05$. There was a trend for men in the male group $t(29) = -1.99, p = .056$ and women in the female group $t(38) = -1.80, p = .078$.

A significant increase in relationship satisfaction was found for women in the couples group $t(35) = -2.39, p < .05$ and for men whose partners attended the female group $t(39) = -2.13, p < .05$. This significant increase was also found for women in the control group $t(35) = -2.86, p < .05$.

Men in the male group were the only participants that showed significant increases in confidence from pre to post $t(30) = -2.82, p < .01$. There were no significant differences found for any groups on dedication. There was a trend for women whose partners were in the male group $t(30) = 1.80, p = .082$, with their dedication scores decreasing from pre to post.

Hypothesis 10: Participants who were assigned to the intervention groups, but were not able to attend the intervention will report lower levels of relationship adjustment, relationship satisfaction, confidence, dedication, and positive bonding, and higher levels of negative communication and danger signs at pre assessment when compared to participants who attended the intervention.

Independent samples t tests were conducted to test hypothesis 10. There was a significant difference between intervention attenders (defined as participants who attended at least one session) and intervention no shows (defined as participants who did not attend any sessions) on three out of seven pre assessment variables. The two groups differed significantly on relationship adjustment $t(1, 231) = -2.94, p < .05$, with participants who did not attend any of the workshops reporting lower scores at pre ($M = 26.24, SD = 6.82$) than participants who attended at least one session ($M = 29.21, SD = 6.08$). The two groups also differed significantly on relationship confidence $t(1, 240) = -2.90, p < .05$, with participants who did not attend any of the workshops reporting lower confidence scores at pre ($M = 4.88, SD = 1.58$) than participants who attended at least one session ($M = 5.57, SD = 1.43$) and on relationship dedication $t(1, 241) = -3.56, p < .05$, with participants who did not attend any of the workshops reporting lower dedication scores at pre ($M = 5.10, SD = 1.08$) than participants who attended at least one session ($M = 5.70, SD = .91$). There were no significant differences on pre scores on negative communication, danger signs, relationship satisfaction, and positive bonding.

Exploratory Analyses

1. Examining differences on key relationship variables between men who attended the intervention in the male group and men whose partners attended the

intervention in the female group and between women who attended the intervention in the female group and women whose partners attended the intervention in the male group.

A series of 2 (group) x 2 (time) repeated measures ANOVAs were used to explore differences among participating men. Time was treated as a within-subjects factor and group as a between-subjects factor. The time factor represented pre and post workshop measurement. The group factor represented two groups (men who attended the intervention in the male group and men whose partners attended the intervention in the female group). ANOVA models were conducted for the following outcomes: negative communication, danger signs, relationship satisfaction, positive bonding, dedication, relationship adjustment, and confidence. Results revealed a significant main effect of time for negative communication $F(1, 70) = 20.98, p < .001$, danger signs $F(1, 70) = 15.59, p < .001$, relationship satisfaction $F(1, 70) = 6.58, p < .05$, positive bonding $F(1, 70) = 7.78, p < .01$, and confidence $F(1, 69) = 4.32, p < .05$. There was a trend for relationship adjustment $F(1, 65) = 3.45, p = .068$. Changes that occurred from pre to post were in the expected direction for all variables. So participants reported decreases in negative communication and danger signs from pre to post and increases in relationship satisfaction, positive bonding, and confidence. A main effect of time was not found for dedication. There were no significant time X group interactions for any relationship variables. Using the liberal cutoffs, there was a trend for a time X group interaction for confidence $F(1, 70) = 2.26, p = .14$, with men who attended the workshop reporting increased confidence from pre to post compared to men whose partners attended the workshop. Overall these results reveal that men whose partners attended the workshop in

the female group benefited from pre to post in a similar fashion to men who attended the workshop.

The same series of 2 (group) x 2 (time) repeated measures ANOVAs were used to explore differences among participating women. The group factor represented two groups (women who attended the intervention in the female group and women whose partners attended the intervention in the male group). ANOVA models were conducted for the following outcomes: negative communication, danger signs, relationship satisfaction, positive bonding, dedication, relationship adjustment, and confidence. Results revealed a significant main effect of time for negative communication $F(1, 70) = 27.75, p < .001$, danger signs $F(1, 71) = 21.12, p < .001$, positive bonding $F(1, 71) = 10.84, p < .01$, and relationship adjustment $F(1, 69) = 4.33, p < .05$. There was a trend for relationship satisfaction $F(1, 71) = 2.98, p = .089$. Changes that occurred from pre to post were in the expected direction for all variables. A main effect of time was not found for dedication and confidence. There was a significant time X group interaction for danger signs $F(1, 71) = 6.27, p < .05$, with female non-attending partners starting higher on danger than women in the female group and improving more from pre to post (non-attending partners pre $M = 2.12$; post $M = 1.85$; attending partners pre $M = 1.7$; post $M = 1.62$). There was a trend for a time X group interaction for negative communication $F(1, 70) = 2.96, p = .09$, with women in the female group improving more on negative communication from pre to post than female non-attending partners. There was also a time X group interaction trend for dedication $F(1, 71) = 2.78, p = .10$, with female non-attending partners' dedication scores decreasing from pre to post compared to female attending partners whose dedication score did not change. Thus, women (either through direct attendance or

through their partner's attendance) seem to benefit from the workshop, however, some differences among groups were noted.

Differences were also examined on key relationship variables between men who were in the control group and men whose partners attended the intervention in the female group and between women who were in the control group and women whose partners attended the intervention in the male group.

The same 2 (group) x 2 (time) repeated measures ANOVAs described above were used to explore differences among men. The group factor represented two groups (men who were in the control group and men whose partners attended the intervention in the female group). Results revealed a significant main effect of time for negative communication $F(1, 74) = 6.68, p < .05$, danger signs $F(1, 74) = 13.19, p < .05$, relationship adjustment $F(1, 65) = 7.56, p < .01$, and relationship satisfaction $F(1, 70) = 5.96, p < .05$. So non-attending males and control males reported decreases in negative communication and danger signs from pre to post and increases in relationship adjustment and satisfaction. A main effect of time was not found for relationship confidence, positive bonding, and dedication. There were no significant time X group interactions for any relationship variables. However, the time X group interaction for negative communication reached marginal significance $F(1, 74) = 3.59, p = .06$, with non-attending males negative communication scores decreasing more from pre to post than control males. Using the liberal cutoffs, there was a trend for a time X group interaction for danger signs $F(1, 74) = 2.07, p = .15$, for positive bonding $F(1, 74) = 2.63, p = .11$, and for relationship adjustment $F(1, 65) = 2.70, p = .11$. These interactions revealed that non-attending men reported greater decreases in danger signs from pre to

post and greater increases in positive bonding than men in the control group. Somewhat surprising, the relationship adjustment interaction showed that non-attending men reported less improvement in relationship adjustment from pre to post than men in the control group. Overall these results reveal some differences between men whose partners attended the workshop in the female group and men in the control group.

Two (group) x 2 (time) repeated measures ANOVAs were also used to explore differences among women in the control group and women whose partners attended the intervention in the male group. Results revealed a significant main effect of time for negative communication $F(1, 64) = 7.27, p < .01$, danger signs $F(1, 65) = 22.60, p < .001$, and relationship satisfaction $F(1, 65) = 7.85, p < .01$. There was a trend for relationship adjustment $F(1, 61) = 3.51, p = .07$, positive bonding $F(1, 65) = 3.42, p = .07$, and dedication $F(1, 65) = 3.73, p = .06$. So non-attending females and control females reported decreases in negative communication and danger signs from pre to post and increases in relationship adjustment, satisfaction, and positive bonding. Both groups reported decreases in dedication. A main effect of time was not found for relationship confidence. There were no significant time X group interactions for any relationship variables. Overall these results reveal no significant differences between women whose partners attended the workshop in the male group and women in the control group.

Stability Findings

A review of stability data revealed that 15 couples in our sample (8.6%) broke up, separated, or divorced. Out of those 15 couples, 6 relationships dissolved by post assessment (40%) and 9 by FU1 assessment (60%). Ten out of the fifteen couples (66.7%) reported being married at pre assessment, three out of fifteen reported being

engaged (20%), and 2 out of fifteen reported that they were dating (13.3%). Out of the ten couples that were married, 5 are currently divorced, 3 are separated, and 2 were separated and have since gotten back together. The two couples that got back together came from the male and control groups. Six of those fifteen break ups came from the couples group (13.3% of those in the couples group broke up), four came from the female group (8.5%), three from the male group (7.7%), and two from the control group (4.8%). Out of the six couples assigned to the couples group, one did not attend any of the workshop and one only attended 20% of the workshop. Similarly, one of the couples assigned to the female group only attended 20% of the workshop. A chi square test evaluating break ups did not reveal a significant difference between the four groups $F = 4.89, p > .05$.

To gain a better understanding of the stability data and possible differences between couples that broke up and those that remained together, a series of one-way ANOVAs were conducted. Baseline scores of couples that broke up were compared to couples who remained together on the following variables: negative communication, danger signs, relationship satisfaction, positive bonding, physical aggression, and relationship length. Significant group differences were found on danger signs $F(1, 336) = 4.52, p < .05$, relationship satisfaction $F(1, 330) = 5.12, p < .05$, positive bonding $F(1, 336) = 6.83, p < .05$, and physical aggression $F(1, 334) = 6.30, p < .05$. Couples who either broke up, separated, or divorced reported higher pre scores on danger signs (break up $M = 2.06$; non-break up $M = 1.85$), lower reported relationship satisfaction (break up $M = 3.73$; non-break up $M = 4.36$), less positive bonding (break up $M = 3.16$; non-break

up $M = 3.61$), and more physical aggression (break up $M = 1.23$; non-break up $M = .67$) than couples who remained together.

There were no significant differences between those that broke up and those that remained together on negative communication or relationship length. Although insignificant, an examination of group means revealed higher negative communication scores and shorter relationship length for the break up group than the non-break up group. Overall these results show lower baseline relationship functioning for couples that broke up directly following the workshop or within six months of the workshop than for couples who remained together.

Qualitative Analyses

1. We proposed that we would use detailed program evaluation forms filled out by participants in the intervention groups to gain a better understanding of the ways in which the program impacted participants and of aspects of the program that participants found most and least useful. Evaluations will also foster an understanding of things that made it difficult and helped make it possible to attend the FRAME workshops. Program evaluation forms will provide qualitative data to supplement the proposed quantitative analyses.

Analysis of Impact Items

As part of the evaluation process, intervention participants filled out detailed program evaluation forms. Evaluations included seventeen items (based on a 7-point *strongly disagree* to *strongly agree* Likert scale) that were used to assess perceptions of the impact of the FRAME workshops. Four composite variables were created based on theoretical relationships among the seventeen individual items. A reliability analysis was

conducted to further examine the items and their relationships to one another. The composites and the items that comprise them are listed in appendix 12. The four composites were called Relationship Improvement (alpha = .94), Life/Future Thinking (alpha = .92), Program Specific Impact (alpha = .93), and Leader/Group Process (alpha = .74). Most items were asked to participants in the couples group (N =62), the male and female groups (N = 63), and the non-attending partners (N = 62). However, there were a few program specific items that were only asked to attending participants in the couples, male, and female groups.

