

**Mindfulness Frequency Impacting Relationship Quality: Exploring Changes for
Participants in a Mindfulness-Based CRE Program**

By

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Abstract

The current study utilizes a diverse sample of mindfulness-based relationship education (CRE) participants to address the links between care for self and care for partner behaviors, relationship satisfaction, and frequency of mindfulness practice. This study helps to fill a gap in the literature on frequency of mindful practice and the benefits associated with practice. Based on the Theory of Planned Behavior (Ajzen, 1991), it is expected that higher frequency of mindfulness behaviors will be associated with more caring behaviors, which are associated with a variety of relationship outcomes. At baseline, higher frequency of mindfulness practice is correlated with higher levels of care for self, care for partner, and overall relationship satisfaction. Findings from multi-path analysis indicate that generally, higher frequencies of mindfulness practice at time two are associated with higher levels of caring behaviors at time two and higher levels of relationship satisfaction at time three. These outcomes for couples and individuals support the continued incorporation of mindfulness in CRE, and research should further examine the links between mindfulness and individual and relational outcomes.

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Introduction

For couples who find themselves in unhappy or unfulfilling relationships, attending Couple and Relationship Education (CRE) courses has become increasingly popular, with some couples even choosing CRE over therapy for marital problems (Adler-Baeder et al., 2010; Halford et al., 2013). Because of this, CRE programs might be effective in filling the gap in services for relationally distressed couples. Specifically, various types of CRE were beneficial in helping couples resolve relationship difficulties through building healthy communication and problem-solving skills, which improved relationship satisfaction (Hawkins et al., 2013). Additionally, CRE has led to increased caring behaviors for self and one's partner; lowering emotional stress responses, increasing partner empathy, and establishing and maintaining partner intimacy (Halford, Markman, Stanley, & Kline, 2003; Hawkins et al., 2008).

For couples, CRE has been correlated with having a positive impact on relationship functioning. Couples who reported higher levels of relationship distress pre-CRE experienced the greatest decrease in relationship distress levels post intervention (Halford et al., 2013). CRE is versatile and can be used with couples who have various family organizations and parenting styles as well as with people in various stages of life and in diverse socioeconomic groups (Halford et al., 2013). In a meta-analysis of several psychoeducational CRE programs, the programs were found to have small to moderate significant effects on relationship satisfaction and moderate significant effects on communication skills between partners (Hawkins et al., 2013). CRE was found to be especially beneficial to couples who have fewer positive communication skills and low relationship satisfaction scores at the outset of the program (Adler-Baeder et al., 2010; Bradford et al., 2016; Halford & Bodenmann, 2013). In follow up studies of couples who participated in CRE programs, there have been significant positive effects found as far out as 2-5 years after program completion (Hawkins et al., 2013).

Any research focused on CRE as a potential benefit for couples in distress needs to evaluate the practice of the self and relationship caring skills as an essential component of treatment (Khaddouma et al., 2017). Caring behaviors for self and partner are an essential aspect of wellbeing for both individuals and couples who suffer relationship distress. While CRE courses generally focused on skills necessary to improve relational and individual well-being, it is the caring behaviors that are the most likely actions to potentially enhance the distressed relationship (Hawkins et al., 2003; Halford & Bodenmann, 2013). The studies dedicated towards caring behaviors in relationships showed an association between caring attention with the relationship and decreased negative affect towards partners (Barnes et al., 2007), along with increased relationship satisfaction.

For CRE to develop as an evidence based practice, which is beneficial for distressed couples, more focus needs to be devoted towards the mechanism of change of practicing skills learned in class related to self and partner care. The theory of planned behavior (TOPB) is the theoretical framework for understanding the benefits of learning and solidifying new relationship skills. Theoretically, when a person intends to do a specific behavior, the strength of their intention and the repetitive practice of the behavior can predict the performance and outcome of the behavior (Ajzen, 1991). Because CRE's strength is the learning and practice of new skills, TOPB is ideal for evaluating effectiveness. The assumption is that intent and practice are interdependent in that each is mutually influential in predicting future behaviors, bearing in mind that the past behavior often reflects the person's attitudes toward and intentions about doing the behavior (Ajzen, 1991). Participants practicing behaviors during CRE courses were found to be correlated with positive change in partner relationships (Halford et al., 2003).

Researchers and clinicians agree that in working with couples, acceptance of the other and their circumstances is a vital tool for couples, fostering a healthy, compassionate, and collaborative relationship, which are all components of caring for one's partner (Carson et al., 2004). These are all components of mindfulness, which is a practice that increases awareness

and can easily be joined with traditional CRE to influence both self and partner caring behaviors and outcomes. The benefits of mindfulness practice included increased positive communication and attention between partners leading to increased empathy and intimacy. Likewise, individuals demonstrated soothing behaviors, and internal awareness leading to decreased stress response and anxiety (Atkinson et al., 2013; Beckerman et al., 2011; Carson et al., 2004; Gambrel et al., 2010). Mindfulness is also compatible with the assumptions of TOPB; such as repetitive behavioral tasks and influence of intention to act on the behavior (Ajzen, 1991). Overall, mindfulness has been linked to the general outcomes of increased caring behaviors, increased relationship satisfaction, lower overall stress, and lower relationship stress (Barnes et al., 2007; Carson et al., 2004).

Participants in mindfulness-based CRE programs reported increased empathy for self and increased self-esteem, as well as decreased anxiety, depressive symptoms, and stress responses (Barnes et al., 2007; Gambrel et al., 2010). These, and other, self-care behaviors were positively correlated to relationship well-being and decreased negative affect towards the partner (Barnes et al., 2007; Karremans et al., 2017). Similarly, successful couples reported being able to attend to their partners during conflicts by pausing, relaxing, and noticing positive behaviors of their partner and accepting their partner's point of view (Atkinson et al., 2013). As much as research has found correlations between self-care and care for partner behaviors, these behaviors were underexplored as a mechanism for change in couple relationships.

Recent CRE innovations have integrated mindful practice as a component of creating healthy awareness of partner efforts and self-calming techniques. Mindfulness has been found to be particularly beneficial to both distressed and non-distressed couples (Carson et al., 2004). Mindfulness-based CRE encourages participants to attempt mindfulness techniques through the repeated and supported practice of mindfulness, which should lead to increased mindful participant actions (Ajzen, 1991).

Several CRE programs include mindfulness practice as an integral component, enabling couples to incorporate the benefits of self-regulation, awareness, and self-calming; which are all components of self-care (Atkinson et al., 2013; Barnes et al, 2007; Khaddouma et al., 2017). In couples mindfulness education, participants are taught to pause, breathe, relax, and take in their surroundings and physical state in a non-judgemental and accepting way (Carson et al., 2004; Gambrel et al., 2010; Karremans et al., 2017; Khaddouma et al., 2017; Wachs et al., 2007). Importantly, mindfulness practice allows for a caring attitude and practice for self, while benefiting personal awareness and self-regulation. The development and teaching self and partner oriented mindfulness, followed by weekly practice of the relationship skills and mindful exercises are theoretically beneficial to relationally distressed couples.

In order to address care for self and care for partner behaviors, and based on the TOPB, mindfulness-based CRE courses request that participants practice mindfulness at home for set amounts of time or a certain number of times in a given time frame (Carson et al., 2004; Gambrel et al., 2010; Khaddouma et al., 2017). Mindfulness-based CRE courses typically introduce a new weekly practice of mindfulness and encourage participants to practice mindful meditation during the week in addition to other forms of mindful activities previously introduced, such as mindful movement, touch, eating, and interpersonal interactions (Carson et al., 2004; Khaddouma et al. 2017). An important factor that contributes to a person engaging in these mindful practices is whether or not they have engaged in the same activity in the past (Ajzen, 1991). Overall, the actual application and practice of mindfulness is mostly based on an individual person's past experiences and practice of mindfulness.

The current study focuses on a mindfulness based CRE course, Couples Connecting Mindfully (CCM), which uses mindfulness as the foundation for all activities that help couples turn towards each other and share, reflect on personal actions impacting self and the relationship, and engage in weekly mindful activities that care for self and care for partner. Each week participants attend CCM having practiced a mindful activity at home the previous week.

The beginning of class is a check-in regarding participant practice of mindfulness during the week, based on frequency of practice. The check-in is used for determining personal experiences in practicing mindfulness, struggles with mindful practice by individual participants, and clarifying questions and encouraging follow through, along with the practice of mindful activity, which are all components of TOPB.

The class then focuses on a new mindful skill, followed by information about the benefits of mindful engagement for self and partner. Partners were given a turning towards activity that includes mindful practice and sharing within the relationship, similar to Kramers Insight Dialogue (Kramer, 2016). The class ends on a mindful practice and the couple is assigned a mindful homework practice that taught participants to care for self and for partner, being aware of actions related to self and partner. During this class, the participants practiced mindfulness activities with the support of their partner and the program facilitator, which, according to the TOPB, should lead to more practice of and confidence in mindfulness activities (Ajzen, 1991). Along with learning mindfulness techniques in CRE courses, behavioral changes in daily activities outside of the course play a large part in how effective mindfulness is for participants (Ajzen, 1991). Several phases of the class and at-home work are related to the TOPB- in class repetition facilitates outside behaviors, classes begin with a review of the last week's mindfulness behaviors, and participants are given subsequent behavioral mindful assignments.

Traditional mindfulness training requires participants to engage in a certain amount of mindfulness behaviors per week. However, mindfulness-based CRE is focused on teaching participants mindfulness skills rather than enhancing a mindfulness practice. Mindfulness-based CRE does not assume that participants are aware of the benefits of mindfulness or even have a practice, rather, the goal is to help participants gain comfort and ease in practicing mindfulness as a relationship skill building process. Because of this, mindfulness based CRE encourages participants to practice mindfulness several times a week (frequency) verses for a specified

amount of time (duration). For the new learner, the theoretical assumption of TOPB is that intent and practice frequency are important components to the development of relationship skills. The frequency of mindfulness skills should lead to an integrated mindfulness practice, and a person with an integrated mindfulness practice will reap more of the benefits of mindfulness that were previously discussed, such as increased relationship satisfaction and decreased psychological distress (Ajzen, 1991; Carson et al., 2004; Gambrel et al., 2010; Hawkins et al, 2013; Karremans et al., 2017).

