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Integrative Behavioral Couple Therapy for Generalized Anxiety Disorder

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Psychology

by

Lisa Ann Benson

2014

ABSTRACT OF THE DISSERTATION

Integrative Behavioral Couple Therapy for Generalized Anxiety Disorder

by

Lisa Ann Benson

Doctor of Philosophy in Psychology

University of California, Los Angeles, 2014

Professor Andrew Christensen, Chair

Treatments for GAD are less efficacious than those for other anxiety disorders, and individuals

in relationships characterized by distress are less likely to respond to standard GAD treatments,

which suggest dyadic treatment of GAD may be beneficial to individuals in distressed

relationships. This dissertation presents and conducts preliminary tests of an acceptance- and

mindfulness-based dyadic treatment for GAD based on the principles of Integrative Behavioral

Couple Therapy (IBCT). This dissertation first examined to what extent in-person and online

IBCT reduced GAD symptoms; moderate effect sizes as compared to waitlist control were found

for the online version of IBCT (the OurRelationship program). Because this program targeted

relationship satisfaction in general, it would be useful for the GAD-focused modifications to

specifically aim at altering aspects of couples' relationships that are associated with GAD. The

next study examined associations between specific interpersonal behaviors in the dyadic context

and GAD symptoms. Negative communication behaviors were found to be associated with GAD

symptoms across four diverse samples, and in one sample, communication mediated the association between relationship satisfaction and GAD symptoms. Therefore, the third paper described an initial attempt at modifying the online OurRelationship program for couples to specifically address the needs of individuals with GAD and their partners. Two detailed case studies of couples who completed this IBCT-GAD intervention suggested that it was a credible treatment; both couples increased in relationship satisfaction, and one partner with GAD experienced clinically significant improvements in her symptoms. Quantitative and qualitative analysis suggested that improved GAD symptoms were associated with reductions in the partner's tendency to facilitate GAD-related behavior. Future data collection will provide additional information about the efficacy of the IBCT-GAD intervention and the mechanisms by which it operates.

The dissertation of Lisa Ann Benson is approved.

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Publications
Benson, L. A., Sevier, M., & Christensen, A. (2014). Reply to commentaries: Of course, we do
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  Low-Intensity Relationship Interventions.* Symposium conducted at the annual meeting of
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  as a predictor of therapy-interfering behavior in Dialectical Behavior Therapy (DBT).
  Poster presented at the annual meeting of the International Society for the Improvement
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Benson, L. A. (2011, November). Symposium chair. *Five-Year Follow-Up Data on a Comparison of Two Couple Therapies.* Symposium conducted at the annual meeting of the Association for Behavioral and Cognitive Therapies, Toronto, Canada.

Doss, B. D., Christensen, A., Georgia, E. J., **Benson, L. A**., Cicila, L. N., & Koerner, K. (2011, November). OurRelationship.com: An online, secondary prevention program modeled on Integrative Behavioral Couple Therapy. In B. D. Doss (Chair), *Disseminating Couple Interventions in the 21st Century: Harnessing Technology to Intervene on a Large Scale.* Symposium conducted at the annual meeting of the Association for Behavioral and Cognitive Therapies, Toronto, Canada.

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Generalized anxiety disorder (GAD) has been treated with individual therapy for many years with a great deal of success. Research aimed at augmenting treatments for GAD has continued, however, as resistance to treatment appears to be characteristic of this disorder (Hazlett-Stevens, 2008). On average, only about 60% of GAD patients treated with the first-line treatments of cognitive-behavioral therapy (CBT) or selective serotonin reuptake inhibitors have been found to respond adequately to treatment (defined as a 70% reduction in symptoms; Ryan & Brawman-Mintzer, 2004). CBT may be limited in its efficacy with this population because GAD patients' worries are so often future-oriented and thus difficult to target for cognitive restructuring (Craske & Hazlett-Stevens, 2002).

One promising possibility for individuals with GAD who have committed romantic partners is to develop treatments that incorporate these partners. An integration of couple therapy and individual interventions would not be indicated for every GAD case, but such an approach to treatment is suggested by the strong empirical link between GAD and relationship distress (e.g., Whisman, 2007). In accordance with previous research on dyadic treatments for other anxiety disorders (Emmelkamp, de Haan, and Hoogduin [1990] for obsessive-compulsive disorder, Marchand et al. [2007] for panic disorder, and Johnson [2002] for PTSD), it is possible that a couple-based treatment for GAD could simultaneously reduce both GAD symptoms and relationship distress associated with the GAD. The objective of this dissertation is to develop such a treatment.

A treatment that has been shown to be highly effective at improving the dyadic satisfaction of highly distressed couples is Integrative Behavioral Couple Therapy (IBCT; Christensen et al., 2004). IBCT is a third-wave behavioral therapy that emphasizes mutual acceptance between partners as a mechanism of change (Christensen et al., 2004). There is some

evidence that IBCT affects individual outcome variables as well (Christensen et al., 2006). However, since the magnitude of the changes was small, a modification of IBCT to put greater emphasis on the GAD seems more promising. Moreover, IBCT has been recently adapted to an Internet-based or e-learning format (OurRelationship.com), with pilot data suggesting it continues to be efficacious in this mode. This controlled, highly modifiable, and easily delivered program seems appropriate for a treatment modification study and a first test of principles for simultaneously treating GAD and relationship distress.

In order to approach this treatment development process in an empirically-driven manner, I completed a series of three related papers. The first paper is concerned with the efficacy of in-person IBCT and online IBCT (the OurRelationship program) for couples who report GAD symptoms. This study examined to what extent symptoms changed and whether this change was associated with changes in relationship satisfaction. The participants in this study were seeking couple therapy, not treatment for GAD, and most did not reach syndromal levels of symptoms. However, this study provided some information about the extent to which standard couple interventions could affect GAD symptoms.

If these interventions do affect GAD symptoms despite not being designed to do so, it would be useful to identify the mechanisms of change. A likely target is the communication behavior between partners, which is both a focus of couple therapy and known to be associated with GAD severity (Durham, Allen, & Hackett, 1997; Dutton, 2002; Zinbarg, Lee, & Yoon, 2007; Hambrick, 2008; Zaider, Heimberg, & Iida, 2010). Therefore, the second paper examines associations between interpersonal communication and GAD symptoms across four samples: distressed couples seeking in-person couple therapy, nondistressed couples recruited as controls,

individuals high in GAD symptoms seeking online couple treatment with an emphasis on GAD, and distressed couples seeking online couple treatment.

The third paper concerns modifications of the OurRelationship.com program to target GAD symptoms and relationship problems associated with anxiety. Once the enrolled couples have completed the program, I will evaluate treatment outcomes and identify quantitative and qualitative mediators of change. The program is expected to affect both GAD symptoms and relationship satisfaction. These changes are both expected to be associated with reduced experiential avoidance by the patient and reduced hostile criticism and symptom accommodation by the partner. To identify additional predictors of change not captured by the quantitative measures, couples' responses to open-ended questions that are part of the website program will be coded for communication patterns, and the frequencies of these codes will be examined as possible predictors of couples' treatment responses. These qualitative measures will also be applied to couples participating in the standard OurRelationship intervention to determine whether there are similar associations between their communication patterns and GAD symptoms. This study's conclusions about the extent to which the modified program is efficacious, together with the results of the first two studies about the nature of GAD-affected couples and their response to typical couple therapy, can then be used to inform future improvements to the program.

Response of Couples Affected by Generalized Anxiety Disorder to Standard Couple Treatment

It is evident in the literature that generalized anxiety disorder (GAD) and relationship distress are linked at some level: meeting criteria for GAD is more highly correlated with experiencing marital distress than is any other psychiatric disorder except bipolar disorder and alcohol use disorders (Whisman, 2007). Controlling for sociodemographic variables, for every increase of one unit of marital distress, the odds of having GAD increase by a multiplicative factor of 2.54 (Whisman, 2007). Also, individuals with GAD are more likely than either individuals with other mental illnesses or individuals with no psychiatric history to have entered into a marriage or marriage-like relationship (Yoon & Zinbarg, 2007).

In light of these data, it seems likely that many individuals seeking couple therapy are also presenting with untreated GAD. However, it is not known to what extent this is the case. Moreover, there is insufficient research on to what extent partners affected by GAD who undergo couple therapy experience change in their relationship satisfaction and their GAD symptoms. It is also possible that changes in relationship satisfaction during treatment may be associated with changes in GAD symptoms.

Anxiety as a Predictor of Changes in Relationship Satisfaction

No study of couple therapy has examined anxiety specifically as a predictor of response to couple therapy. However, several studies have considered related constructs or psychopathology more broadly. Sher, Baucom, and Larus (1990) examined the response to Traditional Behavioral Couple Therapy (TBCT; also known as Behavioral Marital Therapy) of a group of couples in which one partner had an elevated score on the Minnesota Multiphasic Personality Inventory (MMPI) scale associated with depression, a second group of couples in

which one partner had an elevated score on any other MMPI scale, and a third group of control couples. There was no group effect for change in marital satisfaction, but the partners of the individuals who had reported some form of psychopathology (that is, the second group) did not report significant change in their marital satisfaction scores from pre-treatment to post-treatment (Sher, Baucom, & Larus, 1990). Although it is unknown specifically what forms of psychopathology were involved in this group and therefore what might be driving this finding, it makes the interesting suggestion that some individuals' disorders may affect their partners' response to couple therapy. Parallel research on the predictive ability of a depression diagnosis has produced mixed findings. While Jacobson, Follette, and Pagel (1986) found that couples in which one partner reported high levels of depression at pre-treatment actually responded better to TBCT than control couples, O'Leary and Beach (1990) found no effect of pre-treatment depression on treatment response. It is unclear to what extent these findings might extend to anxious couples.

Research on response to Integrative Behavioral Couple Therapy (IBCT) and TBCT at both post-treatment and two-year follow-up has included three predictors of interest: trait neuroticism, the Current Symptoms scale of the Compass Mental Health Index (MHI, which includes several symptoms of GAD; Sperry, Brill, Howard, & Grissom, 1996), and a dichotomous variable indicating presence or absence of a DSM-IV diagnosis. In the post-treatment analysis (Atkins et al., 2005), a data reduction strategy using the Bayesian Information Criterion (BIC) designated the dichotomous DSM-IV variable as less useful than other predictors and removed it. Both better mental health (on the MHI) and higher levels of neuroticism initially remained in the model as significant predictors of having greater marital satisfaction at pre-treatment; the neuroticism finding is surprising. However, additional analysis suggested that

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MHI was functioning as a suppressor. When MHI was excluded from the model, neuroticism was no longer a significant predictor, so the authors suggest caution in interpreting this finding (Atkins et al., 2005). Neither MHI nor neuroticism had a significant effect on marital satisfaction slopes, suggesting they were not predictors of treatment response in this sample (Atkins et al., 2005). Baucom, Atkins, Simpson, and Christensen (2009) used a similar model to predict response to treatment through two-year follow-up in the same sample; none of the variables mentioned were significant predictors.

This body of research provides a useful starting point but is limited because of its tendency to combine multiple types of psychopathology in one predictor. To examine whether couples affected by a particular group of symptoms respond differently to couple therapy, better measures of these symptoms are needed, preferably ones that are standard for research of that disorder. More targeted research may be able to determine more accurately whether certain types of couples are at a disadvantage when seeking couple therapy and may have more particular needs for their relationship intervention. Similarly, it would be useful to know to what extent couple therapy that has not been specifically adapted for the population of couples affected by anxiety disorders nonetheless might reduce symptoms of anxiety. This might occur directly – for example, if a therapist taught a couple cognitive restructuring techniques for use during arguments and one partner applied them to anxious thoughts – or indirectly – with improvement in the relationship as a mediator.

Anxiety as an Outcome in Relationship-Focused Couple Therapy

Since couple therapies are designed as interventions for relationship processes rather than individual mental health, most couple therapy efficacy studies have not even measured possible changes in psychopathology during treatment. Unfortunately, no study has specifically examined

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GAD symptoms. However, one study found that participants in both insight-oriented couple therapy (IOCT) and TBCT reported significantly fewer symptoms of psychopathology on the Minnesota Multiphasic Personality Inventory (MMPI) at post-treatment than at pre-treatment (Snyder & Wills, 1989).

Similarly, in a small study of Imago Relationship Therapy, scores on the well-being and current symptoms subscales of the Compass Mental Health Index improved significantly from pre- to post-treatment (Hannah, Luquet, & McCormick, 1997). Mean life functioning increased from 59 to 70.2, but this change was not significant, most likely due to the small sample size and a great deal of error variance in the data (SDs = 38.4 and 34.3; Hannah, Luquet, & McCormick, 1997). No MHI subscale was significantly correlated with relationship distress (Hannah, Luquet, & McCormick, 1997). Therefore, although there was no evident relationship between the changes in relationship satisfaction and the changes in individual mental health, both occurred subsequent to couple therapy. Again, however, it is unclear to what extent these results might translate specifically to GAD symptoms.

Analysis of the MHI data in the IBCT/TBCT clinical trial indicated that individual mental health did not change on average over the course of the study. However, changes in marital satisfaction scores were significantly predictive of the changes in MHI that did occur (Christensen et al., 2004). Similar results were found for the current symptoms subscale alone (Christensen et al., 2004) and for both MHI and current symptoms in the period from post-treatment to two-year follow-up (Christensen et al., 2006). Also, a case study has been published in which an unmodified IBCT was used to treat a couple in which one partner, a veteran, met criteria for PTSD (Erbes et al., 2008). The veteran reported significant declines in his symptoms of social avoidance and alcohol use, although he continued to experience some nightmares and

intrusive thoughts (Erbes et al, 2008). Although additional research is needed to evaluate these findings, they suggest that an acceptance-based treatment like IBCT may have some effect on anxiety symptoms even in its original, couple-focused format.

The Present Study

Therefore, this study will examine the associations between GAD symptoms and relationship satisfaction in an in-person couple treatment sample (the IBCT/TBCT clinical trial) and an online couple treatment sample (the OurRelationship.com study). The first aim is simply to determine the prevalence of clinical levels of GAD symptoms in the population seeking couple services. The general population-level 12-month prevalence is 2.9 percent (Kessler et al., 2005), and increases in marital distress increase the probability of receiving a GAD diagnosis (as described above; Whisman, 2007). Therefore, I expect the percentage of individuals in the IBCT study endorsing GAD symptoms from the Compass Current Symptoms scale (Sperry, Brill, Howard, & Grissom, 1996) to be greater than three percent. Similarly, I expect the percentage of individuals enrolled in OurRelationship.com that score in the moderate to severe range on a GAD screening measure (the GAD-7; Spitzer, Kroenke, Williams, & Lowe, 2006) to be greater than three percent.

The second aim of this study is to determine to what extent GAD symptoms change over the course of standard couple therapy, whether presented in a face-to-face or online format. Because anxiety is not the focus of these treatments, I do not expect to see large decreases in GAD symptoms during the treatment period. However, since these treatments are known to affect relationship satisfaction and I expect changes in satisfaction and symptoms to be associated with one another, I expect to see a small amount of change in GAD symptoms.

The third aim of the study is to characterize the association between change in relationship satisfaction and change in GAD symptoms. I expect that increases in relationship satisfaction will predict decreases in GAD symptoms.

The fourth aim is to examine this relationship between satisfaction and symptoms in a mediation framework. That is, for the online sample only, who were randomized to an intervention group and a waitlist control group and where mediation analysis is thus possible, I will determine whether satisfaction mediates the association between treatment group and GAD symptoms.

Method

Participants

The individuals in this study will be drawn from two existing samples: (1) participants in the randomized clinical trial of IBCT and TBCT (Christensen et al., 2004) and (2) participants in a larger online clinical trial of the OurRelationship.com program.

IBCT/TBCT: This study included 134 married couples. Recruitment occurred through advertising and clinic referrals to study sites in Seattle (63 couples) and Los Angeles (71 couples). All couples were living together and reported severe marital distress at three separate time points prior to the beginning of treatment. Participants on average were in their forties and had been married for ten years with a child. 79% of husbands and 76% of wives were Caucasian, although wives at the Los Angeles site were more likely than wives at Seattle to be from a minority group.

Exclusion criteria allowed for the possibility of comorbid Axis I or Axis II psychopathology in either partner. Only individuals who had current diagnoses of schizophrenia,

bipolar disorder, alcohol/drug abuse or dependence, borderline personality disorder, schizotypal personality disorder, or antisocial personality disorder were excluded from the study; three couples could not participate as a result. Also, husbands whose wives reported they had engaged in moderate to severe violent behavior could not participate in the study; 101 couples were excluded on these grounds. To avoid confounding treatments, neither partner could be in concurrent individual or marital therapy for the study's duration. However, it was acceptable for a participant to continue taking a psychotropic medication if he or she had been taking it for at least twelve weeks with a stable dose for at least six weeks and the prescribing physician did not expect to alter the prescription during the study.

OurRelationship: For these analyses, data were available from 422 participants (211 couples) who had completed the study. All participants were living in the United States, in a heterosexual relationship, and married, engaged, or cohabiting for at least six months. Also, one or both partners scored one standard deviation above the population mean on a measure of relationship distress. Couples were excluded if either partner were under age 21, actively considering terminating the relationship, or reporting severe depression, moderate to severe suicidal ideation, or severe domestic violence (with actual or feared injury).

Procedure

IBCT/TBCT: Screening included a phone interview, a mailed battery of questionnaires, and an in-person intake interview. Further assessments were conducted thirteen weeks after intake, 26 weeks after intake, immediately after the end of treatment (varying but approximately eight months after intake), and then 12, 18, 24, 30, 42, 48, 54, and 60 months after the intake session and 5 years after the actual end of treatment. Only data from pre-treatment, 13-week , and 26-week assessments are used for these analyses. 66 couples were randomized to Integrative

Behavioral Couple Therapy and 68 to Traditional Behavioral Cognitive Therapy. Randomization was stratified so that there would be approximately equal numbers of moderately maritally distressed and highly maritally distressed couples in each treatment condition. In both conditions, participants could not receive more than 26 sessions of treatment, although these sessions could take place over as much as one year.

OurRelationship: All participants completed a telephone eligibility screening. All subsequent assessments took place online. Participants were randomized to one of two conditions. The first (n = 107 couples) was the full online intervention, including support from a clinical "coach" if they encountered difficulties. In the second condition (n = 104 couples), participants were asked to wait six weeks to begin the program. After six weeks, participants in the second condition could begin a one-week version of the intervention, but they were randomized to either have or not have the support of a coach. For the majority of the following analyses, data from the full online intervention condition is used because this condition is more comparable to long-term, in-person treatment. Individuals who participated in the intervention completed questionnaires at baseline, post-treatment, and three, six, and twelve-month follow-up (although only baseline and post-treatment data were used for analysis). Participants in the control condition completed measures at baseline and three months after baseline. OurRelationship.com is a comprehensive, approximately ten-hour program that involves videos and animations of example couples, psychoeducation from relationship experts, tailored feedback based on the data the couple enters, and interactive activities using input from both partners. The program is structured as a series of modules, some completed independently, and others completed with both partners in front of the same screen. The content of the modules follows the principles of IBCT, with a focus on increasing couples' acceptance of their

differences, helping them empathize with each other, and promoting mindful awareness of their interaction patterns in order to begin changing these patterns.

The program has three phases: Observe (O), Understand (U), and Respond (R). In the Observe phase (Modules 1-4), couples are oriented to the program, complete an assessment battery, receive feedback about their relationship, and discuss what core relationship issue or issues they would like to focus on. In the Understand phase (Modules 5-12), participants learn about a new way to conceptualize relationship difficulties and apply what they have learned to their relationships. This new conceptualization is called a "D.E.E.P. Understanding": how natural personality differences (D.) are at the root of couples' problems, how emotional sensitivities (E.) such as a fear of abandonment or a fear of being smothered make these differences more difficult to manage, how external stressors (E.) exacerbate the difficulties, and how couples often respond to these D.E.E. factors with maladaptive patterns of communication (P.) that can make the problem worse (such as one partner demanding change and the other withdrawing from the conversation). After developing these new conceptualizations, couples meet for a joint conversation in which they share what they learned. Then, in the Respond phase (Modules 13-17), couples learn about what aspects of their relationships are best accepted versus changed and develop self-change plans for dealing with stress, changing their patterns of communication, sharing activities with each other, and improving their self-care. They then meet for a final conversation to share these plans and receive feedback about their progress.

The specific topics of each module are listed in Table 1.

Measures

These measures are selected from the full batteries used in both studies.

IBCT/TBCT:

The Dyadic Adjustment Scale (DAS; Spanier, 1976) is a widely used measure of self-reported marital satisfaction that seems to be particularly sensitive to change (Christensen et al., 2004), with an internal consistency of 0.96. One or both spouses needed to score at least one standard deviation below the mean on this measure during screening for the couple to be considered sufficiently distressed for inclusion in the study. The full DAS or a shorter version was administered at baseline, thirteen weeks, 26 weeks, immediately after the end of treatment (varying but approximately eight months after intake), 12, 18, 24, 30, 42, 48, 54, and 60 months after the intake session and 5 years after the actual end of treatment. Data from the full DAS measured at baseline, 13 weeks, and 26 weeks were used for analysis.

Individuals meeting criteria for Generalized Anxiety Disorder were identified using the the Structured Clinical Interview for DSM-IV (SCID; First, Spitzer, Gibbon, & Williams, 1994; Spitzer, Williams, Gibbon, & First, 1994). Interviews were conducted by trained graduate students on current symptoms and lifetime history of psychopathology at the intake and five-year follow-up assessments. Reliability was assessed by measuring agreement between two raters from different sites on 15% of the tapes and ranged from 85-90% agreement. Only current symptoms at intake assessment were used for these analyses.

As an alternative method of reporting symptoms of psychopathology and overall functioning and well-being, participants completed the Compass Outpatient Treatment Assessment System (Sperry, Brill, Howard, & Grissom, 1996). It was administered at baseline, thirteen weeks, 26 weeks, and 12, 18, 24, and 30 months after the intake session and 5 years after the end of treatment. Data from baseline, 13 weeks, and 26 weeks were used for analysis. Because this measure was not administered at each couple's actual post-treatment assessment, 26 weeks is used as an approximation of the end of treatment. This measure includes subscales for

Subjective Well-Being, Current Life Functioning, and Current Symptoms of common mental illnesses (depression, anxiety, and substance use), as well as an Anxiety Symptoms subscale. The Current Symptoms subscale has an internal consistency of 0.94, and a 3–4-week test–retest stability of 0.85. However, the items included for Anxiety Symptoms – "being irritable or easily angered," "shortness of breath or rapid heartbeat," "feeling tense or anxious," and "periods of intense fear that seem out of proportion" were not ideal for measurement of GAD. Therefore, the primary measure used for this study will be the sum of frequency ratings for the seven items that are most similar to DSM-IV symptoms of GAD (see Table 2). Possible ratings for each item are "not at all" (1), "once or twice" (1.8), "several times" (2.6), "often" (3.4), "most of the time" (4.2), and "all of the time" (5) in the last two weeks.

To be identified as a "case" (individual likely to meet DSM-IV criteria for Generalized Anxiety Disorder) using this method, an individual needed to endorse both items 25 and 27 on the Compass MHI, as well as at least 3 out of 5 of items 7, 9, 10, 12, and 16 (see Table 2 for Compass items and their correspondence to DSM-IV criteria). To have endorsed the item, individuals needed to state they have experienced the symptom "often," "most of the time," or "all of the time" in the last two weeks.

OurRelationship:

Relationship satisfaction was measured at pre-treatment, post-treatment, three-month follow-up, six-month follow-up, and one-year follow-up using the 32-item Couples Satisfaction Inventory (CSI-32; Funk & Rogge, 2007), a measure consisting of the most informative items from more established measures such as the Dyadic Attachment Scale and Marital Adjustment Test. This measure has an internal consistency of 0.98.

GAD symptoms were also assessed at pre-treatment, post-treatment, three-month follow-up, six-month follow-up, and one-year follow-up using the seven-item GAD-7 scale (Spitzer, Kroenke, Williams, & Lowe, 2006). This measure was constructed from a larger pool of items and showed good internal consistency (0.92), convergent validity (with other anxiety measures), and divergent validity (from measures of depression). It also appears to be a good severity measure, as increasing scores on the GAD-7 were associated with increasing numbers of disability days. Cut scores were established at 5 out of 21 (mild), 10 out of 21 (moderate), and 15 out of 21 (severe) and were shown to be associated with step-wise changes in functioning (Spitzer, Kroenke, Williams, & Lowe, 2006). For this study, individuals whose scores indicate moderate or severe GAD will be considered "cases"; that is, they were reporting GAD symptoms at a clinically significant level.

Results

Aim 1: Determine the prevalence of high levels of anxiety symptoms in the population seeking face-to-face and online couple services. The hypothesis for this aim was tested simply by identifying the percentage of the IBCT/TBCT participants identified as "cases" based on on the SCID interview, as well as symptoms endorsed on the Compass Mental Health Index; for the OurRelationship participants, the percentage of those scoring in the clinically significant range ("moderate" and "severe" categories) on the GAD-7 was determined. Chi-square analyses were then used to compare these percentages to the expected percentages based on a population study (Kessler et al., 2005).

Clinical interviews concerning current symptoms of psychopathology (SCID) indicated that five husbands and four wives from the IBCT/TBCT sample met criteria for GAD at the time

of the baseline assessment (3.4% of the sample). None of these individuals were married to one another; that is, nine out of the 134 couples included one individual meeting criteria for GAD. A chi-square analysis indicated that the prevalence of GAD diagnoses in this sample did not differ significantly from that found in a previous population study (chi-square with 1 degree of freedom = 0.195, p = .659; Kessler et al., 2005).

There was a great deal of variability in the IBCT/TBCT sample's responses to the GAD items on the Compass, from scores indicating responses of "none" for all GAD symptoms to scores indicating responses of "all of the time" for nearly every symptom (see Table 3). However, the mean GAD score was very low for both husbands and wives at pre-treatment and indicated an average response of "once or twice" for each item. Moreover, only three female participants and two male participants, 1.86% of the total sample, were identified as likely cases by DSM-IV criteria at pre-treatment. None of these individuals were married to one another; therefore, the Compass items suggested 5 of the 134 marriages included one partner with likely GAD. Note that a chi-square analysis indicated that the prevalence of GAD diagnoses in this sample using the Compass also did not differ significantly from that found in a previous population study (chi-square with 1 degree of freedom = 0.996, p = .318; Kessler et al., 2005). This percentage also does not differ significantly from the percentage found using the SCID (chi-square with 1 degree of freedome = 1.174, p = .279).

The OurRelationship sample included somewhat higher levels of GAD symptoms. At baseline, the mean number of symptoms for both men and women was below the clinical cutoff (10 out of 21; see Table 4). However, of 214 individuals in the sample, 78 individuals scored in the "moderate" to "severe" range on the GAD-7 at baseline (36.4 percent). Of these, 32 were male and 46 were female. 22 of these men were in relationships with women also above the

GAD symptom cutoff. In other words, 22 of the couples consisted of two partners with GAD, 10 couples had a male partner with GAD, 24 couples had a female partner with GAD, and 51 couples had no one with GAD. This is a rather surprising result, as it suggests a much higher rate of GAD than would be expected based on the IBCT/TBCT sample and on population studies. A chi-square analysis indicated that the prevalence of GAD diagnoses in this sample did differ significantly from that found in a previous population study (chi-square with 1 degree of freedom = 668.792, p < .001; Kessler et al., 2005). Note that this sample was recruited based only on its low levels of relationship satisfaction; there was no attempt to oversample for individuals with GAD symptoms.

Aim 2: Determine to what extent change in GAD symptoms occurred over the course of these face-to-face and online couple therapies. This aim was addressed with paired samples t-tests and analysis of variance comparing mean GAD scores at pre-treatment and post-treatment. Inspection of histograms for both husbands and wives indicated that GAD summed scores from the Compass were not normally distributed in the IBCT/TBCT sample, so a natural log transformation was used to increase the likelihood that residuals would be normally distributed. For wives, GAD scores at pre-treatment (mean = 13.02, SD = 4.43) were not significantly different from GAD scores at 26 weeks (mean = 13.15, SD = 4.44), t(126) = -.551, p > .1. For husbands, GAD scores at pre-treatment (mean = 13.11, SD = 4.51) were also not significantly different from scores at 26 weeks (mean = 13.00, SD = 4.62), t(124) = .295, p > .1.[1] These findings are unsurprising given that GAD symptoms were not a focus of treatment. Moreover, with GAD scores so low at pre-treatment for both husbands and wives, a floor effect may have occurred.

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[1] When analysis of variance was used to examine change in GAD scores for the IBCT/TBCT sample and 13-week data were included, a similar finding of no statistically significant change was obtained for both husbands and wives.

Inspection of histograms for both men and women from the initial treatment condition in the OurRelationship sample (n = 214 individuals) suggested that GAD-7 scores were close to normally distributed, so no transformation was used for these analyses. Although anxiety was also not a focus of the OurRelationship.com program, surprisingly, GAD symptoms decreased significantly from over the course of treatment. For women, GAD-7 scores declined significantly from pre-treatment (mean = 8.73, SD = 5.48) to post-treatment (mean = 5.63, SD = 4.70), t(98) = 6.454, p < .001. Similarly, for men, GAD-7 scores declined significantly from pre-treatment (mean = 7.13, SD = 4.79) to post-treatment (mean = 4.11, SD = 3.75), t(95) = 6.657, p < .001. These results indicate that GAD symptoms were improving across the sample on average.

However, it may be more helpful to examine change in GAD symptoms among the subset of 36 individuals who were above the clinical cutoff at pre-treatment. Among women in this group, GAD-7 scores also declined significantly from pre-treatment (mean = 14.27, SD = 3.29) to post-treatment (mean = 8.26, SD = 4.70), t(40) = 8.425, p < .001. Similarly, for men who were cases at pre-treatment, GAD-7 scores declined significantly from pre-treatment (mean = 13.25, SD = 2.89) to post-treatment (mean = 6.29, SD = 4.59), t(27) = 7.712, p < .001. Not only were these changes statistically significant, they were clinically significant: both men and women's average scores declined from the medium severity range to the mild severity range according to GAD-7 norms, resulting in them falling below the clinical cutoff. This is an extremely surprising result of an intervention with no explicit focus on reducing GAD symptoms.

At the same time, it is important to consider to what extent this change in symptoms may have also occurred in the control condition during the six-week waitlist. At baseline, the mean number of symptoms for both men and women in the control sample was below the clinical

cutoff (see Table 5). However, of 208 individuals in the sample, 47 females and 28 males scored in the "moderate" to "severe" range on the GAD-7 at baseline (36.05 percent), as in the intervention sample. For the 104 female controls, GAD-7 scores declined significantly from baseline (mean = 9.43, SD = 5.79) to six-week follow-up (mean = 7.02, SD = 5.64), $t(92) = 4.737$, $p < .001$. Similarly, for men, GAD-7 scores declined significantly from baseline (mean = 6.11, SD = 4.74) to six-week follow-up (mean = 4.64, SD = 4.55), $t(80) = 3.134$, $p < .01$.