One-way ANOVAs were conducted to determine group differences in responses to these items. Significant group differences were found on the Relationship Improvement composite and on the Life/Future Thinking composite. Means are reported separately by group for all four composites and significant group differences are noted. Participants in the couples group reported the highest mean on relationship improvement (M = 6.26, SD = 1.09), followed by the attending male and female partners (M = 5.88, SD = 1.14), followed by the non-attending partners (M = 5.67, SD = 1.36). The combined mean for all three groups was 5.94 (SD = 1.22). The ANOVA comparing the three groups was significant $F(2, 186) = 3.87, p < .05$. Planned comparisons revealed significant differences between the couples group and the non-attending partners ($p < .01$). Differences between the couples group and attending partners approached significance ($p = .079$). On Life/Future Thinking, participants in the couples group reported the highest mean (M = 6.08, SD = 1.13), followed by the attending partners (M = 5.57, SD = 1.31), followed by the non-attending partners (M = 5.51, SD = 1.49). The combined mean for all three groups was 5.72 (SD = 1.33). The ANOVA comparing the three groups was

significant $F(2, 186) = 3.55, p < .05$. Planned comparisons revealed significant differences between the couples group and the non-attending partners ($p < .05$) and between the couples group and the attending partners ($p < .05$).

Significant differences among groups were not found on the Program Specific Impact composite or the Leader/Group Process composite. All participants regardless of their group rated these impact items highly. On program specific impact, the couples group reported a mean of 6.45 (SD = .81), the attending partners reported a mean of 6.29 (SD = .85), and the non-attending partners reported a mean of 6.07 (SD = 1.45). The combined mean for all three groups was 6.27 (SD = 1.08). On Leader/Group Process the couples group reported a mean of 6.32 (SD = .97) and the attending partners reported a mean of 6.39 (SD = .71). The combined mean for both groups was 6.35 (SD = .84).

Program Participation

Program evaluations also helped foster an understanding of things that made it difficult and things that helped make it possible to attend the FRAME workshops. Participants were given a list of items and instructed to check all that applied. Percentages of obstacles and helpful components reported by the couples group attenders and the individual group attenders are listed in appendix 13. Chi-square tests were conducted to determine if there were differences between males and females in the couples group and between individual male attenders and individual female attenders on their report of obstacles. There were no significant differences between men and women in the couples group or the individual groups. There was however a trend on one of the obstacles reported by the individual group attenders ($X^2 = 3.05, p = .08$), with men more likely to endorse getting time off from work as an obstacle to attending the workshop

than women. Despite this trend, a decision was made to report this data combining men and women within groups.

The most common obstacle endorsed was childcare with 38.7% of participants in the couples group and 23.8% of participants in the male and female groups reporting that childcare made it difficult to attend the FRAME workshop. The next most common obstacles endorsed by the couples group were getting time off from work (37.1%), the time/length of workshop (32.2%), the day of the workshop (32.2%), other (17.7%), transportation (14.5%), and travel distance (9.7%). Examples of obstacles that were written under the “other” category include being sick, pregnant, kids sporting activities, and legal problems. The individual male and female groups endorsed the following obstacles: the time/length of workshop (20.6%) and travel distance (20.6%), getting time off from work (19.0%), transportation (17.5%), other (12.7%), and the day of the workshop (7.9%). For the individual groups, the “other” category consisted of changing work schedule, not seeing kids on those days, spouse had wanted to attend, and family problems.

Participants were also asked what kinds of things helped make it possible to attend the FRAME workshops. Chi-square tests were conducted to look for gender differences on this question. Significant differences were found on two items and are noted below. Because there were no gender differences on any of the other items, a decision was made to report this data combining men and women within groups. When asked about things that helped attendance, participants mentioned their own enthusiasm most commonly, with 69.4% of participants in the couples group and 74.6% of participants in the individual groups reporting that their enthusiasm for the program and

project helped made it possible to attend the FRAME workshop. Both groups mentioned the childcare stipend as the second most helpful component, with 62.9% of participants in the couples group and 69.8% of participants in the individual groups endorsing this item. The next most commonly endorsed items by the couples group were partner's enthusiasm (61.3%), followed by having it on a weekend day (41.9%), having support from co-workers, family, and friends (27.4%), and flexibility at work (24.2%). Eight percent said "other," which included the meals, the fun they had in class, being able to do a makeup class, and encouraging their partner to take part in something they were able to do together. Compared to women, men were significantly more likely to endorse flexibility at work as a key factor that helped make it possible to attend the workshops ($X^2 = 11.61$, $p < .01$). The next most commonly endorsed items by the individual groups were having it on a weekend day (57.1%), followed by partner's enthusiasm (55.6%), having support from co-workers, family, and friends (44.4%), other (19.0%), and flexibility at work (17.5%). The "other" category included the food, the leaders and the others in the group, gift cards, topics of discussion, and productive workshop. Compared to men, women were significantly less likely to endorse partner's enthusiasm as a key factor that helped make it possible to attend the workshops ($X^2 = 4.94$, $p < .05$).

As part of the evaluation form, non-attending participants were asked what their partners did after the workshops that he or she attended. They were given a list of things and were asked to check all that apply. A chi-square test was used to examine differences between male and female non-attenders' responses. There was a significant difference on one item and a trend on another item (described below), but a decision was made to report this data combining men and women. Percentages of items endorsed are listed in

appendix 14. The most commonly endorsed item was talked to me about what he/she learned. Ninety percent of non-attending partners reported that their partner talked to them about what they learned in the workshop. Seventy-one percent said their partner did a fun activity with them, followed by 68.3% who said their partner practiced speaker listener with them, followed by 55.6% who said their partner asked them on a date, 54.0% said their partner talked about other participants and the workshop leaders, 46.0% said their partner did the expectations activity with them, 44.4% said their partner talked about co-parenting with them, 44.4% said their partner practiced time out with them, and 22.2% said other, which included played bingo, was really excited, changed a lot about how she values our relationship, and seems more caring for my feelings.

The chi-square results revealed a significant difference between male and female's report of their partner practicing time out with them. Men whose partners were in the female group were significantly more likely to endorse that their partner practiced time out with them than women whose partners were in the male group ($X^2 = 5.37, p < .05$). There was a trend on the co-parenting item, with men whose partners were in the female group being more likely to endorse that their partner discussed co-parenting with them than women whose partners were in the male group ($X^2 = 3.20, p = .07$).

Program/Leader Satisfaction and Evaluation

Workshop evaluations also assessed participants' satisfaction with the workshops. Participants reported a mean rating of 4.69 on a 1 (*extremely unsatisfied*) to 5 (*extremely satisfied*) scale for satisfaction with the FRAME workshops. Participants also rated the quality and effectiveness of their leaders and reported a mean rating of 4.55 on a 1 (*needs improvement*) to 5 (*excellent*) scale. Attending male and female partners and those in the

couples group (N = 125) were asked in an open-ended format aspects of the FRAME workshop they found most and least helpful. Based on the responses, categories were developed and a coding system was implemented. The following eight helpful categories were developed: 1) Learning communication skills (e.g. speaker listener, the floor, danger signs) 2) Workshop materials/activities (e.g. specific units or activities, the three keys, commitment video, the workbook) 3) Commitment/bettering the relationship (e.g. spending time with partner, feeling more committed) 4) Group process/group membership (e.g. having open group discussions, seeing other perspectives) 5) Parenting (e.g. became a better parent, communicating about parenting) 6) Other (e.g. self-awareness, sharing what I learned, stipend, understanding more about myself) 7) Everything was helpful 8) Did not respond. The following 8 unhelpful categories were developed: 1) Logistical barriers (e.g. time/length of workshop, childcare) 2) Workshop materials/activities (e.g. the videos, xyz, calming cd, time out) 3) Negative group process/group membership 4) Not having a partner attending with them 5) Lack of partner involvement 6) Other (e.g. self-awareness, realized relationship was not good, box lunches) 7) All was great/nothing 8) Did not respond.

Frequencies and percentages are listed in appendix 15. For what was most helpful, the most commonly endorsed category was learning communication skills with 38.8% of participants listing something that fell within this category. This was followed by responses that fell within the workshop materials/activities category (20.7%). For what was least helpful, 35.1% of participants did not respond leading the researchers to believe that many people didn't find anything unhelpful. This is compared to 3.7% of participants that did not respond to the question that asked what was most helpful. Fifteen percent of

participants listed responses that fell within the workshop materials/activities category as least helpful.

As part of the evaluation process, participants were also asked the following question: In the future how likely are you to use the skills covered in the program you or your partner attended (1 *Very Unlikely* to 5 *Very Likely*)? Those in the couples group rated the likelihood of using the skills in the future highest ($M = 4.67$, $SD = .59$), followed by male and female attending partners ($M = 4.46$, $SD = .55$), followed by male and female non-attending partners ($M = 3.90$, $SD = 1.26$). The non-attending partners group was significantly different than the attending partners ($p < .01$) and the couples group ($p < .01$). This item was also analyzed looking at each group divided by gender. When analyzed separately, women in the couples group reported the highest mean ($M = 4.85$, $SD = .37$), followed by women in the female group ($M = 4.48$, $SD = .59$), followed by men in the couples group ($M = 4.44$, $SD = .73$) and men in the male group ($M = 4.44$, $SD = .51$), followed by men whose partners were in the female group ($M = 4.04$, $SD = 1.12$), followed by woman whose partners were in the male group ($M = 3.71$, $SD = 1.45$).

2. Program evaluation forms filled out by participants who were assigned to the intervention groups, but did not attend the intervention will be used to foster an understanding of barriers that inhibited these participants from attending the intervention.

Twenty-one participants completed the follow up form at post assessment used to analyze Qualitative Analysis 2. These participants were assigned to one of the three intervention groups, but did not show up for the intervention. Participants were asked in an open-ended format to say a little bit about why they weren't able to make it to the workshop. Based on the responses, categories were developed and a coding system was

implemented. The following four categories were developed: 1) work/job related 2) child related activity 3) group assignment 4) other (e.g. not being compensated for commuting, scheduling conflict). The most commonly endorsed category was work/job related with 68.4% of participants writing in a response that fell within this category. Sixteen percent of participants listed answers that fell within the group assignment category, 16% within the “other” category, and 10.5% listed child related activities.

These participants were also given a list of obstacles and asked to check any obstacles that made it difficult for them to attend the workshop. The most common obstacle endorsed was getting time off from work with 47.6% of participants reporting time off as a barrier to attending the workshop. The next most common obstacles endorsed were childcare (28.6%), transportation (28.6%), the day of the workshop (28.6%), time/length of workshop (19%), other (14.3%), travel distance (9.5%), and the male partner not interested in attending (9.5%). None of the 21 participants endorsed female partner not interested in attending as an obstacle.

Discussion

The current study evaluated the effectiveness of a new relationship education program for low-income couples with children. The impact of the intervention was evaluated on a range of relationship and mental health outcomes. An analysis was conducted to gain an understanding of the impact of the program, consumer satisfaction with the program, and barriers to participation. Associations between income, economic strain, relationship functioning, and mental health symptoms were also evaluated. Pre, post, and follow-up data were used. Changes from pre to post and FU1 were found and will be discussed in more detail.

Discussion of Main Findings

The main findings in the current study are organized and discussed by aim and fall into the following three sections: 1) Aim 1 - The first aim examined the relationships between income to needs, economic strain, relationship functioning, and mental health symptoms at baseline. 2) Aims 2 and 3 will be discussed together. Both aims used quantitative data to evaluate the impact of the FRAME program on a range of relationship and mental health outcomes. Aim 2 examined the three intervention groups compared to the control group whereas aim 3 looked at the four groups separately. 3) Aim 4 - The fourth aim used qualitative data to evaluate program impact, consumer satisfaction with the program, attrition and no show rates, and barriers to participation.

Before discussing the main findings, I will provide a brief discussion of workshop and assessment attendance and attrition.

Assessment and workshop attendance

FRAME assessment attendance was high. As previously mentioned, 86.1% of couples that completed pre assessment came in for their post assessment and 75.8% completed their follow-up 1 assessment. This rate is consistent with rates reported in Halford and colleagues' study evaluating a relationship education program (Halford, Sanders, & Behrens, 2001) and higher than the rates reported in Antle and colleagues' (in press) review of a relationship education program for low-income individuals (77% post assessment attendance and 50% six month follow up attendance). Getting couples in for assessments was challenging at times and took a great deal of persistence. One common difficulty was getting in contact with participants to schedule their appointment.