While the current literature on mindfulness-based CRE programs has supported the findings of positive outcomes for participants, there are significant gaps in the literature that need to be addressed. Many MBCRE studies report an increase in relationship satisfaction post-program without assessing for possible moderators (Carson et al., 2004; Gambrel et al., 2010; Karremans et al., 2017), and there was no research assessing the link between caring behaviors and relationship satisfaction. Additionally, mindfulness-based CRE courses should help couples and individuals connect to the idea of trying mindfulness, and over time, integrate mindful behaviors and practice. However, the frequency of mindful practice has yet to be studied as a mechanism of change or a moderator for outcomes in mindfulness-based CRE. Additionally, larger and more diverse samples are needed in order to better generalize the results to the population. In order to address some of these gaps, in the present study, frequency of mindful practice will be assessed as a mechanism of change. We will also address the links between caring behaviors for self and partner and relationship satisfaction. Specifically, we have one research question and two hypotheses that we will test.

RQ1: for participants in CCM, is the level of mindfulness practice (never, monthly, weekly, and daily) associated with baseline care-for-self behaviors, care for partner behaviors, and relationship satisfaction?

RQ: for participants in CCM, does the frequency of mindful behaviors at time two moderate the relationship between self-care behaviors at time two, accounting for time one levels, and relationship satisfaction at time three, accounting for time one reports?

R3: for participants in CCM, does the frequency of mindful behaviors at time two will moderate the relationship between care for partner behaviors at time two, accounting for time one levels, and relationship satisfaction at time three, accounting for time one reports?

Literature Review

In the last several years, researchers have begun to assess potential outcomes for participants in Couple and Relationship Education (CRE) programs based on various factors and characteristics of CRE programs and mindfulness-based CRE programs. The popularity of CRE has grown tremendously since its introduction, with state and federal level funding sources dedicating millions of dollars to support the research, development, evaluation, and application of CRE programs (Hawkins et al., 2013). In order to ensure that our study contributes relevant findings to the field, it is necessary to understand what factors of CRE have already been found to be correlated with outcomes and to find the gaps in the literature, as well as understand the basic structure and goals of CRE programs. This section of the paper will review the current literature on both CRE programs and mindfulness based CRE programs.

Couple and Relationship Education (CRE) Programs

CRE programs are typically taught by one or two facilitators who have been trained on the intervention materials for that specific program (Halford et al., 2013). The programs tend to be brief, not usually lasting over 18 hours of total education time over the course of several weeks and typically focusing on communication and awareness training, as well as problem solving skills (Halford et al., 2003; Halford et al., 2013; Hawkins et al., 2013). The classes usually include a structured “lecture” time, as well as interactive segments and feedback from instructors (Halford et al., 2003).

It is important to note that CRE courses are not intended to be used in place of marriage therapy or when couples are highly distressed or are experiencing relationship violence (Adler-Baeder et al., 2010; Halford et al., 2013, Hawkins et al., 2013); but CRE can be used alongside couples therapy (Halford et al., 2003). Mildly distressed couples have reported an increase in relationship satisfaction after CRE program completion (Halford et al., 2013), and according to one study, more distressed couples experienced the highest amount of change in communication, negative interactions, and positive interactions (Bradford et al., 2016). However,

according to a recent meta-analysis, CRE was found to produce the best outcomes for couples who are already committed to and satisfied in their relationship (Halford et al., 2013), but these same couples showed the least amount of improvement post CRE due to already having high relationship satisfaction and positive communication skills at the outset of the program (Halford et al., 2013). Overall, CRE has been found to be helpful to both distressed and non-distressed couples.

Outcomes in CRE.

To test the differences in program effects, Bradford et al. (2016) assessed the outcomes for relationally distressed and non-distressed couples who participated in a CRE course. This study utilized 164 coupled participants in several community based CRE courses, and distressed versus non-distressed couples comprised roughly equal halves of the sample. Participants also reported the length of relationship/marriage, which ranged from 1 and 51 years (Bradford et al., 2016). The sample was about 65% white and 32% black. Relationship quality, commitment, positive and negative interactions, program duration and number of sessions, and general demographics were assessed for all participants (Bradford et al., 2016). The authors found that there was no correlation between program duration and number of sessions and outcomes for the participants (Bradford et al., 2016). There was a lack of significant change for non-distressed couples, but Bradford and colleagues (2016) note that it cannot be assumed that CRE does not benefit non-distressed couples. These results illustrate how CRE can be used for couples who may chose CRE over marriage counseling when they are relationally distressed.

A similar study was conducted to assess the outcomes for couples in CRE programs based on their demographics and socioeconomic status. Overall, 1293 men and women who participated in a CRE program that was based on a national marriage and relationship education model (Adler-Baeder et al., 2010). These participants gave both pre- and post-program data on socioeconomic status, couple functioning, relationship confidence, and individual functioning (Adler-Baeder et al., 2010). This sample was 57% African American and

61% were low income, and 38% of this sample attended the CRE program with their partner. Adler-Baeder and colleagues (2010) found that at the pre-test, income was the strongest predictor of both individual and couple/relational outcomes for both men and women, such that higher levels of income are associated with higher levels of individual and relational functioning. Additionally, being African American was linked to higher levels of pre-program individual functioning for both genders, compared to their European American peers (Adler-Baeder et al., 2010). The post-test data indicated that race was not correlated with significant change for individual or relationship functioning. The strongest predictor of change in couple functioning and relationship satisfaction was partner participation and attendance. Being married also predicted variance in positive change in relationship confidence after program completion (Adler-Baeder et al., 2010). Similar to Bradford and colleagues' (2016) findings, there was a significant path between lower income participants and increased couple functioning (Adler-Baeder et al., 2010).

Some researchers note that CRE programs mainly evaluate communication skills and overall relationship satisfaction, which leaves out many important outcomes or contributing variables that should be assessed (Adler-Baeder, et al., 2010). As research adds to our understanding of couple and relationship education, other factors should be assessed and integrated into program materials (Halford et al., 2003). [For example, in one non-CRE based study, overall mood and levels of self-control were assessed (Barnes et al., 2007), and another study looked at levels of reported individual relaxation (Carson et al., 2004).]

Based on the general positive effects of CRE programs, it is necessary to assess what aspects of the programs are most beneficial to couples. Specifically, mindfulness and mindfulness-based CRE programs will be assessed as a part of this literature review.

Mindfulness and Relationships

Mindfulness-based CRE (MBCRE) programs were developed when researchers recognized that an integral aspect of positive couple interactions were acceptance, non-

judgement, and awareness of one and one's partner (Atkinson, 2013), which are all components of mindfulness. Mindfulness practice has been shown to be positively associated with relationship satisfaction, intimacy, positive affect, cognitive functioning, and ability to navigate a variety of external stressors (Atkinson, 2013; Barnes et al., 2007; Gambrel et al., 2010; Karremans et al., 2017; Wachs et al., 2007). However, there are a limited number of published evaluations for MBCRE, therefore, we will first explore mindfulness as a concept and mindfulness-based stress reduction (MBSR) program evaluations before exploring MBCRE programs.

Some researchers note that the non-judgement of inner experience and observational aspects of mindfulness can improve sexual satisfaction (Khadoumma et al., 2017). Other than the benefits seen in participants who are already satisfied and committed in their relationships, positive effects of mindfulness have been observed when external stressors enter the relationship. These external stressors, such as work, financial difficulties, or illness, can have a spillover effect that negatively affects relationship satisfaction; and the use of mindfulness has been shown to mitigate this negative effect (Gambrel et al., 2010; Karremans et al., 2017).

Based on the findings on mindfulness of increased positive couple interactions, several researchers have parsed apart the aspects of couple interactions in order to assess more specific factors of couple interactions that are correlated with and lead to increased relationship functioning. These other aspects include interpersonal communication skills, level of reactivity to partner, perception of marital quality based on various parts of relationship functioning, empathy, emotion regulation, accommodation and perception of one's partner (Atkinson, 2013; Barnes et al., 2007; Carson et al., 2004; Hawkins et al., 2013; Khaddouma et al., 2017; Wachs et al., 2007).

In one study, Wachs and Cordova (2007) assessed the links between mindfulness, relationship satisfaction, self-control, and emotional expression in married couples. The participants were recruited to this study from a larger study on marital satisfaction and emotional

skillfulness; overall, 33 couples were included in the analysis. The participants answered questions over the phone regarding their relationship satisfaction, interpersonal reactivity, self-control, and emotional expression (Wachs et al., 2007). The results were grouped by couple and the findings indicated that mindfulness was positively correlated with marital adjustment and emotional communication skills. Additionally, a person's ability to effectively manage negative and angry emotions mediated the relationship between mindfulness and relationship satisfaction (Wachs et al., 2007). However, the sample size was small, based on self-report, and nearly all of the participants were white, which decreases the generalizability of the findings (Wachs et al., 2007).

Barnes et al. (2007) conducted two studies to assess mindfulness in the role of romantic relationships. The first study that they conducted consisted of eighty two college aged participants who were in a romantic relationship (the partners were not involved in the study). These participants answered questions regarding trait mindfulness practice as well as self-control and accommodation. Mindfulness was found to be positively correlated and predictive of both relationship satisfaction and self-control and accommodation at both time 1 and time 2 (Barnes et al., 2007). While these findings are significant, there are some limitations to the design of this study. The majority of these participants were white, female, and young (Barnes et al., 2007), so the results cannot be generalized. Additionally, there was not a mindfulness intervention, and the mindfulness that was assessed was self-reported trait mindfulness and mindful behaviors.