Among the 47 female controls who were cases at baseline, GAD-7 scores also declined significantly from baseline (mean = 15.26, SD = 3.62) to six-week follow-up (mean = 11.04, SD = 5.18), $t(38) = 4.526$, $p < .001$. Similarly, for the 28 men who were cases, GAD-7 scores declined significantly from baseline (mean = 13.2, SD = 2.83) to six-week follow-up (mean = 8.89, SD = 6.27), $t(17) = 3.465$, $p < .01$. Notably, the mean score at follow-up for women continued to be above the clinical cutoff, although the follow-up score for men had fallen below the cutoff. These results indicate that surprisingly, GAD symptoms were also improving in the control sample – both cases specifically and the full sample – during their time on a no-intervention waitlist.

Repeated measures analysis of variance was used to integrate these findings, with one model for men and a separate model for women. Time (pre versus post), treatment group (active intervention versus control), case (identified as a GAD case at baseline or not), group*case, group*time, case*time, and group*case*time were considered as predictors of GAD symptoms. For women, there was a main effect of time, $F(1, 188) = 92.078$, $p < .01$; as noted above, GAD symptoms tended to decline over time.). By definition, there was a main effect of case, $F(1, 188) = 316.725$, $p < .01$, with cases' GAD symptoms being higher than non-cases'. There was also an interaction between time and case, $F(1, 188) = 39.156$, $p < .01$; GAD symptoms declined for

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both cases and non-cases, but the mean decline was greater for cases (mean symptoms for cases = 14.762 at pre and 9.647 at post; mean symptoms for non-cases = 5.016 at pre and 3.939 at post). These findings about cases versus non-cases are not surprising, as there was most likely a floor effect for symptom decline in non-cases.

There was also a main effect for women of group (treatment versus control), $F(1, 188) = 6.792$, $p < .05$, with higher GAD symptom scores for controls (mean for controls = 8.907; mean for intervention group = 7.775). There was a trend toward significance for the interaction between group and case, $F(1, 188) = 3.013$, $p < .1$; the controls' cases had a larger mean number of symptoms (across time points; 13.147) than the treatment group's cases (11.262), although the means were similar for non-cases. However, there was no significant interaction between group and time, $F(1, 188) = 1.789$, $p > .1$, or between group, case, and time, $F(1, 188) = 2.082$, $p > .1$ (Figure 1).

For men, there was a within-subjects main effect of time, $F(1, 173) = 106.388$, $p < .01$; again, GAD symptoms tended to decline over time. As expected, there was also a main effect of case, $F(1, 173) = 210.408$, $p < .01$, with mean symptoms being greater for cases. There was also the interaction between time and case, $F(1, 173) = 53.808$, $p < .01$, with a larger decline in symptoms for cases.

There was no main effect of treatment versus control group for men, $F(1,173) = 1.787$, $p > .1$. However, again, there was a trend toward significance for an interaction between group and case, $F(1, 173) = 3.120$, $p < .1$; the controls' cases had a larger mean number of symptoms (across time; 11.194) than the treatment group's cases (9.768). There was also a significant interaction between time and group, $F(1, 173) = 5.819$, $p < .05$; mean symptoms declined more over time for the treatment group (mean of 8.926 at pre to 4.753 at post) than the control group

(mean of 8.750 at pre to 6.159 at post). Yet, there was no interaction between group, case, and time, $F(1, 173) = 1.382$, p > .1 (Figure 2).

Therefore, it is useful to determine the effect size for change in GAD symptoms in the intervention group as compared to controls. Calculating effect sizes in a multilevel framework would permit inclusion of data from both men and women; however, it is not yet clear in the statistics literature how multilevel effect sizes can be accurately calculated. Therefore, these effect sizes are calculated for husbands and wives separately using a type of Hodges's *g*. As recommended by Dunlop, Cortina, Vaslow, and Burke (1996), I use the pooled standard deviation from the two groups at baseline rather than from repeated-measures *t*-tests to avoid overestimating the effect size. Therefore, effect size is defined as:

$$\frac{\text{TxPost} - \text{ControlPost} - (\text{TxPre} - \text{ControlPre})}{\sqrt{\dfrac{(n_1 - 1)SD_1^2 + (n_2 - 1)SD_2^2}{n_1 + n_2 - 2}}}$$

For all males, the effect size was -0.181, and for all females it was -0.072, which are small effects. However, for GAD cases only, the effect size was -0.563 for males and -0.458 for females. These results indicate that the declines in GAD symptoms were greater in the intervention group than in controls, although the effects were small for the overall sample but medium in size for the GAD cases.

Aim 3: Determine to what extent changes in relationship satisfaction predicted changes in GAD symptoms. This aim was first examined with random coefficient models (using Stata 13) to permit the inclusion of data from both husbands and wives. All predictors were measured within individuals and added to Level 1; Level 2 was included only to account for clustering within couples.

Although no overall change in GAD scores was found in the IBCT/TBCT sample over the course of treatment, it is to be expected that some participants did experience a change in the nature and frequency of their GAD symptoms. The purpose of these models, therefore, was to determine whether this possible change in symptoms occurred in association with the known changes in relationship satisfaction in this sample (see Christensen et al., 2004). Note that although it might be expected that there would be some overlap between these two self-reported measures, the correlation between GAD symptoms at pre-treatment and relationship satisfaction at pre-treatment in this sample was not found to be significantly different from zero ($r = -0.083$, $p > .1$).

For the IBCT/TBCT sample, both GAD symptom and relationship satisfaction data were available from the pre-treatment, 13 week, and 26 week assessments, permitting the construction of a regressed change model with non-overlapping time periods. In other words, this model examines to what extent change in relationship satisfaction from baseline to 13 weeks predicts change in GAD symptoms from 13 weeks to 26 weeks (near the end of treatment). Because the GAD symptoms variable was non-normally distributed, a natural log transformation was used to increase the likelihood that residuals would be normally distributed. The final model also includes treatment group (TBCT or IBCT), gender, and case (whether the individual met criteria for GAD at pre-treatment) as dummy-coded predictors. IBCT, male gender, and caseness were coded as 1. Interactions between group, gender, case, symptoms at 13 weeks, satisfaction at pre, and satisfaction at 13 weeks were also added.

For the first version of the model, only GAD symptoms at 13 weeks was included as a predictor of GAD symptoms at 26 weeks:

$Y_{ij} = \beta_{0j} + \beta_{1j}(\text{GAD13}) + r_{ij}$

$$\beta_{0j} = \gamma_{00} + u_{ij}$$

$$\beta_{1j} = \gamma_{10}$$

Both a constant ($b = 0.847$, SE $= 0.125$, $p < .01$) and 13-week GAD symptoms ($b = 0.657$, SE $=$ 0.0487, $p < .01$) were significant predictors (Table 6).

For Model II, relationship satisfaction at pre-treatment and 13 weeks was added as predictors of GAD symptoms. Comparisons between models are made using the Akaike information criterion (AIC).

Model II:

$$Y_{ij} = \beta_{0j} + \beta_{1j}(\text{SatisfactionPre}) + \beta_{2j}(\text{Satisfaction13}) + \beta_{3j}(\text{GAD13}) + r_{ij}$$

$$\beta_{0j} = \gamma_{00} + u_{ij}$$

$$\beta_{1j} = \gamma_{10}$$

$$\beta_{2j} = \gamma_{20}$$

$$\beta_{3j} = \gamma_{30}$$

Model II had the same result of nonsignificance for all predictors except 13-week GAD symptoms, with an AIC of 24.343. Because the AIC for Model I was 19.114, Model I appears to be a better fit for these data.

For Model III, treatment group (TBCT or IBCT), gender, and case (whether the individual met criteria for GAD at pre-treatment) were also included as dummy-coded predictors, together with interactions between these predictors, symptoms, and satisfaction:

$$Y_{ij} = \beta_{0j} + \beta_{1j}(\text{SatisfPre}) + \beta_{2j}(\text{Satisf13}) + \beta_{3j}(\text{GAD13}) + \beta_{4j}(\text{TxGroup}) + \beta_{5j}(\text{Gender}) + \beta_{6j}(\text{Case})$$
$$+ \beta_{7j}(\text{GroupxGAD13}) + \beta_{8j}(\text{GroupxSatisfPre}) + \beta_{9j}(\text{GroupxSatisf13}) + \beta_{10j}(\text{GenderxGAD13}) +$$
$$\beta_{11j}(\text{GenderxSatisfPre}) + \beta_{12j}(\text{GenderxSatisf13}) + r_{ij}$$

$$\beta_{0j} = \gamma_{00} + u_{ij}$$

$$\beta_{1j} = \gamma_{10}$$

$$\beta_{2j} = \gamma_{20}$$

$$\beta_{3j} = \gamma_{30}$$

$$\beta_{4j} = \gamma_{40}$$

$$\beta_{5j} = \gamma_{50}$$

$$\beta_{6j} = \gamma_{60}$$

$$\beta_{7j} = \gamma_{70}$$

$$\beta_{8j} = \gamma_{80}$$

$$\beta_{9j} = \gamma_{90}$$

$$\beta_{10j} = \gamma_{100}$$

$$\beta_{11j} = \gamma_{110}$$

$$\beta_{12j} = \gamma_{120}$$

The result for Model III was also that only 13-week GAD symptoms was a significant predictor of 26-week symptoms. These findings suggest that of the models tested, the relatively empty model in which GAD symptoms at an earlier time point predict symptoms at a later time is the most appropriate fit for the data. This indicates that changes in relationship satisfaction are not useful predictors of changes in symptoms in this sample.

In the online OurRelationship sample, the correlation between GAD symptoms and relationship satisfaction at pre-treatment was also found to be very low ($r = -0.160$, $p < .05$), suggesting it is appropriate to examine the relationship between these two variables over time. Unfortunately, in this sample, no mid-treatment GAD data were available. Therefore it was only possible to construct an overlapping model; with this approach, one can examine the association between symptoms and satisfaction but not determine the direction of causation. The model also

includes treatment group (active treatment or controls), gender, and case (whether the individual met criteria for GAD at pre-treatment) as dummy-coded predictors. Active treatment, male gender, and caseness were coded as 1. Interactions between group, gender, case, symptoms at pre, satisfaction at pre, and satisfaction at post were also added.

For the first version of the model, only GAD symptoms at pre was included as a predictor of GAD symptoms at post:

$Y_{ij} = \beta_{0j} + \beta_{1j}(GADpre) + r_{ij}$

$\beta_{0j} = \gamma_{00} + u_{ij}$

$\beta_{1j} = \gamma_{10}$

In this model, GAD at pre was not a significant predictor of GAD at post; only a constant was included in the model ($b = 1.171$, $SE = 0.364$, p < .01; Table 7). For Model II, relationship satisfaction at pre and post were added as predictors of GAD symptoms. Because Models I and II are nested models it is possible to compare model fit using the AIC.

Model II:

$Y_{ij} = \beta_{0j} + \beta_{1j}(SatisfactionPre) + \beta_{2j}(SatisfactionPost) + \beta_{3j}(GADpre) + r_{ij}$

$\beta_{0j} = \gamma_{00} + u_{ij}$

$\beta_{1j} = \gamma_{10}$

$\beta_{2j} = \gamma_{20}$

$\beta_{3j} = \gamma_{30}$

In Model II, pretreatment GAD symptoms ($b = 0.531$, $SE = 0.0367$, $p < .01$), pretreatment relationship satisfaction ($b = 0.0514$, $SE = 0.0181$, $p < .01$), and posttreatment relationship satisfaction ($b = -0.0822$, $SE = 0.0154$, $p < .01$) were all significant contributors to the model.

The AIC was calculated to be 2030.53, which not surprisingly is much smaller than the 2055.22

AIC for Model 1.

Model III is an alternative specification in which satisfaction at pre and post is not

included, but treatment group (active treatment or controls) and gender are (together with

interaction terms), in order to evaluate whether the effect of GAD at pre on GAD at post differs

by membership in these groups:

$Y_{ij} = \beta_{0j} + \beta_{1j}(\text{GADPre}) + \beta_{1j}(\text{TxGroup}) + \beta_{2j}(\text{Gender}) + \beta_{3j}(\text{Case}) + \beta_{4j}(\text{GroupxGADPre}) +$

$\beta_{5j}(\text{GenderxGADPre}) + r_{ij}$

$\beta_{0j} = \gamma_{00} + u_{ij}$

$\beta_{1j} = \gamma_{10}$

$\beta_{2j} = \gamma_{20}$

$\beta_{3j} = \gamma_{30}$

$\beta_{4j} = \gamma_{40}$

$\beta_{5j} = \gamma_{50}$

In this model, pretreatment GAD symptoms ($b = 0.583$, $SE = 0.0837$, $p < .01$) was a

significant contributor to the model. There was also a trend toward significance for the

interaction between group and pretreatment GAD symptoms (Table 7). That is, the active

treatment group experienced a greater decline in GAD symptoms than the control group.

However, the AIC for this model is 2050.624 – larger than for Model II – which suggests Model

II continues to be the best fit for these data.

For Model IV, treatment group (active treatment or controls), gender, and case (whether

the individual met criteria for GAD at pre-treatment) were all included as dummy-coded

predictors, together with GAD at pre, satisfaction at pre, and satisfaction at post, and the interactions between these terms:

$Y_{ij} = \beta_{0j} + \beta_{1j}(\text{GADPre}) + \beta_{2j}(\text{SatisfactionPre}) + \beta_{3j}(\text{SatisfactionPost}) + \beta_{4j}(\text{TxGroup}) +$

$\beta_{5j}(\text{Gender}) + \beta_{6j}(\text{Case}) + \beta_{7j}(\text{GroupxGADPre}) + \beta_{8j}(\text{GroupxSatisfPre}) + \beta_{9j}(\text{GroupxSatisfPost})$

$+ \beta_{10j}(\text{GenderxGADPre}) + \beta_{11j}(\text{GenderxSatisfPre}) + \beta_{12j}(\text{GenderxSatisfPost}) + r_{ij}$

$\beta_{0j} = \gamma_{00} + u_{ij}$

$\beta_{1j} = \gamma_{10}$

$\beta_{2j} = \gamma_{20}$

$\beta_{3j} = \gamma_{30}$

$\beta_{4j} = \gamma_{40}$

$\beta_{5j} = \gamma_{50}$

$\beta_{6j} = \gamma_{60}$

$\beta_{7j} = \gamma_{70}$

$\beta_{8j} = \gamma_{80}$

$\beta_{9j} = \gamma_{90}$

$\beta_{10j} = \gamma_{100}$

$\beta_{11j} = \gamma_{110}$

$\beta_{12j} = \gamma_{120}$

The result for Model IV was that pretreatment GAD symptoms and posttreatment relationship satisfaction continued to be significant predictors of posttreatment GAD symptoms, and there was again a trend for an interaction between group and GAD at pretreatment, but the binary predictors Group, Gender, and Case and the other interactions did not contribute

significantly to the model (Table 7). The AIC for this model is 2038.244, which suggests Model II continues to be the best fit for these data.

Model V is identical to Model III except the interaction between GADPre and gender has been removed, since this interaction did not contribute significantly to the model:

$Y_{ij} = \beta_{0j} + \beta_{1j}(\text{GADPre}) + \beta_{1j}(\text{TxGroup}) + \beta_{2j}(\text{Gender}) + \beta_{3j}(\text{Case}) + \beta_{4j}(\text{GroupxGADPre}) + r_{ij}$

$\beta_{0j} = \gamma_{00} + u_{ij}$

$\beta_{1j} = \gamma_{10}$

$\beta_{2j} = \gamma_{20}$

$\beta_{3j} = \gamma_{30}$

$\beta_{4j} = \gamma_{40}$

In this model, pretreatment GAD symptoms ($b = 0.551$, $SE = 0.0787$, $p < .01$) was again a significant contributor to the model. With nonsignificant predictors removed, the interaction between group and pretreatment GAD symptoms now significantly contributed to the model ($b = -0.145$, $SE = 0.0743$, $p < .05$; Table 7). That is, this analysis provides stronger evidence that the active treatment group experienced a greater decline in GAD symptoms than the control group. However, the AIC for this model is 2049.788 – larger than for Model II – which suggests Model II continues to be the best fit for these data.

The findings from Model II indicate that in accordance with hypotheses, higher levels of GAD symptoms at pretreatment and lower levels of relationship satisfaction at posttreatment are associated with higher levels of GAD symptoms at posttreatment. It was not expected that higher levels of relationship satisfaction at pretreatment were also associated with higher levels of GAD symptoms at posttreatment. However, the more important finding is that regressed change (increases) in relationship satisfaction predict regressed change (decreases) in GAD symptoms.

To expand on these findings, the same regression analyses were then completed with only the cases (those who met criteria for GAD at pre-treatment) from the online sample (n = 58). These analyses did not require random coefficient models because data were used only from the cases, not their partners. For Model I, only GAD at pretreatment was considered as a predictor of GAD at post:

$$Y = b_o + b_1(GADpre) + e$$

There was a trend toward significance for GAD at pre as a predictor of GAD at post ($b = 0.375$, $SE = 0.193$, $p < .06$; Table 8). For Model II, relationship satisfaction at pre and post were added to the model:

$$Y = b_o + b_1(GADpre) + b_2(Satisfpre) + b_3(Satisfpost) + e$$

GAD at pre alone was no longer a significant predictor of GAD at post ($p > .1$); instead, regressed change in satisfaction predicted regressed change in GAD. The coefficient for satisfaction at post was -0.166 ($SE = 0.042$, $p < .01$), indicating that for every increase of one unit in satisfaction, GAD symptoms were expected to decrease by 0.166 units, over and above the effects of other variables. For Model III, treatment group (active intervention versus controls) was added as a binary predictor (with the active group coded as 1), together with its interactions with the other variables:

$$Y = b_o + b_1(GADpre) + b_2(Satisfpre) + b_3(Satisfpost) + b_4(TxGroup) + b_5(GroupxGADpre) + b_6(GroupxSatisfpre) + b_7(GroupxSatisfpost) + e$$

In accordance with the findings in the previous model, only regressed change in satisfaction significantly predicted regressed change in symptoms. The coefficient for satisfaction at post was a very similar -0.185 ($SE = 0.053$, $p < .01$). These results suggest

treatment group is not a significant predictor when considered over and above the effect of satisfaction (which is known to differ based on treatment group).

   Aim 4: to determine whether satisfaction mediates the association between treatment group and GAD symptoms. To include data from both partners in the online sample (n = 369), it was necessary to cluster individuals within couples. Mediational analyses were conducted in accordance with the recommendations of Krull and MacKinnon (2001), who found that ignoring the clustered nature of this type of dataset typically results in downwardly biased standard errors. In their framework, this is a 2 -> 1 -> 1 model, in which the initial (X_{ij}) variable is measured at the couple level, while mediator (M_{ij}), and outcome (Y_{ij}) variables are measured at the lowest level of the data. The initial variable X_{ij} is treatment group (dummy coded such that 1 indicates intervention condition), the mediator M_{ij} is relationship satisfaction at post-treatment, and the outcome Y_{ij} is GAD symptoms at post-treatment, while also controlling for GAD symptoms at pre-treatment (C_{ij}; see Figure 3).

   The mediation model was tested using the ml_mediation program for Stata. First, pathway *c*, the effect of treatment group on GAD symptoms at post while controlling for baseline symptoms, was estimated using the following equations:

Level 1: $Y_{ij} = \beta_{0j} + \beta_c X_{ij} + \beta_{1j} C_{ij} + r_{ij}$

Level 2: $\beta_{0j} = \gamma_{00} + u_{0j}$

   Second, pathway *a*, the regression coefficient for the effect of treatment group on relationship satisfaction at post, was estimated using the following equations:

Level 1: $M_{ij} = \beta_{0j} + \beta_a X_{ij} + \beta_{1j} C_{ij} + r_{ij}$

Level 2: $\beta_{0j} = \gamma_{00} + u_{0j}$

Third, pathway *b*, the regression coefficient for the effect of relationship satisfaction on GAD symptoms, as well as pathway *c'*, the effect of treatment group on GAD symptoms while controlling for pathways *a* and *b* (the indirect effect), were estimated using the following equations:

Level 1: $Y_{ij} = \beta_{0j} + \beta_{c'}X_{ij} + \beta_{b}M_{ij} + \beta_{1j}C_{ij} + r_{ij}$

Level 2: $\beta_{0j} = \gamma_{00} + u_{0j}$

Results indicated the association between treatment group and GAD symptoms was partially mediated by relationship satisfaction. As Figure 3 illustrates, the regression coefficient between treatment group and GAD symptoms at post while controlling for GAD symptoms at pre (*c* path) was estimated to be -1.0627, with a standard error of 0.411, p < .05. The coefficient for the effect of treatment group on relationship satisfaction at post (the *a* path) was estimated to be 9.0183, with a standard error of 2.210, p < .001. The *b* path, the effect of relationship satisfaction at post on GAD symptoms at post, was also significant, estimated to be -0.0471, with a standard error of 0.0115, p < .01. The *c'* path, the effect of treatment group on GAD symptoms while controlling for the *a* and *b* paths, was estimated to have a coefficient of -0.640, with a standard error of 0.415, which meant it did not achieve statistical significance in this analysis. However, more accurate bootstrapping analyses were needed to determine whether this coefficient is significantly different from zero.

Bootstrapping analyses indicated the indirect effect (*a* x *b* path) had a coefficient of -0.425, with a standard error of 0.0871, p < .01. In contrast to the finding above, the direct effect was also significant, with a coefficient of -0.640, and a standard error of 0.271, p < .05. In other words, the c' path was found to be significantly different from zero. The total effect was found to have a coefficient of -1.0646, with a standard error of 0.267, p < .01. Because both the indirect

effect and direct effect were significant, it is reasonable to report the proportion of the total effect mediated, 39.9%. These findings indicate that the online OurRelationship intervention affected GAD symptoms both through changes in relationship satisfaction and "directly" (that is, though other variables not included in this analysis).

Discussion

The goal of this paper was to describe change (if any) in GAD symptoms among the participants in two relationship-focused interventions. The first aim was to determine the prevalence of clinical levels of GAD symptoms in these groups at baseline, which I expected to be at least three percent based on population studies. In the in-person IBCT/TBCT sample, the proportion was as expected (3.4% based on SCID interviews). However, in the online OurRelationship sample, it was much higher, 36.4%.

The second aim was to determine to what extent GAD symptoms change over the course of these couple interventions. Since these treatments are known to affect relationship satisfaction and I expect changes in satisfaction and symptoms to be associated with one another, I expected to see a small amount of change in GAD symptoms. For the IBCT/TBCT sample, there was no evidence of change in symptoms; the prevalence of GAD symptoms was so low in this sample, any change would have been very difficult to detect. However, in the OurRelationship sample, GAD symptoms decreased in both the intervention group and the control group (during the six-week waitlist period), particularly when examining those individuals who met criteria for GAD at baseline. Calculating effect sizes for the change in GAD symptoms in the intervention group as compared to the control group indicated that these effects were small in size for the full OurRelationship sample but medium in size when only those individuals who met criteria for GAD were considered.

The third aim of the study was to characterize the association between change in relationship satisfaction and change in GAD symptoms. I expected that increases in relationship satisfaction would be associated with decreases in GAD symptoms. The low correlations between these two variables in both samples at pre-treatment suggested that these associations could not be attributed simply to overlap between the two variables. With the IBCT/TBCT data, it was possible to examine whether earlier increases in relationship satisfaction predicted later decreases in GAD symptoms; however, they did not. With the OurRelationship data, only overlapping comparisons of pre-treatment to post-treatment change in both variables were possible. Results indicated that changes in GAD and changes in relationship satisfaction were related to one another, both in the full OurRelationship sample and in the group who had met criteria for GAD. In the group who had met criteria, for every increase of one unit in satisfaction, GAD symptoms were expected to decrease by 0.166 units, over and above the effects of other variables.

The fourth aim was to examine this relationship between satisfaction and symptoms in the OurRelationship sample in a mediation framework. I hypothesized that satisfaction would mediate the association between treatment group (intervention versus control group) and GAD symptoms. Results were indicative of partial mediation (39.9%), with a finding of statistical significance for both the direct effect of treatment group and the indirect effect of relationship satisfaction on GAD symptoms.

The findings for the second, third, and fourth aims in some sense follow logically from the first findings. The prevalence of GAD symptoms in the in-person IBCT/TBCT sample was extremely low, so much so that it is likely there was a floor effect for all other analyses. In the online OurRelationship sample, there was a very high prevalence of GAD symptoms. However,

it is important to note it would not necessarily follow from this high prevalence that changes in GAD symptoms would occur during the intervention or be associated with changes in relationship satisfaction. Yet, the data did indicate there were fairly strong associations between changes in GAD symptoms and changes in relationship satisfaction, as well as between changes in GAD symptoms and simply participating in a dyadic intervention.

These major differences between the IBCT/TBCT and OurRelationship samples were unexpected. Both included highly distressed couples in which a moderate amount of comorbid GAD would be expected, given the strong association between GAD and relationship dissatisfaction. Several possible explanations should be considered. The simplest possibility is the different results are due to having used different measures of GAD symptoms. The GAD-related items from the Compass MHI were not designed to be used together and the psychometric properties of this grouping are unknown. The strength of this approach lay in its similarity to the DSM-IV definition of GAD. Moreover, results from the SCID clinician interview for DSM-IV were extremely similar to those from the Compass. The GAD-7 was also constructed using items from the DSM-IV, with only the seven items most highly correlated with the overall scale retained for the measure (Spitzer et al., 2006). These items are roughly similar to those included in the Compass measure (see Table 2), with the primary difference being fewer items on the GAD-7 concerning physical and cognitive (e.g., difficulty concentrating) symptoms. Both measures ask the participant to consider experiences "over the last two weeks," which allows them to be sensitive to change. In the absence of data comparing scores on both of these measures, it is only possible to say it seems unlikely that such large differences in GAD prevalence could be due simply to differences in these measures, which overlap so greatly.

A second explanation for the different results from these samples rests on the fact that they were recruited separately under very different conditions. Individuals interested in an online dyadic intervention rather than an in-person one may tend to be more anxious. GAD commonly co-occurs with other anxiety disorders such as social anxiety and panic disorder (Brown et al., 2001); individuals with social anxiety may be more likely to avoid seeing a therapist in person, and individuals with panic disorder may prefer not to leave home for treatment. These possible effects of comorbid anxiety disorders on treatment-seeking for couple therapy are empirical questions but have not yet been examined in the literature. Somewhat contradictory evidence is presented by Doss, Rhoades, Stanley, & Markman (2009), who found that depression *increased* the probability that a couple would seek in-person marital therapy in the following year, while it did not affect the probability of reading a self-help book or going to a workshop, options which are somewhat analogous to online treatment. Therefore, it is not clear whether the online format of the OurRelationship intervention could have been responsible for attracting a more anxious sample.

Another possibility is that there may have been a group of individuals who were high in GAD and attracted to the OurRelationship website based on advertisements for the IBCT-GAD online program (as outlined in Paper 3). When this group reviewed the IBCT-GAD website, they also clicked through to the main OurRelationship website (at the same domain name) and learned there that they could be paid more to complete the main couple program (up to $95 per individual, versus $48 in the IBCT-GAD program). Given the structure of the public-facing website, it is not possible to determine whether or for how many couples this change in the couple's program of choice occurred. However, if it did occur, it may account in part for the surprisingly high prevalence of GAD in the sample.

It was not only the high prevalence of GAD in the OurRelationship sample that was surprising, but also the fairly large decreases in symptoms over six weeks in the wait-list control condition. It is possible that some large proportion of this sample reporting high levels of GAD symptoms was experiencing those symptoms in a relatively transient way. Therefore, it is a limitation of this study that participants' GAD symptoms were not assessed on multiple occasions before they began the intervention. Another possibility rests on the idea that a wait-list control condition is a type of low-intensity intervention; it is likely to have instilled hope and reduced anxiety on its own. Because the worries characteristic of GAD so often concern relationships (Roemer, Molina, & Borkovec, 1997), having enrolled in a relationship-focused intervention with one's partner may temporarily reduce anxiety and worry, even if the intervention has not yet begun.

The medium effect sizes for GAD symptoms in the OurRelationship intervention as compared to wait-list control are in accordance with predictions. Although the intervention does not explicitly address anxiety, its emphasis on acceptance of internal experience (one's own and one's partner's) and choosing to behave in a planned rather than emotion-driven way are proposed mechanisms of change in some interventions for GAD (e.g., Orsillo, Roemer, & Barlow, 2003). This partial overlap in content between acceptance-based interventions for relationship distress and acceptance-based interventions for GAD is consistent with a finding of moderately-sized effects for symptom change in a relationship-focused intervention. However, it is also possible that these effects are due to less specific factors in the OurRelationship intervention, such as increased self-efficacy, a sense of "working alliance" with the researchers who developed the program, or a more general "halo effect" in which improvement in relationship satisfaction results in reported improvements in other areas (see discussion in

Horvath & Symonds, 1991). It is a limitation of this study that no data is currently available from the follow-up period, as determining whether these effects on GAD symptoms endure through months of follow-up would assist with evaluating these hypotheses.

However, the findings across the OurRelationship sample that GAD is prevalent in an online dyadically distressed group, that it declines in association with improvements in relationship satisfaction, and that it also declines in association with receiving an acceptance-based dyadic intervention are quite interesting. These results are broadly consistent with the Snyder & Wills (1989) study of insight-oriented couple therapy and TBCT in which symptoms endorsed on the MMPI declined after couple therapy. However, they do not fit either the model from the Hannah, Luquet, & McCormick (1997) study of Imago Relationship Therapy in which symptoms declined independent of changes in relationship satisfaction, nor the model from previous analysis of the IBCT/TBCT data in which current symptoms declined only in association with changes in relationship satisfaction. Instead, for the OurRelationship intervention sample, GAD symptoms appear to have changed both in accordance with relationship satisfaction changes and as a more direct result of intervention. It is important to note that because the OurRelationship data could only be studied using overlapping time periods, it is not possible to determine a direction of causality for the association between changes in symptoms and changes in relationship satisfaction. It seems most likely that both sets of changes would simultaneously affect one another, although this is an empirical question.

Regardless, the finding that GAD symptoms decline both in association with changes in relationship satisfaction and due to other aspects of the OurRelationship intervention is promising. For some individuals with subsyndromal levels of GAD symptoms, participation in this intervention may be sufficient for symptom relief. However, modification of the intervention

may result in larger effect sizes for change in GAD symptoms, providing new opportunities for individuals with more severe GAD. To accomplish this goal, it would be useful to identify what aspects of the program other than its effect on relationship satisfaction are mechanisms of change for GAD symptoms. Satisfaction is an appraisal and not identical to the interpersonal behavior between partners; these behaviors, which are also a target for the OurRelationship program, may be one of the ways the program affects GAD indirectly. To address these questions, the second paper of this dissertation examines associations between interpersonal communication behavior and anxiety symptoms in more detail.