Participants' phones were often disconnected or temporarily out of service. More regular contact with study couples in between assessment periods may help keep our contact information up to date and in turn, decrease attrition rates. In some instances, we were able to get couples on the phone, but their busy schedules or lack of transportation precluded them from coming in. Our assessment team tries to be flexible when scheduling appointments. Perhaps we need to make additional options, such as completing the questionnaires electronically or having an assessor bring the questionnaires to the couple, more readily available to participants.

Workshop attendance was also high. Nineteen percent of participants assigned to an intervention group never showed up for the intervention (81% attended at least one session). This rate is well below the 39% no show rate reported in a similar nationwide

study of a couples intervention (Dion et al., 2008). Further, once participants showed up for the first session, attendance at the following sessions was high across all three intervention groups. A breakdown of workshop attendance revealed that women in the female group had the highest attendance (89.4% attended more than 50%), followed by couples (71.2% attended more than 50%), followed by men in the male group (66.7% attended more than 50%). To better understand workshop attendance, comparisons were done between intervention participants who attended at least one workshop session and intervention participants who did not attend any of the workshop. These analyses revealed lower pre scores on relationship adjustment, confidence, and dedication for non-attenders suggesting that couples with lower levels of relationship adjustment, confidence, and dedication may be less likely to attend a relationship workshop. Perhaps a certain level of commitment must be evident for couples to attend education specifically geared towards relationships.

Despite strong attendance rates initial and ongoing workshop attendance was a challenge. Our data show that couples who attend one workshop session tend to come back for future sessions leading us to believe that if a program is useful and well received, like FRAME, some participants will be invested after one session and will be more likely to return the following week. Because we know that getting couples in to the initial workshop session helps with subsequent attendance, actively encouraging couples to initially participate in the workshop is very important. Specifically reaching out to participants in the couple and male groups may be useful in increasing their participation rates. Because men are sometimes resistant to services, specifically emphasizing that services are education and in the form of a workshop rather than therapy may sound more

appealing to men (Robertson & Fitzgerald, 1992) and in turn increase their attendance. Despite the fact that our no show rate in the couples group was below the no show rate reported by Dion and colleagues (2008), we hoped for even higher workshop attendance in the couples group. When both members of the couple are expected to attend a workshop together there are some inherent logistical complications (i.e. childcare, both members need time off from work). Our review of attendance barriers for the workshops did in fact reveal that childcare was the most commonly reported barrier to attendance for the couples group followed by getting time off of work, suggesting that logistical complications did impact attendance. Perhaps it would be helpful to spend a few minutes immediately after random assignment talking to participants assigned to the intervention about barriers that may impact their ability to attend the workshop and together brainstorming solutions to lessen those barriers. Participants received financial compensation for coming in and completing questionnaires. We know that this served as an incentive for some couples. Participants do not get paid for attending the workshops. Perhaps more people would have attended the intervention if they received compensation or additional incentives for coming.

Research on marital therapy has revealed that women are more likely than men to seek treatment (Doss, Atkins, & Christensen, 2003; Guillebeaux, Storm, & Demaris, 1986). It is possible that women in this study may have been the driving force for initial participation and that could explain the higher attendance rates for this group and lower rates for the male group. For example, if a woman initiated participation and she and her partner were randomized to the female group, she would be more likely to attend the workshop than if her partner (who was brought in because of her interest in the study)

was assigned to the male group. Because participants are told about the study design during initial contact with the project, it is possible that individuals less interested in the intervention were still willing to join the study knowing that they only had a 50% chance of being randomized to a group. This in turn, could have affected workshop attendance rates. Future studies could consider not sharing as many details of the study design with participants. However, that would have impacted our ability to conduct a study with such a complex design. As part of the assessment process we collected data on expectations for and reactions to group assignment. A next step is to look at relations between this data and no show rates.

Aim 1: An examination of the relationships between income to needs, economic strain, relationship functioning, and mental health symptoms at baseline.

In the present study, income (as measured by an income to needs ratio) was not significantly related to economic strain for men or women. This result is inconsistent with the hypothesized relations and with previous literature that has shown negative associations between reported income and economic strain (Conger et al., 1990; Conger & Elder, 1994; Elder, Eccles, Ardel, & Lord, 1995; Fox & Chancey, 1998). These associations were tested among middle-class samples and/or samples that spanned across multiple socioeconomic statuses. Perhaps the non-significant finding in the current study was due to our participants being a more homogeneous sample than other studies that find such an effect. In the current study all couples had incomes at or below 200% of the federal poverty line and therefore the lack of a sizable association between income and economic strain may be due in part to constrained variability on income. It is possible that a more heterogeneous sample would have yielded different results. Despite the

significant relationship between income and economic strain found in some studies, there is general consensus in the field that reported income has limited utility as an indicator of economic distress (Hilton & Devall, 1997) and that measures of economic strain as opposed to income provide a more accurate and clearer understanding of financial distress (Hilton & Devall, 1997; Voydanoff & Donnelly, 1988). Future studies interested in investigating these links should focus on the subjective difficulties in meeting basic economic needs reported by participants.

Hypothesis 1 predicted that income to needs would be positively related to relationship confidence, dedication, positive bonding, and relationship quality and negatively related to negative communication, danger signs, and mental health symptoms. The results were mixed in terms of support for hypotheses 1. Income to needs was significantly related to some of the relationship variables in the opposite direction than expected and was not related to other relationship variables or depression and anxiety. The higher the income to needs ratio, the lower reported positive bonding and relationship adjustment for men. For women, a higher income to needs ratio was related to lower relationship satisfaction and positive bonding and more danger signs. One possible explanation for these findings is that those with higher incomes may be working more hours per week, which would impact the couples' time together. Long work hours may make it difficult to spend time with family members and to participate in family life and activities, which can influence marital quality (Tenbrunsel, Brett, Maoz, Stroh, & Reilly, 1995; Voydanoff, 2004). Although more work does provide increased economic resources, it can also impact the amount of time and energy the couple sets aside to

adequately talk about and resolve relationship issues, which can lead to increased danger signs.

As previously mentioned, income to needs was not significantly related to some of the relationship variables or to depression and anxiety. These results are not entirely surprising given the mixed literature on the association between income and relationship functioning. While some studies have found higher income related to greater marital happiness and lower conflict (e.g. Brody et al., 1994), other research has revealed weak or no effects between income and marital quality (e.g. Broman & Forman, 1997). Contrary to the current results, prior research has shown a relationship between lower levels of income and mental health difficulties (e.g. Lorant et al., 2003; McLoyd & Wilson, 1990). Conger and colleagues work provides a plausible explanation for why income is sometimes not related to key variables – income level is more likely to be detrimental and impact day-to-day functioning if it increases the likelihood that couples experience economic strain (Conger et al., 1990). If couples are not experiencing economic strain, then income level may not be as impactful. The current findings are important because they help clarify the relationship between income and relationship and mental health variables and they highlight the importance of investigating the impact of economic strain.

As predicted in hypothesis 2, there were significant correlations between economic strain and most relationship outcomes. Higher levels of economic strain reported by men and women were related to more negative communication and danger signs and less positive bonding and relationship adjustment. In addition, more strain was significantly related to less dedication for men and less relationship satisfaction for

women. These findings are consistent with literature that has explored these relationships for samples of low-income and middle-class couples (Conger et al., 1999; Kinnunen & Feldt, 2004; Voydanoff, 1990; White & Rogers, 2000) and highlights the negative impact of economic strain on relationship functioning for men and women. Economic strain was not significantly related to confidence for men and women, to relationship satisfaction for men, or dedication for women. However, these associations reached marginal significance (p range = .06 to .1) and were in the expected directions. Also consistent with literature (McLoyd, 1990; Zimmerman & Katon, 2005), correlations revealed a significant relationship between strain and depression and anxiety for men and women with higher levels of economic strain associated with more reported depression and anxiety. Financial strain has a powerful impact on individual mental health and intimate relationships. Economic strain, like any form of stress, places additional demands on the person, can impact the amount of resources available to the person, and affects conflict and arguing between partners. The current results emphasize the need to offer services to help couples cope with economic strain. Couples who learn to cope with and regulate their affect under difficult circumstances may be less vulnerable to the negative effects of stress and less at risk for relationship dissolution.

The associations described above were also tested using structural equation modeling. We had originally predicted that income to needs would be indirectly related to relationship quality (measured by six observed relationship variables) through economic strain for men and women. Due to what was likely a result of testing this model with a constrained sample, income was not significantly related to economic strain. A variation of the original model was used to test the remaining associations. Similar to the

correlational results, men and women who reported more economic strain also reported lower levels of relationship quality. This negative association is consistent with the hypothesized relations and with prior studies that have shown lower levels of relationship quality for couples experiencing economic strain (e.g. Conger et al., 1999; Voydanoff, 2004). Our current findings replicate extensive literature illustrating that individuals who experience economic strain are less satisfied in their relationships. These results extend previous literature by showing this association among a sample of participants from several different racial and ethnic backgrounds.

As predicted in hypothesis 3, high levels of reported depression and anxiety for men and women were related to poorer relationship outcomes with one exception – females’ report of anxiety was not significantly associated with dedication. Because of the correlational nature of the data, we cannot determine whether the presence of symptoms led to decreased relationship quality or if lower relationship quality led to symptoms. We can however conclude that there is a link between the two and that individuals who reported lower relationship quality also reported higher mental health symptoms. These findings were expected and are consistent with research that has shown poorer relationship outcomes for people with depression, anxiety, and alcohol abuse (Halford, Bouma, Kelly, & Young, 1999; Whisman, 1999). Relationship distress has a lasting impact on individual functioning, relationship functioning, and in turn, child well-being. Given the associations between relationship functioning and mental health symptoms, it seems possible that interventions that focus on teaching relationship skills and increasing healthy relationships may be able to help improve mental health symptoms. This highlights the importance of improving and extending empirically based

strategies for treating couple distress (Snyder, Castellani, & Whisman, 2006) as well as thinking about ways to combine relationship services with interventions that address other difficulties.

Aims 2 and 3: An evaluation of the impact of the FRAME program on a range of relationship and mental health outcomes.

The FRAME project is a randomized control trial conducted mostly at the University of Denver and therefore is an efficacy study. However, the project does have some components of an effectiveness study in that community leaders ran the workshops and some aspects of the project were offered in the community. Due to the unique study design, the FRAME data was complicated and many decisions needed to be made about how to best analyze the data and how to handle missing data. In the psychology field there is ongoing debate on the best practice in dealing with missing data for intervention studies. While many researchers support intent to treat analyses with multiple imputation, others lean towards single imputation or analyzing non-imputed data. Because of the mixed literature, a decision was made to analyze the FRAME data both ways – with non-imputed data and with imputed data. Single imputation was conducted in the current project however future work with the FRAME data will use multiple imputation. Minimal differences were found when analyzing the original, non-imputed data compared to the imputed data. Although both groups of analyses are reported, I decided to focus on the actual collected and therefore non-imputed data. Several analyses were conducted in this paper. Because of the preliminary nature of the data and the complexity of the study, the goal was to explore the data in as much detail as possible. Although such

a full exploration involved running analyses a variety of ways and may have capitalized on chance findings, a good understanding of the data overruled this concern.

Pre/Post ANOVAs comparing the intervention groups versus the control group

The results of the ANOVAs comparing the three combined intervention groups to the control group using pre and post data revealed that participants regardless of group improved over time on some key relationship and mental health variables. Men and women in both groups reported less negative communication and danger signs and improvements in relationship satisfaction, relationship adjustment, depression, and anxiety at post. With both groups changing, there were not differences found between groups on some key variables. It may be that coming in to the University of Denver and completing questionnaires and participating in the workshop was helpful for the intervention couples while at the same time completing the questionnaires served as an intervention for the control group. Control couples that completed assessments spent extra time with their partner (often without their children) on their way to and from the University. They also got paid for their participation, which may have been put towards doing something special together. For some couples completing the questionnaires may have gotten them thinking and talking about aspects of their relationship they had not thought or talked about before, which may have been especially helpful. A few studies have shown that couples can benefit from completing questionnaires irrespective of an intervention (Bradbury, 1994; Rubin & Mitchell, 1976; Vatter, Larson, & Holman, 2003).