The second study that Barnes and colleagues (2007) conducted aimed to replicate and strengthen the findings from the first study. In this study, fifty seven healthy, college-aged couples who were brought to a lab with recording equipment and asked to discuss their day-to-day activities as well as a conflict topic. For each topic, the participants were instructed to do a brief mindful breathing exercise before beginning the conversation. Barnes et al. (2007) found that participants with higher reported trait mindfulness had lower conflict-anxiety and

anger/hostility and higher levels of communication quality during conflict. The seriousness and intensity of the topic being discussed was controlled for, and mindfulness was still found to be linked to adaptive response and communication skills (Barnes et al., 2007). For both of these studies, it should be noted that these results cannot be generalized as the participants were overwhelmingly white and highly educated, and mostly reported being happy and satisfied in their relationships (Barnes et al., 2007). Additionally, these studies were not longitudinal and therefore could not address if change in mindful behaviors affected relationship outcomes.

While mindfulness traits in relationships are important to assess and understand, some researchers have begun to teach mindfulness (either MBSR programs for individuals or MBCRE programs for couples) and assess outcomes during and after program completion.

Mindfulness-based stress reduction programs.

Because mindfulness-based CRE programs are still in their infancy, there are few published studies and evaluations of MBCRE. However, there are more findings for MBSR programs, and these findings will be explored below.

In one study, Gillespie and colleagues (2015) used a semi-structured, approximately 2.5 hour interview to assess coupled participants who attended an 8-week mindfulness-based stress reduction (MBSR) course where only one member of the couple attended the CRE course. The time from program completion to interview varied by participant and ranged from 1 week to four months prior to the interview (Gillespie et al., 2015). All participants reported positive outcomes from the program, such as increased emotional awareness, acceptance of one's circumstances, and appreciation for one's partner and circumstances. The partners of the participants reported seeing lasting changes in their partners attitudes several months after program completion (Gillespie et al., 2015). However, the sample size was small (11 couples total), the participants were mostly white, highly educated and had higher than average income, and the participants self-selected into MBSR programs and the study. Additionally, some of the

couples had previously participated in mindfulness programs in months or years prior to the current program that was assessed (Gillespie et al., 2015).

Similarly, Khadoumma and colleagues (2017) assessed how one partner's attendance in a MBSR course affected the romantic relationship outcomes for both the participant and partner. Data were gathered from twenty couples at the beginning and end of the 8-week program. Increases in mindful practice and increases in relationship satisfaction were observed for both the participants and their partners during the program (Khadoumma et al., 2017). The authors conclude that increases in mindful behaviors and traits are linked to increases in relationship functioning after running regression analyses on the data (Khadoumma et al., 2017). However, this study had a small sample size, no comparison or control group, and similar to other studies reviewed, consisted of mostly highly educated, white people.

Mindfulness-based CRE.

Carson and colleagues (2004) assessed coupled participants who had no previous mindfulness training and who participated in an 8-week mindfulness based CRE program. A total of 22 couples participated in the mindfulness intervention, and 22 couples were a part of a waitlist control group. The authors found that participants in the mindfulness program reported higher levels of both relational and individual functioning in comparison to the control group (Carson et al., 2004). The participants were required to keep a "daily diary," including their mindful practice. On the days that participants reported practicing mindfulness, they were found to have decreased individual and relational stress and increased coping ability (Carson et al., 2004). These findings indicate that mindfulness-based CRE programs have significant positive effects at both the individual and couple levels.

Gambrel and Piercy (2015a, 2015b) used a two-part study design to assess 33 couples who participated in a "Mindful Transition to Parenthood" program. Although there were limited significant outcomes, males in their study reported increased relationship satisfaction and improved negative affect (Gambrel and Piercy, 2015a). However, in the second part of their

study, participants in the program were found to have increases in acceptance and awareness of their partner, as well as improved relationship satisfaction and decreased negative affect (Gambrel and Piercy, 2015b). Overall, couples in the study reported that after program completion, they experienced increased awareness and acceptance of their partners (Gambrel and Piercy, 2015b). This is significant in that awareness of behaviors is integral to choice and practice of behaviors, and these behaviors are correlated with higher relationship satisfaction (Atkinson, 2013; Ajzen, 1991).

These findings indicate that MBCRE has led to positive outcomes at both the individual and relational level. However, there are incredibly limited published evaluations of MBCRE with small sample sizes, so the results of the above studies cannot be generalized.

Limitations

Overall, these findings are promising for the future of mindfulness-based relationship education, but there are a number of limitations to these studies that decrease their statistical power and the generalizability of the findings (Barnes et al., 2007; Carson et al., 2004; Gambrel and Piercy, 2015a, 2015b; Gillespie et al., 2015; Khaddouma et al., 2017; Wachs et al., 2007). All of the studies had fewer than one hundred participants overall, coupled or otherwise; and many participants were college aged and/or not married. Additionally, the participants were overwhelmingly white, well-educated, and reported a higher than average income, which is not nationally representative. Lack of racial and socioeconomic diversity is a common limitation of many research studies. Lastly, the data were typically cross sectional or short-term longitudinal (i.e. surveys given at the beginning and end of the program).

The Present Study

The present study will address several gaps in the literature, including the type of outcome and predictor variables assessed, frequency of practice, and participant and sample issues (i.e. diversity, size, etc.).

First, according to the theory of planned behavior (TOPB), if a person has engaged in a behavior in the past (i.e. mindfulness), there is an increased likelihood that a person will engage in that activity in the future (Ajzen, 1991). However, no current, published study on mindfulness-based CRE assesses the frequency of mindful practice. This is necessary to understand more fully as current mindfulness-based programs are not able to provide clear rationale for how often or how long the participants should use mindfulness in order to reap the most benefits.

This study will assess the frequency of mindful practice for participants in a mindfulness-based CRE program, rather than just assessing trait mindfulness. This will allow us to examine how frequency of mindfulness practice influences and moderates our variables of interest, rather than how trait mindfulness (that exists in the participants pre-program) may influence outcomes. Specifically, we will assess baseline care for self, care for partner, and relationship satisfaction scores with participants based on the level of mindfulness practice that they report. We will then explore the frequency of mindful practice as a moderator for self and partner caring behaviors. Overall, the effects of frequency of mindful practice is under-explored in current literature.

As mentioned earlier, most MBCRE assesses relationship satisfaction as an outcome without assessing participant behavior or possible moderators to those behaviors and outcomes. We know from the TOPB that current behaviors are a significant predictor for future behaviors (Ajzen, 1991), which informs us that assessing participant behaviors could be relevant to understanding and assessing outcomes. Specifically, our study will assess self-care and care for partner behaviors for couples participating in mindfulness CRE. We hypothesize that there will be a difference at baseline in caring behaviors and relationship satisfaction based on the level of mindfulness practice. We also hypothesize that caring behaviors will influence relationship satisfaction at the six-month follow up based on level of mindfulness practice. In this way, frequency of mindful practice will be explored as a contributing factor to relationship satisfaction after the end of the CRE program.

Because the application and evaluation of mindfulness-based CRE is still in its infancy, there are a limited number of studies that have typically smaller sample sizes of mostly white and well-educated people. Our sample size includes several hundred participants, diverse in age, race, and socioeconomic status. This more diverse and larger sample in our study will increase the generalizability of the results as well as increase the statistical power once we conduct the analyses.

Methods

Procedure

The current study is part of a broader statewide randomized control study. Community agencies recruited interested couples into a research study focused on the efficacy of relationship education and explained the couples would be randomly assigned to one of two CRE program groups (including Couples Connecting Mindfully) or the no-program control group. For the purposes of the current study, the randomly assigned participants in the Couples Connecting Mindfully (CCM) group were evaluated.

Couples enrolled at community resource centers which provided employment, GED, and relationship services across the state. The couples completed online baseline surveys via a central research team. Participants had approximately 7 to 10 days to complete the baseline survey and, once the survey was closed, were randomly assigned to one of the three group conditions. Program participants attended classes over a 6 week period for 1.5 hours per session. The week following the completion of the program all study participants were sent an immediate post survey and were provided approximately 14-21 days to complete the survey. Similarly, study participants were sent a six-month follow-up survey via an online system and had about one month to complete the survey. All study participants were compensated \$50 for each survey they completed, and the surveys requested information about individual, couple, parenting, and child functioning.

Participants

The initial sample was comprised of 613 individuals, but 86 (43 couples) who were assigned to the CCM group were removed for zero attendance of CCM courses. Therefore, people who attended between one and six sessions were considered participants in our study. Because the research questions are assessing the effects of mindfulness practices learned in the CCM program, participants who never attended a CCM course were not be assessed.

Additionally, the vast majority of participants (86%) came to at least one CCM session, so they were analyzed together and not separated based on how many sessions were attended. For assessments, the response rates were ninety-seven percent for time 1 baseline assessment (605 participants), eighty-eight percent at time 2, program completion (549 participants), and eighty-one percent six months later at time three (504 participants). Therefore, the analytic sample of program participants is currently comprised of 527 participants who attended at least one CCM course and who completed at least one assessment. Table 1 includes descriptive statistics for the participants.

The sample was racially and economically diverse. Women comprised 52% and men comprised 48% of the sample, and the average age of participants was 38 years old. Twenty-three percent of participants reported being in a committed relationship, 8% reported being engaged to be married, and 69% reported being married. Sixty percent of the participants reported being European American, 35% reported being African American, and 5% reported being "other." Twenty-five percent of the sample reported having obtained a high school diploma or less; 37% reported having obtained a vocational degree, some college, or an associates degree; and 38% reported having obtained a bachelor's or higher. Thirty percent of the sample reported making a yearly income of less than \$24,999; 17% reported making between \$25,000-39,999; 27% reported making between \$40,000-74,999; and 26% reported making more than \$75,000 a year. Table 2 includes the above demographic information for men and women in our sample.

Measures

The following variables were assessed at all time points, but based on model and research question being tested, the reports of the variables only at certain time points will be utilized. All measures used in this study were self-report. Reports of self-care and care for partner were measured before classes began and immediately following the conclusion of

classes. Reports of relationship quality were assessed before classes began and six months following the initial survey. Table 3 includes correlations among all variables.