Module	Description
	OBSERVE Phase
0.1	Advertising-type content visible on the website's public face. Provides an overview of the program and what is required for participation.
0.2	Registration screen. Couples enter their information so they can be contacted for more extensive screening and informed consent.
1	Individual: Pre-treatment assessment. Couples cannot begin the main program until both have completed these questions.
2	Individual: Feedback (using data from assessment) about the couple's relationship: strengths, weaknesses, and how aspects of the relationship compare to national norms. Opportunity to identify a core issue the individual would like to work on (e.g., money).
3	Individual: Introduction to program and orientation to the website. Exercises to obtain commitment to proceed with this program using motivational interviewing techniques.
4	Joint: Disclosure of the two core issues the individuals had chosen in Module 2. Conversation in which partners decide together whether they would like to work on the same core issue or separate core issues. Orientation to Understand Phase and joint selection of a date on which to have a conversation at the end of this phase.
	UNDERSTAND Phase
5	Individual: Psychoeducation about how there are "three sides to every story" about a relationship (his, hers, and an objective story that takes into account both views). Information about how partners often conceptualize relationship problems and the limitations of these conceptualizations. Introduction of the idea of a "DEEP" Understanding of the relationship involving natural Differences, Emotional sensitivities, External stressors, and Patterns of communication.
6	"D" – Individual: Introduction to how all partners have natural differences and similarities in their personalities/traits. Discussion of how these differences or similarities can be beneficial or detrimental to the relationship. Exercise of choosing the differences that are key to the core relationship issue this individual identified.
7	"E" – Individual: Introduction of the concept of emotional sensitivities and how past experiences can make differences more exaggerated and difficult to deal with. Activities concerning how this operates in their relationship.
8	"E" – Individual: Psychoeducation about how stressful circumstances affect relationship issues. Activities for identifying how this operates for each of the partners.
9	"P" – Individual: Psychoeducation about interactional cycles that exacerbate the problems caused by differences, emotional sensitivities, and external stressors. Activities allowing partners to identify what behaviors they tend to engage in (e.g., criticizing, avoiding, intruding, etc.) as well as the behaviors their partners engage in.

10	Individual: Opportunity to revise previous responses to program activities to word the descriptions in a way that better reflects the individual's new, less-blaming understanding of the relationship. Development of a DEEP conceptualization (differences, emotional sensitivities, external stressors, and patterns of communication) of the core issue identified by the other partner, if it is different.
11	Individual: Orientation to how the joint module (in which couples discuss their behavioral patterns) will be structured and tips for having a successful conversation.
12	Joint: Structured conversation in which partners take turns talking about their new conceptualization of the core problem(s) each partner identified and providing validation of each other's experience. RESPOND Phase
13	Individual: Psychoeducation about acceptance versus change and why accepting things that cannot be changed (particularly, natural differences and emotional sensitivities) is often more beneficial than trying to change them.
14	Individual: Tips and activities about how to respond differently to external stressors (in a way that will benefit the relationship).
15	Individual: Activities in which participants identify which of their communication behaviors they could change to improve the relationship, such as responding differently when an argument begins.
16	Individual: Behavioral exchange activities in which individuals identify enjoyable activities they could do with their partner, "gifts" they could give their partner (such as massages), and ways they could take better care of themselves. Brief assessment of progress.
17	Joint: Conversation about self-change and shared activity plans created in Modules 14-16. Opportunity to engage in problem-solving exercises about the relationship if desired. Feedback about the progress couple has made and celebration of their completion of the program.

Table 1. Content of the OurRelationship.com online intervention for couples.

DSM-IV criterion	Similar Compass item	Similar GAD-7 item
Item required for DSM-IV diagnosis: Excessive anxiety and worry	25. Feeling tense or anxious	1. Feeling nervous, anxious, or on edge
	27. Worrying too much about unimportant things	2. Not being able to stop or control worrying 3. Worrying too much about different things 7. Feeling afraid as if something awful might happen
At least 3 of 6 are required:		
1. Restlessness or feeling keyed up or on edge	(No similar item is included in the Compass)	5. Being so restless that it is hard to sit still
2. Being easily fatigued	7. Being sluggish or without energy	
3. Difficulty concentrating or mind going blank	10. Difficulty concentrating	
4. Irritability	12. Being irritable and easily angered	6. Becoming easily annoyed or irritable
5. Muscle tension	9. Tension or aches in my muscles	4. Trouble relaxing
6. Sleep disturbance (difficulty falling or staying asleep, or restless unsatisfying sleep)	16. Trouble falling asleep	

Table 2. Items from the Compass and DSM-IV criteria for Generalized Anxiety Disorder. These items from the Compass are used to determine which individuals from the IBCT/TBCT sample are likely to meet DSM-IV criteria for the disorder.

GAD symptoms		N	Range	Mean (SD)
Pre-treatment	Wives	134	7.00-32.60	13.02 (4.43)
	Husbands	133	7.00-29.40	13.11 (4.51)
13 weeks	Wives	126	7.00-29.40	13.67 (4.76)
	Husbands	126	7.00-25.40	12.98 (4.21)
26 weeks	Wives	127	7.00-27.80	13.15 (4.44)
	Husbands	126	7.00-27.80	13.00 (4.62)

Table 3. GAD symptoms (as measured with the Compass) in the IBCT/TBCT sample at pre-treatment, 13 weeks, and 26 weeks.

GAD-7		N	Range	Mean (SD)
Pre-treatment	Women	107	0-21	8.98 (5.51)
	Men	106	0-20	7.30 (4.2)
Post-treatment	Women	99	0-17.5	5.63 (3.76)
	Men	97	0-20	4.07 (4.32)

Table 4. GAD symptoms in the OurRelationship full intervention sample at pre-treatment and post-treatment.

GAD-7		N	Range	Mean (SD)
Baseline	Women	102	0-21	9.95 (6.022)
	Men	102	0-21	6.96 (5.25)
Six-week follow-up	Women	93	0-21	7.016 (5.64)
	Men	81	0-21	4.64 (4.55)

Table 5. GAD symptoms in the OurRelationship control sample at baseline and at the end of the six-week waitlist period.

Parameter	Model I Estimate (S.E.)	Model II Estimate (S.E.)	Model III Estimate (S.E.)
Fixed			
Constant	0.847 (0.125)**	0.675 (0.492)	-0.482 (0.842)
GAD 13w	0.657 (0.0487)**	0.658 (0.0509)**	0.652 (0.0872)**
Satisf Pre	-	0.130 (0.118)	0.163 (0.219)
Satisf 13w	-	-0.0911 (0.108)	0.134 (0.235)
Tx Group	-	-	0.997 (1.0345)
Gender	-	-	1.152 (0.948)
Case	-	-	-0.0900 (0.125)
Group x GAD 13w	-	-	-0.164 (0.102)
Group x Satisf Pre	-	-	0.0668 (0.251)
Group x Satisf 13w	-	-	-0.187 (0.241)
Gender x GAD 13w	-	-	0.147 (0.0988)
Gender x Satisf Pre	-	-	-0.145 (0.233)
Gender x Satisf 13w	-	-	-0.198 (0.211)
Random			
Couple	0.0955 (0.0296)*	0.0919 (0.0312)*	0.0961 (0.0292)*
Individual	0.230 (0.0147)*	0.232 (0.0150)*	0.224 (0.0146)*
AIC	19.114	24.343	31.403

Table 6. Random effects model predicting change in GAD symptoms from 13 weeks to 26 weeks from regressed change in relationship satisfaction from pre-treatment to 13 weeks, as well as treatment group, gender, case (meeting criteria for GAD at pre-treatment), and interactions between these variables, in the Integrative Behavioral Couple Therapy / Traditional Behavioral Couple Therapy in-person treatment sample.

$^\wedge$ p < .1
* p < .05
** p < .01

Parameter	Model I Estimate (S.E.)	Model II Estimate (S.E.)	Model III Estimate (S.E.)	Model IV Estimate (S.E.)	Model V Estimate (S.E.)
Fixed					
Constant	1.171 (0.364)**	3.062 (0.658)**	1.390 (0.670)**	1.806 (1.087)^	1.692 (0.610)**
GAD Pre	0.531 (0.0379)**	0.531 (0.0367)**	0.583 (0.0837)**	0.597 (0.816)**	0.551 (0.0787)**
Satisf Pre	-	0.0514 (0.0181)**	-	0.0557 (0.0350)	-
Satisf Post	-	-0.0822 (0.0154)**	-	-0.0646 (0.0302)*	-
Tx Group	-	-	0.0990 (0.710)	0.799 (1.335)	0.0980 (0.710)
Gender	-	-	0.00410 (0.713)	1.987 (1.319)	-0.631 (0.405)
Case	-	-	0.501 (0.793)	0.520 (0.770)	0.499 (0.794)
Group x GAD Pre	-	-	-0.141 (0.0743)^	-0.131 (0.0737)^	-0.145 (0.0743)*
Group x Satisf Pre	-	-	-	0.00677 (0.0391)	-
Group x Satisf Post	-	-	-	-0.00773 (0.0344)	-
Gender x GAD Pre	-	-	-0.0837 (0.0773)	-0.116 (0.0763)	-
Gender x Satisf Pre	-	-	-	-0.0203 (0.0366)	-
Gender x Satisf Post	-	-	-	-0.0173 (0.0312)	-
Random					
Couple	0.870 (0.674)*	0.00109 (0.00166)*	0.567 (0.999)*	0.000 (0.000)	0.504 (1.125)*
Individual	3.781 (0.203)*	3.729 (0.137)*	3.759 (0.202)*	3.678 (0.135)*	3.774 (0.202)*
AIC	2055.22	2030.53	2050.624	2038.244	2049.788

Table 7. Random effects model predicting change in GAD symptoms from pre-treatment to post-treatment from regressed change in relationship satisfaction, treatment group, gender, and case (meeting criteria for GAD at pre-treatment) and interactions between these variables in the online OurRelationship sample.

^ p < .1

* p < .05

** p < .01

** p < .01

	Model I	Model II	Model III
Parameter	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)
Constant	3.206 (2.841)	10.120 (3.065)**	11.372 (3.115)**
GAD Pre	0.375 (0.193)^	0.232 (0.172)	0.280 (0.174)
Satisf Pre	-	0.073 (0.052)	0.0560 (0.0625)
Satisf Post	-	-0.166 (0.042)**	-0.185 (0.0530)**
Tx Group	-	-	-6.540 (4.447)
Group x GAD pre	-	-	0.0231 (0.245)
Group x Satisf Pre	-	-	-0.0176 (0.0751)
Group x Satisf Post	-	-	0.0670 (0.0662)

Table 8. Single-level regression model predicting change in GAD symptoms from pre-treatment to post-treatment from regressed change in relationship satisfaction and treatment group and interactions between these variables in individuals from the online OurRelationship sample who met criteria for GAD at pre-treatment.

^ $p < .1$
* $p < .05$
** $p < .01$
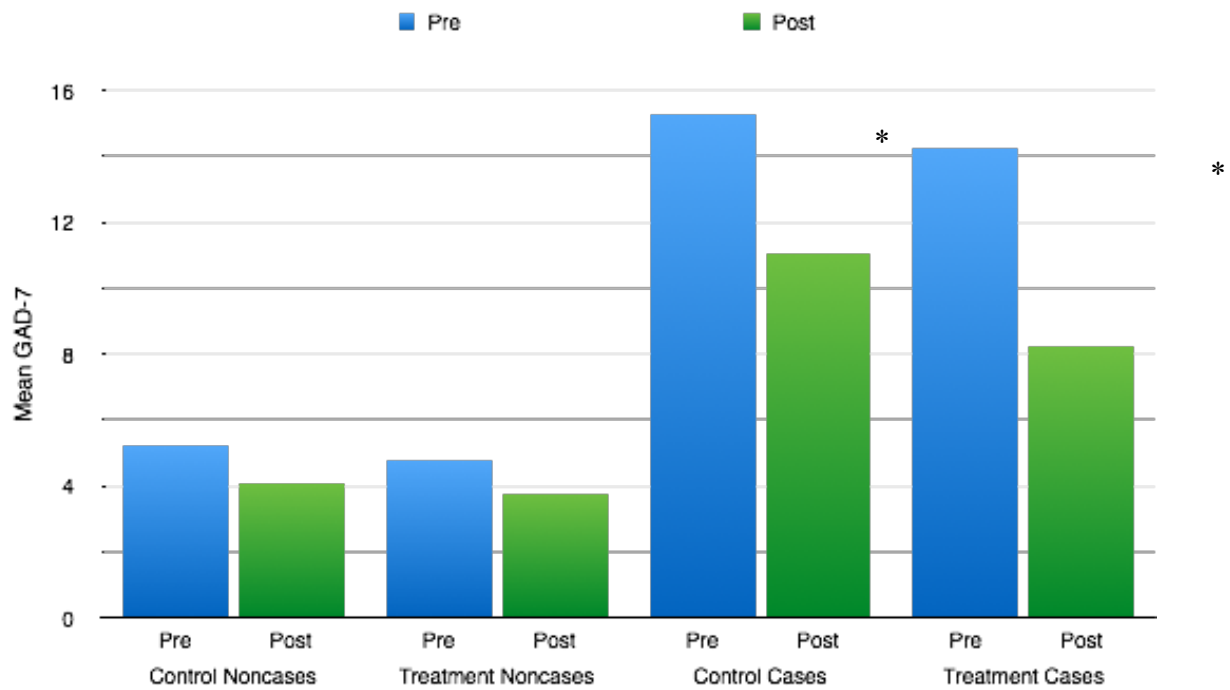
Figure 1. Mean GAD symptoms for female participants in the online OurRelationship study at pre-treatment and post-treatment (or post- six-week waitlist for controls). Participants are categorized by membership in active treatment or control condition and whether they met criteria for GAD at baseline (caseness).

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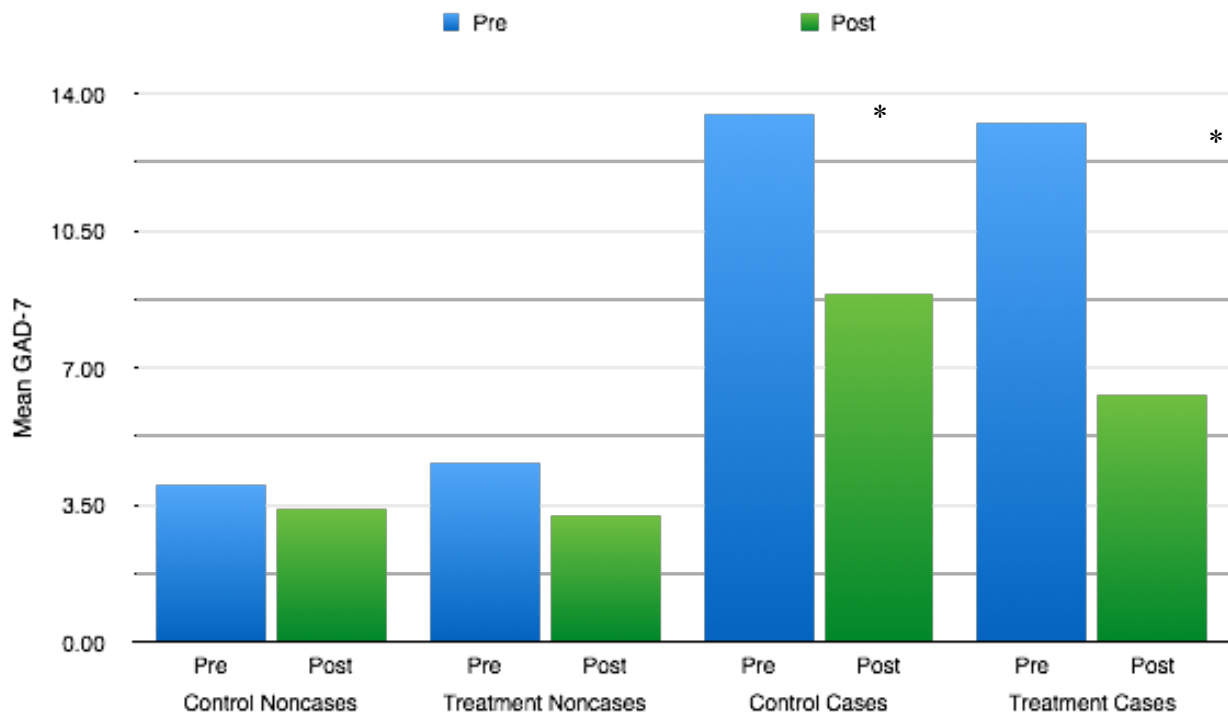
Figure 2. Mean GAD symptoms for male participants in the online OurRelationship study at pre-treatment and post-treatment (or post- six-week waitlist for controls). Participants are categorized by membership in active treatment or control condition and whether they met criteria for GAD at baseline (caseness).
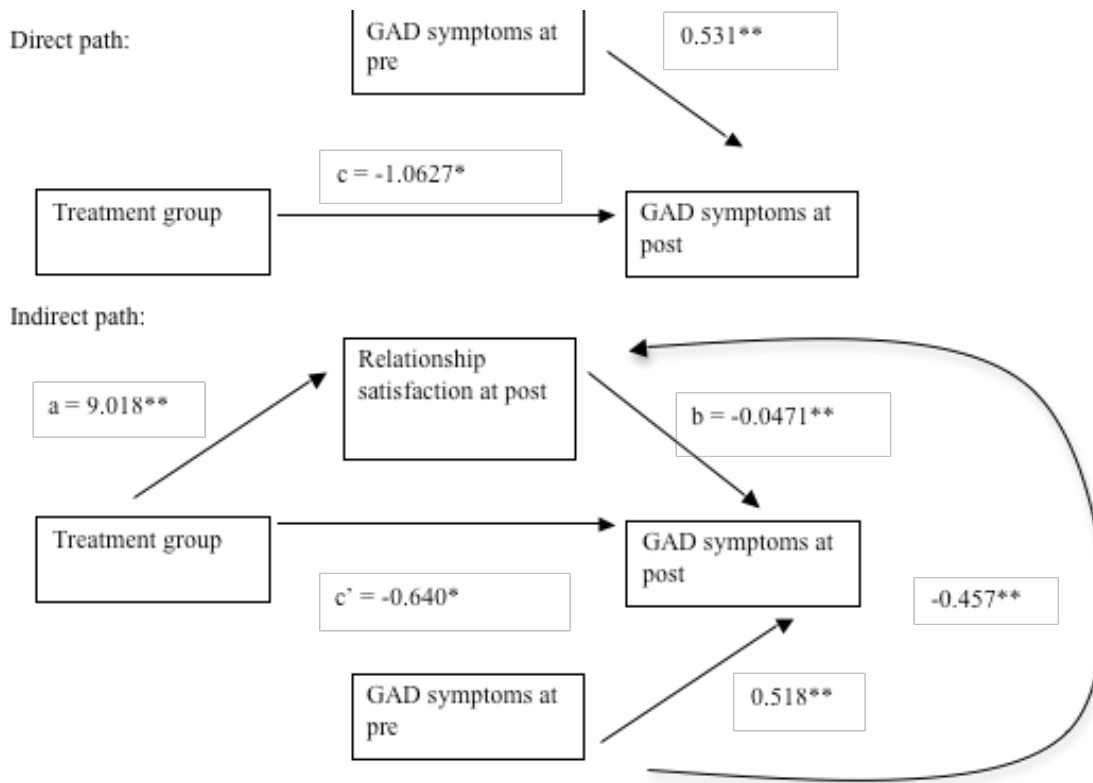
Figure 3. Final model in which relationship satisfaction at post-treatment mediates the association between treatment group (waitlist control versus active intervention) and GAD symptoms at post-treatment while controlling for GAD symptoms at pre-treatment in the online sample.

^ $p < .1$
* $p < .05$
** $p < .01$

Beyond Marital Satisfaction: Characterizing Communication in Relationships of Individuals with Generalized Anxiety Disorder

Meeting criteria for GAD is more highly correlated with experiencing marital distress than is any other psychiatric disorder except bipolar disorder and alcohol use disorders (Whisman, 2007), and across studies of the content categories of GAD worries, family and interpersonal relationship worries are consistently the most frequent or second most frequent (Roemer, Molina, & Borkovec, 1997). The strength of this link between GAD and relationship distress raises the question whether GAD affects relationships or relationships affect GAD and if a causal link exists, the mechanisms by which it occurs.

There is some evidence that GAD may affect relationships - specifically, that individuals with GAD show interpersonal skills deficits and the interactions of couples in which one partner has GAD differ from the interactions of control couples. Women with GAD showed more negative emotion than non-GAD women in interaction tasks with their partners (Hambrick, 2008). Women with GAD have also been found to have more negative biases concerning interactions with their partners, lower reported emotional intimacy with partners, a more avoidant problem-solving style, and lower perceived acceptance by partners, as compared to non-GAD controls (Dutton, 2002). Thus, partners with GAD may contribute to relationship dissatisfaction by tending to communicate in ways that result in less intimacy and understanding between partners.

There is also some evidence for the reverse: characteristics of an intimate relationship may affect GAD symptoms and may affect treatment response in individual therapy for GAD. Women with GAD reported in a diary study that on 18% of days, their husbands had made their

anxiety worse through symptom accommodation or hostile criticism (on 45% of days, the husbands alleviated it; Zaider, Heimberg, & Iida, 2010). Hostile criticism expressed by the partners of individuals with GAD, as measured by observers at pre-treatment, has been found to be strongly negatively correlated with response to cognitive-behavioral therapy ($r = -0.58$; Zinbarg, Lee, & Yoon, 2007). In a group of GAD patients randomized to either cognitive or analytic therapy, a lower level of relationship tension at pre-treatment was associated with increased odds of being classified as improved or markedly improved in terms of anxiety symptoms at one-year follow-up (Durham, Allen, & Hackett, 1997). Also, problematic interpersonal styles remaining at the end of cognitive therapy predicted symptoms during the follow-up period (Borkovec, Newman, Pincus, & Lytle, 2002). Unfortunately, these few findings about communication behaviors in relationships where one partner has GAD have not yet been well-replicated. Moreover, it is not clear whether causality is stronger in one direction than the other; the association is likely to be reciprocal. It is also unknown whether these differences between GAD and non-GAD couples would continue to be seen when both samples are high in relationship distress.

It is particularly noteworthy that these studies describe individual behavior rather than dyadic patterns of communication. Multiple studies of couples' communication (e.g. Christensen & Shenk, 1991; Peterson, 1979; Gray-Little & Burks, 1983; Notarius & Pellegrini, 1987; Schaap, Buunk, & Kerkstra, 1988) have suggested that dyadic communication patterns can best be classified into four types: 1) both partners address problems constructively (e.g., discussing or negotiating), 2) both partners avoid discussing problems, 3) one partner (e.g., wife) demands change while the other (husband) withdraws from the discussion, 4) the second partner (husband) demands change while the first (wife) withdraws. There is cross-cultural evidence that both

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demand/withdraw behavior and mutual avoidance are negatively associated with marital

satisfaction (Bodenmann, Kaiser, Hahlweg, & Fehm-Wolfsdorf, 1998; Christensen et al., 2006).

The Communication Patterns Questionnaire (CPQ, Christensen & Sullaway, 1984) is a well-

validated self-report measure using this theory of dyadic communication. It asks each partner to

describe both partners' behavior when an issue in the relationship arises, when they discuss this

issue, and after the discussion ends. This measure has been found to be moderately strongly

correlated in expected directions with similar constructs from observational coding systems, such

as the Kategoriensystem fuer Partnerschaftliche Interaktion (KPI; Hahlweg, Kaiser, Christensen,

Fehm-Wolfsdorf, & Groth, 2000). The Constructive Communication subscale (CPQ-CC;

Heavey, Larson, Zumtobel, & Christensen, 1996) incorporates the most informative items about

positive and negative communication behaviors and produces a Constructive Communication

score which is the difference between the sums of the positive and negative items.

Therefore, the first aim of the present study is to determine to what extent the dyadic

communication behaviors reported by distressed GAD-affected couples (as measured by the

CPQ-CC) are associated with GAD symptoms. One study of couples in which one individual had

Social Anxiety Disorder found that compared to control couples with no diagnosis, these couples

had less constructive communication, more patient-demand/partner-withdraw, and more partner-

demand-patient withdraw behavior (Casten, 2004). Therefore, I expect that the number of GAD

symptoms individuals report will be negatively correlated with the degree of constructive

communication in their relationship.

The second aim is to determine whether the cross-sectional negative association between

relationship satisfaction and GAD symptoms (as found in Paper 1) is mediated by constructive

communication. To my knowledge, this possibility has not yet been addressed in the literature on

couples and any anxiety disorder. However, there is evidence in the couples and depression literature that communication behavior partially mediates the association between relationship satisfaction and depressive symptoms (e.g., Uebelacker, Courtnage, & Whisman, 2003; Heene, Buysse, & Van Oost, 2007). Demand-withdraw communication has also been found to mediate the association between dissatisfaction with partner support and maternal stress in the postpartum period (Thorp, Krause, Cukrowicz, & Lynch, 2004); dissatisfaction with partner support is a relationship quality variable comparable to relationship satisfaction, while maternal stress is an individual mental health variable comparable to anxiety symptoms. These findings suggest the potential of similar pathways for couples and generalized anxiety.

Because worry about whether a relationship is sufficiently satisfying to continue is a common feature of GAD, it is likely that there is a direct pathway from relationship satisfaction to GAD symptoms. However, since relationship dissatisfaction is associated with less constructive communication behaviors (Heavey et al., 1996), and hostile criticism is associated with lack of improvement in GAD symptoms (Zinbarg, Lee, & Yoon, 2007), I hypothesize an additional pathway from relationship satisfaction to GAD symptoms through the mediator of constructive communication, i.e., a finding of partial mediation. The *a* pathway from relationship satisfaction to constructive communication is expected to have a positive sign, while the *b* pathway from constructive communication to GAD symptoms is expected to have a negative sign.

To evaluate the robustness of any relationships between anxiety and communication variables, they will be examined in samples recruited both in-person and online. One in-person sample consists of distressed couples recruited for couple therapy, while the other is a control sample of maritally satisfied couples. Similarly, one online sample consists of relationally

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distressed couples (without any attempt to oversample for anxious couples), while the other was recruited to be high in GAD symptoms. This variability in samples permits a more rigorous characterization of the relationship between dyadic communication patterns and generalized anxiety.

The third aim is to determine to what extent this mediation model holds in a longitudinal study of couples with GAD. That is, I hypothesize that constructive communication at Time 1 will mediate the association between relationship satisfaction at Time 1 and GAD symptoms at Time 2 while controlling for GAD symptoms at Time 1. This question is of interest primarily for a naturalistic sample (rather than a treatment sample), as it concerns the typical association between symptoms and dyadic behavior for a couple affected by GAD. Therefore, it will be addressed only in the control couples from the online study, who provided six weeks of data while on a waitlist.

Method

Sample 1: In-person couple therapy. The first sample consists of 134 married couples participating in the randomized clinical trial of IBCT (Christensen et al., 2004), as described in the previous paper. Recruitment occurred through advertising and clinic referrals to study sites in Seattle (63 couples) and Los Angeles (71 couples). All couples were living together and reported severe marital distress at three separate time points prior to the beginning of treatment. Participants on average were in their forties and had been married for ten years with a child. 79% of husbands and 76% of wives were Caucasian, although wives at the Los Angeles site were more likely than wives at Seattle to be from a minority group.

Exclusion criteria allowed for the possibility of comorbid Axis I or Axis II psychopathology in either partner. Only individuals who had current diagnoses of schizophrenia,

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bipolar disorder, alcohol/drug abuse or dependence, borderline personality disorder, schizotypal personality disorder, or antisocial personality disorder were excluded from the study; three couples could not participate as a result. Also, husbands whose wives reported they had engaged in moderate to severe violent behavior could not participate in the study; 101 couples were excluded on these grounds. To avoid confounding treatments, neither partner could be in concurrent individual or marital therapy for the study's duration. However, it was acceptable for a participant to continue taking a psychotropic medication if he or she had been taking it for at least twelve weeks with a stable dose for at least six weeks and the prescribing physician did not expect to alter the prescription during the study.

Screening included a phone interview, a mailed battery of questionnaires, and an in-person intake interview. Further assessments were conducted thirteen weeks after intake, 26 weeks after intake, immediately after the end of treatment (varying but approximately eight months after intake), and then 12, 18, 24, 30, 42, 48, 54, and 60 months after the intake session and 5 years after the actual end of treatment. Only data from pre-treatment are used for these analyses. 66 couples were randomized to Integrative Behavioral Couple Therapy and 68 to Traditional Behavioral Cognitive Therapy. Randomization was stratified so that there would be approximately equal numbers of moderately maritally distressed and highly maritally distressed couples in each treatment condition. In both conditions, participants could not receive more than 26 sessions of treatment, although these sessions could take place over as much as one year.

Sample 2: In-person control couples. Forty-eight married couples were recruited as a comparison condition for the IBCT/TBCT study (25 from Seattle, 23 from Los Angeles; Eldridge et al., 2007). They were selected using the criteria described above except that they

were required to have typical levels of marital satisfaction; that is, they did not fall in the distressed range. They were assessed on only one occasion.

Sample 3: Online GAD treatment-seeking individuals. These data were collected from a group of individuals (n = 341) who expressed interest in the online OurRelationship.com program for Generalized Anxiety Disorder. However, these individuals' partners did not provide complete screening data, so it was not possible to determine their eligibility for the intervention or permit them to sign up for the OurRelationship website. Therefore, their data could be included for this study but not for the intervention study described in Paper 3. These individuals were recruited through a variety of online methods, including Google Ad Words, a Facebook page, postings on anxiety-related forums, and Amazon's Mechanical Turk service.

Sample 4: Online couple treatment-seeking dyads. For these analyses, data from 422 participants (211 couples) were available. All participants were living in the United States, in a heterosexual relationship, and married, engaged, or cohabiting for at least six months. Also, one or both partners scored one standard deviation above the population mean on a measure of relationship distress. Couples were excluded if either partner were under age 21, actively considering terminating the relationship, or reporting severe depression, moderate to severe suicidal ideation, or severe domestic violence (with actual or feared injury).

Participants were randomized to one of two conditions. The first was the full online intervention (n = 107 couples), including support from a clinical "coach" if they encountered difficulties. In the second condition (n =104 couples), participants were asked to wait six weeks to begin the program. After six weeks, participants in the second condition could begin a one-week version of the intervention, but they were randomized to either have or lack the support of a coach. Individuals in the first treatment condition completed questionnaires at baseline, mid-

treatment, post-treatment, 1.5-month follow-up, and 12-month follow-up. Individuals on the

waitlist completed questionnaires at baseline and six-week follow-up before beginning the

intervention. For couples in the intervention condition, only baseline data were used for these

analyses. For couples in the waitlist condition, data from baseline and the follow-up assessment

that occurred after six-weeks on the waitlist (before they began the program) were used.

Measures

Communication: The Constructive Communication subscale of the Communication

Patterns Questionnaire (CPQ-CC; Heavey, Larson, Zumtobel, & Christensen, 1996) was used in

all four samples to characterize dyadic communication behavior at the time of their baseline

assessment. Because the CPQ-CC score is the difference between the sums of the positive items

and the negative items respectively, it is also possible to report a positive subscale and a negative

subscale. To support this view, a factor analysis will be conducted to determine whether the

"positive" and "negative" items actually load onto different factors.