The significant time X group interactions found suggest that participants reported a decrease in negative communication patterns and an increase in positive bonding following attendance at the workshop as either a couple or an individual, while members

of the control group did not report such benefits. Time X group interactions were not evident for any other relationship variables or mental health variables. A big focus of the FRAME workshop is teaching couples communication skills. A second component is making time for fun and friendship. While constructs such as confidence, dedication, relationship satisfaction, depression, and anxiety are certainly addressed throughout the workshop, there are not specific modules devoted to these things. Perhaps effects were seen on negative communication and positive bonding because these are two areas directly addressed in the workshop.

Consistent with the current results, research on skill based relationship education programs have found reductions in negative communication and improvements in positive communication (e.g. Blanchard, Hawkins, Baldwin, & Fawcett, 2009; Laurenceau, Stanley, Olmos-Gallo, Baucom, & Markman, 2004; Markman, Renick, Floyd, Stanley, & Clements, 1993), some of which remained evident up to five years later (Hahlweg, Markman, Thurmaier, Engl, & Eckert, 1998). According to the literature, relationship satisfaction and adjustment are harder to change. When changes do occur, they often do not emerge immediately following the intervention. At 1-year follow-up, Halford and colleagues found improvements in communication, but not in relationship adjustment (Halford, Sanders, & Behrens, 1996). Another study found differences in marital adjustment, but not until 2 years post-treatment (Markman et al., 1993). It is possible that improvements in relationship adjustment and satisfaction that were not evident in the current study will emerge at a later follow-up. Other studies that have evaluated variations of PREP found no treatment effects (Heavey, Larson, & Carpenter, 1996; Van Widenfelt, Hosman, Schaap, & Van der Staak, 1996). Fewer studies report on

the impact of relationship education on some of the other variables assessed here such as relationship confidence, dedication, and positive bonding. Previous studies with a military sample (Stanley et al., 2005) and a sample of prison inmates (Einhorn et al., 2008) found significant gains on some variables not evident in FRAME for couples that received adapted versions of PREP, both of which had similar demographics to the current study. Perhaps this is because these studies assessed if participants reported benefits from the interventions, however, neither study had a comparison group. It does appear that our intervention groups are improving over time, however they are not significantly improving on some variables when compared to a control group.

Relationships flourish when couples take the time to connect with one another. Setting aside time to spend together is important for maintaining a strong marital relationship (Voydanoff, 2004). Likewise, negative communication between partners can be very damaging to relationships. Couples who effectively communicate are able to address difficult issues within the relationship and may feel more connected to each other. Improvements in positive bonding and negative communication can enhance overall relationship functioning and can have spillover effects into other areas such as individual functioning and parenting. So the fact that improvements were seen on these two constructs is very promising.

As mentioned above, time X group interactions were not found for depression or anxiety. Both depression and anxiety decreased from pre to post for all groups. It is possible that participating in the workshop contributed to the changes in mental health symptoms for intervention couples while completing assessment questionnaires as part of the research contributed to changes in symptoms for the control couples (Bradbury, 1994;

Rubin & Mitchell, 1976; Vatter et al., 2003). It is also possible that symptom changes from pre to post were not a result of participating in the FRAME project. Mental health symptoms can fluctuate over time for people that do not receive any treatment. The current results are inconsistent with the intervention effects found in Braithwaite and Fincham's (2007) study, which showed that participants who took an electronic version of PREP reported less depression and anxiety and improvements in relationship distress compared to controls. Outside of this 2007 study, little work has been done investigating the impact of relationship education on mental health symptoms. Considering the relationship between marital quality and mental health symptoms (Whisman, 1999; Whisman & Uebelacker 2004), more research is needed on this topic.

Gender differences were evident in our sample. Irrespective of the intervention, men tended to view their relationship more favorably at pre and post than women while women tended to report more depression and anxiety at pre and post than men. Men's anxiety scores decreased more from pre to post than women's scores. One possible explanation for these gender differences is that men might be more likely to link being in a committed relationship with positive relationship qualities whereas women may be more likely to dissect different aspects of the relationship. So for men in our sample simply being in a relationship may have led to higher reported relationship functioning and less symptoms. This is consistent with literature that has shown that men tend to benefit more than women from being in a romantic relationship (Hemstrom, 1996; Rogers, 1995). Research has shown that women tend to think more about their relationships than men and have more complex relationship schemas (Martin, 1991). Knowing that relationship difficulties are associated with psychological problems

(Amato, 2000), if a relationship is not going well, women may be more in tune to that and more likely to express symptoms as a result.

Pre/Post ANOVAs comparing the couples, male, female, and control groups

When all four groups were compared using pre and post data the results were fairly similar to that described above. Two differences were noted. First, changes on dedication emerged over time, with men in the couples group, the male group, and the female group reporting decreases from pre to post, while men in the control group stayed the same. For women, those in the couples group and the female group stayed the same, while the male and control groups reported decreased dedication from pre to post. The intervention did not improve relationship dedication for men or women in any group and in fact at least for men, dedication decreased. One explanation for this finding is that knowledge learned in the workshop may have made some participants realize that their relationships were not as healthy as they thought, which in turn led to participants feeling less committed in their relationships. Second, while the significant time X group interaction remained for negative communication, the positive bonding interaction was no longer significant. The significant time X group interaction for negative communication revealed that all three intervention groups differed significantly from the control group, suggesting that the workshop successfully reduced negative communication patterns. Differences were not found among the three intervention groups suggesting that couples can successfully learn and utilize communication skills when taught to both members as well as when taught to only one member of the couple. Although the interaction was not significant for positive bonding, a closer look at the means suggests that all three intervention groups improved on positive bonding from pre

to post, whereas the control group remained the same. Perhaps a larger sample size would have detected a significant interaction for this variable.

Clearly some aspects of the relationship can improve when both members of the couple are in the room receiving the intervention and when only one member is in the room. The negative communication and positive bonding results did not differ according to the circumstances in which the intervention was delivered. These results have important implications for the manner in which relationship education is offered. A more thorough discussion of the impact of the program when offered to only one member of the couple follows below.

Pre/Post/FU1 ANOVAs with two groups (intervention versus control) and four groups (couples, male, female, and control groups)

When FU1 data was included in the analyses, the time X group interaction for negative communication comparing all intervention groups to the control group went from significant to marginally significant. When comparing all four groups this interaction was no longer significant ($p = .32$). These changes in results may be due to the sample size. When FU1 data was added our sample dropped from 137 couples to 83, which may not have been large enough to detect significant change. It is also possible that the negative communication findings were no longer evident because of an attenuation effect. Months after the intervention couples may have stopped practicing the communication skills that initially helped diminish negative communication. Improvements in communication skills were not maintained at a six-month follow-up in Wampler and Sprenkle's (1980) study.

There was a significant quadratic time X group interaction for positive bonding comparing all intervention groups to the control group. Both men and women in the intervention groups showed bigger gains than those in the control group. Interestingly, positive bonding increased at post for intervention men and women and then some of these gains decreased at FU1, suggesting an attenuation effect. As previously stated, making the time for fun and friendship is a big focus of the workshop. Couples brainstorm a variety of creative and inexpensive dates they can go on and are given multiple opportunities to earn gift cards. It is possible that some gains were lost six months later because couples stopped receiving additional means to go out on dates and were no longer reminded about the importance of bonding. Often when things get busy and stressful, having fun moves down on the priority list. Perhaps gains in positive bonding decreased from post to FU1 due to day-to-day life getting busier. Because of the beneficial impact of positive connections on relationships, future studies should brainstorm creative ways to help maintain positive bonding gains over time (e.g. having a raffle a few months after the workshop where couples can earn gift cards).

A closer look at the means across the four study groups showed that some groups continued to maintain reductions in negative communication over time. Gains in positive bonding were not evident over time for the different groups. This may be because it is easier to stop doing a negative behavior in the long term than it is to change or add a positive behavior to patterns that already exist (Markman, Stanley, & Blumberg, 2010).

There was a trend for the quadratic time X group interaction for relationship satisfaction comparing all intervention groups to the control group. Participants who were in the intervention groups and the control group reported increases in satisfaction at post

and declines in satisfaction at FU1. However, at post and FU1 the intervention groups reported higher satisfaction than they did at pre. The control groups FU1 satisfaction score mirrored their satisfaction at pre assessment. Thus, six months later the intervention couples appeared more satisfied in their relationships than the control couples. This is consistent with studies that have shown relationship satisfaction differences between intervention and control groups emerge within a year or two following the intervention (Markman et al., 1993). It will be interesting to further evaluate relationship satisfaction at follow-up 2, which takes place 18 months after the workshop, to gain a better understanding of sleeper effects.

Finally, there was a trend for a time X group X gender interaction for relationship confidence comparing all intervention groups to the control group. At post assessment, both men and women in the intervention groups reported increased confidence suggesting that the workshop helped boost their confidence in their relationships. This was compared to the control men whose confidence decreased and the control women whose confidence remained the same. At FU1, men in the intervention groups' confidence dropped, while women's confidence continued to improve. For the control group, confidence increased from post to FU1. So for women, being a part of the intervention had a lasting impact on their relationship confidence. Many relationship intervention programs focus on providing skills to couples, teaching general knowledge about healthy relationships, and emphasizing the importance of reducing conflict and increasing fun, friendship, and commitment (Carroll & Doherty, 2003; Halford et al., 2003; Markman, Stanley, Jenkins, Petrella, & Wadsworth, 2006), all of which have the potential to lead to increased relationship confidence. For women, learning about these areas in the workshop may

have made them feel more confident in their ability to have a successful relationship. Non-attending female partners also showed lasting confidence at FU1. For these women, confidence may have increased from seeing their partners attend a relationship workshop on their own in the male group.

Stability Findings

Nine percent of the FRAME couples broke up, separated, or divorced by FU1, with the highest percentage of break ups being participants who were assigned to the couples group. When compared to the control group, participants in the three intervention groups were more likely to break up, separate, or divorce. These results are inconsistent with other studies that have revealed that couples who received PREP were less likely than control couples to break up or divorce up to five years after participating in the program (Hahlweg et al., 1998; Markman et al., 1993). Why would more intervention couples break up than control couples? A closer look at relationship functioning prior to the intervention revealed that couples' that broke up at post assessment or FU1 looked different than couples that remained together. Break up couples reported lower relationship functioning than non-break up couples. Specifically they endorsed more danger signs and physical aggression and less relationship satisfaction and positive bonding. While break ups are often thought of as negative, it is highly possible given the pre differences between the two groups, that breaking up was a better option than staying together for some of the FRAME couples. In some instances FRAME participants reported that breaking up with their partner was positive for them and that the workshop empowered them to finally get out of an unhealthy relationship.

Time X group interactions

The current study represents one of the first evaluations of a relationship education program for a low-income ethnically diverse sample. Significant time X group interactions were not found for some of the key variables tested. There are several reasons why that might be. First, the lack of significant time X group interactions may be due to the sample size. The current study design was complicated and there were multiple cells within each ANOVA. A larger sample size may detect additional interactions. Second, many previous studies have evaluated relationship programs with premarital couples. The majority of couples in the current study were married and reported an average relationship length of 7.5 years. It is possible that some of the relationship variables tested are more difficult to change in couples that have been together for a long time and already have ingrained patterns. Future analyses with the FRAME data can explore relationship length as a factor impacting relationship functioning and the ability to benefit from the intervention.