Self-Care. Eight items were used to assess participant's self-care behaviors. Items from the Individual Empowerment scale (Adler-Baeder et al., 2010) and items developed specifically for the survey and derived from program content were utilized. Participants rated themselves on item such as, "I manage the stress in my life," "I recognize my strengths," "I eat healthy meals everyday," and "I have quiet time for myself every day." Respondents reported on a 7 point Likert-scale (1 = very strongly disagree to 7 = very strongly agree). For this measure, a higher score indicated higher levels of personal empowerment and greater use of self-care behaviors. The reliability for male participants was 0.783 at time 1 and 0.798 at time 2. The reliability for female participants was 0.786 at time 1 and 0.792 at time 2.

Care for Partner. Five items were used to assess the participant's demonstration of positive, caring behaviors towards partners. Items were combined from Huston & Vangelisti's (1991) Positive Interactions scale and the Interpersonal Competence Scale (Buhrmester, Furman, Wittenberg, & Reis, 1988). Participants were asked questions such as, "On average, how often in the past month did you share emotions, feelings, or problems with your partner," "Say "I love you" to your partner," or "Initiate physical affection with your partner." Respondents reported on a 7 point Likert-scale (1 = never to 7 = more often than once a day.) A higher score indicated more use of caring behaviors for one's partner. The reliability for male participants was 0.786 at time 1 and 0.798 at time 2. The reliability for female participants was 0.749 at time 1 and 0.752 at time 2.

Relationship Quality. Three items from the Quality of Marriage Index (QMI; Norton, 1983) were used to assess participants' reports of relationship quality. The items include "We have a good marriage/relationship," "My relationship makes me happy," and "Our relationship is strong." Respondents reported on a 7 point Likert-scale (1 = very strongly disagree to 7 = very strongly agree). In this measure, higher scores indicate higher relationship quality. The reliability for male

participants was 0.772 at time 1 and 0.778 at time 3. The reliability for male participants was 0.758 at time 1 and 0.777 at time 3.

Mindfulness Practice (frequency). One item was used to assess the frequency that participants reported engaging in some type of mindfulness. Participants were asked, “Mindfulness is described as being attuned to and aware of the present moment. How often do you practice some form of mindfulness? (e.g., yoga, deep breathing, meditation).” Participants reported on an eight point Likert-type scale, with answers ranging from, “Never, I do not know anything about mindfulness or its practice,” to, “Multiple times per day.” A higher score indicated a higher frequency of mindfulness practice during the reporting period. For the second two hypotheses, responses were regrouped and labeled into categories of “Never to Monthly”; “Weekly”; and “Daily.”

Plan of Analysis.

To test the first research question, CCM participants were grouped based on level of mindfulness practice (based on the original eight-point Likert type scale) and baseline care-for-self behaviors, care for partner behaviors, and relationship satisfaction were assessed. Correlations were used to assess whether baseline reports of mindfulness practice were associated with care for self and care for partner behaviors and relationship quality.

To test the second research question that for participants in CCM, the frequency of mindful behaviors at time two will moderate the relationship between self care behaviors at time two, accounting for time one, and relationship satisfaction at time three, accounting for time one, multi group path analyses utilizing AMOS software were fit to the data. Specifically, the multi-group analysis assessed the participant’s report of frequency of mindfulness (monthly to never, weekly, and daily) and assessed how this moderated the relationship between self-care and relationship satisfaction.

To test the third research question that for participants in CCM, the frequency of mindful behaviors at time two will moderate the relationship between care-for-partner behaviors at time two, accounting for time one, and relationship satisfaction at time three, accounting for time one, multi group path analyses utilizing AMOS software were fit to the data. Specifically, the multi-group analysis assessed the participant's report of frequency of mindfulness (monthly to never, weekly, and daily) and assessed how this moderated the relationship between care for partner and relationship satisfaction. In testing the second and third research questions, the models were fit for men and women separately in order to account for dependency in couples. A delta chi-square value was attained by calculating the difference between the chi-square value and degrees of freedom in the models. The chi-square table was used to assess if the delta chi-square value was greater than the critical chi square value provided by the table. If the calculated delta chi-square value was found to be greater than the critical value, then the models would be considered significantly different from each other.

Goodness of fit indices were then calculated to assess how well the data fits the model, this study uses the comparative fit index (CFI) and the root mean square error of approximation (RMSEA). Larger values for the chi-square test of model fit indicate poorer fit. For CFI, values of .95 or higher indicate good model fit, .90-.95 indicate acceptable model fit, and values .90 or lower indicate poor model fit. For RMSEA, a value of .01 indicates an excellent model fit, .05 indicates good model fit, and .08 indicates poor model fit. Additionally, if the RMSEA has a non-significant p-value, this indicates acceptable model fit.

Results

The following section will explore the results based on the analyses. Basic correlations at time one are run to establish baseline data for care for self, care for partner, and relationship satisfaction based on level of mindfulness practice. Multi group path analyses using AMOS are fit to the data to establish a relationship between level of mindfulness practice and change in caring behaviors and relationship quality.

Preliminary Analyses

To begin, preliminary analyses were conducted on the data. Table 1 displays descriptive statistics of all variables used in this study for men and women who participated in CCM. The variables used were normally distributed in the overall sample, as the kurtosis and skewness statistics fall between -2 and +2 (George & Mallery, 2010). Because of this, no variables required transformations.

Pearson correlations were used to determine whether baseline scores for self-care, care-for-partner, and relationship quality were associated with level of mindfulness practice (never to monthly, weekly, and daily). Multi group analyses were fit with AMOS 24.0 in order to assess the second two hypotheses that frequency of mindfulness practice moderates the relationship between self-care and care for partner at time two, accounting for time one, and relationship quality at time three, accounting for time one. Analyses were run separately for men and women to address the issue of interdependence of couples in the dataset.

Baseline Care for Self, Care for Partner, and Relationship Quality

Participants were grouped based on level of mindfulness practice and assessed associations between care for self behaviors, care for partner behaviors, and relationship satisfaction. The initial practice groups were collapsed to better represent frequencies of mindfulness practice (monthly to never, weekly, and daily). Correlations of self-care, care for partner, and relationship satisfaction at time 1 are presented in Table 5. There was a significant positive association between levels of mindfulness practice and relationship quality, ($r = .112$, p

< 0.05), care for self behaviors ($r = .257, p < 0.01$), and care for partner behaviors ($r = 0.153, p < 0.01$), such that higher frequencies of mindfulness practice were associated with higher levels of caring behaviors and relationship satisfaction.

Care for self and care for partner were significantly associated at baseline, as expected ($r = 0.323, p < 0.01$). Additionally, relationship quality was moderately associated with both care for self ($r = 0.438, p < 0.01$), and care for partner ($r = 0.486, p < 0.01$), such that higher levels of relationship quality was associated with higher levels of caring behaviors. Overall, these findings show that before program commencement or completion, higher levels of mindfulness practice were associated with higher levels of caring behaviors and relationship quality.

Men's Care for Self

The second research question was that for men in CCM, level of mindfulness practice at time two moderates the relationship between care for self behaviors at time two and relationship quality at time three. A path analysis was fit using AMOS 24.0 with men and women modeled separately to account for dependency. One multi group model was run to test this research question for men. First, the model was fit using the unconstrained model for the three groups (monthly to never, weekly, daily practice). Next, the association between care for self at time two controlling for time one and relationship quality at time three controlling for time one was constrained to be equal across the three groups, based on frequency of mindfulness practice (monthly to never, weekly, daily).

When fitting the first unconstrained model, acceptable model fit was achieved ($\chi^2 = 4.537, df = 6; RMSEA = .00, p < .001; CFI = 1.000$). The results of the analyses showed that for men who practice mindfulness monthly to never, the path between self-care at time two and relationship quality at time three was not significant, $\beta = -.123, p = .369$, meaning residual change in self-care immediately post-program does not predict residual change in relationship quality 6 months after program participation. For men who practice mindfulness weekly, the path between self-care at time two and relationship quality at time three was significant, $\beta = .244, p =$

0.015, suggesting greater residual change in self-care immediately post-program predicts greater residual change in relationship quality 6 months after program participation. Lastly, for men who report practicing mindfulness daily, the path between self-care at time two and relationship quality at time three was marginally significant, $\beta = .209$, $p = 0.053$, indicating that greater residual change in self-care immediately post-program predicts greater residual change in relationship quality 6 months after program participation.

A post-hoc test was run for the model constraining the pathway between care for self at time two and relationship quality at time three between the monthly to never and weekly practice groups. A Δx^2 test indicated that the association between residual change in care for self and residual change in relationship quality differed between monthly to never practice group and the weekly practice group, $\Delta x^2 (1) = 3.298$, $p = 0.069$. Specifically, those in the weekly practice group had a positive and statistically significant association, whereas there was no association for the monthly to never group. A post-hoc test was run for the model constraining the pathway between care for self at time two and relationship quality at time three between the monthly to never and daily practice groups. A Δx^2 test indicated that the association between residual change in care for self and residual change in relationship quality did not differ between the monthly to never practice group and the daily practice group, $\Delta x^2 (1) = 2.65$, $p = 0.104$. A final post-hoc test was run for the model constraining the pathway between care for self at time two and relationship quality at time three between the weekly and daily practice groups. A Δx^2 test indicated that the association between residual change in care for self and residual change in relationship quality did not differ between the weekly and daily practice group, $\Delta x^2 (1) = 0.026$, $p = 0.871$.

Women's Care for Self

The next part of the second research question was for women in CCM, level of mindfulness practice at time two moderates the relationship between care for self behaviors at time two and relationship quality at time three. A path analysis was fit using AMOS, with men and women modeled separately separated to account for dependency. One multi group model

was run to test this research question for women. First, the model was fit using the unconstrained model for the three groups (monthly to never, weekly, daily practice).. Next, the association between care for self at time two controlling for time one and relationship quality at time three controlling for time one was constrained to be equal across the three groups based on frequency of mindfulness practice (monthly to never, weekly, daily).