GAD symptoms: Measures of this construct varied across samples. In Samples 1 and 2,

participants completed the Compass Outpatient Treatment Assessment System (Sperry, Brill,

Howard, & Grissom, 1996) at the time of their baseline assessments. This measure includes

subscales for Subjective Well-Being, Current Life Functioning, and Current Symptoms of

common mental illnesses (depression, anxiety, and substance use), as well as an Anxiety

Symptoms subscale. However, the items included for Anxiety Symptoms – "being irritable or

easily angered," "shortness of breath or rapid heartbeat," "feeling tense or anxious," and

"periods of intense fear that seem out of proportion" were not ideal for measurement of GAD.

Therefore, the symptom measure used for this study is the sum of the five items that are most

relevant to generalized anxiety and worry: "bothered by a specific fear," "feeling tense or

anxious," "avoiding situations because of being afraid," "worrying too much about unimportant things," and "periods of intense fear that seem out of proportion." Possible responses for each item are "not at all" (1), "once or twice" (1.8), "several times" (2.6), "often" (3.4), "most of the time" (4.2), and "all of the time" (5).

In Sample 3, determination of whether each individual would be likely to be diagnosed with GAD was made using the Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990), a measure of the frequency and perceived uncontrollability of worry behavior. Although this measure does not include a complete list of GAD symptoms, it is considered a gold standard self-report measure of GAD because it so precisely captures the central construct of GAD. As recommended by Fresco, Mennin, Heimburg, and Turk (2003), a cutoff score of 65 was used to identify individuals likely to be cases.

In Sample 4, GAD symptoms were assessed at baseline using the seven-item GAD-7 scale (Spitzer, Kroenke, Williams, & Lowe, 2006). This measure was constructed from a larger pool of items and showed good internal consistency (0.92), convergent validity (with other anxiety measures), and divergent validity (from measures of depression). It also appears to be a good severity measure, as increasing scores on the GAD-7 were associated with increasing numbers of disability days. Controls from Sample 4 also completed this measure at six-week follow-up.

Relationship satisfaction: Samples 1 and 2 completed the Dyadic Adjustment Scale (DAS; Spanier, 1976), a widely used measure of self-reported marital satisfaction. Sample 3 did not complete a measure of relationship satisfaction. Sample 4 completed the Couples Satisfaction Inventory (CSI-32; Funk & Rogge, 2007), a newer measure developed using Item Response Theory. Controls from Sample 4 also completed this measure at six-week follow-up.

Results

The overall goal of this paper is to examine cross-sectional and longitudinal associations between GAD-related constructs and dyadic communication behaviors.

Aim 1: Characterize the communication patterns of individuals and couples with varying levels of GAD symptoms. This aim will be addressed using data from all four samples, examining correlations between GAD symptoms and constructive communication, as well as the sums of the positive and negative communication items considered separately.

A factor analysis did indicate that the positive and negative items of the CPQ-CC load onto different factors. Data from the 369 individuals from Sample 3 who completed the CPQ-CC in full were used for this analysis. 300 or more observations is considered a "good" amount of data for factor analysis (Comrey & Lee, 1992); moreover, the ratio of sample size to number of items is 42.85, which greatly exceeds the standard of 10 (Everitt, 1975). The Kaiser-Meyer-Olkin Measure of Sampling Adequacy in this sample is 0.738, greater than the minimum of 0.6. Bartlett's Test of Sphericity indicates I should reject the null hypothesis that the correlation matrix is an identity matrix (chi-square with 21 degrees of freedom = 925.43, $p < .001$).

Two factors were hypothesized (positive items and negative items). Principal Axis Factoring was used; the rotation method was Varimax with Kaiser Normalization. The analysis indicated the first two factors accounted for 43.44% and 24.70% of the variance in the measure respectively (for a total of 68.133%); a possible third factor would only account for 10.63% of the variance. The four positive items loaded onto Factor 1 and the three negative items loaded onto Factor 2, as hypothesized. These findings suggest it is appropriate to examine the positive and negative communication items independently of one another in the analyses that follow.

Sample 1. In the in-person couple therapy sample, there was considerable variability in the communication variables at the pre-treatment assessment (Table 1); constructive communication ranged from -30 to 20, with a mean of -2.74 (SD = 9.06). The internal consistency (Cronbach's alpha) in this sample was 0.88. As was noted in Paper 1, baseline relationship satisfaction was also variable, with a mean of 84.6 (SD = 14.45) and a range of 40 to 123; alpha = 0.727. Mean levels of GAD-related symptoms were very low in this sample (13.06, SD = 4.46, range = 7 to 32.6; alpha = 0.833). However, they were found to be negatively correlated with constructive communication, $r(268) = -0.165$, $p < .01$. There was no association between symptoms and positive communication, $p > .1$. However, symptoms were positively correlated with negative communication, $r(268) = 0.194$, $p > .01$. In other words, individuals with more GAD symptoms did not report any greater or lesser degree of positive communication than individuals without GAD, but they did have more negative communication.

Then, the correlations between GAD symptoms and positive communication versus GAD symptoms and negative communication were tested to determine whether they significantly differed from each other. This was accomplished by converting each correlation coefficient into a z-score using Fisher's r-to-z transformation, computing the asymptotic covariance of the estimates, then conducting an asymptotic z-test (using an online script provided by Lee and Preacher, 2013; see also Steiger, 1980). For this sample, the difference between the correlations was statistically significant, $z = 2.148$, $p < .05$, suggesting that the absolute value of the correlation between negative communication and GAD symptoms is larger than the absolute value of the correlation for positive communication.

Sample 2. The sample of control couples (Eldridge et al., 2007) also reported low levels of GAD-related symptoms: the mean symptom level was 6.08 (SD = 1.82), with a range of 5 to

17 (alpha = 0.805). Constructive communication ranged from -4 to 23 with a mean of 15.61 (SD = 5.69; alpha = 0.657), and relationship satisfaction had a very high mean of 121.96 (SD = 8.66, range of 102 to 143; alpha = 0.837). There was also no significant relationship between GAD symptoms and marital satisfaction in this sample, $p > .1$. However, as with the treatment sample, meaningful associations were found between what anxiety was present and the types of communication behaviors reported for this sample (see Table 2). GAD symptoms and constructive communication were negatively correlated, $r(96) = -0.282$, $p < .01$. In this sample, there was also no association between symptoms and the positive communication items, $p > .1$. However, there was again a positive correlation between symptoms and the negative items, $r(96) = 0.393$, $p < .01$. That is, the negative items appear to be driving the association between communication and GAD symptoms. For this sample, the difference between the correlations was again statistically significant, $z = 2.824$, $p < .01$. These results indicate that insofar as anxiety was present in these couples, it is negatively associated with their communication, even though they were recruited due to their notably high marital satisfaction.

Sample 3. In the online GAD screening sample, there was considerable variability in the degree of worry reported on the Penn State Worry Questionnaire (PSWQ). The range reported for this sample (21 to 80) is almost identical to the possible range on the measure (16 to 80), and responses appeared to be normally distributed, with a mean of 59.53 (SD = 12.60; alpha = 0.760; see Table 3). There was also considerable variability in responses to the CPQ-CC measure, with a range of -29 to 23, and a mean of -0.28 (SD = 11.2; alpha = 0.828). Worry (PSWQ responses) was found to be significantly negatively correlated with constructive communication, $r(329) = -0.109$, $p < .05$. Although this is not a strong correlation, it is consistent with previous findings that individuals with higher levels of anxiety and worry have less constructive communication.

As before, positive communication was not significantly correlated with worry, p > .1, but there was a significant positive correlation for negative communication behavior, r(341) = 0.163, p < .01. For this sample, there was a trend toward significance for the difference between the correlations, $z = 1.891$, $p < .06$.

Sample 4. The couples in the main OurRelationship.com study also demonstrated considerable variability in constructive communication, with a mean score of -2.35 (SD = 8.70) and a range of -22 to 16 at baseline (alpha = 0.693; Table 4). GAD symptoms ranged from zero to 21, with a mean of 8.15 (SD = 5.23; alpha = 0.867), and relationship satisfaction ranged from 4 to 71 (mean = 36.45, SD = 14.34; alpha = 0.949). As in the other samples, GAD symptoms were found to be significantly negatively correlated with constructive communication, r(214) = -0.220, p < .01. There was no association for positive communication, p > .1, but negative communication was positively correlated with symptoms, r(214) = 0.211, p < .01. The difference between the correlations was again statistically significant, $z = 2.071$, $p < .05$.

Across all four samples, GAD was consistently associated with less constructive communication, as expected. It is noteworthy that this relationship was found even in samples in which very few GAD symptoms were present, as well as samples in which marital satisfaction was high. Moreover, the finding that this association was driven by the negative rather than the positive communication items was unexpected but was found with a great deal of consistency across these couples. In three out of four samples, the correlation between negative items and GAD symptoms was found to be significantly larger (in terms of absolute value) than the correlation between positive items and GAD symptoms.

Aim 2: To determine whether the cross-sectional association between relationship satisfaction and GAD symptoms is mediated by constructive communication. Relationship

satisfaction, constructive communication, and GAD symptoms are individual-level variables in

Samples 1, 2, and 4. It was not possible to include Sample 3 because they did not provide

relationship satisfaction data. To include data from both partners in these analyses, it is necessary

to cluster partners within relationships. Mediational analyses were conducted in accordance with

the recommendations of Krull and MacKinnon (2001), who found that ignoring the clustered

nature of this type of dataset typically results in downwardly biased standard errors. In their

framework, this is a 1 -> 1 -> 1 model, in which the initial (X_{ij}), mediator (M_{ij}), and outcome (Y_{ij})

variables are measured at the lowest level of the data. As stated above, the initial variable X_{ij} is

relationship satisfaction, the mediator M_{ij} is constructive communication, and the outcome Y_{ij} is

GAD symptoms (see Figure 1).

The mediation model was tested separately for each sample in accordance with the

recommendations of Baron and Kenny (1986) as revised by Krull and MacKinnon (2001), using

the ml_mediation program for Stata. First, pathway c, the effect of relationship satisfaction on

GAD symptoms, was estimated using the following equations:

Level 1: $Y_{ij} = \beta_{0j} + \beta_c X_{ij} + \beta_c X_{ij} + r_{ij}$

Level 2: $\beta_{0j} = \gamma_{00} + u_{0j}$

Second, pathway a, the regression coefficient for the effect of relationship satisfaction on

constructive communication, was estimated using the following equations:

Level 1: $M_{ij} = \beta_{0j} + \beta_a X_{ij} + r_{ij}$

Level 2: $\beta_{0j} = \gamma_{00} + u_{0j}$

Third, pathway b, the regression coefficient for the effect of constructive communication on

GAD symptoms, as well as pathway c', the effect of relationship satisfaction on GAD symptoms

while controlling for pathways *a* and *b* (the indirect effect), were estimated using the following equations:

Level 1: $Y_{ij} = \beta_{0j} + \beta_{c'}X_{ij} + \beta_b M_{ij} + r_{ij}$

Level 2: $\beta_{0j} = \gamma_{00} + u_{0j}$

In Sample 1, the association between relationship satisfaction and GAD symptoms was partially mediated by constructive communication. As Figure 2 illustrates, the regression coefficient between relationship satisfaction and GAD symptoms (the *c* path) was not significant (as expected based on the results of Paper 1), $p > .1$. However, it has been previously noted in the literature that mediation can occur even in the absence of a significant "direct effect," most likely due to the effects of other constructs (e.g., MacKinnon, Krull, & Lockwood, 2000). The coefficient for the effect of relationship satisfaction on constructive communication, the *a* path, was estimated to be 0.249, with a standard error of 0.035, $p < .001$. The *b* path, the effect of constructive communication on GAD symptoms, was also significant, estimated to be -0.080, with a standard error of 0.033, $p < .05$. However, the *c'* path, the effect of relationship satisfaction on GAD symptoms while controlling for the *a* and *b* paths, was not significantly different from zero.

For more accurate hypothesis testing, bootstrapping analyses with 1000 replications were used. Because bootstrapping is a nonparametric test, transformation of the non-normally distributed dependent variable was not required. The indirect effect (*a* x *b* path) was found to have a coefficient of -0.0198, with a standard error of 0.00645, $p < .01$. The direct effect was not significant. There was a trend toward significance for the total effect, which was found to have a coefficient of -0.025 and a standard error of 0.013, $p < .06$. These results suggest that although there is no direct relationship between relationship satisfaction and GAD symptoms, possibly

due to other variables not included in the model, constructive communication may function as a mediator.

Due to the finding that only the CPQ-CC's negative items, not the positive items, were correlated with GAD symptoms, the same mediation analyses were repeated with only negative communication. The same pattern of results occurred with signs reversed (since the mediator is now *negative* communication), as well as with somewhat smaller coefficients for the indirect and total effect after bootstrapping. Again, the *c* path was not significant, p > .1. The coefficient for the effect of relationship satisfaction on negative communication, the *a* path, was estimated to be -0.097, with a standard error of 0.026, p < .001. The *b* path, the effect of negative communication on GAD symptoms, was also significant, estimated to be 0.124, with a standard error of 0.043, p < .01. However, the *c'* path, the effect of relationship satisfaction on GAD symptoms while controlling for the *a* and *b* paths, was not significantly different from zero. The direct effect was not significant, but the indirect effect was estimated to be -0.012, p < .01, and there was a trend toward significance for the total effect of -0.024, p < .08.

There was no finding of mediation for Sample 2, the control couples. Again, there was no significant association between relationship satisfaction and GAD symptoms. Moreover, there was only a trend toward significance for the coefficient for the effect of relationship satisfaction on constructive communication (the *a* path), *p* < .1 (Figure 3). The *b* path, the effect of constructive communication on GAD symptoms, was significant, estimated to be -0.091, with a standard error of 0.0324, *p* < .01. The *c'* path, the effect of relationship satisfaction on GAD symptoms while controlling for the *a* and *b* paths, was also not significantly different from zero. Bootstrapping analyses indicated the indirect, direct, and total effects were all non-significant (*p* > .1), indicating that a mediation model is not a good fit for this sample.

Results were similar for negative communication items as a mediator. The *b* path, the effect of negative communication on GAD symptoms, was estimated to be 0.161, with a standard error of 0.033, p < .05. However, the *c* path, *a* path, and *c'* path, as well as the direct effect, indirect effect, and total effect, were all non-significant, *p* > .1.

In Sample 4, the association between relationship satisfaction and GAD symptoms was partially mediated by constructive communication. As Figure 4 illustrates, the regression coefficient between relationship satisfaction and GAD symptoms (*c* path) was significant for this sample (as expected based on the results of Paper 1). It was estimated to be -0.0690, with a standard error of 0.0248, p < .01. The coefficient for the effect of relationship satisfaction on constructive communication (the *a* path) was estimated to be 0.270, with a standard error of 0.0357, p < .001. The *b* path, the effect of constructive communication on GAD symptoms, was also significant, estimated to be -0.0979, with a standard error of 0.0466, p < .05. However, the *c'* path, the effect of relationship satisfaction on GAD symptoms while controlling for the *a* and *b* paths, was not significantly different from zero.

Bootstrapping analyses indicated the indirect effect (*a* x *b* path) had a coefficient of -0.0264, with a standard error of 0.0101, p < .01. The direct effect was also significant, with a coefficient of -0.0421, and a standard error of 0.0206, p < .05. The total effect was found to have a coefficient of -0.0685, with a standard error of 0.0194, p < .001. Because both the indirect effect and direct effect were significant, it is reasonable to report the proportion of the total effect mediated, 38.5%.

The same mediation analyses were repeated with only negative communication and a similar pattern of results occurred, with somewhat smaller coefficients. The regression coefficient for the effect of relationship satisfaction on GAD symptoms (*c* path) was again

estimated to be -0.069, with a standard error of 0.0248, $p < .01$. The coefficient for the effect of relationship satisfaction on negative communication (the a path) was estimated to be -0.122, with a standard error of 0.0287, $p < .001$. The b path, the effect of negative communication on GAD symptoms, was also significant, estimated to be 0.119, with a standard error of 0.0576, $p < .05$. In this case, the c' path, the effect of relationship satisfaction on GAD symptoms while controlling for the a and b paths, was estimated to be -0.0532, with a standard error of 0.0257, $p < .05$. The indirect effect (a x b path) had a coefficient of -0.0145, with a standard error of 0.00519, $p < .01$. The direct effect was also significant, with a coefficient of -0.0532, and a standard error of 0.0194, $p < .01$. The total effect was found to have a coefficient of -0.0677, with a standard error of 0.0191, $p < .001$. Because both the indirect effect and direct effect were significant, it is reasonable to report the proportion of the total effect mediated, 21.4%. Although this proportion is smaller than that found for overall constructive communication, it remains likely that negative communication is driving these results based on the findings from correlation analyses.

In summary, while there was no finding of mediation in Sample 2, constructive communication did mediate the association between relationship satisfaction and GAD symptoms in Sample 1 (despite the lack of direct effect) and in Sample 4. It is noteworthy that Sample 2 was low in both relationship distress and GAD symptoms, possibly making it more difficult to detect mediation. Sample 1 was higher in relationship distress, and Sample 4 had a high mean level of both relationship distress and GAD symptoms. Therefore, these results strongly suggest constructive communication as a pathway for the association between relationship satisfaction and GAD.

Aim 3: To determine whether the longitudinal association between relationship

satisfaction and GAD symptoms is mediated by constructive communication. This question about

change over time concerns couples whose symptoms are changing in a fairly naturalistic way;

therefore, data could not be used from any of the intervention samples. Instead, data from the

waitlist control couples in Sample 4 was used for this aim. Relationship satisfaction, constructive

communication, and GAD symptoms are individual-level variables in Sample 4. To include data

from both partners in these analyses, it is necessary to cluster partners within relationships. This

was again a 1 -> 1 -> 1 model, in which the initial (X_{ij}), mediator (M_{ij}), and outcome (Y_{ij})

variables are measured at the lowest level of the data. Because there are only two observations

within each couple, it is necessary to treat the X_{ij} and M_i variables as non-random. For this

reason, I use Krull and MacKinnon's (2001) approach to mediation rather than Bauer, Preacher,

and Gil's (2006). The initial variable X_{ij} is relationship satisfaction at pre, the mediator M_{ij} is

constructive communication at pre, and the outcome Y_{ij} is GAD symptoms at post (6-week

follow-up), while controlling for GAD symptoms at pre (C_{ij}; see Figure 1).

The mediation model was tested using the ml_mediation program for Stata. First,

pathway c, the effect of relationship satisfaction at pre on GAD symptoms at post while

controlling for symptoms at pre, was estimated using the following equations:

Level 1: $Y_{ij} = \beta_{0j} + \beta_c X_{ij} + \beta_{1j} C_{ij} + r_{ij}$

Level 2: $\beta_{0j} = \gamma_{00} + u_{0j}$

Second, pathway a, the regression coefficient for the effect of relationship satisfaction on

constructive communication (both at pre), was estimated using the following equations:

Level 1: $M_{ij} = \beta_{0j} + \beta_a X_{ij} + \beta_{1j} C_{ij} + r_{ij}$

Level 2: $\beta_{0j} = \gamma_{00} + u_{0j}$

Third, pathway *b*, the regression coefficient for the effect of constructive communication at pre on GAD symptoms at post, as well as pathway *c'*, the effect of relationship satisfaction at pre on GAD symptoms at post while controlling for pathways *a* and *b* (the indirect effect), were estimated using the following equations:

Level 1: $Y_{ij} = \beta_{0j} + \beta_{c'}X_{ij} + \beta_b M_{ij} + \beta_{1j}C_{ij} + r_{ij}$

Level 2: $\beta_{0j} = \gamma_{00} + u_{0j}$

There was no finding of mediation for this analysis. There was no significant association between relationship satisfaction and GAD symptoms at post when controlling for GAD symptoms at pre (the *c* path, p > .1), most likely because of the strength of the relationship between GAD symptoms at pre and post (*b* = 0.589, *SE* = 0.0568, p < .01). The coefficient for the effect of relationship satisfaction on constructive communication (the *a* path) was estimated to be 0.244, with a standard error of 0.0330, p < .001. However, the *b* path, the effect of constructive communication at pre on GAD symptoms at post while controlling for GAD symptoms at pre was not significant, p > .1. The *c'* path, the effect of relationship satisfaction on GAD symptoms at post while controlling for the *a* and *b* paths, as well as GAD symptoms at pre, was also not significantly different from zero, p > .1. Bootstrapping analyses indicated the indirect effect was non-significant (*p* > .1), suggesting a mediation model is not a good fit. This finding is most likely due to the strength of the relationship between GAD symptoms at pre and post, with little variance available to be explained by other predictors.

Discussion

This study focused on testing the hypothesis that the association between relationship satisfaction and GAD symptoms (as discussed in the previous paper) is mediated by dyadic communication behavior. Complex model specification with samples of this size is difficult; it

inevitably involves oversimplification of the phenomenon in nature. However, three sets of analyses were constructed to be as informative as possible under the circumstances. The first aim was to determine whether constructive communication behaviors are associated with GAD symptoms; I hypothesized they would be negatively correlated for positive communication and positively correlated for negative communication. Factor analysis indicated that dividing the CPQ-CC items into these two subscales was appropriate. Across all four samples tested (in-person couple therapy, in-person control, online screening, and online treatment), negative communication was associated with GAD symptoms, but there was no association for positive communication. This was a remarkably consistent finding across four separate samples with varying characteristics. The control couples had very low levels of both GAD symptoms and relationship distress, but retained enough variability to determine that the association between negative communication and GAD symptoms held in this sample. Similarly, the in-person couple therapy sample has previously been found to have extremely low levels of GAD symptoms (see Paper 1 of this dissertation), but insofar as they were present, they seem to have been associated with maladaptive communication items. In samples with higher levels of GAD symptoms, the same relationships held. The use of data from all four samples therefore is strongly suggestive that this finding will continue to be robust if tested elsewhere.

This finding indicates that couples in which one partner has GAD and couples in which GAD is not present do not differ in their degree of positive communication. Both are equally likely to engage in positive behaviors such as expressing their feelings and negotiating. However, the couples affected by GAD are more likely to also engage in more negative behaviors such as threatening and blaming. This finding that only negative items were associated with GAD symptoms should be interpreted with caution because of the self-report nature of these

data. However, the consistency of the finding across samples suggests some aspect of negative communication is most likely driving the relationship between communication and symptoms.

These findings are consistent with those in the literature stating that individuals with GAD more often show negative emotion (Hambrick, 2008) and have a more avoidant problem-solving style (Dutton, 2002). However, they go beyond these findings to suggest the GAD couples are more variable in their behavior, frequently demonstrating both positive and negative communication. These results are very much in accordance with the finding of Zaider, Heimberg, and Iida (2010) that the partners of individuals with GAD engaged in critical or accommodating behaviors on 18% of days but engaged in more positive behaviors (which alleviated GAD symptoms) on 45% of days. In treating GAD-affected couples, therefore, while it may be easy to assume that because they are often able to engage in positive communication behaviors, their communication does not require extensive intervention, this is unlikely to be the case. Moreover, it is not possible from this self-report measure to determine to what extent these "positive" behaviors are building genuine acceptance or if they are accommodating of GAD symptoms. For example, if one partner is often reassuring the other, they may report this as a successful and positive interaction, even if it functions to maintain GAD symptoms. Therefore, report by outside observers is needed for future research, particularly the assessment of coders trained to recognize accommodation. It would also be helpful to obtain self-report measures that describe more thoroughly under what circumstances couples tend to engage in positive versus negative communication behaviors, possibly through a daily diary-type study.

Having found an association between constructive communication and GAD symptoms, together with the finding in the previous paper of an association between relationship satisfaction and GAD symptoms, it is logical to investigate how these three are connected to one another.

The second aim was to determine whether the cross-sectional negative association between relationship satisfaction and GAD symptoms is mediated by constructive communication; I expected partial mediation. For these analyses, results were more varied across samples. However, the ways in which they varied were consistent with the degree of relationship distress and GAD symptoms present in each sample. In the in-person treatment couples, there was an unusual finding of an indirect effect for the constructive communication pathway in the absence of a direct effect of relationship satisfaction on GAD symptoms. This type of result indicates that other variables not measured in this model most likely are replacing the direct effect. However, the finding of a significant indirect effect indicates that a large portion of the association between satisfaction and symptoms is accounted for by the healthiness of the communication behaviors demonstrated by both partners. This finding of mediation was not replicated in the in-person control couples, most likely due to their very low levels of both relationship distress and GAD symptoms. However, in the online OurRelationship treatment sample, both the indirect and direct effects were found to be significant, so it could be determined that constructive communication mediated 38.5% of the effect of satisfaction on symptoms. All analyses were repeated for only negative communication items with similar results.

Therefore, although these results were not as clear as those for the first aim, they indicate an important role for communication behavior in the processes by which distressed relationships and individuals' GAD symptoms affect one another. The first paper had suggested the OurRelationship intervention worked on GAD symptoms through some pathway other than simply improving relationship satisfaction. These findings suggest that increasing satisfaction may make communication behavior more constructive (less negative), which then assists with symptom relief. This is particularly important since previous literature had suggested that

unhealthy communication predicted lack of response to GAD treatment (Zinbarg, Lee, & Yoon, 2007).

A major limitation of this portion of the study is that it was not possible to be more specific about which aspects of communication (other than simply "negative" communication) may have driven the mediation effect. Based on the literature, I expect contributions from both hostility and accommodation; therefore, this question is addressed in Paper 3.

The third aim of this paper was to determine to what extent this mediation model would hold with longitudinal data. That is, I hypothesized that constructive communication at Time 1 would partially mediate the association between relationship satisfaction at Time 1 and GAD symptoms at Time 2 while controlling for GAD symptoms at Time 1. This analysis was only completed with the online control couples because the question of interest was whether this mediation occurs in the natural course of a couple affected by GAD rather than a couple participating in an intervention. There was no finding of mediation for this analysis. GAD symptoms at Time 1 were a very strong predictor of symptoms at Time 2 and therefore absorbed much of the variance in Time 2 symptoms. It is possible that there is partial mediation which could have been detected with a larger sample, but this cannot be determined from the present analyses. The nonsignificant finding for this analysis does considerably limit the interpretation for all these models. A finding of mediation over time would permit a tentative interpretation of causal direction, but since this did not occur, it is more appropriate to conclude that these variables are related than to comment on how they affect one another.

Regardless, the finding that constructive communication partially mediates the association between relationship satisfaction and GAD symptoms, if only in a cross-sectional sample, has significant implications for intervention. The findings of Paper 1 indicated that an

intervention focused primarily on improving relationship satisfaction has a medium-sized effect on GAD symptoms for individuals who met criteria for GAD at baseline. The OurRelationship program has already been carefully designed to improve relationship satisfaction, so attempting to further improve relationship satisfaction (in order to further reduce symptoms) is unlikely to be successful. Therefore, to accomplish the goal of increasing this effect size, it is necessary to better understand what variables drive this effect for couples affected by GAD in particular. The findings of this paper strongly suggest the driving variable is negative communication. Altering the OurRelationship intervention to target the types of negative communication measured in this study – blame, threat, and verbal aggression – in the context of situations faced by couples in which one partner has GAD is reasonably likely to improve the efficacy of the intervention for these couples. Moreover, the conclusions that communication patterns are a useful target for intervention also opens the possibility of specifically targeting aspects of negative communication that are hypothesized to be particularly problematic for GAD couples, such as avoidance, hostility, and accommodation. Therefore, these findings establish priorities for the treatment development in Paper 3.

Direct path:

```
┌─────────────────┐                c                    ┌─────────────────┐
│ Relationship    │ ───────────────────────────────────▶│ GAD symptoms    │
│ satisfaction    │                                     │                 │
└─────────────────┘                                     └─────────────────┘
```

Indirect path:

```
                          ┌─────────────────┐
                          │ Constructive    │
                    a     │ communication   │    b
                          └─────────────────┘
┌─────────────────┐                                     ┌─────────────────┐
│ Relationship    │ ───────────────────────────────────▶│ GAD symptoms    │
│ satisfaction    │                c'                   │                 │
└─────────────────┘                                     └─────────────────┘
```
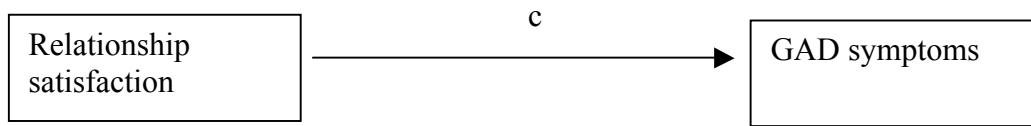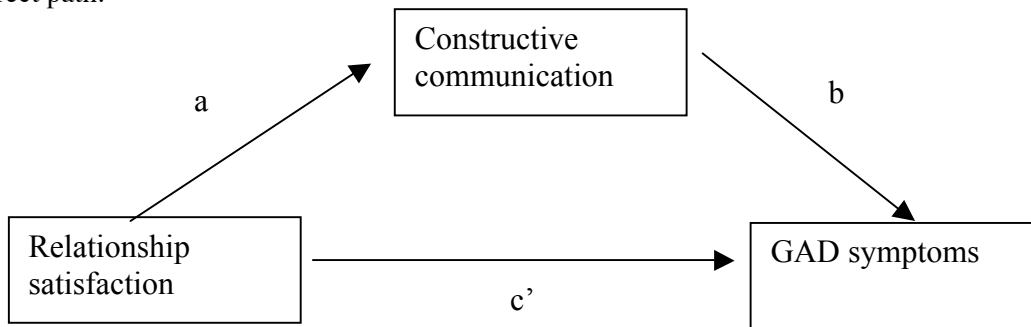
Figure 1. A hypothesized mediation model in which constructive communication mediates the relationship between relationship satisfaction and GAD symptoms.