Upon completion of pre assessment all couples are given a referral list. Control couples may have sought services outside of FRAME when they realized they were not assigned to an intervention group. It is also possible, as previously mentioned, that participating in the research and completing the questionnaires served as an intervention for the control group. Research has shown that relationships can be impacted when couples fill out questionnaires that examine their relationship (Bradbury, 1994; Rubin & Mitchell, 1976; Vatter, Larson, & Holman, 2003). Thus, the positive changes on some variables in the control group for reasons other than the intervention suggest that some of the intervention effects might be due to the same factors. At the same time, to the extent

there were ceiling effects on some variables, intervention effects would have been more difficult to detect. Non-intervention factors (e.g. completing questionnaires) should not affect changes in specific skills taught in the workshop. The current results do provide evidence that intervention couples improved on negative communication, which relates to a specific skill taught, where the control group did not. It is possible that the assessment measures used in the current study were not sensitive to other changes that may have occurred. Future studies should incorporate observational assessments, which may be more sensitive to intervention effects than self-report measures (Sanders, Halford, & Behrens, 1999).

Another plausible explanation for the current findings is that many couples were at a low point and seeking help when they joined the study so the improvements noted for all four groups may be regression to the mean. The intervention, while helpful to some, may have made others more aware of unhealthy aspects in their relationship. Couples who attended the workshop were taught about healthy relationships and were provided with a model of how couples should respect each other. For some couples the material taught in the workshop may have highlighted negative aspects of their relationship and made them more aware of problems in the relationship. For other couples learning communication skills in the workshop may have increased confidence in their ability to discuss difficult and high conflict topics, which in turn, could have perpetuated conflict. Gaining knowledge about healthy relationships and having increased discussion of conflictual issues may account for the lack of improvement on some key relationship outcomes for intervention couples.

An alternative explanation for the lack of time X group interactions for some variables is that the FRAME project may be impacting skill-based aspects of functioning like negative communication, stress management, and coping. The current results showed changes in negative communication. Preliminary analyses with the FRAME data not reported in this paper have shown positive pre-post changes in stress and coping for intervention groups when compared to the control group. Because of the associations between stress and relationship functioning (Conger et al., 1999; Karney et al., 2005), couples that learn to effectively cope with stress, may see changes on relationship outcomes follow. Perhaps the positive changes in negative communication, stress, and coping will later translate into changes in areas where pre-post intervention effects were not found such as relationship confidence, dedication, and danger signs.

It is also possible that the circumstances surrounding the workshops were not ideal. Our Saturday workshops were over six hours. For even the most sophisticated learner, so many hours of content and material is less than optimal for learning and retention of information. Our sample in particular may be under a lot of stress, which could have impacted their ability to learn and benefit from the skills. Exposure to stress can disrupt learning and working memory (Mathias, Beat, & Carmen, 2009; Patel, Katz, Karssen, & Lyons, 2008). For participants who retained the information and learned the skills, their busy and stressful schedules may have prevented them from using the skills as regularly as another sample might have. It is also possible that for some couples participating in the workshop, and therefore having to arrange things such as childcare and transportation, may have increased stress (Hogue et al., 1999; Ooms & Wilson, 2004).

An analysis of the pre data revealed that the four groups had different pre score patterns, despite randomization. This may have also played a role in precluding us from detecting more time x group interactions. FRAME is an ongoing project and we will continue to collect follow up data on couples. Since some benefits of the workshop were not found immediately following the intervention, future studies should investigate long-term follow-up data.

Transfer of skills

A main aim of the current project was to investigate if a couple level intervention could successfully be delivered to individuals. The idea behind this approach was that information learned by the attending partner in the individual groups would get transferred to the non-attending partner. Results from four analyses are discussed to gain an understanding of transfer effects.

First, attending male and female partners were compared to non-attending male and female partners. Analyses comparing men in the male group to men whose partner's attended the workshop in the female group did not show differences between the groups. In other words, men in both groups benefited from the workshop, reiterating the transfer effect from attending women to their non-attending partners. While attending and non-attending women both seemed to benefit from the workshop, there were some differences noted on negative communication, danger signs, and dedication suggesting that the workshop had a slightly different impact depending on whether the women was in the room or not. This suggests that some skills were transferable and others were not. This also suggests that skill transfer may work differently with men and women. Based on these results, there may be better transfer from women to men than from men to women.

Second, non-attending male and female partners were compared to males and females in the control group. Significant differences between non-attending partners and the control group would also indicate a transfer effect. Analyses comparing men whose partner attended the workshop in the female group and men in the control group revealed some differences. Non-attending men looked better than control men on negative communication, positive bonding, and danger signs. However, control men reported higher relationship adjustment. These results suggest that some skills were transferred to non-attending men through their attending partner, while others were not. Analyses comparing women whose partners attended the workshop in the male group and control women did not show differences between the groups, suggesting that non-attending women look similarly to control women and that a transfer of skills did not occur.

Third, paired samples t-tests evaluated pre-post changes for non-attending and control participants. Non-attending men and women showed significant changes from pre to post on negative communication whereas the control group did not show this improvement. Non-attending men reported significant changes on relationship satisfaction and danger signs compared to control men who did not change and non-attending women reported marginally significant changes on positive bonding compared to control women who did not change.

Fourth, the workshop evaluations assessed transfer of information. Based on the evaluations, it appears that participants in the male and female groups shared information learned in the workshop with their partners. Ninety-two percent of non-attending partners reported that their partner talked to them about what he or she learned in the workshop. This number is extremely high and suggests that information learned in the workshop

was transferred to non-attending partners. Further, both male and female attending partners reported practicing a variety of skills with their non-attending partners outside of the workshop (e.g. speaker-listener, expectations) and talked about other group members and group leaders with their partners. There were differences between men and women's report on two of the items – practicing time out and talking about co-parenting, with non-attending men being more likely to endorse that their partners did these two things with them than non-attending women. These results indicate that the women's group had more transfer than the men's group. Perhaps there is something about these two skills in particular that men are less comfortable talking to their partners about. One hypothesis is that a man might have a hard time talking with his partner about co-parenting their child if he views it as stepping on her toes especially if she is the primary caregiver.

Results of this study revealed that individuals who did not attend the workshop, but had a partner who did, reported changes in the expected directions on some outcomes. This indicates a transfer effect where some skills taught to one partner seem to benefit the non-attending partner and the couple. The evaluation results suggest that individual attenders are teaching and transferring knowledge and couple level skills that were taught to them in individual groups. Transfer effects were stronger when women were attending the workshop. It is possible that women retained more information in the workshop to share with their partners, or that women were better able to teach the material to men, or that men were more open to learning. We do not have specific information about the process through which transferring occurred. It is also possible that the transfer of material did not occur through direct teaching. Rather it took place through one partner doing their part or working hard in the relationship, which then translated into changes

within the other partner. These transfer results are in line with a systems theory perspective, which suggests that a change in any one element of a system would have an effect on other elements within the system. So directly working with one partner should have an effect on the non-attending partner and the relationship (Bennun, 1997). Other studies have shown that change can occur as a result of working with one person (Bennun, 1985; Szapocznik, Kurtines, Foote, Peres-Vidal, & Hervits, 1993).

In sum, because of the challenges associated with getting both members of a couple together for interventions (Markman, 2007; Stanley, 2006), this study provides important preliminary findings indicating some successful transfer of skills when working with one member of a couple. This transfer positively impacted relationship functioning in some areas. However, other relationship areas and mental health symptoms were not affected. Perhaps impacting mental health symptoms requires a more direct approach with either an intervention that specifically targets mental health symptoms or with having all participants present in the room. These results are promising for continuing to offer relationship services to one member of a couple. If such services continue, future studies should be mindful that some skills might be easier for some groups of people to teach and transfer than other skills. These group and gender findings may impact future efforts to extend traditional couples-based marriage education programs, like PREP and FRAME, to low-income couples and individuals.

Was the intervention protective against economic strain?

Contrary to predictions, intervention participation did not moderate the relationship between economic strain at baseline and relationship quality following the intervention. This hypothesis was guided by the stress-buffering hypothesis, which has

shown that social resources and support are protective in the face of stress (DeGarmo, Patras, & Eap, 2008). It was thought that couples who attended the FRAME workshop and learned communication and coping skills would be better equipped to deal with the stress that often accompanies living close to the poverty line. Participating in the workshop did not offset the deleterious impact of poverty and economic strain on relationship functioning. The lack of a moderating effect in this sample suggests that the intervention is not a key variable in determining the strength of the association between economic strain and relationship quality. Teaching relationship skills is the primary focus of the FRAME workshop. Coping with general and financial stress is a smaller component of the intervention. Previous literature has illustrated that interventions can help participants cope with general stress and financial stress (e.g. Evers et al., 2006; Raviv, 2008). Perhaps a moderating effect would have been supported if the intervention focused more specifically on combating economic strain. This highlights the importance of devising and implementing interventions to help couples cope more effectively with stress and economic strain. Despite these null findings, this analysis represents an advancement in that it is one of the first tests of an intervention moderating effect on the relationship between economic strain and relationship quality.

Aim 4: An evaluation of program impact, consumer satisfaction with the program, attrition and no show rates, and barriers to participation using qualitative data.

In addition to assessing changes on quantitative measures, intervention participants completed program evaluations that provided insight into issues related to program impact, program satisfaction, participation, and attrition. When asked about the impact of the workshop on a range of areas, couples thought that participating in the

workshop had a strong positive influence on the four dimensions assessed. For example, as a result of the program participants believed that they had improved in areas related to their relationship, they had greater commitment and confidence in their relationship, felt more positive about life and handling future stressors, and they were satisfied with the workshop and the leaders. Overall, the results were consistent with what was expected – all intervention groups viewed the program favorably and reported gains from the workshop, however, two dimensions revealed differences among groups with the largest gains being reported from those that attended the workshop as a couple, followed by individual attenders, followed by non-attending partners. A similar pattern was found when participants were asked how likely they were to use the skills in the future.

Although all groups rated this question high on the 1 to 5 scale, the couples group's mean was the highest, followed by the individual attenders, followed by the non-attending partners. There were no differences between non-attending males and females on this item. Participants in the couples group may have felt more confident that they would use the skills because both members of the couple learned the skills and could share in the responsibility of utilizing them at home. Non-attending partners may have felt like they had less control in the implementation of skills because they did not learn them firsthand. In addition, it appears the FRAME program was well received. Participants reported high satisfaction with the relationship workshop and with the quality and effectiveness of the leaders. Program satisfaction ratings were consistent with those reported in an evaluation of Within My Reach, a relationship education program for low-income individuals (Antle et al., in press).

More specifically, intervention participants seemed to find the topics addressed in the workshop and the workshop content helpful. Participants listed learning communication skills as the most helpful aspect of the intervention, followed by workshop materials and activities. This finding of communication skills being rated as most helpful was also found in Stanley et al (2001) paper. The current intervention results revealed the most salient changes on negative communication. Couples may have listed communication skills as most helpful because this was the area that they noted the most improvements on. When asked what was least helpful, 35% of people did not respond. This is compared to the 3.7% that did not respond when asked what was most helpful. One can conclude that many participants had a difficult time thinking of anything that was unhelpful. Based on the evaluations, the FRAME workshop content seemed appropriate and consistent with what participants were looking for, the leaders were viewed as helpful and effective, and the participants were satisfied with the program.

The evaluations also provided an understanding of what made it difficult and what helped make it possible to attend the workshops. Based on information gathered from the evaluations, it is clear that childcare was a big challenge for participants in the couples group as well as the individual groups. Several research articles clearly state that childcare is a big challenge for parents (e.g. Ooms & Wilson, 2004). It is interesting that childcare was ranked so highly for the individual groups where one partner was not expected to attend the workshop. Despite the fact that FRAME provided a childcare stipend to help offset the cost of childcare, this was still an obstacle for our participants. The financial aspect of childcare may not be the primary issue. Perhaps it was the logistics of finding and organizing childcare for such an extended period of time that was

difficult. Future studies should highly consider providing onsite childcare services. There are pros and cons to this solution. Providing childcare would help alleviate the childcare obstacle, but would require more staff and could put researchers at risk and liable if any children got injured onsite.