When fitting the first unconstrained model, acceptable model fit was achieved and the results were significant ($\chi^2 = 7.746$, $df = 6$; $RMSEA = .034$, $p < .001$; $CFI = 0.995$). The results of the analyses showed that for women who practice mindfulness monthly to never, the path between self-care at time two and relationship quality at time three was not significant, $\beta = .159$, $p = .451$, meaning residual change in self-care immediately post-program does not predict residual change in relationship quality 6 months after program participation. For women who practice mindfulness weekly, the path between self-care at time two and relationship quality at time three was not significant, $\beta = .057$, $p = 0.524$, meaning residual change in self-care immediately post-program does not predict residual change in relationship quality 6 months after program participation. Lastly, for women who report practicing mindfulness daily, the path between self-care at time two and relationship quality at time three was significant, $\beta = .330$, $p = 0.006$, suggesting greater residual change in self-care immediately post-program predicts greater residual change in relationship quality 6 months after program participation.

A post-hoc test was run for the model constraining the pathway between care for self at time two and relationship quality at time three between the monthly to never and weekly practice groups. A $\Delta\chi^2$ test indicated that the association between residual change in care for self and residual change in relationship quality did not differ between monthly to never practice group and the weekly practice group, $\Delta\chi^2 (1) = 0.177$, $p = 0.674$. A post-hoc test was run for the model constraining the pathway between care for self at time two and relationship quality at time three between the monthly to never and daily practice groups. A $\Delta\chi^2$ test indicated that the association between residual change in care for self and residual change in relationship quality did not differ

between monthly to never practice group was not equal to the daily practice group, $\Delta x^2 (1) = 0.452$, $p = 0.501$. A final post-hoc test was run for the model constraining the pathway between care for self at time two and relationship quality at time three between the weekly and daily practice groups. A Δx^2 test indicated that the association between residual change in care for self and residual change in relationship quality marginally differed between monthly to never practice group was not equal to the weekly practice group, $\Delta x^2 (1) = 3.428$, $p = 0.064$. Specifically, women in the daily practice group had a positive and statistically significant association, whereas there was no association for the weekly group.

Men's Care for Partner

The third research question was that for men in CCM, level of mindfulness practice at time two moderates the relationship between care for partner behaviors at time two and relationship quality at time three. A path analysis was fit using AMOS, with men and women modeled separately to account for dependency. One multi group model was run to test this research question for men. First, the model was fit using the unconstrained model for the three groups (monthly to never, weekly, daily practice).. Next, the association between care for partner at time two controlling for time one and relationship quality at time three controlling for time one was constrained to be equal across the three groups based on frequency of mindfulness practice (monthly to never, weekly, daily).

When fitting the first unconstrained model, acceptable model fit was achieved ($x^2 = 3.893$, $df = 6$; $RMSEA = .00$, $p < .001$; $CFI = 1.000$). The results of the analyses showed that for men who practice mindfulness monthly to never, the path between care for partner at time two and relationship quality at time three was not significant, $\beta = .122$, $p = .312$, meaning residual change in care for partner immediately post-program does not predict residual change in relationship quality 6 months after program participation. For men who practice mindfulness weekly, the path between care for partner at time two and relationship quality at time three was significant, $\beta = .166$, $p = 0.020$, suggesting greater residual change in care for partner

immediately post-program predicts greater residual change in relationship quality 6 months after program participation. Lastly, for men who report practicing mindfulness daily, the path between care for partner at time two and relationship quality at time three was not significant, $\beta = .029$, $p = 0.767$, meaning residual change in care for partner immediately post-program does not predict residual change in relationship quality 6 months after program participation.

A post-hoc test was run for the model constraining the pathway between care for self at time two and relationship quality at time three between the monthly to never and weekly practice groups. A Δx^2 test indicated that the association between residual change in care for partner and residual change in relationship quality did not differ between monthly to never practice group and the weekly practice group, $\Delta x^2 (1) = 0.088$, $p = 0.767$. A post-hoc test was run for the model constraining the pathway between care for self at time two and relationship quality at time three between the monthly to never and daily practice groups. A Δx^2 test indicated that the association between residual change in care for partner and residual change in relationship quality did not differ between monthly to never practice group and the daily practice group, $\Delta x^2 (1) = 0.345$, $p = 0.557$. A final post-hoc test was run for the model constraining the pathway between care for self at time two and relationship quality at time three between the weekly and daily practice groups. A Δx^2 test indicated that the association between residual change in care for partner and residual change in relationship quality did not differ between the monthly to never practice group and the weekly practice group, $\Delta x^2 (1) = 1.259$, $p = 0.262$.

Women's Care for Partner

The next part of the third research question was that for women in CCM, level of mindfulness practice at time two moderates the relationship between care for partner behaviors at time two and relationship quality at time three. A path analysis was fit using AMOS, with men and women modeled separately to account for dependency. One multi group model was run to test this research question for women. First, the model was fit using the unconstrained model for the three groups (monthly to never, weekly, daily practice).. Next, the association between care

for partner at time two controlling for time one and relationship quality at time three controlling for time one was constrained to be equal across the three groups based on frequency of mindfulness practice (monthly to never, weekly, daily).

When fitting the first unconstrained model, acceptable model fit was achieved and the results were significant ($\chi^2 = 24.734$, $df = 6$; $RMSEA = .111$, $p < .001$; $CFI = 0.949$). The results of the analyses showed that for women who practice mindfulness monthly to never, the path between care for partner at time two and relationship quality at time three was not significant, $\beta = .091$, $p = .520$, meaning residual change in care for partner immediately post-program does not predict residual change in relationship quality 6 months after program participation. For women who practice mindfulness weekly, the path between care for partner at time two and relationship quality at time three was not significant, $\beta = .028$, $p = 0.663$, meaning residual change in care for partner immediately post-program does not predict residual change in relationship quality 6 months after program participation. Lastly, for women who report practicing mindfulness daily, the path between care for partner at time two and relationship quality at time three was significant, $\beta = .333$, $p = 0.001$, suggesting greater residual change in care for partner immediately post-program predicts greater residual change in relationship quality 6 months after program participation.

A post-hoc test was run for the model constraining the pathway between care for self at time two and relationship quality at time three between the monthly to never and weekly practice groups. A $\Delta\chi^2$ test indicated that the association between residual change in care for partner and residual change in relationship quality did not differ between the monthly to never practice group and the weekly practice group, $\Delta\chi^2 (1) = 0.158$, $p = 0.691$. A post-hoc test was run for the model constraining the pathway between care for self at time two and relationship quality at time three between the monthly to never and daily practice groups. A $\Delta\chi^2$ test indicated that the association between residual change in care for partner and residual change in relationship quality did not differ between the monthly to never practice group and the daily practice group, $\Delta\chi^2 (1) = 1.661$, $p =$

0.197. A final post-hoc test was run for the model constraining the pathway between care for self at time two and relationship quality at time three between the weekly and daily practice groups. A Δx^2 test indicated that the association between residual change in care for partner and residual change in relationship quality differed between weekly practice group was equal to the daily practice group, $\Delta x^2 (1) = 4.489$, $p = 0.034$. Specifically, women in the daily practice group had a positive and statistically significant association, whereas there was no association for the weekly group.

Discussion

This study adds to the literature on mindfulness-based CRE and fills a gap in knowledge of how frequency of mindfulness practice moderates the relationship between caring behaviors and relationship satisfaction. This study also contributes to the literature by assessing baseline levels of care for self, care for partner, and relationship satisfaction based on frequency of mindfulness practice, which has not been assessed in previous research. The sample used in this study is not only large (several hundred participants), but is diverse in age, socioeconomic status, income, race, and relationship status and length. This study is also methodologically strong- data is used from three different time points up to six months apart (baseline, immediate post program, six month follow up) and there is a high response rate from participants at all time points.

The TOPB emphasizes the importance of practice in learning a new behavior, and participants in CCM practiced mindfulness in sessions, were encouraged to practice at home with their partners, and these mindful behaviors were reinforced at follow up CCM sessions (Ajzen, 1991). There were fidelity checks in place to ensure that CCM participants were receiving the same dosage of mindfulness practice and education regardless of facilitator or cohort. Lastly, participants were randomly assigned to CCM verses the control group or another intervention group, which increases the generalizability of the findings.

Overall, these findings indicate that for couples who attended at least one CRE course, higher frequencies of mindful practice moderated the relationship between women's levels of self-care and care for partner and men's levels of self-care behaviors at time two and their own reports of relationship satisfaction at time three. Additionally, frequency of mindfulness practice at baseline was positively correlated with levels of care for self, care for partner, and relationship quality. These results are somewhat consistent with the hypotheses that higher frequencies of mindful behavior would moderate self and care for partner behaviors and relationship satisfaction, supporting the theory of planned behavior (Ajzen, 1991).

Frequency of Mindfulness Practice

This study establishes that higher levels of mindful practice at baseline are associated with higher levels of care for self, care for partner, and relationship satisfaction at time one. No previously published study establishes a relationship between frequency of mindful practice and both caring behaviors as well as relationship satisfaction at baseline. Previous research linked the trait of mindfulness, but not the frequency of mindful behaviors, with a variety of soothing behaviors and increased internal awareness (Atkinson et al., 2013; Beckerman et al., 2011; Carson et al., 2004; Gambrel et al., 2010). This is consistent with the hypotheses that mindfulness is linked to positive relationship outcomes. The findings from this study both support and expand upon these outcomes by establishing more specific variables associated with mindfulness practice. Behaviors are a significant component of MBCRE, which matches up well with the TOPB in that practice of behaviors is correlated with doing those same behaviors in the future (Ajzen, 1991). The second research question is also supported for both males and females in that frequencies of mindfulness practice at time two moderates the relationship between care for self behaviors at time two and overall relationship satisfaction at time three. However, there is no relationship between care for self behaviors and relationship quality when participants report monthly or less mindfulness practice. The third research question is supported in that frequencies of mindfulness practice moderates the relationship between care for partner behaviors at time two and relationship quality at time three for women who practice daily.

This is significant in confirming that mindfulness behaviors have a positive impact on the influence that caring behaviors have on relationships. The participants in this study were likely novice mindfulness practitioners and were learning how to begin integrating mindfulness into their relationships. MBCRE, and CCM in particular, teaches new mindfulness skills and techniques of mindfulness alongside relationship education that aim to increase both individual and relational well-being and functioning. These include practices such as “loving kindness”

mindfulness and connecting with one's partner during conflict. These specific behaviors could be described as caring for self and partner, so it is significant that increased mindful practice is associated with increased caring behaviors. This study adds especially significant findings to the field of mindfulness as most published studies assess individual level outcomes; however, more studies are looking at relational outcomes for mindfulness. This study adds even more to the literature on relational outcomes by assessing various caring behaviors in the relationship.