Direct path:

Relationship
satisfaction

c = -0.026 →

GAD symptoms

Indirect path:

Constructive
communication

a = 0.249**

b = -0.080*

Relationship
satisfaction

c' = -0.005 →
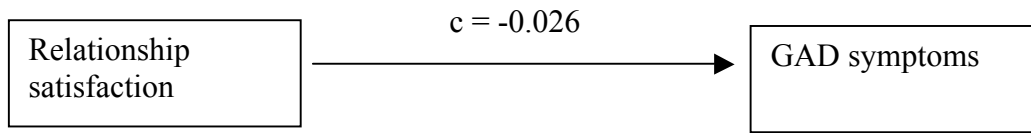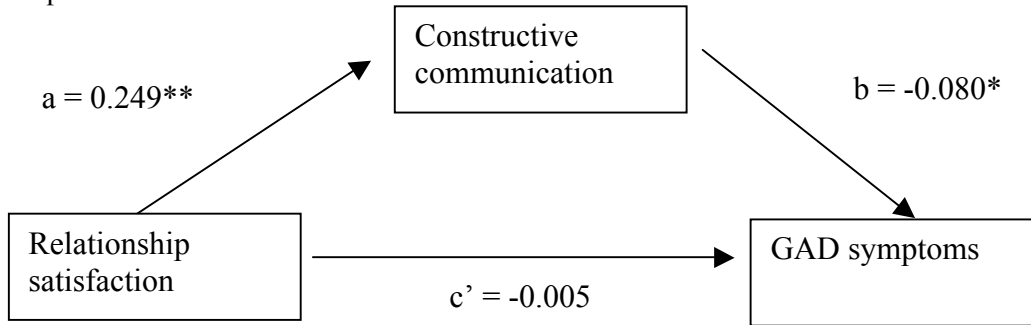
GAD symptoms

Figure 2. Final model for Sample 1 in which constructive communication mediates the relationship between relationship satisfaction and GAD symptoms.
^ p < .1
* p < .05
** p < .01

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Direct path:

Relationship
satisfaction
$c = -0.010$
→ GAD symptoms

Indirect path:

Constructive
communication

$a = 0.133^{\wedge}$

$b = -0.091**$

Relationship
satisfaction

$c' = 0.002$

GAD symptoms

Figure 3. Final model for Sample 2 with no finding of mediation in the relationship between relationship satisfaction and GAD symptoms.
$^{\wedge} p < .1$
$* p < .05$
$** p < .01$

Direct path:

```
┌─────────────────┐        c = -0.069*         ┌─────────────────┐
│  Relationship   │ ─────────────────────────▶ │  GAD symptoms   │
│  satisfaction   │                            │                 │
└─────────────────┘                            └─────────────────┘
```

Indirect path:

```
                        ┌─────────────────┐
                        │  Constructive   │
                        │  communication  │
                        └─────────────────┘
          a = 0.270**  ▲                    ╲  b = -0.0979*
                      ╱                       ╲
┌─────────────────┐                            ┌─────────────────┐
│  Relationship   │ ─────────────────────────▶ │  GAD symptoms   │
│  satisfaction   │                            │                 │
└─────────────────┘       c' = -0.042         └─────────────────┘
```
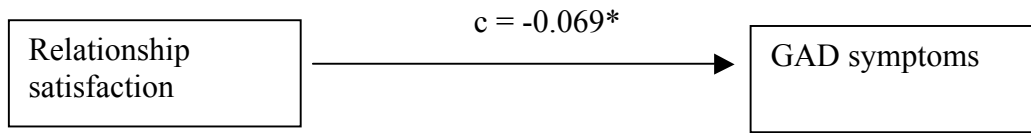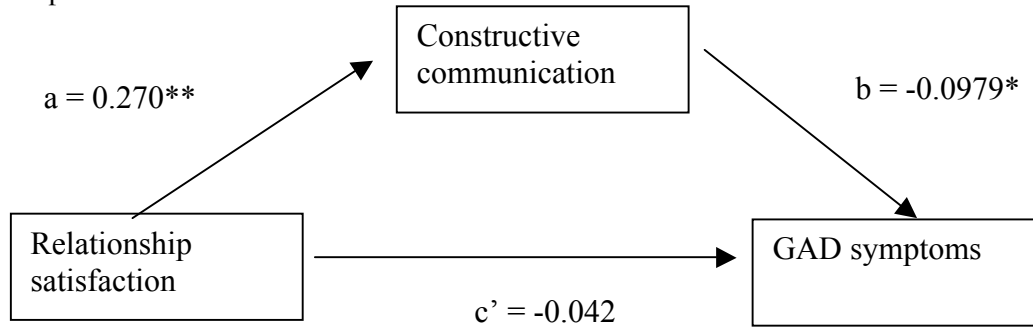
Figure 4. Final model for Sample 4 in which constructive communication mediates the relationship between relationship satisfaction and GAD symptoms.
^ p < .1
* p < .05
** p < .01
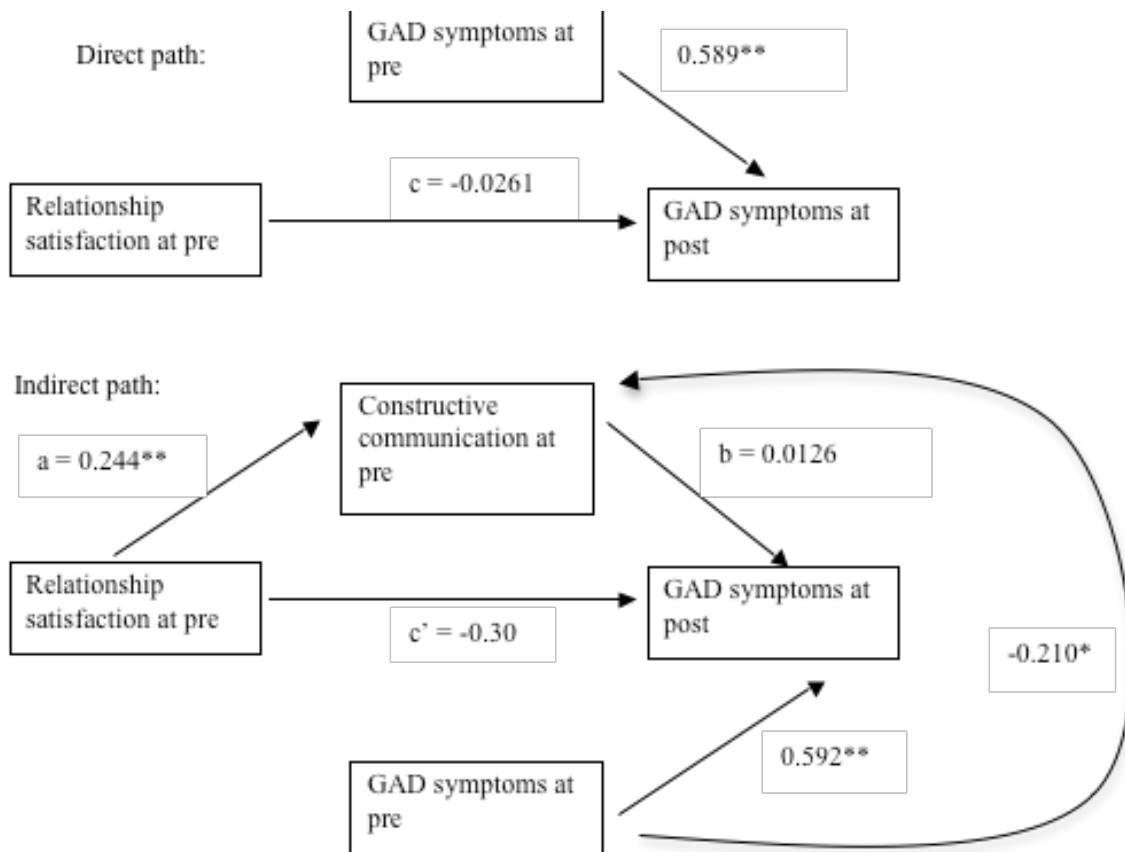
Figure 5. Final model for the control couples from Sample 4 with no finding of mediation in the relationship between relationship satisfaction at baseline and GAD symptoms at six-week follow-up (post) while controlling for GAD symptoms at baseline.

^ p < .1
* p < .05
** p < .01

	N	Range	Mean (SD)	Correlation with Relationship Satisfaction	Correlation with GAD Symptoms
Relationship Satisfaction	268	40 – 123	84.60 (14.45)	1	-0.083
GAD Symptoms	267	7 – 32.6	13.06 (4.46)	-0.083	1
Constructive Communication	268	-30 – 20	-2.74 (9.06)	0.411**	-0.165**
Communication: Positive Items	268	3 – 26	14.19 (5.39)	0.365**	0.035
Communication: Negative Items	268	4 – 26	16.93 (6.72)	-0.262**	0.194**

Table 1. Ranges, means, standard deviations, and correlations of variables in the IBCT/TBCT in-person couple therapy sample. GAD symptoms were assessed using the Compass Outpatient Treatment Assessment System (Sperry, Brill, Howard, & Grissom, 1996). Relationship satisfaction was measured with the Dyadic Adjustment Scale (DAS; Spanier, 1976). Communication variables are the Communication Patterns Questionnaire-Constructive Communication (Heavey, Larson, Zumtobel, & Christensen, 1996), together with sums of its positive and negative items respectively.

$^\wedge$ p < .1
* p < .05
** p < .01

	N	Range	Mean (SD)	Correlation with Relationship Satisfaction	Correlation with GAD Symptoms
Relationship Satisfaction	96	102 – 143	121.96 (8.66)	1	-0.05
GAD Symptoms	96	5 – 17	6.08 (1.82)	-0.05	1
Constructive Communication	96	-4 – 23	15.61 (5.69)	0.207*	-0.282**
Communication: Positive Items	96	4 – 27	23.18 (3.58)	0.254*	0.035
Communication: Negative Items	96	4 – 25	7.56 (4.41)	-0.062	0.393**

Table 2. Ranges, means, standard deviations, and correlations of variables in the IBCT/TBCT control sample. GAD symptoms were assessed using the Compass Outpatient Treatment Assessment System (Sperry, Brill, Howard, & Grissom, 1996). Relationship satisfaction was measured with the Dyadic Adjustment Scale (DAS; Spanier, 1976). Communication variables are the Communication Patterns Questionnaire-Constructive Communication (Heavey, Larson, Zumtobel, & Christensen, 1996), together with sums of its positive and negative items respectively.
^ p < .1
* p < .05
** p < .01

	N	Range	Mean (SD)	Correlation with Worry
GAD Symptoms/Worry	329	21 – 80	59.53 (12.60)	1
Constructive Communication	339	-29 – 23	-0.28 (11.20)	-0.109*
Communication: Positive Items	340	3 – 27	16.22 (6.01)	0.011
Communication: Negative Items	341	4 – 36	16.54 (7.95)	0.163**

Table 3. Ranges, means, standard deviations, and correlations of variables in a sample of individuals seeking online GAD-focused couple treatment. GAD symptoms were assessed using the Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990). Communication variables are the Communication Patterns Questionnaire-Constructive Communication (Heavey, Larson, Zumtobel, & Christensen, 1996), together with sums of its positive and negative items respectively.

^ $p < .1$

* $p < .05$

** $p < .01$

	N	Range	Mean (SD)	Correlation with Relationship Satisfaction	Correlation with GAD Symptoms
Relationship Satisfaction	214	4 – 71	36.45 (14.34)	1	-0.160*
GAD Symptoms	213	0 – 21	8.15 (5.23)	-0.160*	1
Constructive Communication	214	-25 – 16	-2.35 (8.70)	0.447**	-0.220**
Communication: Positive Items	214	3 – 27	13.15 (4.88)	0.406**	-0.106
Communication: Negative Items	214	4 – 32	15.50 (6.60)	-0.289**	0.211**

Table 4. Ranges, means, standard deviations, and correlations of variables in the online couple treatment (OurRelationship) sample. GAD symptoms were assessed using the GAD-7 measure (Spitzer, Kroenke, Williams, & Lowe, 2006). Relationship satisfaction was measured with the Couples Satisfaction Inventory (CSI-32; Funk & Rogge, 2007). Communication variables are the Communication Patterns Questionnaire-Constructive Communication (Heavey, Larson, Zumtobel, & Christensen, 1996), together with sums of its positive and negative items respectively.
^ p < .1
* p < .05
** p < .01

Conjoint Treatment for Generalized Anxiety Disorder

Among the anxiety disorders, GAD is considered particularly treatment-resistant; on average, only about 60% of GAD patients treated with CBT or SSRIs have a 70% reduction in symptoms (Ryan & Brawman-Mintzer, 2004). Published effect sizes for empirically-supported treatments for GAD range widely, from 0.57 to 2.38 (e.g., Ladouceur et al., 2000; Dugas et al., 2003; Wetherell, Gatz, & Craske, 2003; Wells & King, 2006; Roemer, Orsillo, & Salters-Pedneault, 2008). A meta-analysis found the mean Hedges' g for CBT as compared to a no-treatment control was 0.82, with a 95% confidence interval of 0.62-1.01. For CBT as compared to a placebo control, the mean g was 0.57, 95% CI = 0.30-0.85 (Mitte, 2005). Because these mean effect sizes are not particularly large, a growing literature has targeted the improvement of empirically-supported treatments for GAD. Current research has emphasized two directions: a) mindfulness and acceptance-based treatment and b) interpersonally-oriented treatment. A review of the GAD treatment literature suggests that both approaches may be beneficial for intervening in this disorder.

Although the literature on mindfulness and acceptance-based (or third-wave) behavioral interventions for GAD is relatively new, their efficacy has been supported in four studies of two treatment protocols. Mindfulness-based cognitive therapy (MBCT), which emphasizes mindfulness meditation as well as cognitive exercises, produced large effect sizes for change in pathological worry, quality of life, and other GAD symptoms in one uncontrolled trial (Craigie, Rees, Marsh, & Nathan, 2008). In another small open trial of MBCT, half of clients with

clinically significant pathological worry scores reported that these scores had dropped below cutoff by the end of treatment (Evans, Ferrando, Findler, Stowell, Smart, & Haglin, 2008).

Acceptance-based behavior therapy (ABBT) uses acceptance and mindfulness to target the experiential avoidance theorized to be central to GAD (Orsillo, Roemer, & Barlow, 2003). In a small open trial, participants reported large effect sizes for change in GAD symptoms and quality of life at post-treatment follow-up (Roemer & Orsillo, 2007). In a randomized clinical trial with waitlist control, GAD symptoms improved significantly in the ABBT group, with 77% of ABBT participants no longer meeting criteria for GAD at the end of treatment, compared to 17% on the waitlist (Roemer, Orsillo, & Salters-Pedneault, 2008). Research on mechanisms of change in ABBT has demonstrated that treatment increases acceptance of internal experience and engagement in valued action, and that changes in these variables predicts change in GAD symptoms over and above change in trait worry (Hayes, Orsillo, & Roemer, 2010). These findings suggest that acceptance- and mindfulness-based behavioral interventions are appropriate treatments for GAD symptoms.

Individual treatment including a focus on interpersonal relationships also has been successful for GAD. Newman and colleagues developed an integrative therapy for GAD consisting of 55 minute CBT sessions followed by 55 minutes of Interpersonal/Emotional processing (I/EP); the latter focuses on exposing clients to their avoided emotions and helping them develop strategies for handling their interpersonal relationships more effectively (Newman, Castonguay, Borkovec, & Molnar, 2004). Participants in an open trial of this therapy reported significant changes from baseline in GAD symptoms, with effect sizes larger than those usually seen in CBT studies (Newman, Castonguay, Borkovec, Fisher, & Nordberg, 2008).

In the GAD treatment literature, intervention based on acceptance and mindfulness principles, as well as intervention addressing interpersonal relationships, have only been examined separately. However, there have also been successful interventions based on acceptance and mindfulness principles and designed specifically for relationship issues (outside the area of GAD). Although research on mindfulness and couples is relatively recent in origin, trait mindfulness has been shown to predict relationship satisfaction concurrently (mediated by skill at controlling emotional impulses; Wachs & Cordova, 2007) and ten weeks later (Barnes, Warren Brown, Krusemark, Campbell, & Rogge, 2007). Mindfulness-based relationship enhancement, a program focused on teaching couples general mindfulness meditation skills, produced greater increases in relationship satisfaction and decreases in psychological distress than a waitlist control among a nondistressed group of couples (Carson, Carson, Gil, & Baucom, 2004). Two case studies of couples that completed a version of Acceptance and Commitment Therapy modified to focus on dyadic problems reported scores that moved from the distressed to the non-distressed range for both relationship satisfaction and psychological distress (Peterson, Eifert, Feingold, & Davidson, 2009).

The most-researched acceptance-based intervention for couples is integrative behavioral couple therapy (IBCT; Christensen et al., 2004), which helps couple accept their differing personalities and emotional responses by promoting unified detachment from relationship patterns (a kind of dyadic mindfulness) and more empathic communication in sessions. In three clinical trials with a total of 172 couples, IBCT has been shown to be efficacious for serious relationship distress, producing larger improvements through two-year follow-up than traditional behavioral couple therapy (Wimberly, 1998; Jacobson, Christensen, Prince, Cordova, & Eldridge, 2000; Christensen et al., 2004; Christensen et al., 2006). Participants in the largest

study also reported changes in overall mental health in association with changes in marital satisfaction (Christensen et al., 2004).

The targets of acceptance and mindfulness work are not identical for treatment of individual versus dyadic problems. However, both involve the skills of becoming more aware and accepting of internal experience (e.g., anxiety or frustration), delaying any automatic reactions to that internal experience (e.g., worrying or criticizing), and consciously choosing how to react in the way that best suits the individual's goals for their own life or for their relationship (e.g., doing something that will please the other partner). Therefore, I expect conjoint treatment based on mindfulness and acceptance principles, modified to have a particular focus on GAD, to simultaneously influence GAD symptoms directly and alter dyadic interaction patterns that maintain GAD. For individuals who are interested in addressing both of these areas of difficulty, an integrated treatment may be appealing. Also, it has been previously suggested that obtaining support from a partner who is involved in the treatment process may contribute to a patient's ability to complete treatment (Jacobson, Holtzworth-Munroe, & Schmaling, 1989).

One possibility for the structure of such a treatment is having the other partner present while the GAD patient undergoes a standard course of individual treatment. This approach has been used for obsessive-compulsive disorder (Emmelkamp and de Lange, 1983; Emmelkamp, de Haan, and Hoogduin, 1990), posttraumatic stress disorder (Glynn et al., 1999; Monson, Guthrie, & Stevens, 2003; Billette, Guay, and Marchand, 2008), and panic disorder (Barlow, O'Brien, and Last, 1984; Arnow, Taylor, Agras, & Telch, 1985; Himadi, Cerlow, Barlow, Cohen, & O'Brien, 1986; Cerny, Barlow, Craske, & Himadi, 1987; Marchand et al., 2007). Of these, two (Cerny, Barlow, Craske, & Himadi, 1987; and Marchand et al., 2007) found differences between the partner-assisted group and the unassisted group on outcome measures of symptoms. Therefore,

although the addition of a partner seems useful, it is possible the mere support of a partner in existing interventions is an insufficient dose of couple-focused treatment to address the kinds of dyadic patterns that may be maintaining GAD (see Study II).

Another option is to sequence a couple-focused treatment and a separate individual treatment of the GAD. However, it seems unlikely that a GAD-linked interaction pattern could be fully altered while GAD symptoms are still present in the relationship; similarly, the GAD may not fully remit until any maintaining factors in the relationship have been eliminated. The most promising option seems to be a treatment in which individual and dyadic elements are integrated in both when and how they are presented, so that (for example) practice with mindfulness of anxious feelings and practice with mindfulness of couple interactions can be mutually reinforcing. Emphasizing the benefits for both partners if they help one another pursue valued goals rather than engaging in anxiety-driven behavior may begin to alter the relationship into one that does not accommodate GAD but instead promotes its remission. To date, however, no couple-focused or couple-based therapy has been described for the treatment of GAD. Therefore, the treatment developed in this study will combine strategies for promoting mindfulness and acceptance of internal experience in GAD patients with strategies for promoting joint mindfulness of interpersonal patterns and acceptance of one another's experiences and emotions (see Appendix II for a more detailed description of the principles of the intervention).

Separate from these considerations about the content and principles of treatment are considerations about the form in which treatment will be delivered. Treatment of both GAD and relationship difficulties has typically been conducted in a face-to-face mode. This approach has the obvious advantages of providing a great deal of personal contact and customization. However, it limits the number and geographical range of individuals to whom treatment is

available. Treatment using the Internet has become increasingly well-established as an alternative mode of intervention that can use the same principles as face-to-face therapy (e.g., Andrews et al., 2010) and has been rated as highly acceptable by consumers (e.g., Gun, Titov, & Andrews, 2011). Research in an Australian outpatient clinic found that a sample of Australians completing Internet-based programs for anxiety and depression was similar to the outpatient clinic's population in severity of clinical presentation, but the online sample was more representative of the general Australian population than the outpatient clinic in terms of demographics (Titov, Andrews, Kemp, & Robinson, 2010).

Online treatments have demonstrated efficacy for both GAD and relationship difficulties. A randomized controlled trial of an online mindfulness-based stress reduction protocol found that it produced significantly greater improvements in GAD symptoms and well-being than the waitlist control (Houghton, 2008). Three users of an online CBT for GAD reported significant improvement in GAD symptoms; all met criteria for GAD at pre-treatment but no longer met criteria at post-treatment (Draper, Rees, & Nathan, 2008). Another online CBT program demonstrated significantly greater improvements in GAD symptoms in the treatment group than the waitlist control group in a randomized clinical trial (Titov et al., 2009). It is noteworthy that although this original online program includes weekly supportive email contact from a clinician, further research demonstrated that outcomes do not differ if this contact is provided by a minimally-trained technician (Robinson et al., 2010).

Results from three studies also suggest online treatment is helpful for couples. New parents who used a relationship education website ("Power of Two") focused on improving communication and decision-making reported greater improvements in marital satisfaction than did controls (Kalinka, Fincham, & Hirsch, 2012). Three randomized clinical trials of another

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relationship education website ("ePREP") using college students in dating relationships have also found greater improvements in relationship satisfaction in the active intervention groups than placebo groups through ten-month follow-up (Braithwaite & Fincham, 2007; Braithwaite & Fincham, 2009; Braithwaite & Fincham, 2011). Taken together, these data suggest treatment in an online mode is appropriate for this study of couples and GAD.

Also importantly, recruitment is highly feasible in the online setting, perhaps more feasible than in a geographically-limited pool. I have been closely involved from the beginning of an NICHD-supported study of the translation of IBCT to an online format. In a pilot study conducted for this project, in only one week, 71 participants filled out a survey indicating interest in online therapy, of which 56% were eligible; 83% of survey completers and 62% of their partners reported being "likely" or "very likely" to take part in a full treatment program. In combination with the successful studies of online GAD treatment, these data suggest it is possible to obtain a large sample size when recruiting online. Therefore, an online format was expected to be useful for a provisional test of these treatment principles. Ideally, future development of this treatment will occur in both the online and face-to-face modalities, but an online test was most feasible at present.

In summary, the goal of this study (Study 1) was to develop this adapted form of IBCT for GAD and collect preliminary data on its credibility, the extent of participants' symptom change from pre-treatment to post-treatment, and some possible mechanisms of action. In order to increase the study's feasibility, these data were collected through an existing Internet-based version of IBCT I participated in developing. This online program was rewritten to include extensive additional materials for the treatment of GAD and relationship patterns related to the

GAD (as described above) and tested in a newly recruited sample of distressed couples in which one partner is diagnosed with GAD.

The first aim of the study was to examine change in GAD symptoms and relationship satisfaction over the course of the pilot IBCT-GAD intervention and follow-up. I expected that (1a) GAD patients' symptoms would decline from pre-treatment to post-treatment, while (1b) relationship satisfaction in both partners would increase from pre-treatment to post-treatment. Because this was a pilot study and no part of the sample was randomized to a control group, it was not possible to draw causal conclusions about these changes. However, it was useful to determine at this stage how large the effect size for the intervention might be.

The second aim of the study was to characterize the proposed mechanisms of change using quantitative methods. I expected that (2a) GAD patients' and partners' positive expectations about the efficacy of this program would increase from pre-treatment to mid-treatment. Also, (2b) GAD patients' self-reported acceptance would increase from pre-treatment to post-treatment. Lastly, (2c) GAD patients' self-reported avoidance, (2d) non-GAD partners' self-reported accommodation of GAD symptoms, and (2e) GAD patients' reports of their partners' hostile criticism would decrease from pre-treatment to post-treatment.

The third aim was to characterize proposed mechanisms of change in the IBCT-GAD intervention using qualitative methods. The texts available for analysis were both partners' typed entries into the online system. Participants' responses were divided into six passages according to the section of the website in which they were entered: initial understanding of core issue, new "DEEP" analysis of core issue (addressing natural Differences, Emotional sensitivities, External stressors, and Patterns of communication), individual change plan, values and goals, changes that occurred, final description of core issue (see Methods section for additional detail).

Consequently, each individual in the IBCT-GAD program generated six passages that were available for coding. These texts were coded for the extent to which they are characterized by the constructs previously mentioned as possible quantitative mediators: acceptance, avoidance, hostility, and accommodation. Specifically of interest was the acceptance and avoidance codes from passages generated by the GAD patients, as their acceptance or avoidance is expected to be associated with their symptoms. Similarly, it was the hostility and accommodation expressed by non-GAD partners in their passages that was of interest.

I expected that (3a) GAD patients' self-reported acceptance would increase across these passages from pre-treatment to post-treatment; that is, levels of acceptance would be higher in the second passage than the first passage, in the third than the first, etc. Also, (3b) GAD patients' self-reported avoidance, (3c) non-GAD partners' self-reported accommodation of GAD symptoms, and (3d) GAD patients' reports of their partners' hostile criticism would decrease from pre-treatment to post-treatment.

This paper also includes a second study whose aim was consider how similar or different these qualitative findings from the IBCT-GAD program might be to similar qualitative analyses using data from the main OurRelationship program. Because there were so many participants in the OurRelationship program who appeared to meet criteria for GAD at pre-treatment and who showed improvement in their GAD symptoms at post-treatment, it is useful to include assessment of their communication patterns in this paper as well. These participants' responses were divided into five passages according to the section of the website in which they were entered (see Methods section for Study 2). Again, the texts were coded for acceptance, avoidance, hostility, and accommodation. Coders did not know in which program the couples were participating.

This aim was addressed using a mixed methods analysis, incorporating both qualitative and quantitative data from the main OurRelationship program. The first step was to use qualitative data to characterize different types of couples categorized using quantitative data. Specifically, couples' responses were sorted by into the following categories:

1. Couple with one patient who meets GAD criteria at pre-treatment and continues to do so at post-treatment ("non-improvers")

2. Couple with one patient who meets GAD criteria at pre-treatment and no longer does so at post-treatment ("improvers")

Characteristic responses of each of these types of couples are included in Appendix C.

The second step was to quantitatively describe the trajectories of change in acceptance, avoidance, hostility, and accommodation codes in these two types of couples. I expected that (4a) GAD patients' self-reported acceptance would increase across these passages from pre-treatment to post-treatment; that is, levels of acceptance would be higher in the second passage than the first passage, in the third than the first, etc. Also, (4b) GAD patients' self-reported avoidance, (4c) non-GAD partners' self-reported accommodation of GAD symptoms, and (4d) GAD patients' reports of their partners' hostile criticism would decrease across these passages. Moreover, (4e) I expected regressed change in GAD symptoms to significantly contribute to these models, with decreases in symptoms being associated with increased acceptance and decreased avoidance, hostility, and accommodation.

Study 1

Method

Participants

Of 784 individuals who began the online screening assessment for the IBCT-GAD intervention, 12 individuals (6 couples) were determined to be eligible for the program (see Figure 1 for a CONSORT flow diagram). The most common reasons for ineligibility were failing to complete the online screening assessment (n = 404), failing to complete an additional telephone screening assessment (n = 102), having a partner who did not complete the online screening assessment (n = 108), and currently participating in in-person therapy (n = 43). Of the eligible 12 individuals, 6 individuals (3 couples) began the program, and 4 of these (2 couples) have completed it.

Recruitment occurred through advertisements placed on websites and forums focused on marriage and/or GAD, as well as through Google Ad Words and Amazon's Mechanical Turk. Mechanical Turk is a site that assists workers with finding brief, low-paying tasks that can be completed online, such as filling out surveys. Research on the sample of individuals participating in Mechanical Turk indicates that they are a heterogeneous pool that tends to have reliable self-report (Paolacci & Chandler, 2014). They do tend to be more socially anxious than the average for the U.S. population (Paolacci & Chandler, 2014). Each participant in this study was paid $48 ($96 per couple) for completing the online IBCT-GAD program and pre-, mid-, and post-treatment assessments.

To be eligible to participate in the study, both members of the couple needed to be over age 18, living in the United States, and willing to participate in the full program. Couples needed to be married, engaged, or cohabitating for at least six months. To be eligible, at least one partner needed to meet DSM-IV criteria for GAD, and at least one partner needed to be one standard deviation above the population mean for relationship distress.

Because participants were asked not to engage in any other therapeutic activities for the duration of the intervention and follow-up, individuals were not eligible if they reported symptoms that immediately require a higher level of care: acute suicidality, psychosis, or severe intimate partner violence. Local referrals were provided to any ineligible person who is interested in alternate treatment.

Procedure

When an individual indicated interest by completing the screening survey (which is linked in all advertisements and on the study website), a research assistant reviewed their data to determine whether they met eligibility criteria . If not, they were notified via email and referred to the APA Psychologist Locator for alternate treatment options. Individuals whose scores for intimate partner violence indicated they required additional telephone screening to determine eligibility (see Measures for additional detail) were contacted by a research assistant to schedule a telephone screening with the principal investigator. Individuals determined to be unsafe to complete the intervention were excluded and referred to both individual therapy and intimate partner violence resources.

When individuals were determined to be eligible, they were notified of this status by research assistants and offered assistance with encouraging their partners to complete the assessment. Once it was determined that both members of a couple were eligible, a research assistant contacted the partner who scored above clinical cutoff on the GAD screener to schedule a telephone meeting. In this meeting, the individual completed the Anxiety Disorders Interview Schedule administered by a research assistant. If the individual scored above a 4 (out of 8) on this measure, the couple was asked to create logins for the study website. If a couple was not able to advance at any of these steps, they again were referred to the Psychologist Locator. In the case

of a clinical emergency (e.g., severe suicidal ideation), program staff were permitted to directly contact the individual's partner or local mental health emergency teams. Research assistants also planned to immediately consult with the project sponsor, Andrew Christensen, Ph.D., if there was any concern about the clinical safety of a possible participant; however, no clinical emergencies occurred.

The intervention program was structured as a series of modules with text, video, and interactive activities. Table 2 provides a detailed description of how this intervention differs from the original OurRelationship program. Briefly, it includes the same modules in which participants develop a new, less blaming understanding of their relationship, but this content was rewritten to focus on GAD and associated relationship issues. In the second half of the program, in which individuals develop a plan for changing their own behavior in a way that may improve the relationship, the IBCT-GAD program places greater emphasis on changing in a way that is accepting of internal experiences such as anxiety and increases value-driven behavior. The program was expected to take about ten hours for users to complete. Couples were asked to complete the main program, including pre-treatment and post-treatment assessments, within two months of enrolling in the study. Beyond this limit, participants were permitted to proceed through the program at their own pace. However, some parts of the site could not be entered until both partners have completed all previous modules. Any user who allowed two weeks to elapse without completing the next module received an email and a telephone call from a research assistant encouraging return to the program. Individual modules required only one participant to log in, but modules that involve both partners required both to enter their passwords. Pre-treatment, mid-treatment, and post-treatment assessments were conducted through the website as part of the scheduled program activities.

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Procedure for Coding Qualitative Data

The texts available for analysis were both partners' typed entries into the online system. For the IBCT-GAD program, participants' responses were divided into six passages according to the section of the website in which they were entered: initial understanding of core issue, new "DEEP" analysis of core issue, individual change plan, values and goals, changes that occurred, final description of core issue. The prompts for these passages are listed below under the 6 categories above. Note that each prompt was preceded by explanations and examples to facilitate participants' understanding of what they were being asked.

1. Initial Understanding of the Core Issue

    a. "How has this core issue of anxiety impacted your relationship?