Another commonly endorsed challenge for all three groups was the time and length of the workshop. This barrier was likely more of an issue for Saturday workshops, which started early in the morning and lasted for over six hours. While finding a time that meets everyone's needs is extremely difficult, Ooms and Wilson (2004) recommend that careful consideration be given to the timing of workshops. One model that might be helpful for future studies is to offer a mix of weekend and weeknight classes in one wave, so rather than doing a Saturday model or a weeknight model, workshops could be offered on a Saturday for the full day followed by three weeknight sessions. A second possible model to consider is a weekend retreat where the entire workshop takes place over the course of one weekend. Future work with the FRAME data should look into attendance as a function of the length and number of workshop sessions and compare data from the weekend and weeknight models.

Consistent with the literature (Hogue et al., 1999), getting time off of work was another challenge for participants. Both men and women in the couples group endorsed time off as a barrier. When comparing the individual groups, this item was more commonly endorsed by men in the male group than by women in the female group. This gender difference is not surprising and may be a result of the men in our sample thinking they are primarily responsible for providing for their families. Researchers must be mindful of this barrier, especially with a lower income population where participants may

be working multiple jobs and time off may be limited. Finally, the male and female groups endorsed travel distance as a barrier to participation. Having workshops in a central location is very important. This can be complicated when participants are recruited from a variety of areas. In the hopes of increasing convenience for participants and decreasing participation barriers, the next FRAME workshop is being offered in a central location in the community.

When participants were asked about what helped make it possible to attend the intervention, men and women in the couples group and the individual groups most commonly endorsed their own enthusiasm. This finding clearly shows that participants were excited about the program and the services offered by the FRAME project. Partner's enthusiasm was also commonly endorsed. Knowing that enthusiasm about a program increases the likelihood that people will show up, researchers and program implementers should use tactics that help participants buy into the program during initial contact. Participants in all three groups listed the childcare stipend as very helpful for making it possible to attend the workshops. So although childcare was a challenge for many people, participants seem to appreciate and recognize the benefits of receiving financial assistance for childcare. Future studies should continue to compensate participants for childcare needs.

Evaluations completed at post assessment by 21 participants who were assigned to an intervention group, but did not attend the group, revealed that work was the most commonly listed reason these folks missed the workshop. A smaller percentage of people listed group assignment, scheduling conflicts, and child related activities as reasons they did not attend the workshop. Participants who endorsed these responses were unhappy

with the group they were assigned, they were no longer available at the times of the workshop, or they committed to an activity with their child. Although the FRAME team had a procedure in place to help ensure all participants were available at the day and time of the workshops and committed to participating regardless of what group they were assigned, participants not showing up for the intervention was still an anticipated problem. Overall, the workshop attendance rate in the current study was very good. Future studies can incorporate new and creative ideas, such as financial compensation for workshops and childcare resources, to decrease the number of no shows.

Contributions

The current study adds to the literature in several ways. It contributes to a growing body of research that has documented the detrimental impact of economic strain on individual and relationship functioning. It also extends the marital and couples literature by evaluating the impact of a relationship education program for a racially and ethnically diverse group of low-income couples and individuals. In addition, this project is the first evaluation of a shortened and revised version of the Within Our Reach program and therefore the program evaluation speaks to other uses of WOR. The uniqueness of the present study design also adds to the literature. FRAME is one of the first longitudinal random assignment evaluation studies to investigate the impact of relationship education for this population. The methodological design allowed for an evaluation of the intervention for couples as well as a test to see if couples can benefit when only one member receives the intervention. The use of a control group and community leaders are additional strengths. Having participants complete thorough

workshop evaluations provided valuable feedback that will help inform future intervention research.

Limitations and future directions

Despite these contributions, this study has limitations. First, with the exception of attendance rates, data in this study was dependent on self-report measures. When data is collected via self-report, method variance and inaccurate reporting can be an issue. Future studies should also incorporate observational measures, which may allow for detection of subtle intervention effects. The packets of questionnaires were extensive and sometimes took participants up to three hours to complete. Such a long assessment puts participants at risk for fatigue and less careful and accurate responding to questions. In addition, some of the measures were complicated and participants with language or cognitive difficulties struggled. Future studies should simplify and shorten the assessment packets. Future studies can also implement a screening procedure to ensure all participants have language and cognitive abilities necessary to participate.

Another possible limitation is the assessment of income. As previously mentioned, during the initial screening of the study, the first member of the couple being qualified was asked their combined family income. Income was also assessed through a series of self-report questions at pre assessment. Reported income from the initial screening was used in the current study because it was viewed as more accurate. However, annual income may have differed if we had both members of the couples' report. Because income can be complicated, future studies should assess income in a brief interview to ensure an accurate understanding of the earnings for each family.

A series of ANOVAs were chosen for the primary analyses because we were most interested in univariate effects. The use of multiple individual ANOVAs also maximized the number of participants in each analysis. However, running multiple ANOVAs capitalizes on chance findings and does not provide an omnibus test, which is a limitation. Because of the complicated study design and multiple cells within each ANOVA, a large sample size is necessary to detect time X group interactions. A larger sample size would have provided more statistical power, which may have changed the results of the current study. Finally, all of the participants in the current study were low-income couples and so the results of this research can only be generalized to the population studied.

Future work with the FRAME data should involve analyzing multiple time points of follow-up data and examining differences between those that attended the weekend model and those that attended the weeknight model. The current study did a thorough review of program evaluation ratings. Future work can also examine how evaluation ratings relate to individual, relationship, and parenting outcomes. Future analyses can also investigate differential intervention effects for different sub-samples of people. For example, based on pre data couples can be divided into healthy/unhealthy groups, high/low economic strain groups, and high/low aggression groups and we can test if the workshop is more helpful for one group than another.

Due to the strong control group in the current study, future studies should consider giving control couples an evaluation to complete. Rather than assessing the impact of the intervention, this evaluation would assess the impact of coming in and completing questionnaires with their partner. A sample question might be “As a result of

participating in the research or filling out questionnaires, I will invest more time in our relationship.” An alternative option is to use the Solomon Four-Group Design. This design tests whether changes in dependent variables are due to interaction effects between the pretest and the treatment (Braver & Braver, 1988). It is possible that control couples sought relationship services outside of this project. FRAME does assess couples’ participation in relationship enhancement activities. Future analyses should look at this data and evaluate if control couples received outside services. Future studies should also investigate ethnic differences on key variables including interracial/intercultural analyses. One of the qualifications for FRAME was that couples needed to be able to read and speak English. This precluded a number of interested Spanish speaking couples from participating. A future project should involve a Spanish version of FRAME.

Conclusions

In conclusion, we believe that providing ethnically diverse and low-income couples with knowledge and skills to strengthen their relationships and to cope with stress is very important. The present findings suggest that the FRAME workshop was helpful in reducing negative communication and improving positive bonding for our sample. Couples were able to benefit when only one partner attended the workshop. Overall the FRAME project was viewed as helpful and was well received by both male and female participants from various ethnic backgrounds. This is important because concerns have been raised about properly adapting programs for diverse populations that were originally created for White, middle-class samples (Markman, Stanley, & Kline, 2003). Additional analyses are needed to evaluate the impact of FRAME on other key variables and to determine the long-term impact. In general, the current project can

inform future research on marriage and education programs with low-income and ethnically diverse populations. Teaching at risk couples' constructive ways to communicate, to express their emotions, and to preserve positive connections with one another can strengthen relationships, increase family stability, and improve overall adult and child well-being.

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Appendix 1: Male and female correlations on pre variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Income:Needs	1.00										
2. Econ Strain Male	-.07	1.00									
3. Econ Strain Female	.05	.34**	1.00								
4. Negative Communication Male	.07	.29**	.02	1.00							
5. Negative Communication Female	.09	.10	.29**	.26**	1.00						
6. Danger Signs Male	.12	.18*	-.02	.72**	.38**	1.00					
7. Danger Signs Female	.17*	.13	.21**	.33**	.81**	.37**	1.00				
8. Confidence Male	-.02	-.13	.04	-.56**	-.23**	-.58**	-.34**	1.00			
9. Confidence Female	-.10	-.09	-.14	-.38**	-.61**	-.42**	-.71**	.46**	1.00		
10. Relationship Adjustment Male	-.16	-.22**	.01	-.57**	-.35**	-.65**	-.31**	.63**	.43**	1.00	
11. Relationship Adjustment Female	-.10	-.16*	-.26**	-.28**	-.64**	-.39**	-.72**	.33**	.69**	.44**	1.00
12. Relationship Satisfaction Male	-.05	-.14	-.06	-.44**	-.32**	-.57**	-.35**	.59**	.39**	.65**	.34**
13. Relationship Satisfaction Female	-.17*	-.16*	-.24**	-.32**	-.62**	-.39**	-.69**	.29**	.72**	.43**	.82**
14. Positive Bonding Male	-.20*	-.18*	-.02	-.53**	-.28**	-.63**	-.33**	.62**	.37**	.72**	.40**
15. Positive Bonding Female	-.20**	-.11	-.24**	-.35**	-.66**	-.41**	-.73**	.36**	.73**	.44**	.77**
16. Dedication Male	.13	-.17*	.09	-.40**	-.16*	-.36**	-.18*	.61**	.23**	.52**	.16*
17. Dedication Female	-.02	-.11	-.13	-.23**	-.49**	-.23**	-.58**	.40**	.79**	.29**	.53**
18. Depression Male	-.11	.40**	.05	.55**	.06	.41**	.15*	-.32**	-.12	-.34**	-.04
19. Depression Female	-.07	.21**	.33**	.09	.38**	.12	.46**	-.16*	-.40**	-.20*	-.47**
20. Anxiety Male	.05	.30**	.05	.40**	-.03	.32**	.11	-.23**	.00	-.24**	-.06
21. Anxiety Female	.04	.18*	.30**	.00	.25**	-.04	.30**	-.02	-.16*	-.02	-.27**