These preliminary findings indicate that more frequent mindfulness practice (i.e. weekly versus monthly) is associated with reports of caring behaviors even before participation in a mindfulness based CRE program. This indicates that mindfulness is a useful skill or attribute (even for people who only engage in mindfulness occasionally) and higher levels of mindfulness are associated with higher positive effects for self care, care for partner behaviors, and subsequent relationship quality. Overall, these findings will be useful to both researchers and clinicians in educating participants and clients about frequency of mindfulness practice and the positive effects correlated with this practice. The effects of frequency of mindfulness on specific caring behaviors will be explored more carefully in the following sections.

Self-Care

Self-care behaviors are critical to the health of a relationship, and especially for people who are experiencing any level of relationship distress (Hawkins et al., 2003; Halford & Bodenmann, 2013). According to these analyses, the path between self-care behaviors at time two and relationship satisfaction at time three for men is not significant for those who only practice mindfulness monthly or less. However, the path is significant for men who practice mindfulness at least weekly and even more strongly related for men who practice mindfulness daily. This indicates that there is a positive effect of mindfulness practice in that higher levels of mindfulness practice moderates the relationship between improvements in care for self at time two and improvements in relationship quality at time three. For men, weekly and/or daily mindfulness practice is associated with a stronger association between reports of change in

care for self and more change in relationship satisfaction at the six month follow up versus men who engage in mindfulness practice monthly or less. There seems to be a threshold for frequency of mindfulness practice and caring and relationship outcomes. For men, there are statistically significant changes in outcomes moderated by increasing frequency of mindfulness practice until participants report reaching weekly and daily mindfulness practice, then the outcomes do not improve significantly more than they would for just weekly practice.

For women in the program, the path for residual change in self-care and relationship quality was moderated by frequency of practice, suggesting that the relationship between residual change in self-care behaviors and residual change in relationship quality is strongest for women who report daily practice. There may be some factors of women that affect the variables, i.e. women may be engaging in or measuring their mindfulness or caring behaviors or relationship satisfaction differently than men. The Gender Schema Theory (GST) asserts that people learn and practice behaviors that are attributed to their gender, so women often practice more nurturing and caring behaviors than men do and see this as part of who they are as women (Bem, 1981). Based on this theory, women in this study may not view themselves as experiencing increases in caring behaviors if they already viewed themselves as having high levels of caring behaviors at the outset of the program. The same might be true of mindful practice. Women might be more mindful and this especially influences the association between their self-care and relationship quality.

Care for Partner

Care for partner behaviors are an important aspect of relationship well-being, but have not been frequently assessed in mindfulness literature. In fact, many studies of mindfulness and even MBCRE focus on individual outcomes or non-behavioral relationship outcomes (Adler-Baeder et al., 2010; Carson et al., 2004) and do not thoroughly assess behaviors in relationships that involve and impact one's partner. This study addresses care for partner behaviors after attending CCM and explores how mindfulness practice influences the

relationship between caring behaviors and relationship quality. For women in the program, only one of the paths for care for partner and relationship quality moderated by frequency of practice was significantly different from the others. When women engage in daily mindful practice versus monthly to never or weekly, this moderates the strength of the relationship between care for partner at time two and relationship quality at time three. Aside from this path, there is no moderation of the relationship between self-care behaviors at time two and relationship quality at time three by women practicing weekly or monthly to never.

For men, one frequency of mindfulness moderates the relationship between care for partner behaviors at time two and relationship satisfaction at time three. For men who report practicing mindfulness weekly, there is an association between the relationship between care for partner and relationship quality; however, statistically speaking there were no differences between the groups. Because both women and men do not experience many changes in care for partner or relationship satisfaction based on frequency of mindfulness practice, there may be a different variable needed to assess these changes, such as intensity of mindfulness practice. As mentioned in a previous section, the GET may play a role in how women and men perceive their changes (or lack of perceived changes) in their caring behaviors (Bem, 1981). This link needs to be explored for both men and women.

These results are significant in illustrating the importance of assessing caring behaviors for relationship partners after attending MBCRE programs. MBCRE such as CCM relies heavily on teaching and reinforcing mindfulness and consequently, positive relationship behaviors for participants, therefore it should follow that partner caring behaviors would increase and influence relationship satisfaction after program completion. This is consistent with the existing literature on positive relational associations with mindfulness (Atkinson, 2013; Barnes et al., 2007; Carson et al., 2004; Hawkins et al., 2013; Khaddouma et al., 2017; Wachs et al., 2007) and confirms the importance of not only assessing relational caring behaviors, but encouraging and tracking them more carefully for MBCRE participants. However, since the path analyses did

not find the same results as the first research question, other variables related to mindfulness should be assessed. As mentioned previously, intensity or duration of mindfulness may be linked to changes for women more than frequency.

Strengths

This study has significant strengths, such as a large and diverse sample, longitudinal design, and random assignment to the program. The sample used has over five hundred participants and consists of nearly equal numbers of men and women. The sample is also diverse in age, race, socioeconomic status, educational attainment, yearly income, and relationship status. The characteristics of this sample increase the generalizability of the findings. Additionally, this study utilizes data from three different time points (pre-program, immediately post program, and six month follow up) which allows for assessment of changes in program participants. Another significant strength of this study was the use of random assignment of participants to the program. As previously mentioned, participants enrolled in the study but were randomly assigned to one of two CRE programs or the control group. Random assignment greatly increases the chances that any changes in outcomes for participants is due to aspects of the program and not the characteristics of the sample (or some other factor).

Lastly, a strength of this study is that it fills a gap in the literature about frequency of mindfulness practice and caring behaviors and relationship satisfaction. MBCRE is beginning to be assessed and explored to a greater extent in the research, but a study with these specific variables has yet to be published.

Limitations

While this study does have significant strengths, there are several important limitations which should be addressed. First, while the initial sample was large (527 participants), once the sample was separated into men and women, then further separated based on frequency of mindfulness practice, each groups was small. Refer to Table 4 for the size of each group once separated. Although the initial sample size was large enough for testing the fit of the models, the

small size of the groups of men and women based on frequency of mindfulness practice reduced the statistical power needed to detect changes in several of the paths. Although statistically significant differences were not detected between several of the groups in the path analysis, the differences observed in the baseline correlations may be supported with a larger sample.

While assessing mindfulness frequency was significant due to this not being commonly addressed in research, this was measured by one question on a survey and it was a likert-type scale. This measure could have been taken by having participants somehow track or keep a record of when they engaged in mindfulness practice throughout the week, which would have been more accurate than asking participants to reflect on the last six months of their mindfulness practice. Similarly, for several of the models, there was no significant difference found in outcomes based on weekly versus daily practitioners of mindfulness. A more precise measurement would allow for greater understanding of exactly how often a person should engage in mindfulness to derive the most benefits, i.e. the sufficiency effect that was found could be better understood and analyzed.

Lastly, all of the measures used in this study were based on participant self-report, which has high error due to participant biases, memory issues, etc. Additionally, while participants were randomly assigned to CCM, there was not random selection from the population. A random selection from a national sample would further increase the generalizability of the findings from this study.

Clinical Implications

While these findings help to fill gaps in the literature, it is imperative to address the clinical implications and similarities between CRE and therapy. CRE in general can be useful in “bridging the gap” for couples who are distrustful of therapy or who otherwise cannot attend therapy due to financial strain (Adler-Baeder et al., 2010; Halford et al., 2013). Similar to therapy, CCM classes emphasize the privacy of the couple and encourage participants to share

emotions/thoughts after checking in with their partners and “turning towards” each other. In this way, CCM models aspects of therapy, such as addressing problems within the relationship, but without integrating problems and struggles from the individual couples. CCM is administered to groups of couples, and the couples are encouraged to share and interact with each other, which fosters the skills of sharing with and listening to one’s partner. This is similar to therapy in that aspects of the relationship and issues between the couple are discussed and addressed, and couples must communicate and participate in problem talk and solving.

Mindfulness-based CRE is incredibly compatible with the behavioral aspects of therapy, such as treatment planning, behavioral practice of relationship skills, and integration of these skills into the couple’s repertoire. Many therapists teach and “assign” mindfulness as homework to couples in therapy as a tool to foster couple connection and to soften and slow down arguments and disagreements. Because MBCRE is based on the teaching of a new skill and building off of the experiences and skills the couple already has, it fits well with post-modern strengths-based therapies (Carson et al., 2004; Gillespie et al., 2015; Khadoumma et al., 2017). Both CRE and strengths-based therapies focus on educating and empowering clients to make informed improvements in their relationships. Participants are encouraged to connect to their life experiences of being mindful and are shown how they already possess the skills to be mindful in their lives.

The findings from this study can be used to inform clinicians in their practice of integrating mindfulness into both individual and couples therapy. Specifically, clinicians can use these findings as psychoeducation for men and women in encouraging more frequent mindfulness practice in order to improve the connection between their caring behaviors and relationship satisfaction. Specifically, weekly and daily mindfulness practice is associated with the strongest changes between caring behaviors and relationship satisfaction, with daily practice having the strongest association. Future research should further examine the links for

both men and women between mindfulness frequency and these outcomes, which would ideally add to the psychoeducation that clinicians can use with individual clients and couples.

Future Directions and Conclusions

While this study added new and relevant findings to the field, this study is part of an early movement in the study of mindfulness practice. Therefore, there are a variety of future directions that could be explored in future research. To begin, the effects of frequency of mindful practice should be more carefully explored using more accurate measures. In this way, the sufficiency effect that was found in this study can be further examined and understood. Other measurement methods could be used to further explore mindfulness in those new to mindful practice (i.e. records or journals could be used to examine frequency, duration, and intensity of practices). This type of measurement can also parse apart the differences between doing mindful activities/behaviors and being generally mindful/exhibiting trait mindfulness. Additionally, incorporating partner report and non-self report measures will increase the accuracy of the relational measures and the subsequent findings. There may be effects from partner practice of mindfulness in that the frequency of one person's mindfulness practice influences their partner's view of caring behaviors or relationship satisfaction. Future studies on mindfulness should also incorporate other measures that effect couple functioning (such as individual mental health), as well as other measures of relationship well-being (such as relationship satisfaction versus just relationship quality).