2. "DEEP" Analysis of Core Issue

    a. Natural "D"ifferences

        i. Example of Our Differences - My Core Issue

        ii. My Role in Our Differences

        iii. My Partner's Role in Our Differences

        iv. Positive Aspects of Our Differences

    b. "E"motional Sensitivities

        i. Example of an Emotionally Sensitive Issue:

        ii. My Underlying Emotion:

        iii. The Emotion I Show:

        iv. My Partner's Underlying Emotion:

        v. The Emotion My Partner Shows:

        vi. Past Events Affecting My Emotion:

    c. "E"xternal Stressors

        i. How I React to Stress

        ii. How Partner Responds To Stress

        iii. How I Can Deal with Stress Better

        iv. How I Would Like You to Handle Stress Differently

    d. "P"attern of Communication

        i. Description of Our Communication Pattern

3. Individual Change Plan

    a. Change I Want To Make

    b. How I Want You To Change

4. Values and Goals

    a. Imagine that on your 100th birthday, you receive a phone call saying you have received a Lifetime Achievement Award. You are invited to a banquet in your honor, where a leader from your community will give a celebratory speech describing the kind of person you were. What would you like that person to say about you?

    b. Value Related to My Life

    c. Goal Related to this Value

    d. Value Related to My Relationship

    e. Goal Related to this Value

    f. A First Step I Could Take

    g. How This Step Will Help Me

    h. What I Can Tell My Partner When Emotions Get In The Way of My Goals

5. Changes That Occurred

    a. "What specific positive changes have you noticed in your relationship?"

6. Final Description of Core Issue

    a. "How have you noticed that your understanding of this core issue of anxiety has changed now that you've done this program?"

The coders were undergraduate research assistants blind to the study hypotheses and blind to each couple's status in terms of relationship satisfaction and symptoms. There is good evidence that this type of naïve undergraduate coder is capable of reliably and validly coding emotional and behavioral patterns in couple interactions (e.g., Christensen & Heavey, 1990; Waldinger, Hauser, Schulz, Allen, & Crowell, 2004; Baucom, Baucom, & Christensen, 2012). The research assistants were trained to code the extent to which each text is characterized by hostility, accommodation, avoidance, and acceptance on a one to seven scale. Table 1 contains examples of levels 1, 3, 5, and 7 for each of these constructs, drawn from the responses of participants in the main OurRelationship study. If a text contained insufficient information to code a particular construct, coders were instructed to indicate that they had read the passage but not selected a numerical code. Therefore, all "missing" data in this sample is missing due to lack of sufficient information from participants rather than to not having been coded.

    During the training period, the coders reviewed the quantitative measures of each construct. They then practiced with descriptions of relationships involving anxiety until they achieved reliability at coding on this scale. Reliability was evaluated using intra-class correlation coefficients (ICCs). After training, the coders were able to achieve excellent levels of reliability for acceptance (0.871) and avoidance (0.958). Reliability was lower for hostility (0.656) and

accommodation (0.736). Examples of different levels of each of the four codes (taken from the main OurRelationship sample) are presented in Table 1.

Measures

Screening measures (administered online screening prior to enrollment): All potential participants completed the <u>Overall Anxiety Severity and Impairment Scale</u> (OASIS; Campbell-Sills et al., 2009), a measure which successfully classifies individuals with and without anxiety disorders 88% of the time; at least one member of the couple needed to score above the clinical cut-off for the assessment to proceed. Individuals scoring above cut-off completed the <u>Anxiety Disorders Interview Schedule</u> (ADIS-IV-L; Brown, Di Nardo, Lehman, & Campbell, 2001) to assess for presence of GAD or other anxiety disorders; the ADIS-IV-L is a highly reliable and valid interview that follows DSM-IV diagnostic criteria. Depression and suicidality were assessed using the <u>Beck Depression Inventory II</u> (BDI-II; Beck, Steer, & Brow, 1996), a well-established measure of depressive symptoms. A score of four on the suicidality item required exclusion from the study. Psychotic symptoms were assessed with the four psychosis items from the <u>Revised Behavior and Symptom Identification Scale</u> (BASIS-R; Niv, Cohen, Mintz, Ventura, & Young, 2007), a measure that has demonstrated its sensitivity as a screener; a score of 0.5 or greater indicates psychosis and required exclusion from the study. Relationship satisfaction was measured using the 16-item <u>Couples Satisfaction Inventory</u> (CSI-16; Funk & Rogge, 2007), a measure consisting of the most informative items from more established measures such as the Dyadic Attachment Scale and Marital Adjustment Test. At least one member of the couple needed to score below the clinical cut-off of 104 for the couple to participate in the study. Domestic violence was assessed using the <u>Couple Questionnaire</u> (Christensen, 2009), a brief measure of physical and psychological aggression based on the work of Daniel O'Leary and

Kate Iverson. This questionnaire was used for screening potentially moderate to severe violence. Couples who endorsed any moderate violence or fear of future violence were evaluated by the principal investigator using unstructured clinical interviewing. Couples determined to be unsafe to complete the intervention were excluded and referred to both individual therapy and intimate partner violence resources.

Therapy credibility and outcome measures: Credibility of the treatment method and users' expectancy of treatment success were measured using the Credibility and Expectancy Questionnaire (CEQ; Devilly & Borkovec, 2000); this measure has demonstrated reliability and validity with a GAD sample. The CEQ was administered at pre-treatment and mid-treatment. The primary outcome measure was GAD symptoms as measured by the seven-item GAD-7 scale (Spitzer, Kroenke, Williams, & Lowe, 2006). This measure was constructed from a larger pool of items and showed good internal consistency (0.92), convergent validity (with other anxiety measures), and divergent validity (from measures of depression). It has been used in the literature as an outcome measure for intervention studies (e.g., Titov et al., 2009). It also appears to be a good severity measure, as increasing scores on the GAD-7 were associated with increasing numbers of disability days. The GAD-7 was administered at pre-, mid, and post-treatment. Additional information about GAD status was gathered with the Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990), a standard measure of the frequency and perceived uncontrollability of worry behavior. The PSWQ was administered at pre-, mid-, and post-treatment.

Proposed predictors of therapeutic change (administered at pre-, mid-, and post-treatment): The GAD patient completed the Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004), a validated measure of experiential avoidance and its opposite, acceptance. The GAD

patient also rated his or her partner's hostile criticism using the <u>Perceived Criticism Measure-Type</u> (PCM-T; Renshaw, Blais, & Caska, 2010), a validated measure that distinguishes hostile and non-hostile forms of criticism. The non-GAD partner completed the <u>Family Accommodation Questionnaire-Modified</u> (FAQ-M; Zaider, Heimberg, & Iida, 2010), a measure of accommodation originally developed and validated for use with obsessive-compulsive disorder but successfully modified by Zaider, Heimberg, and Iida (2010) for use with any anxiety disorder. Both partners completed the sixteen item version of the <u>Couples Satisfaction Inventory</u> (CSI-16, Funk & Rogge, 2007). Both partners also completed the short form of the <u>Communication Patterns Questionnaire, the CPQ-Constructive Communication</u> (CPQ-CC; Heavey, Larson, Zumtobel, & Christensen, 1996). On the CPQ-CC, both partners rate the extent to which positive and negative communication behaviors are typical for themselves and their partners, before, during, and after relationship conflicts; the Constructive Communication value is the difference between the positive and negative scales, combined between the two partners.

Results

Due to the small sample size for the IBCT-GAD pilot, the first three aims of the study are addressed using detailed case studies of the two couples who completed the intervention, followed by a brief description of a couple who began but did not complete the intervention. These case studies include the couples' responses to self-report measures, qualitative material from the couples' typed entries over the course of the intervention, and quantitative coding of this material.

Case Study: Jessica and Bill (no improvement in GAD symptoms)

The first completers of the IBCT-GAD program will be called "Jessica" and "Bill," a couple in their early twenties who have been together for four years and married for three. They

have three young children. Both are Caucasian and have high school degrees; Bill has also completed a bachelor's degree. When they completed the online screener, she scored well below the clinical cutoff for relationship satisfaction, indicating moderate distress (CSI = 30). However, he scored within the non-distressed range on this measure (CSI = 59). Her anxiety also appeared to be much higher than his, with her score falling above the cutoff and his below (Jessica: OASIS = 12; Bill: OASIS = 6). When she completed the ADIS interview, the interviewer gave her a score of 7, indicating fairly severe GAD.

Jessica and Bill began the program in March 2014 and completed it in July 2014. When initially describing their difficulties, Jessica wrote: "Improving anxiety would make my relationship a lot less stressful. I would be able to do more things throughout the day and be able to enjoy more with the freedom of the anxiety issue being improved. I would no longer have to deal with a constant stress and worry." Bill wrote, "For the vast majority of our nearly four years of marriage my wife and I have experienced a great deal of marital stress. For so long we banded together and felt as though we were growing stronger because of it, but when things became especially tough we grew somewhat distant and had a much harder time dealing with troubles as they came. I want to grow closer to my wife again, and I know that we can work together to make our love last forever."

Jessica and Bill's DEEP Understandings differed in the issues they emphasized: Jessica was concerned about how Bill reacts to her anxiety, while Bill seemed most bothered by their lack of sexual intimacy. Jessica identified the key personality difference as Emotional Reactivity (which is the term the program uses for the personality trait of Neuroticism), noting that her reactivity is higher than her husband's. She wrote, "When I get upset about an issue you tend to think that it's insignificant and silly. I feel like you don't take the time I need to be heard and

understood even if you don't agree with me. I sometimes feel like I'm crazy and irrational when you do this even though my feelings and emotions are real." Note that what Jessica is describing is a hostile rather than accommodating response to anxiety. She identified her surface emotion as "closed off and frustrated" and the hidden emotion behind it as "overwhelmed, powerless, shameful." As an example of the origins of these emotions, she noted that when Bill initiates sexual activity, she often refuses because sex "was always looked down upon when I was growing up." Also, "your affair from the past is a big part of why I get anxious when you talk to other women or are on your phone." She was able to identify that their current stressors of job/school, children, and finances exacerbate these concerns. Jessica described their typical pattern of communication as one in which Bill tends to "blame/criticize, argue" and she tends to "avoid/withdraw." For example, "when you said last week you couldn't get Monday off for Grandpa's burial I felt like you were dismissing the fact that I needed you there with me and dismissing that Grandpa meant a lot. When that happened, I didn't want to talk anymore; I wanted to withdraw myself from the conversation." She observed that they have become more polarized in this pattern over time because "I don't like arguing with you because it makes me feel like we are never going to get better and when you dismiss and not fully understand and grasp my feelings it makes me scared I'll get hurt so I withdraw to not have the chance to get hurt." Jessica's short-term strategy of avoiding to prevent hurt seems consistent with her underlying emotions of anxiety and shame; avoidance is also characteristic of GAD.

Jessica had alluded to disagreements about sexual intimacy; this topic was the focus of Bill's DEEP Understanding. He identified the key difference between them as Differences in Desire for Closeness, noting that he would like more physical and emotional closeness but she seems to avoid it. Bill's interpretation of this difference was as follows: "I feel as though you are

bored of me, and that you may be wanting to be somewhere else. This makes me feel incredibly lonely." He described his surface emotion as "rejection" and his hidden emotion as "scared." Specifically, "I expressed my sense of frustration/feelings of being rejected, but inside I feel scared that your avoidance is because you do not want to be with me." Bill was able to identify elements from his history that make this issue a greater area of sensitivity for him: when he was young, "the idea was reinforced in my mind that love is expressed through sex, and coincidently in the past when the sex ended so did other attachments. So when you and I are distant sexually I get scared that our relationship is in trouble." He stated their stressors of job/school, children, finances, and life transitions exacerbate this sensitivity. Bill agreed with Jessica that their pattern is that he tends to "argue" and she tends to "avoid/withdraw." He elaborated, "I think that over time you have grown distant from me and do not have a sexual desire for me. This adds a great deal of stress to me because I worry that you are growing away from me entirely, and I increasingly fear that you may not want to be with me. So as a result I feel that I make demands just so that I feel some degree of comfort within our relationship." In other words, Bill also feels anxiety about this relationship issue, but attempts to regulate his anxiety with demands.

Both Bill and Jessica responded "agree" to a question asking whether developing these DEEP Understandings helped them "be more accepting and tolerant of the core issue." Jessica wrote, "The difference from my old understanding and new understanding that I've noticed is that I am becoming more aware of why I feel a certain way towards situations and how to handle them better." Bill added, "Essentially my old understanding was a blanket thought of what I was concerned may be the downside of my relationship with my wife [i.e., lack of sexual intimacy]. With a new understanding I am able to dissect what it is that really concerns me, and in a way it brings me some comfort."

Both Bill and Jessica were able to identify key values they would like to work toward on their own and in their relationship. When Jessica was asked how she would like to be described (if given a "Lifetime Achievement Award"), she wrote: "I would want the person to explain that I am a caring person who is always willing to help others, a patient person who is always there as an ear to listen, someone who is a wonderful mother and wife who has always been there for her kids and husband, and someone who cares a lot for her family and friends. Someone who is smart too." She stated she would like to work toward the value of being patient; "when I feel impatient I could try to take deep breaths so I don't snap." In her relationship, Jessica stated she would like to work toward the value of "showing affection and showing that I care" by "not [getting] angry at the little things because anger causes me to pull back even more." She wrote that as a first step, she could "not get mad and snappy at you for no reason. I will use you as a support instead of a punching bag." When selecting goals to work toward their values, individuals are often more successful if they can be more specific about the behavior they would like to engage in. Moreover, these goals do not necessarily address what Jessica and Bill stated was her typical communication behavior, avoiding/withdrawing. However, Jessica said she thought these steps would "help bring us closer and treat [him] the way he deserves to be treated." She also noted that when she is feeling strong emotions such as anxiety, she can tell Bill "I am taking a step back and counting to ten with deep breaths. Give me a few seconds to calm down."

Bill's idea of how he would like to be described was that he "has always been known to be a kind, caring, man who has a heart for people. Taking care of people was always a priority for [him]. That was no more true than when it came to his family and friends; especially his bride of 80 yrs [Jessica] and their three children [names]. Aside from his love of people, [Bill] was

always known for his work ethic; both at work, and at home with his family. Working hard, and playing harder!" Bill stated he would like to work toward this value of play: "I struggle most with finding time for play. Much of my life is oriented around work, and I feel like I am not always left with time for myself, or time to play with my family (i.e. vacations)." He listed the specific goals of "play often with my family; take weekend day trips, spend time and money on my family, take vacations when possible." For his marriage, Bill identified a value of showing love: "I struggle with having a fulfilling sex life with my bride. This isn't just a matter of not having sex, but to me this is a matter of not showing enough love for one another." His goal was to "find time each and every day to express love for one another, and learn to live and love more spontaneously," a remarkably accepting approach to the issue of sexual intimacy. Specifically, he wanted his first step to be "to spend some time playing with my children, and giving attention to them. I am also going to spend a moment rubbing my wife's shoulders, and try to show my love for her through personal attention." He stated this would be helpful because "spending time, and showing love for my family is what I want to do. Learning to appreciate the small moments more will help me feel as though I am doing more for my family, and it will help with perspective until I am able to do more with them." When he is feeling strong emotions and having difficulty accomplishing this goal, he planned to say "I am feeling anxious with our lack of romance, and, closeness in our relationship. Tonight I am wanting to express my love for you, but I want you to communicate to me how you would like me to do that. I understand that romance, and closeness, is not only expressed in one way and I would like to explore various forms with you; whether that be massages, taking walks with one another, cuddling, writing love letters, etc."

After Bill and Jessica completed the material on changing patterns of communication, she identified their pattern as the "Desert" type in which both partners avoid/withdraw; he identified it as both "Desert" and "Tornado" (in which at least one partner demands or argues, resulting in conflict). Jessica wrote that she would like to make the following change: "things that are still bothering me are things that need to be talked about more in order to get over them. I need to stop avoiding talking because it brings up bad emotions and push through them." She stated that Bill could help if he would "understand that I am facing emotions that I don't like and be patient with me. Let me know you hear and are listening to me when I express myself too." Bill wrote, "I will take the time to try to understand factors that are preventing [my wife] from being close with me in certain situations, and also try to recognize when she is trying to be close to me in different ways so that I do not mistake her opposing interest as total disinterest… I would appreciate if my wife could attempt to see that my motives for wanting sexual fulfillment is that I want to be close with her. Also, it would help if [my wife] was more vocal about ways she would prefer to be close."

At the end of the program, Jessica reported, "we are able to understand each other's feelings a little better. I have more compassion and understanding for what is really bothering my partner where as before I had not known because we never talked about it and he never opened up about it." Bill agreed, "we have practiced better communication as a result." These changes they mention seem likely to be associated with increased relationship satisfaction. However, neither partner specifically describes either increased acceptance of Jessica's anxiety or increased ability to cope with anxiety in a value-driven way.

Accordingly, Jessica's scores on the Penn State Worry Questionnaire, a measure of tendency to worry, did not decline over the course of the intervention (pre = 62, mid = 72, post =

72). Similarly, on the GAD-7, her score at pre-treatment was 17 (above the clinical cutoff of 10). It remained stable at mid-treatment (GAD-7 = 17) and post-treatment (GAD-7 = 18). At pre-treatment, Jessica's relationship satisfaction score (CSI) had been 30. At mid-treatment, her CSI had increased to 40, although this score remained below the clinical cut-off. By post-treatment, however, her CSI score had increased to 55, which is in the non-distressed range. At pre-treatment, Bill's CSI score had been 59. At mid-treatment, it had declined considerably to 38, in the distressed range. However, at pre-treatment it increased to 56, now again in the non-distressed range. These results indicate that the intervention was successful at increasing Jessica's relationship satisfaction; Bill was satisfied enough at pre-treatment that increases were not required. However, the program does not appear to have affected Jessica's anxiety symptoms. For nearly every GAD-7 item, she endorsed it at exactly the same level at post-treatment and pre-treatment.

Jessica and Bill's responses to the other assessment items are useful for investigating this outcome. Both partners appear to have found the intervention credible and expected it to be fairly effective. At mid-treatment, Jessica's score on the credibility portion of the Credibility and Expectancy Questionnaire was 20, which represents being approximately 70% confident the program is credible, averaging across items. On the expectancy portion, her score was 11, or only about 40% confident the program would help her improve. It is common for expectancy – a more affective measure – to be lower than credibility – a more cognitive measure (Devilly & Borkovec, 2000). At post-treatment, Jessica's score on the credibility portion was stable at 20. On the expectancy portion, her score had declined slightly to 7. At mid-treatment, Bill's score on the credibility portion of the Credibility and Expectancy Questionnaire was 17, which represents being approximately 60% confident the program is credible, averaging across items. On the

expectancy portion, his score was 19, a similar 60% confident the program would help him improve. At post-treatment, Bill's score on the credibility portion had declined slightly to 15; similarly, his score for expectancy declined slightly to 17. These CEQ scores are comparable to those in standard treatments for GAD and other anxiety disorders (Devilly & Borkovec, 2000).

The proposed mechanisms of change in GAD symptoms included patient avoidance, patient acceptance, partner hostility, and partner accommodation, and well as overall constructive communication. At pre-treatment, Jessica's constructive communication (CPQ-CC) score was 11. At mid-treatment, her CPQ-CC score was -1, a considerable drop. However, at post-treatment this rating of constructive communication had increased substantially to 20. At pre-treatment, Bill's CPQ-CC score was 6. At mid-treatment, it had declined slightly to 1. However, by post-treatment it had increased to 9. These data are in accordance with Jessica and Bill's self-report that their communication had improved.

Jessica's scores on the Acceptance and Action Questionnaire increased over the course of the intervention (with higher scores indicating greater acceptance). She scored 25 at pre-treatment, 23 at mid-treatment, and 30 at post-treatment. This finding is surprising in that her increased acceptance may be associated with the improvements in the relationship but does not appear to have translated to greater acceptance of her anxiety. Note that at both pre-treatment and mid-treatment, Bill's AAQ score was 37. At post-treatment it was fairly stable at 34.

The passages quoted here were also coded for acceptance and avoidance (as well as hostility and accommodation, when sufficient information was present to give a rating). Jessica's avoidance in her DEEP Understanding was coded at 7 (out of 7), but her description of her values was less avoidant (4 out of 7). Her acceptance was a 5 out of 7 in her initial description of the core issue and remained generally the same through her statement of what she would like to

change (4 out of 7). Bill's avoidance was coded at 4 across his initial description, DEEP Understanding, and values description. Similarly, his acceptance was 5 out of 7 for both what he would like to change and what changes occurred.

At pre-treatment, Jessica reported on the <u>Perceived Criticism Measure-Type (PCM-T)</u> that Bill criticizes her in a "helpful, constructive way" at the level of 4 out of 7, while he criticizes her in a "harsh, hurtful way" at 2 out of 7. At mid-treatment, Jessica reported that Bill criticizes her in a "helpful, constructive way" at the level of 4 out of 7, while he criticizes her in a "harsh, hurtful way" at 0 out of 7. At post-treatment, her report of "helpful, constructive" was at a similar level of 3 out of 7, while "harsh, hurtful" continued to be 0 out of 7. This reduction in hurtful criticism is small but again fits their report of improvements in communication.

At pre-treatment, Bill's score on the Family Accommodation Questionnaire was 20; this indicates endorsing each accommodation-related item "one or two times per week" on average. Jessica's description in the DEEP Understanding of how Bill does not listen to her when she is talking about her worries was coded 1 out of 7 for accommodation. At mid-treatment, his self-reported accommodation had declined slightly to 15. However, at post-treatment it had increased to approximately pre-treatment levels, 22. This finding is extremely important: it reflects increases in Bill's willingness to facilitate Jessica's anxious behavior. Taken in combination with the findings about the improvements in their relationship satisfaction, it suggests that Bill and Jessica may be more satisfied because in the short-term his accommodation is more pleasant for both of them.

Case Study: Elizabeth and Trevor

The second couple who completed the intervention was "Elizabeth and Trevor." They are in their early twenties, have been dating for four years and are not married. Both are Caucasian

and at this time have completed high school but not college. When they completed the online screener, both scored below the clinical cutoff for relationship satisfaction, indicating mild distress (Elizabeth: CSI = 43; Trevor: CSI = 48). Her anxiety appeared to be much higher than his, with her score falling above the cutoff and his below (Elizabeth: OASIS = 10; Trevor: OASIS = 4). When she completed the ADIS interview, the interviewer gave her a score of 7, indicating fairly severe GAD.

Trevor and Elizabeth began the program in April 2014 and completed it in July 2014. Elizabeth's initial description of their core issue was lengthy and very anxious in tone. An excerpt is as follows: "I think that my anxiety is so focused on us, and so it's hard to manifest and heal and create a strong path towards moving forwards. I look at you, and I answer these questions, and I say YES, we're strong, we're happy, we're healthy, we love each other, we have a strong partnership, we communicate, there's no red flags, I'm comfortable with you and with us. But then I look forward to the future, and say "do I want to do this FOREVER? Are we strong enough? What if we fall out of love? What if my sex drive doesn't match yours? What if we're miserable? What if we're making a mistake?"… and that makes me panic, and the panic fades to something akin to dread, despite how much I WANT it. And when I remind myself, love is a choice, love is what we make of it, love is an action, and we can nurture and grow. Whatever we water, will grow. But then I feel that dread tucked in the pit of my stomach and wonder if just by HAVING it, it will sabotage, if I won't be able to move past, because I'll never be able to move past and see us without anxiety-tinged glasses enough to water the good stuff. … then I panic because how can I feel so disconnected from you, and maybe I'll never connect, and maybe it's a sign, and blahblahblah. Basically, my anxiety about our relationship causes my anxiety about our relationship! It's a crazy cycle I'm trying to break. If we improve my anxiety and work

through my fears, then I'll be able to come to you, whole, and we can move on in our lives and build this relationship and making it stronger." These concerns are characteristic of GAD: not only is Elizabeth worrying about current problems in the relationship, she views the worry itself as a danger.

Trevor's description refers to Elizabeth's anxiety, although he does not share it: "[Her] anxiety highlights the fact that I am far away [for work] and can't be there on a day-to-day basis. I feel confident that if we were able to interact in a more human manner, rather than seeing each other in person for only a few days every couple of months, the situation between us would be more solid. … I am not experiencing personal anxiety about our relationship, nor about the future, but I know that [she] is. I want to help settle her doubts and fears so that she is more comfortable in our relationship, and not afraid of a future with me. My career … does little to create a stable environment for our relationship to flourish, but I want both my career and our relationship to be fulfilling and long-lasting."

Like Jessica, Elizabeth identified the key difference in her relationship as Emotional Reactivity: "You and I have a lot of issues occasionally because you think with your head, and me my heart. That comes off as me being emotionally crazy, and you being a little cooler, neither which are true. I worry about you not being able to be emotionally there for me because you can't understand what I'm struggling with, (moving, transitions, etc) because it's hard to see eye-to-eye when you see the logical benefits and I only feel the fear of change." Trevor chose a related but more specific difference: "I'm used to the idea of [my career] moving me around every few years, and I accept the community that I grew up in as normal. You've lived in one place your whole life, and I can see how the idea of moving around could be scary." While Elizabeth is

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concerned that her fears will seem "crazy" to Trevor, his description of their difference is already fairly accepting.

When these issues arise, Elizabeth's surface emotion is "closed off/blank-hearted, or defensive/angry," while her hidden emotion is "scared/hurt/confused, or afraid/rejected"; given her many fears about the future, this hidden emotion seems fitting. She provided this explanation: "When trying to tell you how I'm feeling, I blank out. I can't empathize with how you feel because I'm trying to disconnect from my own crazy roller coaster of emotions. I get scared about how I'm feeling way down underneath, so I shut it all off. That makes it harder for me to explain, so I can't be gentle, and I end up hurting you." Trevor stated that he rarely shows any surface emotion but has a hidden emotion of "incapable": "Any of the several times [she] asks me to talk, to share, to say something- usually I have nothing to say because there's nothing I can do to fix the problem and I feel incapable, inferior, or powerless to help her or us." Both noted that job/school, life transition, and extended family are stressors that make these emotional sensitivities more difficult to deal with.

Both Elizabeth and Trevor agreed his pattern of communication typically involves "avoiding/withdrawing." She stated she tends to "argue," while he described it as "competing/controlling." Elizabeth described the pattern this way: "I think our argue/withdraw pattern gets so strong because you get afraid and overwhelmed by what I'm telling you, and its easier to go zen and avoid those terrifying feelings then process them. That frustrates me because I think 'but the answer is right HERE, if I argue enough, then I'll convince him and he'll see that answer too and then we can be happy!' But the more I argue, the less you want to deal with everything I say, because emotions are scary." Both Trevor and Elizabeth responded "agree" to a question asking whether developing these DEEP Understandings helped them "be more

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accepting and tolerant of the core issue." Elizabeth wrote, "I think I've just been able to make myself more aware of what he's thinking and feeling. So much of my anxiety causes me to depersonalize, and when the stress is about us/our future, and I shut down, then I can't be loving to him and accept that he's hurting too, despite not showing it." Trevor specified that the DEEP Understanding was helpful although not unexpected: "[she] and I have always been good at communicating, but going through the steps of a program gave us a more well-thought-out way to approach talking about our issue. My understanding of [Elizabeth] hasn't been flipped upside down, no metaphorical curtain was pulled away... She's still the same woman I fell in love with."

Both partners were able to identify key values they would like to work toward on their own and in their relationship. When Elizabeth was asked how she would like to be described, she wrote, "[She] was kind, loving, and fair. She spent her life devoted to helping other people, and helping create other lives. She loved to travel and see the world, but was dedicated to helping those in her own community. She raised healthy and happy children while nurturing the children in her life around her, while creating strong friendships with the women in the community. Her life, while not easy, had purpose, and her strength was clear." Given Elizabeth's concerns about having to move frequently for Trevor's career, it is noteworthy that this description of her values involves travel. She stated she would like to work toward the values of "strength, being loving, helping others first." Her specific goal would be "being a more helpful person in the community, such as volunteering more." In her relationship, Elizabeth would like to work toward the value of "[strength] in the face of adversity" by "performing loving actions and carrying on with my life, despite panic." She wrote that as a first step, she planned to "write [Trevor] a short and sweet note that expresses how much I actually care about him, and practice mindfulness and meditation

to keep my anxiety from getting in the way." These are two very specific steps she can take despite the feelings of anxiety, which is likely to assist her in working toward her values.

Elizabeth noted that when she does have strong feelings of anxiety, she could tell Trevor, "Hey, love, I'm starting to panic, and Anxious [Elizabeth] is taking control of what I think and how I feel and how I see you, and that's making me even more panicky. Just wanted to let you know, and now we can go back to talking about whatever, and I'm going to ground myself, but if it escalates, now you're in the know." This statement is extremely important; it expresses a great deal of acceptance of her anxiety while also committing to using strategies to reduce the anxiety (such as grounding). Informing Trevor of her anxiety without attempting to convince him of the accuracy of her worries also runs counter to her usual argumentative pattern.

Trevor's idea of how he would like to be described was as follows: "[He] has been a dedicated [professional], rounded and balanced individual, a caring husband, loving father, and dependable friend. He has succeeded in developing his several interests, including martial arts, music, and cooking. His family is a close-knit bunch, spending their time together learning and doing as a group. He is a credit to [his profession], his community, his family, and himself." He stated he would particularly like to work toward the value of "developing personal interests," which he can do by "[spending] two hours a week actively pursuing a personal interest." In the relationship, he would like to work toward "making time to spend with JUST [Elizabeth]" by "writing AND SENDING one letter a week to [her] with more than just a 'day in review' content." He plans to begin by "[calling her] tonight," because "spending some of my limited free time with [her] will both feel good for me and remind her that I don't forget about her." Trevor's idea of what he could say when he experiences strong emotions was, "I'm noticing that we're starting to spiral here- can we take a few minutes to break the circular thinking?" This

statement is equally applicable to times when Elizabeth has strong emotions and expresses great deal of "unified detachment" – observing the spiral and attempting to address it as a team, rather than blaming one individual. This perspective will most likely be helpful for times when she feels the panic she previously described.

After Trevor and Elizabeth completed the material on changing patterns of communication, she identified their pattern as the "Desert" type, while he identified it as both "Desert" and "Tornado." She wrote that she would like to change "by making time to just sit and be, without focusing on any specific problem, it might foster some togetherness that will bring us closer, without putting pressure on having Conversations. Once we're able to come together without negativity, hopefully it will be easier to have important conversations." To Trevor, she wrote, "I'd like to be able to have a conversation with you about how I feel when I'm feeling scared or anxious without hurting you. If you let me talk, sharing will make me feel like I have a teammate in this. I get scared and lonely. Talk to me? Assure me when I need it? I never want to make you feel like it's your fault, because it never is. I just want you to let me know you aren't going to give up on me because of my anxiety." There is a degree of reassurance-seeking present in this request, but in combination with her other efforts to regulate her anxiety, it may not significantly impact her recovery. Reflecting on his previously noted tendency to withdraw, Trevor wrote, "I should work to better notice the deserts in our relationship, because they often lead to the tornadoes that drain us so much. I think by noticing and addressing small-scale desert issues we can avoid catastrophic tornadoes." This statement reflects a very sophisticated understanding of their communication pattern; Trevor is recognizing that his withdrawals tend to exacerbate Elizabeth's demands. He asked her in turn to "communicate calmly and thoughtfully

about our small issues, in hopes that they snowball less often and in smaller amounts," as she had stated she would like to do.