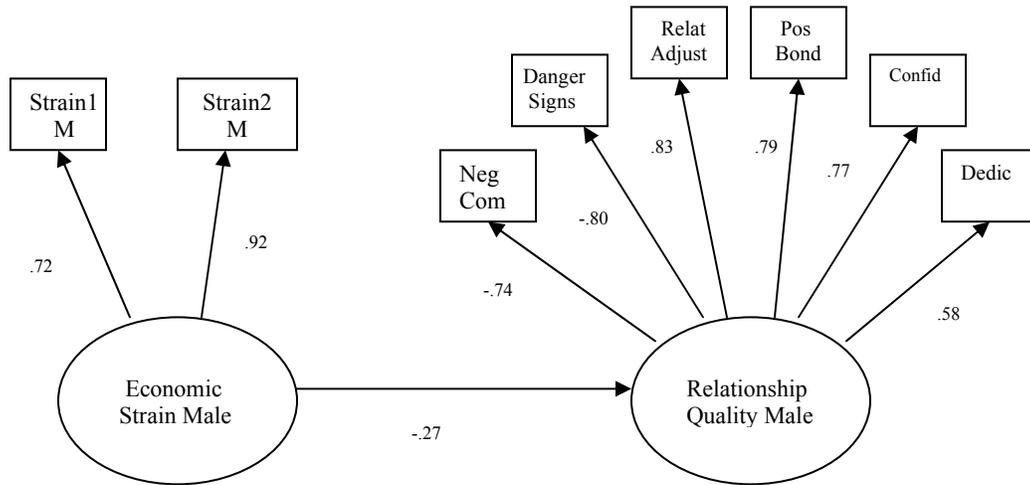
Note. ** $p < .01$ * $p < .05$

Appendix 1: Male and female correlations on pre variables continued

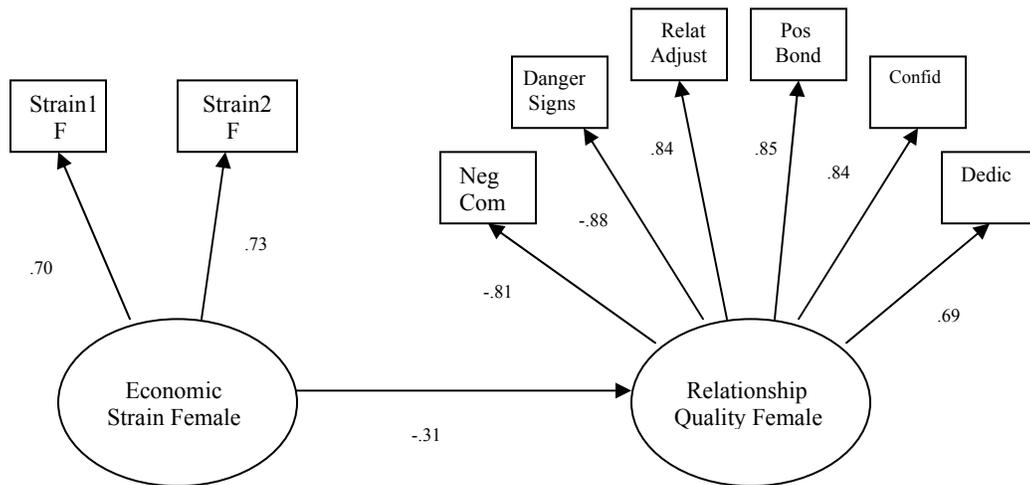
	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.
13. Relationship Satisfaction Female	.41**									
14. Positive Bonding Male	.64**	.41**								
15. Positive Bonding Female	.44**	.80**	.48**							
16. Dedication Male	.33**	.15	.43**	.23**						
17. Dedication Female	.25**	.52**	.26**	.53**	.29**					
18. Depression Male	-.22**	-.11	-.34**	-.12	-.31**	-.06				
19. Depression Female	-.20*	-.41**	-.16*	-.42**	-.08	-.27**	.07			
20. Anxiety Male	-.19*	-.13	-.27**	-.12	-.17*	.06	.63**	.07		
21. Anxiety Female	-.03	-.28**	-.03	-.25**	.00	-.05	.05	.71**	.10	

Note. ** $p < .01$ * $p < .05$

Appendix 2: Relationship between economic strain and relationship quality for men



Appendix 3: Relationship between economic strain and relationship quality for women



Appendix 4: Pre, Post, and FU1 2 group means

		Male Pre	Male Post	Male FU1	Female Pre	Female Post	Female FU1
Variable		Mean (SD)					
Negative Comm	Int	3.66 (1.19)	3.19 (1.06)	3.07 (1.12)	3.68 (1.20)	3.14 (1.22)	3.05 (1.08)
	Con	3.66 (1.46)	3.59 (1.38)	3.53 (1.41)	4.11 (1.40)	3.90 (1.35)	3.60 (1.55)
Relationship Adjustment	Int	29.65 (5.22)	30.50 (5.81)	29.87 (4.60)	27.97 (6.62)	29.27 (7.39)	29.40 (5.38)
	Con	29.74 (6.90)	32.07 (7.22)	30.56 (8.28)	28.52 (7.09)	29.22 (6.27)	28.06 (9.12)
Relationship Satisfaction	Int	4.50 (1.32)	4.75 (1.27)	4.56 (1.22)	4.10 (1.48)	4.44 (1.63)	4.47 (1.38)
	Con	4.66 (1.43)	4.88 (1.41)	4.53 (1.95)	4.25 (1.52)	4.78 (1.48)	4.26 (1.82)
Positive Bonding	Int	3.71 (.79)	3.91 (.74)	3.70 (.65)	3.46 (.96)	3.69 (.96)	3.58 (.85)
	Con	3.68 (.85)	3.59 (1.03)	3.59 (1.04)	3.56 (.99)	3.66 (.97)	3.59 (1.17)
Danger Signs	Int	1.82 (.47)	1.65 (.45)	1.67 (.47)	1.87 (.52)	1.72 (.50)	1.70 (.51)
	Con	1.83 (.58)	1.76 (.55)	1.73 (.69)	2.01 (.63)	1.84 (.59)	1.83 (.63)
Dedication	Int	5.57 (.86)	5.46 (.98)	5.58 (.98)	5.69 (.96)	5.61 (1.07)	5.75 (.94)
	Con	5.47 (.97)	5.47 (.98)	5.45 (1.00)	5.43 (1.14)	5.32 (1.10)	5.49 (1.29)
Confidence	Int	5.76 (1.17)	5.85 (1.13)	5.73 (1.23)	5.28 (1.60)	5.44 (1.55)	5.67 (1.37)
	Con	5.44 (1.40)	5.38 (1.33)	5.46 (1.51)	5.35 (1.52)	5.35 (1.60)	5.40 (1.67)
Depression	Int	.81 (.52)	.73 (.50)	.80 (.54)	1.00 (.63)	.86 (.72)	.83 (.66)
	Con	.81 (.48)	.66 (.41)	.75 (.52)	.98 (.65)	.78 (.59)	.73 (.53)
Anxiety	Int	.77 (.84)	.46 (.60)	.55 (.72)	.88 (.88)	.80 (.96)	.59 (.85)
	Con	.64 (.79)	.32 (.49)	.48 (.73)	.90 (.74)	.71 (.71)	.50 (.82)

Note. Int=Intervention group (couples, male, and female); Con= control group

Appendix 5: Pre, Post, and FU1 4 group means

Model	Group	Male Pre	Male Post	Male FU1	Female Pre	Female Post	Female FU1
		Mean (SD)					
Negative Comm	Couples	3.56 (1.15)	3.17 (1.01)	2.93 (1.05)	3.74 (1.41)	3.06 (1.43)	2.90 (1.15)
	Male	3.94 (1.23)	3.36 (1.04)	3.50 (1.19)	3.93 (1.14)	3.62 (1.04)	3.43 (1.33)
	Female	3.52 (1.18)	3.09 (1.12)	2.82 (1.04)	3.44 (1.05)	2.83 (1.07)	2.84 (.69)
	Control	3.66 (1.46)	3.59 (1.38)	3.53 (1.41)	4.11 (1.40)	3.90 (1.35)	3.60 (1.55)
Relationship Adjustment	Couples	30.13 (5.07)	30.90 (6.49)	29.21 (6.12)	27.88 (8.13)	30.10 (8.88)	31.65 (6.14)
	Male	28.83 (5.29)	30.07 (5.21)	28.74 (3.12)	26.90 (5.59)	27.97 (6.45)	27.58 (5.46)
	Female	29.94 (5.35)	30.53 (5.83)	31.36 (4.08)	29.00 (5.99)	29.68 (6.77)	29.23 (4.15)
	Control	29.74 (6.90)	32.07 (7.22)	30.56 (8.28)	28.52 (7.09)	29.22 (6.27)	28.06 (9.12)
Relationship Satisfaction	Couples	4.56 (1.27)	4.56 (1.58)	4.68 (1.40)	4.08 (1.64)	4.63 (1.76)	4.94 (1.48)
	Male	4.42 (1.34)	4.68 (1.11)	4.30 (1.22)	3.68 (1.42)	4.00 (1.59)	3.90 (1.33)
	Female	4.50 (1.38)	4.95 (1.11)	4.68 (1.11)	4.45 (1.32)	4.63 (1.53)	4.60 (1.22)
	Control	4.66 (1.43)	4.88 (1.41)	4.53 (1.95)	4.25 (1.52)	4.78 (1.48)	4.26 (1.82)
Positive Bonding	Couples	3.78 (.76)	3.97 (.68)	3.90 (.73)	3.53 (1.01)	3.77 (1.07)	3.71 (1.05)
	Male	3.57 (.87)	3.84 (.77)	3.65 (.60)	3.27 (1.01)	3.47 (.96)	3.46 (.82)
	Female	3.77 (.76)	3.91 (.79)	3.61 (.62)	3.55 (.87)	3.80 (.84)	3.58 (.73)
	Control	3.68 (.85)	3.59 (1.03)	3.59 (1.04)	3.56 (.99)	3.66 (.97)	3.59 (1.17)
Danger Signs	Couples	1.82 (.42)	1.65 (.41)	1.63 (.38)	1.85 (.56)	1.70 (.61)	1.59 (.54)
	Male	1.84 (.48)	1.66 (.52)	1.79 (.56)	2.12 (.50)	1.85 (.46)	1.85 (.57)
	Female	1.82 (.52)	1.65 (.44)	1.59 (.44)	1.70 (.41)	1.63 (.42)	1.65 (.41)
	Control	1.83 (.58)	1.76 (.55)	1.73 (.69)	2.01 (.63)	1.84 (.59)	1.83 (.63)
Dedication	Couples	5.65 (.92)	5.46 (1.11)	5.70 (1.01)	5.55 (1.01)	5.57 (1.31)	5.81 (.98)
	Male	5.34 (.86)	5.24 (.89)	5.12 (.90)	5.70 (1.04)	5.44 (1.01)	5.92 (.92)
	Female	5.70 (.79)	5.64 (.91)	5.87 (.91)	5.79 (.87)	5.79 (.86)	5.56 (.94)
	Control	5.47 (.97)	5.47 (.98)	5.45 (1.00)	5.43 (1.14)	5.32 (1.10)	5.49 (1.29)
Confidence	Couples	5.87 (1.16)	5.78 (1.20)	5.99 (1.27)	5.03 (1.77)	5.40 (1.61)	5.74 (1.36)
	Male	5.31 (1.31)	5.66 (1.18)	5.05 (1.20)	5.10 (1.63)	5.07 (1.44)	5.42 (1.48)
	Female	6.01 (.98)	6.07 (1.02)	6.10 (1.00)	5.65 (1.37)	5.77 (1.53)	5.82 (1.32)
	Control	5.44 (1.40)	5.38 (1.33)	5.46 (1.51)	5.35 (1.52)	5.35 (1.60)	5.40 (1.67)
Depression	Couples	.75 (.55)	.79 (.58)	.77 (.48)	.99 (.60)	.86 (.75)	.94 (.59)
	Male	.87 (.53)	.74 (.40)	.87 (.66)	1.06 (.78)	1.06 (.76)	.91 (.88)
	Female	.81 (.49)	.66 (.51)	.77 (.48)	.97 (.53)	.72 (.64)	.68 (.49)
	Control	.81 (.48)	.66 (.41)	.75 (.52)	.98 (.65)	.78 (.59)	.73 (.53)
Anxiety	Couples	.52 (.65)	.37 (.64)	.41 (.64)	.91 (.79)	.82 (1.00)	.52 (.78)
	Male	.93 (.90)	.54 (.50)	.63 (.95)	1.03 (1.05)	.95 (1.05)	.72 (1.07)
	Female	.87 (.90)	.47 (.64)	.59 (.56)	.74 (.79)	.66 (.85)	.54 (.69)
	Control	.64 (.79)	.32 (.49)	.48 (.73)	.90 (.74)	.71 (.71)	.50 (.82)

Appendix 6: Negative Communication and Relationship Adjustment ANOVA Results for all groups and time points

Variable	N	F (,)	Time	Gender	Time X Group	Time X Group X Gender
Pre/Post Neg Communication 2 groups	137	F (1, 135)	26.08***	2.06 tr	8.45**	.09 ns
Pre/Post Neg Communication 4 groups	137	F (1, 133) F (3, 133)	53.67***	.68 ns	2.90*	1.41 tr
Pre/Post/FU1 Neg Communication 2 groups	83	F (1, 81) F (2, 81)	11.94***	1.45 tr	2.93 ms	1.23 ns
Pre/Post/FU1 Neg Communication 4 groups	83	F (1, 79) F (2, 79) F (6, 79)	21.31***	.50 ns	1.18 ns	.80 ns
Pre/Post Relationship Adjustment 2 groups	121	F (1, 119)	11.15**	6.72*	.33 ns	2.64 tr
Pre/Post Relationship Adjustment 4 groups	121	F (1, 117) F (3, 117)	13.55***	8.17 **	.43 ns	1.32 ns
Pre/Post/FU1 Relationship Adjustment 2 groups	74	F (1, 72) F (2, 72)	3.30*	5.32*	.87 ns	.25 ns
Pre/Post/FU1 Relationship Adjustment 4 groups	74	F (1, 70) F (2, 70) F (6, 70)	3.30*	4.04*	.43 ns	1.51 tr

Note. $p < .001$ ***; $p < .01$ **; $p < .05$ *; $p < .10$ ms (marginally significant); $p < .25$ tr (trend); ns=non-significant.