Overall, this study is an important first step in the field of mindfulness-based CRE research and adds specifically to the understanding of how frequency of practice is positively associated with caring behaviors and overall relationship satisfaction. Currently, very few mindfulness-based CRE programs exist, and it is a responsibility of researchers to find ways to share their findings with people who may not have access to CRE. An important next step is for researchers and clinicians to use this information to inform clients and program participants

about the benefits of a regular mindfulness practice for men and women and to further explore moderators and outcomes.

Table 1. Descriptive Statistics for Key Variables

Variable		Men					
		N	M (SD)	Min	Max	Skewness (SE)	Kurtosis (SE)
Relationship Quality	Time 1	248	5.75 (1.09)	2.00	7.00	-.62 (.16)	-.25 (.31)
	Time 3	211	5.96 (1.10)	1.33	7.00	-1.16 (.17)	1.56 (.33)
Care for Self	Time 1	249	4.59 (0.86)	2.13	6.50	-.17 (.15)	-.29 (.31)
	Time 2	230	4.82 (0.94)	1.50	6.88	-.54 (.16)	1.09 (.32)
Care for Partner	Time 1	247	5.44 (1.27)	1.25	7.00	-.85 (.15)	0.19 (.31)
	Time 2	230	5.80 (1.16)	1.00	7.00	-1.14 (.16)	1.05 (.32)
Variable		Women					
		N	M (SD)	Min	Max	Skewness (SE)	Kurtosis (SE)
Relationship Quality	Time 1	263	5.66 (1.26)	1.00	7.00	-.96 (.15)	-.66 (.30)
	Time 3	225	5.87 (1.17)	1.33	7.00	-.96 (.16)	0.67 (.32)
Care for Self	Time 1	263	4.44 (0.94)	1.38	6.88	-.05 (.15)	-.00 (.30)
	Time 2	256	4.70 (0.90)	2.38	7.00	-.20 (.15)	0.05 (.30)
Care for Partner	Time 1	263	5.44 (1.34)	1.00	7.00	-1.01 (.15)	0.48 (.30)
	Time 2	255	5.67 (1.24)	1.00	7.00	-1.03 (.15)	0.84 (.30)

Table 2. Demographic Information for CCM Participants

Factor		CCM Participants
Total Sample	N	527
Gender	% Male	48
	% Female	52
Race	% Caucasian	60
	% African American	35
	% Other	5
Age	% 18-25	11
	% 26-35	39
	% 35-50	30
	% 50+	20
Relationship	% Committed Relationship	23
	% Engage	8
	% Married	69
Education	% Highschool or Less	25
	% Vocational/Some College	37
	% Bachelor's Degree or Higher	38
Yearly Income	% Less than \$24,999	30
	% Between \$25,000-39,999	17
	% Between \$40,000-74,999	27
	% More than \$75,000	26

Table 3. *Correlations Between Key Variables in Hypotheses 2 and 3*

	QMI1	QMI3	CFS1	CFS2	SCr1	SCr2	Mind2
QMI1	1						
QMI3	0.647**	1					
CFS1	0.438**	0.303**	1				
CFS2	0.301**	0.317**	0.675**	1			
SCr1	0.486**	0.345**	0.323**	0.231**	1		
SCr2	0.408**	0.370**	0.241**	0.324**	0.703**	1	
Mind2	0.033	0.105*	0.077	0.183**	0.103*	0.194**	1

* $p < 0.05$

** $p < 0.01$

Table 4. *Group Size Based on Frequency of Mindfulness Practice*

Gender	Frequency	n
Men	Monthly to Never	52
	Weekly	118
	Daily	60
Women	Monthly to Never	59
	Weekly	134
	Daily	65

Table 5. *Correlations Between Variables at Time 1*

	Mind1	QMI1	CFS1	SCr1
Mind1	1			
QMI1	0.122*	1		
CFS1	0.257**	0.438**	1	
SCr1	0.153**	0.486**	0.323**	1

* $p < 0.05$

** $p < 0.01$

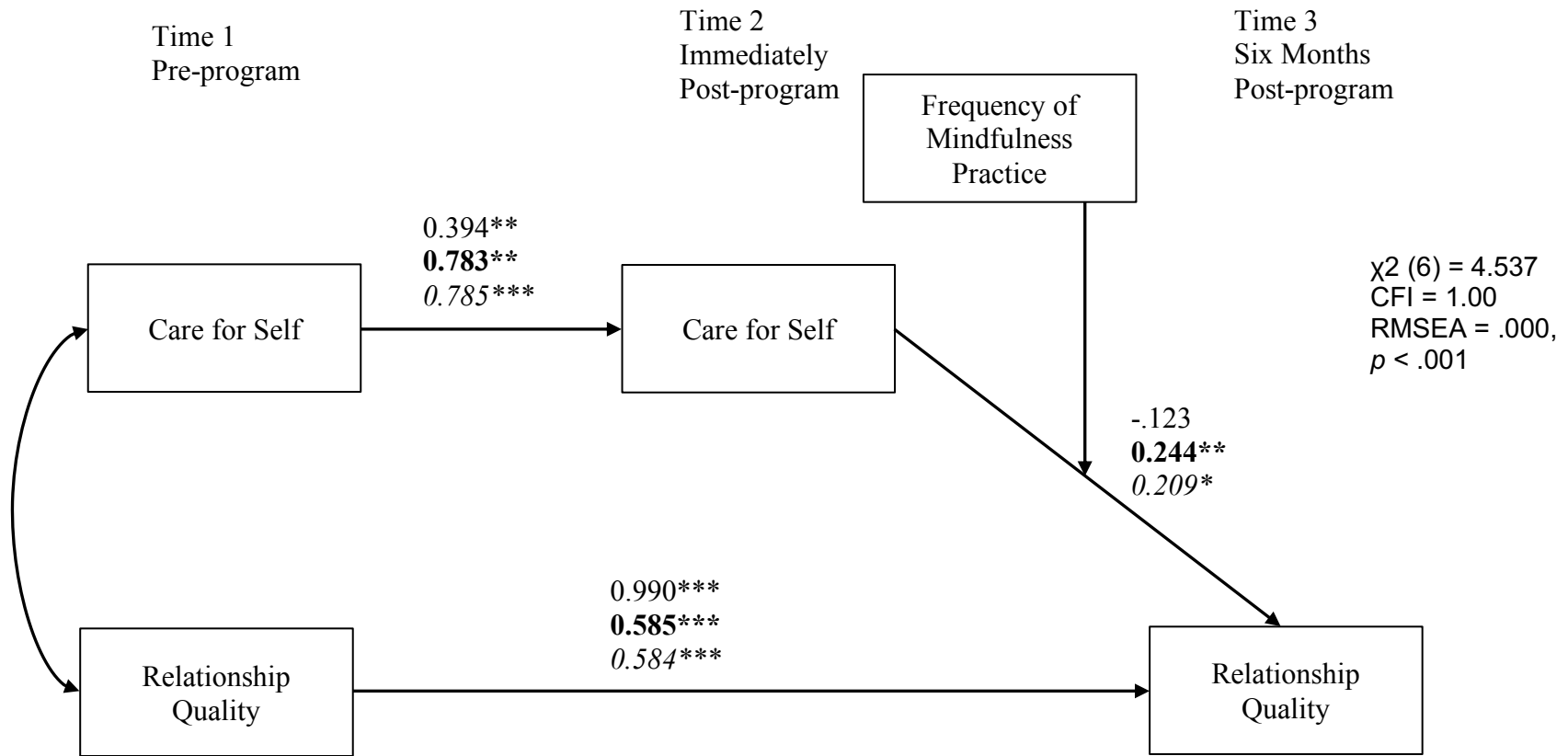


Figure 1. Standardized results demonstrating changes in care for self behaviors and relationship quality for men.