These plans for changing their communication behavior are well-suited to the DEEP Understanding of their relationship they had previously developed. Therefore, it is unsurprising that both reported substantial changes in their communication pattern at the end of the program. Elizabeth wrote, "We talk through our arguments easily, expressing our feelings and fears. While we aren't always acting 100% healthy in our arguments (healthy as in, how the program would have us act), we aren't UNHEALTHY anymore. We often find ourselves mid discussion laughing, because we've realized we're talking in the way we've learned, which is a good thing. He listens more, I blame less." Trevor added, "Both [Elizabeth] and I are more ready to admit panicky or anxious thoughts, and realize the occasionally foolish nature of our concerns. We talk more openly and in less circular patterns." What they are expressing is acceptance of anxiety without being governed by it.

Elizabeth's scores on the GAD-7 reflected this change. Her score at pre-treatment was 15, above the clinical cutoff of 10. However, by mid-treatment this score had declined to 5, and at post-treatment it had remained stable at 6, indicating a substantial decrease in GAD symptoms endorsed. Her scores on the PSWQ did not decline over the course of the intervention (indeed, they increased somewhat; pre = 61, mid = 66, post = 72), but this measure is considerably less sensitive to change, with items such as "I have been a worrier all my life." At pre-treatment, Elizabeth's CSI score had been 43. At mid-treatment, her CSI had increased to 63, in the non-distressed range. By post-treatment, score had further increased to 72. At pre-treatment, Trevor's CSI score had been 48. At mid-treatment, it had increased considerably to 62, in the non-distressed range. At post-treatment it increased again to 76. These results indicate that in addition

to improving GAD symptoms, the intervention was extremely successful at increasing relationship satisfaction for both partners.

Both Trevor and Elizabeth appear to have found the intervention credible and expected it to be fairly effective. At mid-treatment, Elizabeth's score on the credibility portion of the Credibility and Expectancy Questionnaire was 13, which represents being approximately 40% confident the program is credible, averaging across items. On the expectancy portion, her score was 14, also about 40% confident the program would help her improve. At post-treatment, Elizabeth's scores on both the credibility and expectancy portions had increased to 18, or approximately 60% confident the program would be helpful. At mid-treatment, Trevor's score on the credibility portion of the Credibility and Expectancy Questionnaire was 14, which represents being approximately 50% confident the program is credible, averaging across items. On the expectancy portion, his score was 11, or about 40% confident the program would help him improve. At post-treatment, Trevor's score on the credibility portion had increased to 23; similarly, his score for expectancy increased to 20, or approximately 70% confident. These increases suggest Trevor and Elizabeth attributed a considerable portion of the improvements in their relationship and symptoms to this online program.

The proposed mechanisms of this change in GAD symptoms included patient avoidance, patient acceptance, partner hostility, and partner accommodation, and well as overall constructive communication. At pre-treatment, Elizabeth's constructive communication (CPQ-CC) score was 17. At mid-treatment, her CPQ-CC score was a similar 15, and at post-treatment 16. At pre-treatment, Trevor's CPQ-CC score was 19. At mid-treatment, it had declined slightly to 16, and at post-treatment it was 15. Changes in CPQ-CC do not appear to have been a major

contributing factor to Trevor and Elizabeth's increases in relationship satisfaction or decreases in GAD symptoms.

Elizabeth's scores on the Acceptance and Action Questionnaire, a measure of acceptance or psychological flexibility, did increase during the intervention (with higher scores indicating greater acceptance). She scored 27 at pre-treatment, 32 at mid-treatment, and 35 at post-treatment. This finding is in accordance with her reductions in GAD symptoms. At pre-treatment, Trevor's AAQ score was 33. It increased substantially to 45 at mid-treatment and increased again to 50 at post-treatment.

The passages quoted here were also coded for acceptance and avoidance (unfortunately, the coders found there to be insufficient data for hostility and accommodation). Elizabeth's avoidance in her initial description of the core issue was coded 7 out of 7. Then, in her DEEP understanding, her avoidance was 3 out of 7. Similarly, she demonstrated an acceptance level of 4 in the initial description; it was then coded as 6 when she listed her values and goals. Trevor's avoidance in the DEEP Understanding was coded 6 out of 7, then 4 out of 7 when he described the changes he hoped to make. His acceptance remained largely the same, at 4/5 out of 7, throughout the six passages.

At pre-treatment, Elizabeth reported on the Perceived Criticism Measure-Type (PCM-T) that Trevor criticizes her in a "helpful, constructive way" at the level of 3 out of 7, while he criticizes her in a "harsh, hurtful way" at 2 out of 7. At mid-treatment, she reported that he criticizes her in a "helpful, constructive way" at the level of 5 out of 7, while he criticizes her in a "harsh, hurtful way" at 1 out of 7. At post-treatment, her report of "helpful, constructive" was 4 out of 7, while "harsh, hurtful" became 0 out of 7. These reductions in hurtful criticism and increases in helpful criticism fit their report of improvements in satisfaction.

At pre-treatment, Trevor's score on the Family Accommodation Questionnaire was 12; this indicates endorsing each accommodation-related item "one to three times per month" on average. At mid-treatment, his self-reported accommodation remained steady at 12. However, at post-treatment it declined slightly to 10. This finding is in accordance with Trevor and Elizabeth's statements suggesting they had both become less accommodating of anxiety symptoms.

Case Study: Cara and George (partial completion)

"Cara and George" are a couple in their thirties who have been together for approximately two years. They are both Caucasian and have high school educations. They began the program in May 2014 and had completed through Module 6 by July 2014. When Cara completed the online screener, she scored well below the clinical cutoff for relationship satisfaction, indicating moderate distress (CSI = 15). George also scored within the distressed range on this measure (CSI = 27). Both Cara and George had elevated anxiety on the screener (Cara: OASIS = 18; George: OASIS = 19). Cara completed an ADIS interview and received a score of 8; George did not complete the interview. Cara's score for GAD symptoms (GAD-7) at pre-treatment was 14, above the clinical cut-off of 10. George's score on the GAD-7 was 18, also above clinical cut-off. Her score on the PSWQ was 66 and his was 76.

George's description of the difficulties in the relationship was as follows: "I feel that I am not appreciated enough a lot of the time. When I feel that way I assume I must retaliate with separation or negative expression." He identified "Agreeableness" as the key difference between them, with George tending to be "happy" and Cara tending to be "angry." Specifically, "we argue too much about who is right and who is wrong and then I get defensive and I shut down." Cara wrote, "Anxiety causes difficulties in our relationship on a daily basis. It is nearly

impossible to perform basic daily tasks without an argument or an unforeseen 'problem' arising. The anxiety in our relationship has caused us to alter our daily plans on most occasions. It bothers me that every problem has to be turned into an unpleasant conversation and analyzed before we can move on with our day. I think the issue is unresolvable because neither of us seem to be able to let things go." Cara identified the difference as "Emotional Reactivity," with Cara tending to be "passive" and George "aggressive." She added, "I am very uncomfortable with the level of emotional reactivity in our relationship and the way you choose to express your anger. I am unable to cope with your aggressive nature and the level of volatility that is used when you express your anger at me. It often seems inappropriate and unnecessary to resort to name calling and psychological attacks when arguing about minor issues." She noted that her surface emotion during conflict is anger but her hidden emotion is fear. Another issue contributing to this problem is that she has "past feelings of fear around financial issues because I haven lived on a very small income in the past and know how hard it is to function with no money. George and I have also had very hard times financially and I am afraid to experience that again. I feel that if we both worked together to budget for the month, our resources would be more evenly distributed and things would be less difficult." It is unknown at this time to what extent the intervention might improve this couple's relationship satisfaction and GAD symptoms. The extent of anger and hostility each partner is describing in the other may reduce their ability to benefit from the program.

Study 2

Methods

Participants

For these analyses, data were available from 422 participants (211 couples) who had completed the study. All participants were living in the United States, in a heterosexual relationship, and married, engaged, or cohabiting for at least six months. Also, one or both partners scored one standard deviation above the population mean on a measure of relationship distress. Couples were excluded if either partner were under age 21, actively considering terminating the relationship, or reporting severe depression, moderate to severe suicidal ideation, or severe domestic violence (with actual or feared injury).

Procedure

All participants completed a telephone eligibility screening. All subsequent0 assessments took place online. Participants were randomized to one of two conditions. The first (n = 107 couples) was the full online intervention, including support from a clinical "coach" if they encountered difficulties. In the second condition (n = 104 couples), participants were asked to wait six weeks to begin the program. After six weeks, participants in the second condition could begin a one-week version of the intervention, but they were randomized to either have or not have the support of a coach. Individuals who participated in the intervention completed questionnaires at baseline, post-treatment, and three, six, and twelve-month follow-up (although only baseline and post-treatment data were used for analysis). Participants in the control condition completed measures at baseline and three months after baseline.

OurRelationship.com is a comprehensive, approximately ten-hour program that involves videos and animations of example couples, psychoeducation from relationship experts, tailored feedback based on the data the couple enters, and interactive activities using input from both partners. The program is structured as a series of modules, some completed independently, and others completed with both partners in front of the same screen. The content of the modules

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follows the principles of IBCT, with a focus on increasing couples' acceptance of their differences, helping them empathize with each other, and promoting mindful awareness of their interaction patterns in order to begin changing these patterns.

Procedure for Coding Qualitative Data

For the main OurRelationship program, participants' responses were divided into five passages according to the section of the website in which they were entered: initial understanding of core issue, new "DEEP" analysis of core issue, individual change plan, changes that occurred, final description of core issue. The Values and Goals section of the IBCT-GAD intervention is not present in the main OurRelationship program. The prompts for these passages were as follows:

1. Initial Understanding of the Core Issue

    a. "How has this core issue impacted your relationship?

2. "DEEP" Analysis of Core Issue

    a. Natural "D"ifferences

        i. Example of Our Differences - My Core Issue

        ii. My Role in Our Differences

        iii. My Partner's Role in Our Differences

        iv. Positive Aspects of Our Differences

    b. "E"motional Sensitivities

        i. Example of an Emotionally Sensitive Issue:

        ii. My Underlying Emotion:

        iii. The Emotion I Show:

        iv. My Partner's Underlying Emotion:

     v. The Emotion My Partner Shows:

     vi. Past Events Affecting My Emotion:

  c. "E"xternal Stressors

     i. How I React to Stress

     ii. How Partner Responds To Stress

     iii. How I Can Deal with Stress Better

     iv. How I Would Like You to Handle Stress Differently

  d. "P"attern of Communication

     i. Description of Our Communication Pattern

3. Individual Change Plan

  a. Change I Want To Make

  b. How I Want You To Change

4. Changes That Occurred

  a. "What specific positive changes have you noticed in your relationship?"

5. Final Description of Core Issue

  a. "How have you noticed that your understanding of this core issue of anxiety has changed now that you've done this program?"

The coders were undergraduate research assistants blind to the study hypotheses and blind to each couple's status in terms of relationship satisfaction and symptoms. The research assistants were trained to code the extent to which each text is characterized by hostility, accommodation, avoidance, and acceptance on a one to seven scale. Table 1 contains examples of levels 1, 3, 5, and 7 for each of these constructs, drawn from the responses of participants in the main OurRelationship study. If a text contained insufficient information to code a particular

construct, coders were instructed to indicate that they had read the passage but not selected a numerical code. Therefore, all "missing" data in this sample is missing due to lack of sufficient information from participants rather than to not having been coded.

During the training period, the coders reviewed the quantitative measures of each construct. They then practiced with descriptions of relationships involving anxiety until they achieved reliability at coding on this scale. Reliability was evaluated using intra-class correlation coefficients (ICCs). After training, the coders were able to achieve excellent levels of reliability for acceptance (0.871) and avoidance (0.958). Reliability was lower for hostility (0.656) and accommodation (0.736). Examples of different levels of each of the four codes are presented in Table 1.

Measures

GAD symptoms were assessed at pre-treatment and post-treatment using the seven-item GAD-7 scale (Spitzer, Kroenke, Williams, & Lowe, 2006). This measure was constructed from a larger pool of items and showed good internal consistency (0.92), convergent validity (with other anxiety measures), and divergent validity (from measures of depression). It also appears to be a good severity measure, as increasing scores on the GAD-7 were associated with increasing numbers of disability days. Cut scores were established at 5 out of 21 (mild), 10 out of 21 (moderate), and 15 out of 21 (severe) and were shown to be associated with step-wise changes in functioning (Spitzer, Kroenke, Williams, & Lowe, 2006). For this study, individuals whose scores indicate moderate or severe GAD will be considered "cases"; that is, they were reporting GAD symptoms at a clinically significant level.

Results

Aim 4: To compare these qualitative findings from the IBCT-GAD program to the results of similar qualitative analyses using data from the main OurRelationship program. For these analyses, data were used from the 31 individuals (10 males and 24 females) in the OurRelationship intervention condition who met criteria for GAD and whose partners did not meet criteria, together with those partners' responses. Ranges, means, and standard deviations of each communication variable for each of the five passages are listed in Table 3.

Step 1: Appendix III includes responses of one couple in which GAD symptoms improved and another couple in which they did not improve. These responses suggest that although both couples believed they benefited from the program, the second couple may have incorporated aspects of GAD into their relationship rather than altering the patient's behavior.

Step 2: This portion of the analysis concerned changes in the four coded communication variables. To distinguish the coded variables from the five types of passages, four sets of dummy codes were used: comparing the second passage to the first passage, the third passage to the first passage, the fourth to the first, and the fifth to the first. This approach was used because the first passage was the individual's original description of the problem in the relationship. All other responses over the course of the intervention can be usefully compared to this initial response. These five types of passages were not examined as one continuous variable (e.g., "time") because they involve five different prompts. Therefore, it would not necessarily be the case that the coded communication variables would change in a linear fashion over the course of these passages.

Two-level mixed effects models were constructed with multiple observations (that is, passages) nested within couples. Because each partner provided responses for different variables, there was no level for individuals. Random effects models of this type are well-suited for handling the missing data at some time points for some coded variables.

The outcome measure in a multilevel model must be at the lowest level of the data structure. Since the communication variables were measured on Level 1 and GAD symptoms were measured on Level 2, it was not possible to construct models in which GAD symptoms were the outcomes. Rather, the model fitted predicted L1 communication measures from L2 GAD symptoms.

To conduct an omnibus test of all four dummy codes, I calculated a deviance test -

Deviance = -2 (loglikelihood_Model_II – loglikelihood_Model_I)

- where Model I is an empty model and Model II contains all four dummy codes as predictors (see below). This test statistic, with degrees of freedom equal to the difference in degrees of freedom between the two models, can then be compared with the table value from a chi-squared distribution. For any two nested models that differ in terms of their fixed and random effects, it is possible to compare their deviances in this way if full maximum likelihood (FIML) estimation is used. Using restricted maximum likelihood (REML) only permits comparison of models that differ in terms of their random effects (Snijders & Bosker, 1999). Therefore, full maximum likelihood (FIML) estimation was used for all the following models.

Model I was an empty model of each communication variable:

$Y_{ij} = \beta_{0i} + e_{ti}$

$\beta_{0i} = \gamma_{00} + u_{0i}$

For Model II, four dummy codes designating the five passages were added:

$$Y_{ij} = \beta_{0i} + \beta_{1i}(\text{Passage2}) + \beta_{2i}(\text{Passage3}) + \beta_{3i}(\text{Passage4}) + \beta_{4i}(\text{Passage5}) + e_{ti}$$

$$\beta_{0i} = \gamma_{00} + u_{0i}$$

$$\beta_{1i} = \beta_{0i} + u_{1i}$$

$$\beta_{2i} = \gamma_{20} + u_{2i}$$

$$\beta_{3i} = \gamma_{30} + u_{3i}$$

$$\beta_{4i} = \gamma_{40} + u_{4i}$$

For Model III, GAD symptoms at pre and post were added to determine whether regressed change in symptoms contributed to the model:

$$Y_{ij} = \beta_{0i} + \beta_{1i}(\text{Passage2}) + \beta_{2i}(\text{Passage3}) + \beta_{3i}(\text{Passage4}) + \beta_{4i}(\text{Passage5}) + e_{ti}$$

$$\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{GADpre}) + \gamma_{02}(\text{GADpost}) + u_{0i}$$

$$\beta_{1i} = \gamma_{10} + \gamma_{11}(\text{GADpre}) + \gamma_{12}(\text{GADpost}) + u_{1i}$$

$$\beta_{2i} = \gamma_{20} + \gamma_{21}(\text{GADpre}) + \gamma_{22}(\text{GADpost}) + u_{2i}$$

$$\beta_{3i} = \gamma_{30} + \gamma_{31}(\text{GADpre}) + \gamma_{32}(\text{GADpost}) + u_{3i}$$

$$\beta_{4i} = \gamma_{40} + \gamma_{41}(\text{GADpre}) + \gamma_{42}(\text{GADpost}) + u_{4i}$$

In Model II for avoidance, no later passage was found to be significantly different from the first passage ($p > .1$; Table 4). The deviance also had a finding of no difference between Model I and Model II (LRT = 1.112, $p > .1$). Regressed change in GAD was not found to be a significant predictor of avoidance in Model III, suggesting no association between avoidance and GAD across the intervention ($p > .1$).

In Model II for acceptance, there was a trend toward significance for the difference between Passages 1 and 2 ($b = 1.344$, $SE = 0.737$, $p < .1$; Table 5). There were also significant differences between passage 1 and passages 3 ($b = 2.358$, $SE = 0.685$, $p < .01$), 4 ($b = 2.704$, $SE = 0.682$, $p < .01$), and 5 ($b = 1.754$, $SE = 0.696$, $p < .05$). These findings indicate a tendency for

mean acceptance to be higher in the passages completed later in the program. The likelihood ratio test suggested Model II was a better fit for these data than Model I (LRT = 17.414, p < .05), supporting the conclusion that acceptance increased reliably. However, regressed change in GAD was not found to be a significant predictor of acceptance (p > .1).

In Model II for hostility, there was a trend toward significance for the difference between passages 1 and 3 (b = -1.643, SE = 0.877, p < .1; Table 6), with mean hostility lower in the third than the first response. However, no other predictors were found to be significant, including regressed change in GAD (p > .1). Moreover, the likelihood ratio test indicated no significant difference in model fit between models I and II (p > .1).

In Model II for accommodation, there were no differences between passages (p > .1; Table 7). The likelihood ratio test also indicated no significant difference in model fit between models I and III (p > .1). However, both GAD at pretreatment (b = -0.311, SE = 0.117, p < .01) and at posttreatment (b = 0.104, SE = 0.0616, p < .05) were significant predictors of accommodation. For every increase of one unit of GAD at posttreatment, accommodation was expected to increase by 0.104 units over and above the effects of other predictors, indicating that higher levels of symptoms are associated with a greater degree of accommodating behavior in that individual's partner.

Discussion

The overarching goal of this paper was to develop the IBCT-GAD intervention and collect preliminary data on its credibility, symptom change, and possible mechanisms of action. The first issue of note is the extreme difficulty of recruiting participants for this study. With limited funds and staffing, Google Ads and Mechanical Turk were found to be highly effective at presenting information about the study to many individuals and piquing their interest sufficiently

for them to complete the screening survey. However, this sample of screened individuals did not appear to be highly motivated to continue interacting with the program in any way beyond initiating that first survey. Over half the individuals who began the screening survey did not complete it. Of the 368 who did complete it, approximately one third endorsed items such as intimate partner violence which required additional assessment by the research team but did not respond to multiple requests for follow-up. Another one-third were unable to participate because their partners did not provide screening data, despite having tips for talking to their partners and being offered the opportunity for the research team to speak with their partners. Of the remaining third, most did not meet one of the inclusion criteria, typically due to being in a competing treatment. All studies lose some participants to these categories, but the results in this study suggest the population from which we recruited may not have been well-matched to the project. Mechanical Turk workers in particular are accustomed to completing tasks relatively short in duration and may have become frustrated upon realizing how much commitment was required for this study.

Another possibility (previously mentioned in Paper 1) is that there may have been a group of individuals who were high in GAD and attracted to the OurRelationship website based on advertisements for the IBCT-GAD online program (as outlined in Paper 3). When this group reviewed the IBCT-GAD website, they also clicked through to the main OurRelationship website (at the same domain name) and learned there that they could be paid more to complete the main couple program (up to $95 per individual, versus $48 in the IBCT-GAD program). Given the structure of the public-facing website, it is not possible to determine whether or for how many couples this change in the couple's program of choice occurred. However, if it did occur, it may account in part for the high drop-out rate for the IBCT-GAD program. At various points in the

recruitment process, individuals or couples may have examined the public website, noted the higher rate of payment for the main program, and chosen to sign up for that program instead.

Given the low rate of recruitment, Study 1 was a series of in-depth case studies of the three couples who completed at least the beginning of the intervention, with reference to three aims. The first aim was to determine to what extent GAD symptoms and relationship satisfaction changed during the intervention; I hypothesized that symptoms would decrease and satisfaction would increase. The second aim was to assess change in variables that were proposed mechanisms of change. I hypothesized that participants' positive expectations about the efficacy of the program would increase. I also hypothesized that self-reported acceptance would increase, while avoidance, accommodation, and hostility would decrease. The third aim was to further describe change in these variables using data from coding participants' qualitative responses.

At this point in treatment development, these case studies can only be interpreted very cautiously. Many more individuals will need to participate in the pilot before more definitive conclusions can be drawn. However, comparing the two couples who completed the IBCT-GAD intervention is somewhat informative. The two partners with GAD (Elizabeth and Jessica) received identical severity scores after the ADIS interview. Jessica's relationship satisfaction score was much lower than Elizabeth's, but her partner Bill's was high enough to be in the non-distressed range, while Elizabeth and Trevor both scored in a mildly distressed range. Therefore, these couples were to some extent comparable at pre-treatment. However, Bill's responses throughout the program are not particularly focused on how his behavior affects his and Jessica's communication pattern in any area other than sexual intimacy. Jessica's report did indicate that Bill's tendency toward harsh criticism declined during the program. However, Bill's open-ended responses did not suggest he was aware of ways in which he may be accommodating of her

symptoms, and his scores on the self-report measure of accommodation remained similar to each other throughout the program. This pattern may explain why Jessica's GAD symptoms did not improve despite the increases in her relationship satisfaction. Moreover, her self-reported acceptance increased, but her coded acceptance was the same across passages. It is possible that this couple is one in which increased relationship satisfaction was associated with accommodation of Jessica's symptoms, rather than a joint effort to change their pattern. In the short term, accommodation is more pleasant for both partners than withholding the reassurance the GAD partner is requesting.

By contrast, Elizabeth and Trevor appeared to have made major changes in their pattern of interacting with one another. Both recognized the way their parts in the pattern were ineffective responses to Elizabeth's anxiety. Elizabeth committed to alerting Trevor to her anxiety and then returning to valued activities, rather than engaging in anxiety-driven behavior. Trevor also expressed a desire to describe unhelpful anxiety-driven patterns and "break" them rather than continue engaging in them. Both reported that at the end of the program, they had been successful in these goals of both openly acknowledging and responding differently to anxiety. Their self-reported and coded acceptance and avoidance were also in accordance with these changes. Moreover, her report of his harsh criticism decreased, while his report of his accommodation also decreased. Perhaps as a result, Elizabeth's GAD symptoms decreased, and both partners' relationship satisfaction increased.

These changes in Elizabeth and Trevor's relationship are all fully consistent with hypotheses concerning the interaction between communication patterns, relationship satisfaction, and GAD symptoms. Because these hypotheses were developed based on the literature and results of Paper 2, they offer some indication that the effect of the pilot study may be to build

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upon those results. However, it is necessary to interpret very carefully from the experiences of only a few couples.

The aim of Study 2 was to assist with interpretation of the pilot data by conducting similar mixed methods analyses using the more abundant data from the main OurRelationship program. I hypothesized that coded acceptance would increase over the course of each subsequent passage, while avoidance, accommodation, and hostility would decrease. I also expected regressed change in GAD symptoms to predict change in these variables, with decreases in symptoms resulting in increased acceptance and decreased avoidance, hostility, and accommodation.

A representative example of participants from the OurRelationship study whose GAD symptoms did not improve showed a similar pattern to Jessica and Bill's; they appear to have increased their relationship satisfaction by increasing accommodation of GAD symptoms. A couple with a partner whose GAD symptoms did improve seemed more similar to Elizabeth and Trevor in their increased awareness of how anxiety affects their communication and how to behave in a more helpful way.

The models describing the levels of coded communication variables found for each passage did not consistently demonstrate improvements from one passage to the next, as had been expected. Interpretation of the responses to these passages is complex, because they are not repeated measures; the second, third, and fourth prompts all differ from the first. A particularly important issue is the overlap between assessment and intervention in the way the prompts were presented. For example, in the self-change section of the program, participants were shown examples of individuals identifying how they could change their own behavior (rather than their partners') to improve communication patterns. Participants were then asked to provide similar

responses for themselves. The data they produced can be seen as an assessment of how accepting they are at that point in the program, but it is important to remember that they had been coached to respond in a particularly accepting way. Even the framing of the question, "what changes would you like to make in your own behavior," makes it more difficult to respond in a way that blames the partner. Therefore, these responses cannot be taken as objective assessments of participants' attitudes.

However, it is interesting to note the finding that mean acceptance did tend to be higher in passages that occurred later in the intervention, and hostility was lower in the third passage than the first, although there was no relationship between either of these differences and the changes in GAD symptoms. This result is consistent with Jessica's report of increased acceptance without any corresponding change in symptoms. It is possible that many participants applied their increased acceptance to their general relationship difficulties but did not use this knowledge to respond to their symptoms in a more accepting and psychologically flexible way (which would tend to reduce their tendency toward anxiety-driven behavior).

The results for accommodation were surprising in a different way: accommodation did not change reliably over the sample, but changes in GAD were significantly associated with any differences in coded accommodation across passages that did occur. These findings suggest shifts in accommodating behavior may a key component in a process of improvement for GAD symptoms. If this is the case, it also assists with explanation of the results for Jessica and Bill: his accommodation did not change, so her GAD symptoms were unable to improve.

In summary, although the participants in the main OurRelationship program who met criteria for GAD at baseline had not received a GAD-specific intervention, qualitative coding of their responses to the program indicated that changes in accommodation – not changes in

acceptance – were associated with changes in GAD symptoms. Although this was a fairly small sample, it was possible to identify this pattern in their responses. That pattern, in turn, was consistent with the quantitative and qualitative findings from IBCT-GAD case studies.

I had not hypothesized that changes in acceptance would be less important for improving symptoms than changes in accommodation. However, this result was found in both a pilot couple and in the codes for the OurRelationship sample. Because even this sample was very small, these conclusions remain tentative. Still, these findings about acceptance and accommodation have very interesting implications for future modifications to this program. It may be helpful for the intervention content to be modified to add more explanations and examples of how accommodation is related to communication patterns and GAD symptoms. Some focus on acceptance will continue to be needed, since it would be difficult to reduce accommodating behavior without acceptance that anxiety will temporarily increase as a result. However, a general acceptance of anxiety may be less important for partners than a commitment to reducing accommodating behavior.

If these findings are replicated in a larger pilot sample, they would have significant implications for the treatment of GAD. Nearly all the research on couples and GAD has focused on partners' hostility, with the notable exception of Zaider, Heimberg, and Iida's (2010) work. Partners' accommodation may be found to be a factor predicting lack of response to individual treatment, as was hostility (Zinbarg, Lee, & Yoon, 2007). Addressing accommodation may be an important strategy for improving the efficacy of interventions for GAD.

Replication of these findings would also have important implications for the online treatment of couples and GAD. Comparison of the rates of GAD in in-person and online samples in Paper 1 suggested that couples in which one person has GAD may be particularly likely to

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seek online modes of treatment. Therefore, it may be important to have online treatments available that are customized for this population. Additional research and modification of this intervention may make the IBCT-GAD program a valuable resource for a particularly treatment-resistant segment of the GAD population.
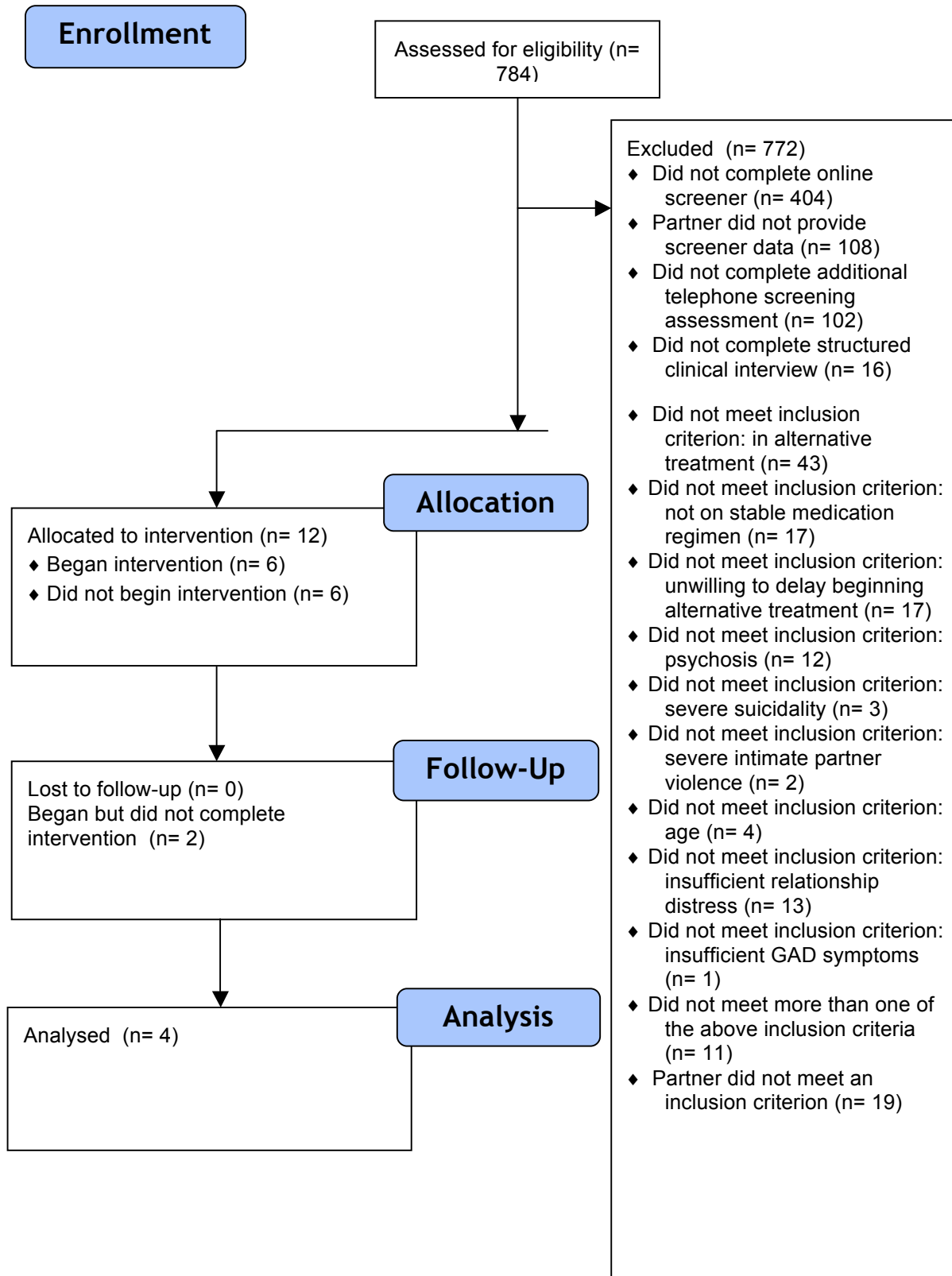
Figure 1. CONSORT flow diagram for IBCT-GAD recruitment.