Appendix 7: Relationship Satisfaction and Positive Bonding ANOVA Results for all groups and time points

Variable	N	F (,)	Time	Gender	Time X Group	Time X Group X Gender
Pre/Post Rel Satisfaction 2 groups	135	F (1, 133)	12.58**	5.11*	.19 ns	.44 ns
Pre/Post Rel Satisfaction 4 groups	135	F (1, 131) F (3, 131)	14.81***	8.99**	.07 ns	1.54 tr
Pre/Post/FU1 Rel Satisfaction 2 groups	81	F (1, 79) F (2, 79)	7.26**	2.87 ms	2.03 tr	.48 ns
Pre/Post/FU1 Rel Satisfaction 4 groups	81	F (1, 77) F (2, 77) F (6, 77)	6.83**	2.81 ms	1.32 tr	1.29 ns
Pre/Post Positive Bonding 2 groups	141	F (1, 139)	5.94*	3.03 ms	5.18*	.90 ns
Pre/Post Positive Bonding 4 groups	141	F (1, 137) F (3, 137)	16.72***	8.30**	1.76 tr	.52 ns
Pre/Post/FU1 Positive Bonding 2 groups	86	F (1, 84) F (2, 84)	1.84 tr	2.20 tr	2.64 ms	.59 ns
Pre/Post/FU1 Positive Bonding 4 groups	86	F (1, 82) F (2, 82) F (6, 82)	5.45**	5.01*	1.26 ns	.67 ns

Note. $p < .001$ ***; $p < .01$ **; $p < .05$ *; $p < .10$ ms (marginally significant); $p < .25$ tr (trend); ns=non-significant.

Appendix 8: Danger, Dedication, and Confidence ANOVA Results for all groups and time points

Variable	N	F (,)	Time	Gender	Time X Group	Time X Group X Gender
Pre/Post Danger 2 groups	141	F (1, 139)	27.77***	3.48 ms	.59 ns	1.67 tr
Pre/Post Danger 4 groups	141	F (1, 137) F (3, 137)	43.44***	3.80 ms	.94 ns	1.58 tr
Pre/Post/FU1 Danger 2 groups	86	F (1, 84) F (2, 84)	12.16***	1.70 tr	.19 ns	.18 ns
Pre/Post/FU1 Danger 4 groups	86	F (1, 82) F (2, 82) F (6, 82)	16.84***	.79 ns	.85 ns	.86 ns
Pre/Post Dedication 2 groups	140	F (1, 138)	1.84 tr	.03 ns	.11 ns	.43 ns
Pre/Post Dedication 4 groups	140	F (1, 136) F (3, 136)	3.32 ms	.84 ns	.46 ns	.79 ns
Pre/Post/FU1 Dedication 2 groups	85	F (1, 83) F (2, 83)	2.71 ms	.14 ns	1.15 ns	.38 ns
Pre/Post/FU1 Dedication 4 groups	85	F (1, 81) F (2, 81) F (6, 81)	1.62 tr	1.80 tr	.48 ns	.69 ns
Pre/Post Confidence 2 groups	140	F (1, 138)	.48 ns	4.33*	1.13 ns	.00 ns
Pre/Post Confidence 4 groups	140	F (1, 136) F (3, 136)	2.00 tr	10.87**	.43 ns	1.45 tr
Pre/Post/FU1 Confidence 2 groups	85	F (1, 83) F (2, 83)	.76 ns	1.20 ns	.51 ns	2.79 ms
Pre/Post/FU1 Confidence 4 groups	85	F (1, 81) F (2, 81) F (6, 81)	.68 ns	3.23 ms	.84 ns	1.45 tr

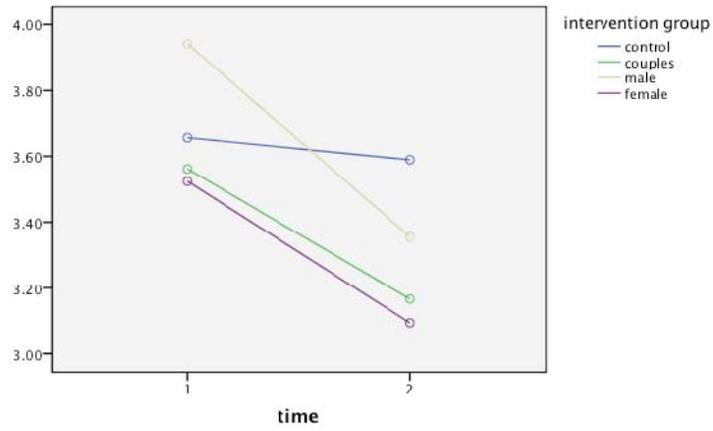
Note. $p < .001$ ***; $p < .01$ **; $p < .05$ *; $p < .10$ ms (marginally significant); $p < .25$ tr (trend); ns=non-significant.

Appendix 9: Depression and Anxiety ANOVA Results for all groups and time points

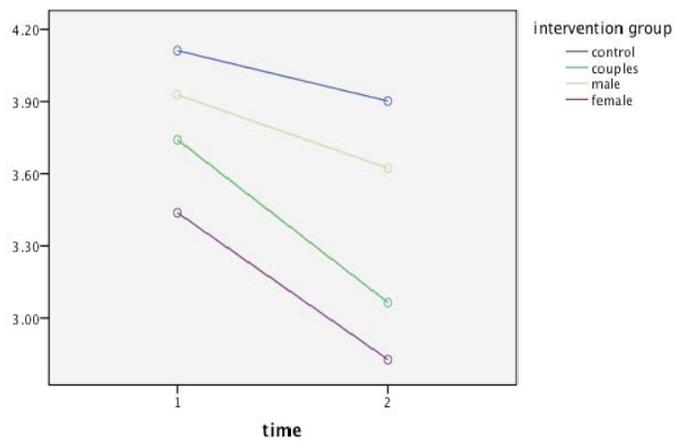
Variable	N	F (,)	Time	Gender	Time X Group	Time X Group X Gender
Pre/Post Depression 2 groups	141	F (1, 139)	15.75***	5.45*	.76 ns	.01 ns
Pre/Post Depression 4 groups	141	F (1, 137) F (3, 137)	15.25***	7.82**	1.60 tr	1.01 ns
Pre/Post/FU1 Depression 2 groups	86	F (1, 84) F (2, 84)	6.11**	2.06 tr	.35 ns	.37 ns
Pre/Post/FU1 Depression 4 groups	86	F (1, 82) F (2, 82) F (6, 82)	5.47**	2.54 tr	.65 ns	.69 ns
Pre/Post Anxiety 2 groups	136	F (1, 134)	23.42***	8.37**	.42 ns	.27 ns
Pre/Post Anxiety 4 groups	136	F (1, 132) F (3, 132)	26.88***	9.72**	.58 ns	.56 ns
Pre/Post/FU1 Anxiety 2 groups	82	F (1, 80) F (2, 80)	5.69**	2.89 ms	.17 ns	1.60 tr
Pre/Post/FU1 Anxiety 4 groups	82	F (1, 78) F (2, 78) F (6, 78)	7.47**	2.17 tr	.49 ns	.95 ns

Note. $p < .001$ ***; $p < .01$ **; $p < .05$ *; $p < .10$ ms (marginally significant); $p < .25$ tr (trend); ns=non-significant.

Appendix 10: Negative communication graph for men



Appendix 11: Negative communication graph for women



Appendix 12: Workshop evaluations - Impact items and composites

As a result of the FRAME workshops,	Alpha	Mean (SD)
<p>Relationship Improvement</p> <p>I have confidence that my partner and I can talk about things constructively. I will invest more time in our relationship. I think my partner and I will work more as a team. I have a stronger commitment to our relationship. I have a stronger commitment to our family.</p>	.94	5.94 (1.22)
<p>Life/Future Thinking</p> <p>I have a more positive outlook on life. My partner and I have a more similar outlook on life. I have greater confidence that we will be able to handle future stressors. I have greater confidence that our relationship will stay strong through future stressors.</p>	.92	5.72 (1.33)
<p>Program Specific Impact</p> <p>I made changes in my life or with my relationships based on what I learned in the workshop. I learned a lot. Overall, I am satisfied with my experiences in the FRAME program. Overall, I found the FRAME program helpful for my relationship. I would recommend FRAME to a friend.</p>	.93	6.27 (1.08)
<p>Leader/Group Process</p> <p>I was confident in the workshop leaders' ability to help us. Throughout the workshops, I was able to connect with my group leaders. Throughout the workshops, I was able to connect with other participants in the group.</p>	.74	6.35 (.84)

Appendix 13: Percentages of obstacles and things that helped make it possible to attend the workshops by couples and individual groups

Variables	Couples Group N=62	Individual Groups N=63
Obstacles to attending		
Childcare	38.7%	23.8%
Getting time off of work	37.1%	19.0%
Time/length of workshop	32.2%	20.6%
Day of workshop	17.7%	7.9%
Transportation	14.5%	17.5%
Travel distance	9.7%	20.6%
Male partner not interested in attending	4.8%	---
Female partner not interested in attending	3.2%	---
You not interested in attending	---	1.6%
Partner not wanting you to attend	1.6%	3.2%
Other	17.7%	12.7%
Helped make it possible to attend		
Childcare stipend	62.9%	69.8%
Flexibility at work	24.2%	17.5%
Support from co-workers, family, and friends	27.4%	44.4%
Partner's enthusiasm	61.3%	55.6%
Your own enthusiasm	69.4%	74.6%
Having it on a weekend day	41.9%	57.1%
Other	8.1%	19.0%

Appendix 14: Percentages of what partners did after the workshops she/he attended (by non-attending partner's report)

What partners did after workshops	Non-attending Partners N=62
Talked to me about what he/she learned	92.1%
Partner did a fun activity with me	71.4%
Partner practiced speaker listener with me	68.3%
Partner asked me on a date	55.6%
Partner talked about the workshop leaders	54.0%
Partner talked about other participants	54.0%
Partner did expectations activity with me	46.0%
Partner talked about co-parenting with me	44.4%
Partner practiced time out with me	44.4%
Other	22.2%

Appendix 15: Frequencies and percentages for most and least helpful categories

Variables	Frequency	Percent
Helpful Categories		
Learning Communication Skills	73	38.8%
Workshop Materials/Activities	39	20.7%
Commitment/Bettering the Relationship	13	6.9%
Group Process/Membership	14	7.4%
Parenting	2	1.1%
Other	10	5.3%
Everything was helpful	15	8.0%
Did not respond	7	3.7%
Unhelpful Categories		
Logistical Barriers	5	2.7%
Workshop Materials/Activities	28	14.9%
Negative Group Process/ Membership	2	1.1%
Not having partner present	5	2.7%
Lack of Partner Involvement	2	1.1%
Other	4	2.1%
All was great/Nothing	13	6.9%
Did not respond	66	35.1%