Regular: Monthly to never

Bold: Weekly

Italicized: Daily

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

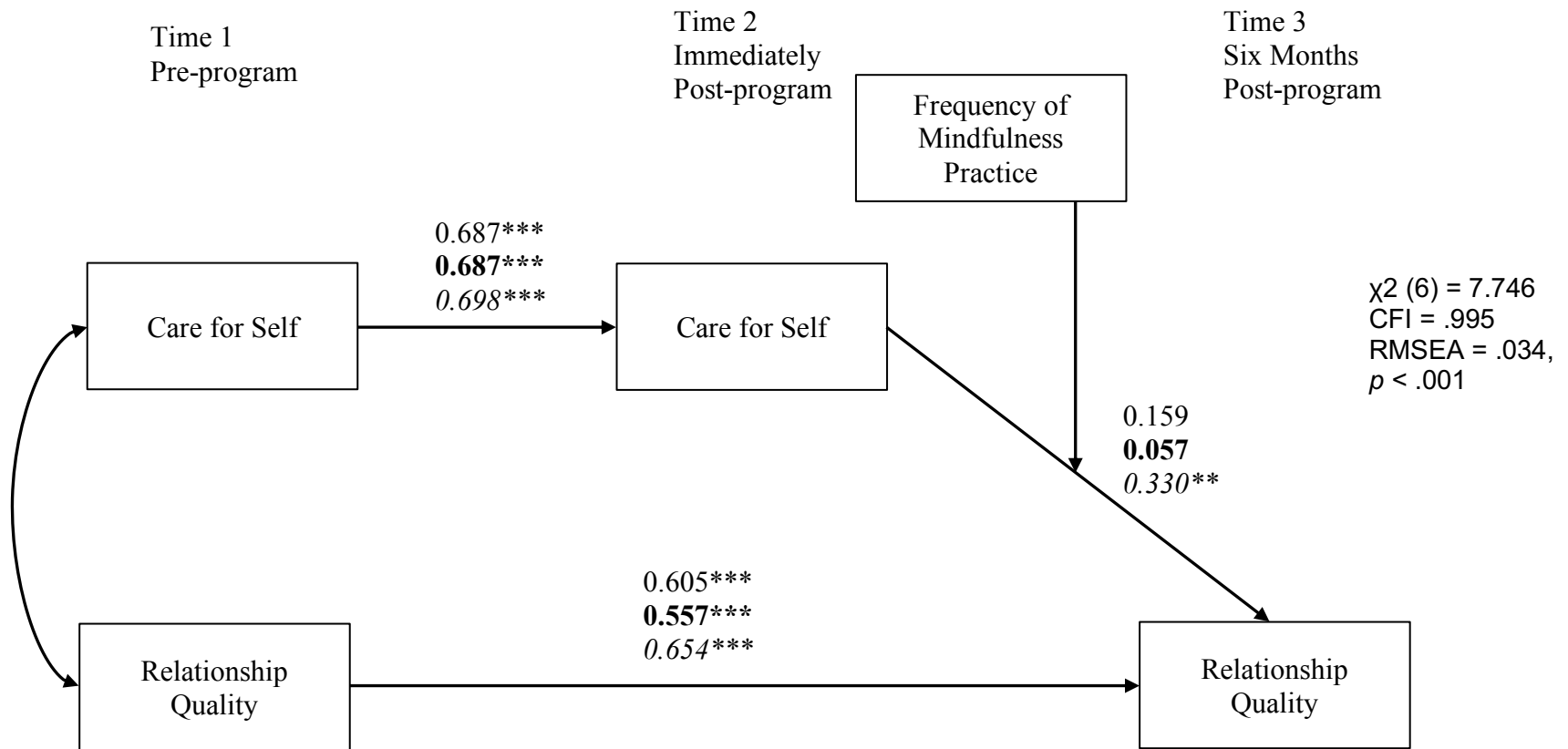


Figure 2. Standardized results demonstrating changes in care for self behaviors and relationship quality for women.

Regular: Monthly to never

Bold: Weekly

Italicized: Daily

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

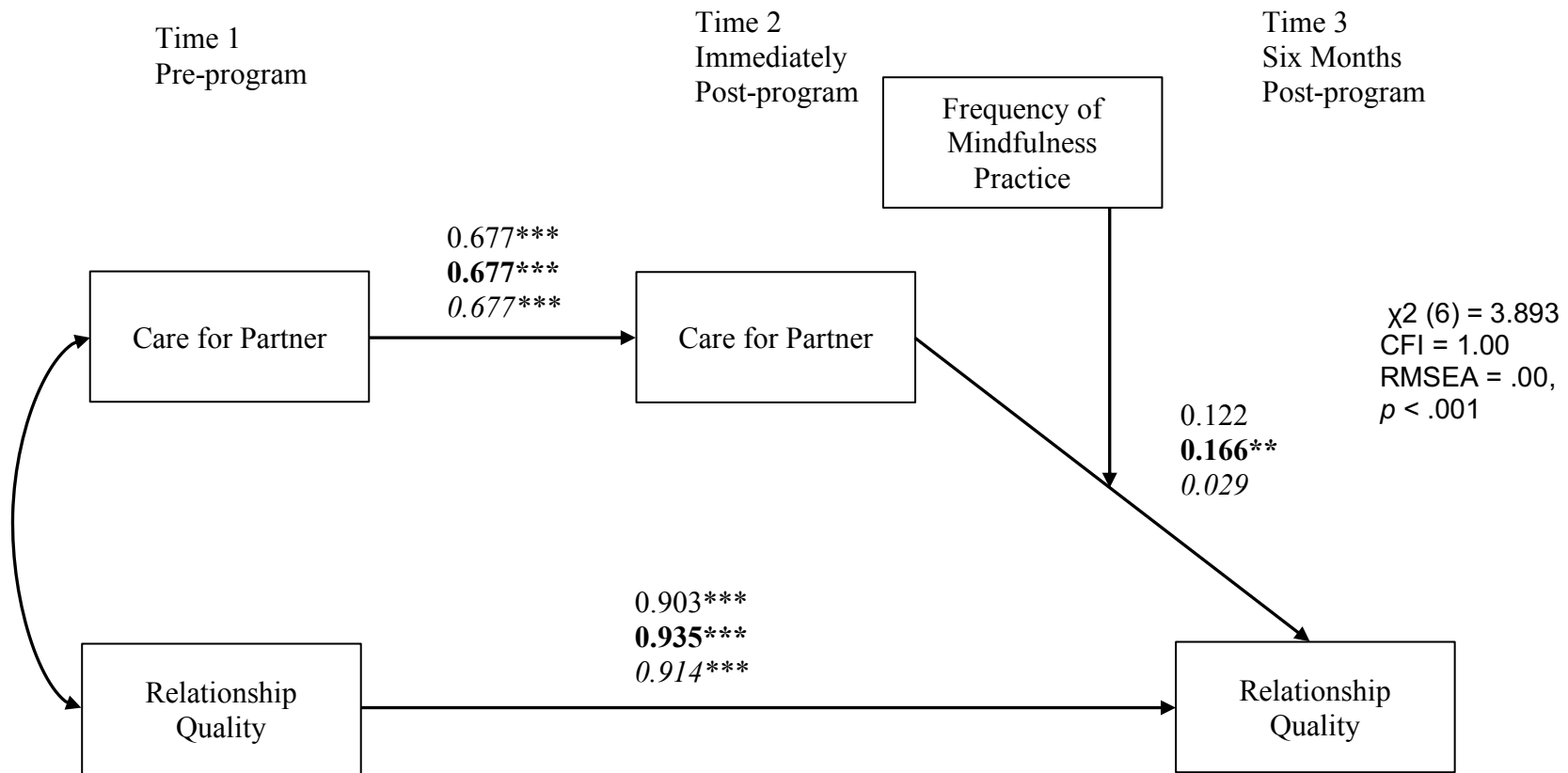


Figure 3. Standardized results demonstrating changes in care for partner behaviors and relationship quality for men.

Regular: Monthly to never

Bold: Weekly

Italicized: Daily

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

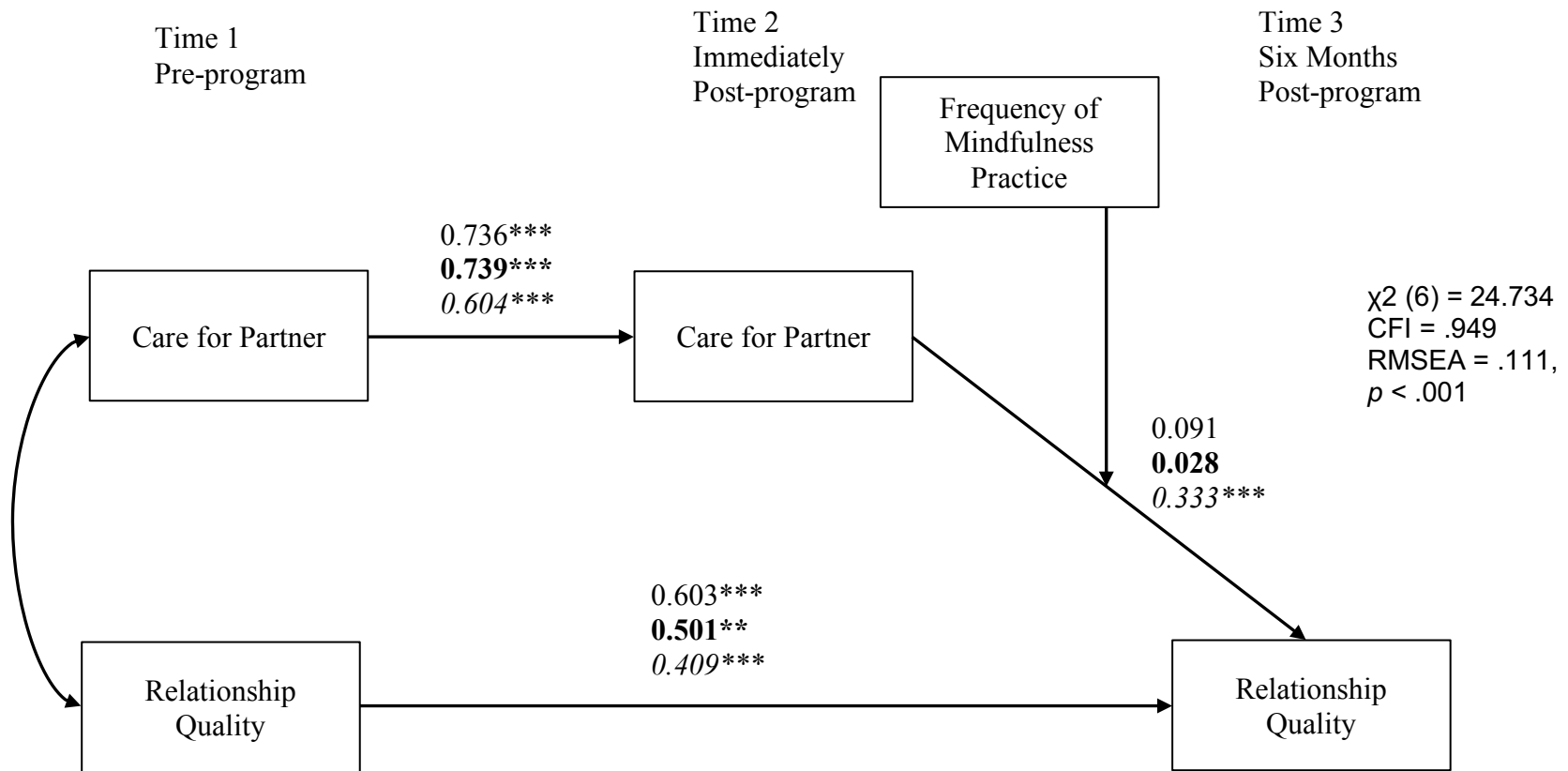


Figure 4. Standardized results demonstrating changes in care for partner behaviors and relationship quality for women.

Regular: Monthly to never

Bold: Weekly

Italicized: Daily

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

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