Code	Level (out of 7)	Representative Excerpt
Acceptance	1	"She gets stressed and / or angry when I raise sensitive topics with her. I rarely know what these topics are. They are like hidden land mines that I step on unknowingly. How it started: A pattern of mistrust; each of us feeling like the other was trying to be manipulative… Escalation - not recognizing when emotions are heating up and making it harder to communicate."
	3	"Stress doesn't help things and we both know I stress about just pretty much everything. My emotions have always ran high but they seem higher now and I can't exactly explain that. As I get older my anxiety issues worsen and once my anxiety kicks in I am pretty much a downward spiral from there."
	5	"When we're arguing over something I feel is a little thing I can be dismissive. I don't mean to seem like I'm dismissing how you feel or not caring about it, a lot of times I don't understand why something I see as a little thing can cause such a big reaction for you... but seeming like something you're very upset about is a small thing probably feels insulting to you and makes you want to avoid dealing with things more. Sorry for sucking. :)"
	7	"From this program, we've learned to communicate better and understand each other more and willing to look deeper into the underlying reasons as to why we cannot let go of certain trails of emotions that upset us. This program has guided us to a good self checklist on what not to do during our road blocks in our relationship and to now be able to acknowledge it instead of ignoring it and giving blame and fault for the recurring patterns. We've been able to discuss each other's natural reactions and understand each other's hidden emotions and it really helps to summarize it back so the other partner really feels heard."
Avoidance	1	"I have no problem expressing my emotions clearly to you."
	3	"I feel like we don't communicate that much anymore about either of us being stressed or about our days at work."
	5	"I don't always feel safe to say what's on my mind for fear that she will think it's 'stupid' or an argument will start."
	7	"He turns to alcohol to deal with stress, whether it be me, my kids, work, his parents, his ex wife or his kids. Alcohol is his answer to dealing with his stress."
Hostility	1	"Less stress, partner is willing to talk more rather than leave and get angry."

	3	"I get annoyed when you won't accept my reassurance that things will be alright and continue to list all of the terrible things that will happen."
	5	"When we disagree about something and you get angry and refuse to talk to me it makes me feel worthless, like I'm not worth the effort to talk things through and work past our problems."
	7	"When my husband is drunk and mean, he is verbally abusing me and I can not make it stop. He scares me. He loses control and becomes a different person."
Accommodation	1	"I feel our biggest difference is I prefer to live in the now and you prefer to prepare and live in the what if's."
	3	"How I would like you to handle stress differently: Reassurance that we are ok."
	5	"When I get frustrated, I feel like I am taking on her worries as my own."
	7	"He's the assistant deli manager at a very, very busy store, and works approximately 55 hours/week. As the weeks passed, he was becoming more and more detached. I tried everything I could think of... I asked him what was wrong, if there was anything I could do, gave him space, tried to make sure he didn't have anything to do around the house... Even when I want to have a small break from the typical parental duties, I don't ask for his help because I don't want to overwhelm him after he's been working all day."

Table 1. Examples of qualitative codes using responses from the main OurRelationship study.

Module	Description	Relationship to original IBCT modules
0.1	Advertising-type content visible on the website's public face. Provides an overview of the program and what is required for participation.	Same design; minor text changes only
0.2	Registration screen. Couples enter their information so they can be contacted for more extensive screening and informed consent.	Same design; some additional questions
	OBSERVE Phase	
1	Individual: Pre-treatment assessment. Couples cannot begin the main program until both have completed these questions.	Same design; some additional questions
2	Individual: Feedback (using data from assessment) about the anxiety and relevant aspects of the relationship, putting each in a normative context.	Minor text changes only
3	Individual: Introduction to program and orientation to the website. Exercises to obtain commitment to proceed with this program using motivational interviewing techniques.	Minor text changes only
4	Joint: Review of feedback with goal of "creative hopelessness": demonstrating that previous attempts at solving these problems have evidently been unsuccessful. Introduction of mindfulness exercises, with one for couple to do together. Orientation to Understand Phase and joint selection of a date on which to have the Understand conversation.	Revised to focus on feedback rather than choosing a core issue (which is not relevant to these couples)
	UNDERSTAND Phase	
5	Individual: Overview of GAD and how it often interacts with relationships. Discussion of roles of experiential avoidance, reassurance-seeking, accommodation, and hostility. Emphasis on how maladaptive behaviors often follow from both partners' desires to make themselves (and/or the other person) feel better but ultimately interfere with the GAD partner's and the relationship's functioning.	Entirely new content
6	Individual: Psychoeducation about the biopsychosocial origins of trait anxiety and neuroticism. Activities exploring how differences between the partners on this trait and other related traits can lead to struggles. Assignment of being mindful of times when these differences operate.	Substantial revision to add information and focus examples on anxiety
7	Individual: Introduction of the concept of emotional sensitivities and how past experiences (e.g., one	Substantial revision to add information and

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	partner's experience of growing up in a family where caring was expressed through worrying) can make differences in trait anxiety more exaggerated and difficult to deal with. Activities concerning how this operates in their relationship. Assignment of being mindful of times when emotional sensitivities affect behavior.	focus examples on anxiety
8	Individual: Psychoeducation about how stressful circumstances affect GAD and relationship issues. Activities on identifying how this operates for each of them. Assignment of being mindful of stress and its effects.	Substantial revision to add information and focus examples on anxiety
9	Individual: Psychoeducation about interactional cycles common in anxiety-affected couples (e.g., hostile criticism of anxiety leading to more anxiety). Activities allowing partners to identify how this operates for them. Assignment of being mindful of interactional patterns.	Substantial revision to add information and focus examples on anxiety
10	Individual: Opportunity to revise previous responses to program activities to word the descriptions in a way that better reflects the individual's new, less-blaming understanding of the relationship.	Same design; some textual changes
11	Individual: Orientation to how the joint module (in which couples discuss their behavioral patterns) will be structured and tips for having a successful conversation.	Minor text changes only
12	Joint: Mindfulness exercise for couple to do together. Structured conversation in which partners take turns talking about what they learned. The goal is for couples to have the experience of accepting their own struggle as well as the other partner's struggle, so that they can notice and discuss these patterns more mindfully. Mid-treatment assessment. RESPOND Phase	Textual changes and addition of joint exercise
13	Individual: Psychoeducation about how mindfulness and acceptance make it possible to change one's reactions to unpleasant experiences both within and outside the relationship.	Same general structure but major textual changes
14	Individual: Values clarification activity. Both anxious and non-anxious participants identify their most important values in each area of life other than the relationship (e.g., parenting, work, community service), as well as activities that could assist them in living out those values.	Entirely new content

15	Individual: Psychoeducation about the effects of engaging in valued behaviors, rather than anxiety- or other mood-driven behaviors, during the stresses of daily life. Assignment of practicing turning toward valued behaviors in situations outside the relationship.	Entirely new content
16	Individual: Psychoeducation about the effects of engaging in valued behaviors, rather than anxiety- or other mood-driven behaviors, during difficult conversations with a partner. Assignment of practicing turning toward valued behaviors within the relationship. Psychoeducation about common patterns of communication ("Tornados and Deserts") and how individuals can change their own behavior to alter these patterns.	Entirely new content re: valued behavior. Original content re: patterns of communication.
17	Joint: Concluding module in which partners review their progress and the plans they made in the previous modules. Values clarification activity in which partners work together to identify shared values concerning the relationship (e.g., having emotionally open communication) and what behaviors would support those values. Individual post-treatment assessment. Planned individual follow-up assessments at 3-months, 6 months, and 12-months.	Some textual changes to focus on future support

Table 2. Overview of the OurRelationship program as modified for couples in which one partner has a diagnosis of Generalized Anxiety Disorder.

Code	Passage	N	Range	Mean (SD)
Avoidance	1	16	3 – 7	4.875 (1.0878)
	2	19	2 – 6.5	4.742 (1.182)
	3	6	4 – 6	5.000 (0.632)
	4	3	5 – 6	5.333 (0.577)
	5	8	3 – 6	4.750 (1.0351)
Acceptance	1	4	1 – 4	2.250 (1.258)
	2	10	1 – 6	3.550 (1.571)
	3	16	3 – 6	4.469 (1.0562)
	4	17	3 – 7	4.941 (1.259)
	5	12	1 – 6	3.958 (1.573)
Hostility	1	14	3 – 6	4.143 (1.0271)
	2	16	2 – 6	3.469 (1.284)
	3	2	1 – 4	2.500 (2.121)
	4	3	1 – 5	3.667 (2.309)
	5	7	3 – 5	4.214 (0.699)
Accommodation	1	8	2 – 6	3.625 (1.598)
	2	8	2 – 5	3.875 (1.126)
	3	5	2 – 6	4.000 (1.581)
	4	0		
	5	3	2 – 7	4.333 (2.517)

Table 3. Descriptive statistics for coded communication variables (acceptance, avoidance, hostility, and accommodation) in main OurRelationship sample.

	Model I	Model II	Model III
Parameter	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)
Fixed			
Constant	4.848 (0.142)**	4.875 (0.252)**	5.993 (0.743)**
Passage 2	-	-0.133 (0.343)	-0.121 (0.334)
Passage 3	-	0.125 (0.484)	0.192 (0.475)
Passage 4	-	0.458 (0.636)	0.473 (0.622)
Passage 5	-	-0.125 (-0.437)	-0.320 (-.452)
GAD pre	-	-	-0.0713 (0.0518)
GAD post	-	-	-0.0146 (0.0344)
Random			
Couple	0.000 (0.000)	0.000 (0.0000238)	0.000 (0.0000112)
Observation	1.0210 (0.100)*	1.010 (0.0990)*	0.985 (0.0966)*
AIC	155.734	162.622	164.015
Log likelihood	-74.867	-74.311	-73.0078

Table 4. Mixed effects models predicting level of avoidance in five passages created during the OurRelationship intervention. Predictors include dummy codes comparing the first passage to each subsequent passage, GAD symptoms at pretreatment, and GAD symptoms at posttreatment.
^ p < .1
* p < .05
** p < .01

	Model I	Model II	Model III
Parameter	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)
Fixed			
Constant	4.199 (0.192)**	2.221 (0.624)**	3.741 (1.220)**
Passage 2	-	1.344 (0.737)^	0.977 (0.769)
Passage 3	-	2.358 (0.685)**	2.132 (0.695)**
Passage 4	-	2.704 (0.682)**	2.471 (0.699)**
Passage 5	-	1.754 (0.696)*	1.597 (0.703)*
GAD pre	-	-	-0.101 (0.070)
GAD post	-	-	
Random			
Couple	0.176 (1.122)	0.567 (0.291)*	0.453 (0.361)*
Observation	1.453 (0.189)*	1.146 (0.151)*	1.165 (0.158)*
AIC	218.432	209.018	211.056
Log likelihood	-1.06.216	-97.509	-96.528

Table 5. Mixed effects models predicting level of acceptance in five passages created during the OurRelationship intervention. Predictors include dummy codes comparing the first passage to each subsequent passage, GAD symptoms at pretreatment, and GAD symptoms at posttreatment.
^ $p < .1$
* $p < .05$
** $p < .01$

	Model I	Model II	Model III
	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)
Parameter			
Fixed			
Constant	3.786 (0.191)**	4.143 (0.310)**	3.853 (0.997)**
Passage 2	-	-0.674 (0.425)	-0.619 (0.430)
Passage 3	-	-1.643 (0.877)^	-1.454 (0.941)
Passage 4	-	-0.476 (0.738)	-0.439 (0.780)
Passage 5	-	0.0714 (0.537)	0.0383 (0.536)
GAD pre	-	-	0.0327 (0.0693)
GAD post	-	-	-0.0272 (0.0422)
Random			
Couple	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Observation	1.240 (0.135)*	1.160 (0.127)*	1.154 (0.126)*
AIC	143.255	145.679	149.210
Log likelihood	-68.628	-65.840	-65.605

Table 6. Mixed effects models predicting level of hostility in five passages created during the OurRelationship intervention. Predictors include dummy codes comparing the first passage to each subsequent passage, GAD symptoms at pretreatment, and GAD symptoms at posttreatment.
^ $p < .1$
* $p < .05$
** $p < .01$

	Model I	Model II	Model III
Parameter	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)
Fixed			
Constant	3.875 (0.296)**	3.625 (0.507)**	7.658 (1.669)**
Passage 2	-	0.250 (0.717)	-0.718 (0.726)
Passage 3	-	0.375 (0.818)	-0.765 (0.833)
Passage 4	-	n/a	n/a
Passage 5	-	0.708 (0.971)	0.0115 (0.890)
GAD pre	-	-	-0.311 (0.117)**
GAD post	-	-	0.104 (0.0616)*
Random			
Couple	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Observation	1.452 (0.210)*	1.435 (0.207)*	1.257 (0.181)*
AIC	92.022	97.443	95.099
Log likelihood	-43.011	-42.721	-39.550

Table 7. Mixed effects models predicting level of accommodation in five passages created during the OurRelationship intervention. Predictors include dummy codes comparing the first passage to each subsequent passage, GAD symptoms at pretreatment, and GAD symptoms at posttreatment.
^ $p < .1$
* $p < .05$
** $p < .01$

Conclusion

The goal of these three papers was to take a programmatic approach to the development of a new dyadic treatment for GAD. The existing literature has demonstrated that treatments for GAD are less efficacious than those for other anxiety disorders (Ryan & Brawman-Mintzer, 2004) and that individuals in relationships characterized by distress are less likely to respond to standard GAD treatments (Durham, Allen, & Hackett, 1997), suggesting that relationship distress is an appropriate treatment target. Existing couple therapies target relationship distress with great success both in-person (e.g., Christensen et al., 2004) and online. Therefore, the first paper of this dissertation examined to what extent these couple therapies reduced GAD symptoms in their participants. If engaging in couple therapy alone had substantial effects on GAD symptoms, modification of the couple programs to focus on GAD would not be necessary. For the in-person IBCT/TBCT sample in which baseline levels of GAD symptoms were very low, no change was found. In the online OurRelationship sample, which had many participants appearing to meet clinical criteria for GAD, GAD symptoms did change considerably. However, as compared to waitlist control, the effect size for the OurRelationship intervention on GAD symptoms was only moderate in size. This finding suggests that additional modification of the program to focus on GAD would be warranted.

The goal of the second paper was to identify more specific targets for such a treatment. Because the existing programs targeted relationship satisfaction in general, it would be useful for the GAD-focused program to specifically aim at altering aspects of couples' relationships that are associated with GAD, in addition to targeting GAD itself. Therefore, this paper examined associations between specific interpersonal behaviors in the dyadic context and GAD symptoms. To determine to what extent these associations were robust across different types of couples,

both in-person and online, as well as both distressed and nondistressed samples were considered. Across all four samples, communication was found to be associated with GAD symptoms, with negative aspects of communication – that is, behaviors such as threatening and blaming – appearing to drive the association. Couples with one partner high in GAD symptoms had similar amounts of positive communication behavior as couples with few GAD symptoms (but relationship distress), but they had much higher levels of the negative behaviors. These findings suggested that targeting the negative communication behaviors might be particularly helpful for couples affected by GAD. Moreover, in the sample with a high incidence of both GAD symptoms and relationship distress, communication behavior was found to mediate the association between relationship satisfaction and GAD symptoms, further suggesting communication as a useful target.

Therefore, the third paper described an initial attempt at modifying the online OurRelationship program for couples to specifically address the needs of individuals with GAD and their partners. This program was designed to include aspects of existing successful acceptance- and mindfulness-based treatments for GAD (Roemer, Orsillo, & Salters-Pedneault, 2008) and existing successful acceptance-based treatments for couples (Christensen et al., 2004), together with an emphasis on the aspects of couple communication found in the literature and the previous papers to be particularly relevant to GAD. Due to difficulties with recruitment, it was not possible in this paper to complete a full test of the efficacy of this program. However, two detailed case studies of couples who completed this IBCT-GAD intervention suggested that it was a credible treatment which they expected to be beneficial. The quantitative results from their responses to the intervention were variable; one wife with GAD improved to a clinically significant degree, while the other did not. However, quantitative and qualitative investigation of

the communication patterns of both couples as they changed over time suggested that one couple may have become more satisfied through greater accommodation of the wife's GAD symptoms. The other couple showed improvements in both relationship satisfaction and GAD symptoms possibly due to decreased accommodation and increased willingness to behave in value-driven ways. These results are consistent with the qualitative findings from the OurRelationship couples high in GAD symptoms, who also showed an association between decreased accommodation and decreased symptoms.

Therefore, although the findings from this pilot study are extremely limited due to the small sample size, they are consistent with expectations based on an acceptance-based theory of GAD and couple distress, the existing literature, and findings from individuals with GAD in other dyadic interventions. This consistency suggests this intervention remains promising. Future data collection will provide additional information about the efficacy of the IBCT-GAD intervention and the mechanisms by which it operates. The hope is that this program of research will ultimately provide new opportunities for improving the quality of life of individuals with treatment-resistance GAD and their partners.

Appendix A: Measures

Dyadic Adjustment Scale (DAS; Spanier, 1976):
Most persons have disagreements in their relationships. Please indicate below the approximate extent
of agreement or disagreement between you and your partner for each item on the following list.

Always Agree / Almost Always Agree / Occasionally Disagree / Frequently Disagree / Almost Always Disagree / Always Disagree
1. Handling family finances
2. Matters of recreation
3. Religious matters
4. Demonstrations of affection
5. Friends
6. Sex relations
7. Conventionality (correct or proper behavior)
8. Philosophy of life
9. Ways of dealing with parents or in-laws
10. Aims, goals, and things believed important
11. Amount of time spent together
12. Making major decisions
13. Household tasks
14. Leisure time interests and activities
15. Career decisions

All the time / Most of the time / More often than not / Occasionally / Rarely / Never
16. How often do you discuss or have you considered divorce, separation, or terminating your relationship?
17. How often do you or your mate leave the house after a fight?
18. In general, how often do you think that things between you and your partner are going well?
19. Do you confide in your mate?
20. Do you ever regret that you married? (or lived together)
21. How often do you and your partner quarrel?
22. How often do you and your mate "get on each other's nerves?"

Every Day / Almost Every Day / Occasionally / Rarely / Never
23. Do you kiss your mate?

All of them / Most of them / Some of them / Very few of them / None of them
24. Do you and your mate engage in
outside interests together?

How often would you say the following events occur between you and your mate?
Never / Less than once a month / Once or twice a month / Once or twice a week / Once a day / More often
25. Have a stimulating exchange of ideas

26. Laugh together
27. Calmly discuss something
28. Work together on a project

These are some things about which couples sometimes agree and sometime disagree. Indicate if either
item below caused differences of opinions or were problems in your relationship during the past few
weeks. (Check yes or no)
29. Being too tired for sex.
30. Not showing love.

31. The circles on the following line represent different degrees of happiness in your relationship. The
middle point, "happy," represents the degree of happiness of most relationships. Please fill in the circle
which best describes the degree of happiness, all things considered, of your relationship.
Extremely Unhappy / Fairly Unhappy / A Little Unhappy / Happy / Very Happy / Extremely
Happy / Perfect

32. Which of the following statements best describes how you feel about the future of your relationship?
I want desperately for my relationship to succeed, and would go to almost any length to see that it does.
I want very much for my relationship to succeed, and will do all I can to see that it does.
I want very much for my relationship to succeed, and will do my fair share to see that it does.
It would be nice if my relationship succeeded, but I can't do much more than I am doing now to help it succeed.
It would be nice if it succeeded, but I refuse to do any more than I am doing now to keep the relationship going.
My relationship can never succeed, and there is no more that I can do to keep the relationship going.

COMPASS Mental Health Index (MHI; Sperry, Brill, Howard, & Grissom, 1996):
In answering the questions on this form, please respond in a way that reflects how you as an
individual are doing both within and outside of the marriage.

Subjective Well-Being
1. How upset or distressed have you been feeling? not at
all(5)/slightly(4)/pretty(3)/very(2)/extremely(1)
2. How energetic and healthy have you been feeling? not at
all(5)/slightly(4)/pretty(3)/very(2)/extremely(1)
3. How well are you getting along emotionally? quite poorly; I am barely able to deal with things
(1)/fairly poorly; life is pretty tough for me at times(2)/so-so; I am able to keep going with some
effort(3)/fairly well; I have my ups and downs(4)/quite well; I have no important complaints (5)
4. How satisfied are you with your life? not at all (5)/slightly(4)/pretty(3)/very(2)/extremely (1)

5. In general, would you say your health is: excellent(5)/very good(4)/good(3)/fair(2)/poor (1)
6. How are you functioning or managing everyday tasks in life? very well(5)/well(4)/fairly well(3)/poorly(2)/very poorly (1)

Current Life Functioning:
Options: not at all difficult(5), a little difficult(4), somewhat difficult(3), difficult(2), very difficult (1)
How difficult do your problems make it for you to:
1. Perform routine tasks
2. Get along with friends
3. Get along with people at work
4. Maintain your personal appearance.
5. Concentrate and complete tasks
6. Get things done at work or school
7. Carry out family responsibilities
8. Take part in social activities
9. Function as an independent person
10. Develop or manage your work
11. Manage your money
12. Plan and enjoy leisure time activities
13. Form or keep intimate relationships
14. Enjoy sex
15. Maintain good health habits
16. Be comfortable with people
17. Get along with family members

Current Symptoms:
Answer choices – not at all (1), once or twice (1.8), several times (2.6), often (3.4), most of the time (4.2), all of the time (5)
How often have you had each experience in the past two weeks?
1. Having thoughts over and over again that I cannot get rid of
2. Problems at work or school because of my alcohol or drug use
3. Thoughts that race through my mind
4. Feeling sad most of the day
5. Trying to push thoughts out of my head
6. Feeling guilty about my alcohol or drug use
7. Being sluggish or without energy
8. Thoughts about ending my life
9. Tension or aches in my muscles
10. Difficulty concentrating
11. Feeling hopeless about the future
12. Being irritable and easily angered
13. Afraid of leaving my home
14. Doing things over and over again to calm myself
15. Feeling ill or run-down
16. Trouble falling asleep

17. Feeling worthless
18. Shortness of breath or rapid heartbeat (not caused by physical exertion)
19. Not enjoying things as much as I used to
20. Very strong mood swings (high and lows)
21. Difficulty making decisions
22. Troubling events in my daily life
23. Bothered by a specific fear
24. Problems with my health because of my alcohol or drug use
25. Feeling tense or anxious
26. Having to avoid certain places or situations because of being afraid
27. Worrying too much about unimportant things
28. Experiencing a great deal of stress
29. Periods of intense fear that seem out of place or out of proportion
30. Problems with my family or friends because of my alcohol or drug use
31. Wanting to hit someone or something
32. Having very unusual thoughts or beliefs
33. Feeling very excited, high, or "hyper"

<u>Couples Satisfaction Inventory</u> (CSI-32; Funk & Rogge, 2007):

1. Please indicate the degree of happiness, all things considered, of your relationship.

Extremely Unhappy	Fairly Unhappy	A Little Unhappy	Happy	Very Happy	Extremely Happy	Perfect
0	**1**	**2**	**3**	**4**	**5**	**6**

Most people have disagreements in their relationships. Please indicate below the approximate extent of agreement or disagreement between you and your partner for each item on the following list.

	Always Agree	Almost Always Agree	Occa- sionally Disagree	Fre- quently Disagree	Almost Always Disagree	Always Disagree
2. Amount of time spent together	5	4	3	2	1	0
3. Making major decisions	5	4	3	2	1	0
4. Demonstrations of affection	5	4	3	2	1	0

	All the time	Most of the time	More often than not	Occa- sional ly	Rarel y	Neve r
5. In general, how often do you think that	5	4	3	2	1	0

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things between you and your partner are going well?

6. How often do you wish you hadn't gotten into this relationship?	0	1	2	3	4	5

	Not at all TRUE	A little TRUE	Some-what TRUE	Mostly TRUE	Almost Completely TRUE	Completely TRUE
7. I still feel a strong connection with my partner	0	1	2	3	4	5
8. If I had my life to live over, I would marry (or live with / date) the same person	0	1	2	3	4	5
9. Our relationship is strong	0	1	2	3	4	5
10. I sometimes wonder if there is someone else out there for me	5	4	3	2	1	0
11. My relationship with my partner makes me happy	0	1	2	3	4	5
12. I have a warm and comfortable relationship with my partner	0	1	2	3	4	5
13. I can't imagine ending my relationship with my partner	0	1	2	3	4	5
14. I feel that I can confide in my partner about virtually anything	0	1	2	3	4	5
15. I have had second thoughts about this relationship recently	5	4	3	2	1	0
16. For me, my partner is the perfect romantic partner	0	1	2	3	4	5
17. I really feel like **part of a team** with my partner	0	1	2	3	4	5
18. I cannot imagine another person making me as happy as my partner does	0	1	2	3	4	5

	Not at all	A little	Some-what	Mostly	Almost Completely	Completely
19. How rewarding is your relationship with your partner?	0	1	2	3	4	5
20. How well does your partner meet your needs?	0	1	2	3	4	5
21. To what extent has your	0	1	2	3	4	5

relationship met your original expectations?

22. In general, how satisfied are you with your relationship?   0   1   2   3   4   5

	Worse than all others (Extremely bad)			Better than all others (Extremely good)

23. How good is your relationship compared to most?   0 1 2 3 4 5

	Never	Less than once a month	Once or twice a month	Once or twice a week	Once a day	More often
24. Do you enjoy your partner's company?	0	1	2	3	4	5
25. How often do you and your partner have fun together?	0	1	2	3	4	5

For each of the following items, select the answer that best describes *how you feel about your relationship*. Base your responses on your first impressions and immediate feelings about the item.

26.	INTERESTING	5	4	3	2	1	0	BORING
27.	BAD	0	1	2	3	4	5	GOOD
28.	FULL	5	4	3	2	1	0	EMPTY
29.	LONELY	0	1	2	3	4	5	FRIENDLY
30.	STURDY	5	4	3	2	1	0	FRAGILE
31.	DISCOURAGING	0	1	2	3	4	5	HOPEFUL
32.	ENJOYABLE	5	4	3	2	1	0	MISERABLE

GAD-7 (Spitzer, Kroenke, Williams, & Lowe, 2006):
Over the last week, how often have you been bothered by the following problems?

Not at all   0
Several Days   1
Over half the days   2
Nearly Every day   3

1. Feeling nervous, anxious or on edge
2. Not being able to stop or control worry.
3. Worrying too much about different things.
4. Trouble relaxing.
5. Being so restless that it's hard to sit still.
6. Becoming easily annoyed or irritated.

7. Feeling afraid something awful might happen.

<u>Overall Anxiety Severity and Impairment Scale</u> (OASIS; Campbell-Sills et al., 2009):
The following items ask about anxiety and fear. For each item, circle the number for the answer
that best describes your experience over the past week.

1. In the past week, how often have you felt anxious?
1 - No anxiety in the past week.
2 - Infrequent anxiety. Felt anxious a few times.
3 - Occasional anxiety. Felt anxious as much of the time as not. It was hard to relax.
4 - Frequent anxiety. Felt anxious most of the time. It was very difficult to relax.
5 - Constant anxiety. Felt anxious all of the time and never really relaxed.

2. In the past week, when you have felt anxious, how intense or severe was your anxiety?
1 - Little or None: Anxiety was absent or barely noticeable.
2 - Mild: Anxiety was at a low level. It was possible to relax when I tried. Physical symptoms
were only slightly uncomfortable.
3 - Moderate: Anxiety was distressing at times. It was hard to relax or concentrate, but I could do
it if I tried. Physical symptoms were uncomfortable.
4 - Severe: Anxiety was intense much of the time. It was very difficult to relax or focus on
anything else. Physical symptoms were extremely uncomfortable.
5 - Extreme: Anxiety was overwhelming. It was impossible to relax at all. Physical symptoms
were unbearable.

3. In the past week, how often did you avoid situations, places, objects, or activities because of
anxiety or fear?
1 - None: I do not avoid places, situations, activities, or things because of fear.
2 - Infrequent: I avoid something once in a while, but will usually face the situation or confront
the object. My lifestyle is not affected.
3 - Occasional: I have some fear of certain situations, places, or objects, but it is still
manageable. My lifestyle has only changed in minor ways. I always or almost always avoid the
things I fear when I'm alone, but can handle them if someone comes with me.
4 - Frequent: I have considerable fear and really try to avoid the things that frighten me. I have
made significant changes in my life style to avoid the object, situation, activity, or place.
5 - All the Time: Avoiding objects, situations, activities, or places has taken over my life. My
lifestyle has been extensively affected and I no longer do things that I used to enjoy.

4. In the past week, how much did your anxiety interfere with your ability to do the things you
needed to do at work, at school, or at home?
1 - None: No interference at work/home/school from anxiety
2 - Mild: My anxiety has caused some interference at work/home/school. Things are more
difficult, but everything that needs to be done is still getting done.
3 - Moderate: My anxiety definitely interferes with tasks. Most things are still getting done, but
few things are being done as well as in the past.
4 - Severe: My anxiety has really changed my ability to get things done. Some tasks are still

being done, but many things are not. My performance has definitely suffered.
5 - Extreme: My anxiety has become incapacitating. I am unable to complete tasks and have had to leave school, have quit or been fired from my job, or have been unable to complete tasks at home and have faced consequences like bill collectors, eviction, etc.

5. In the past week, how much has anxiety interfered with your social life and relationships?
1 - None: My anxiety doesn't affect my relationships.
2 - Mild: My anxiety slightly interferes with my relationships. Some of my friendships and other relationships have suffered, but, overall, my social life is still fulfilling.
3 - Moderate: I have experienced some interference with my social life, but I still have a few close relationships. I don't spend as much time with others as in the past, but I still socialize sometimes.
4 - Severe: My friendships   and   other relationships have suffered a lot because of anxiety. I do not enjoy social activities. I socialize very little.
5 - Extreme: My anxiety has completely disrupted my social activities. All of my relationships have suffered or ended. My family life is extremely strained.

Beck Depression Inventory II (BDI-II; Beck, Steer, & Brow, 1996):
This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick the one statement in each group that best describes the way you have been feeling during the past two weeks, including today. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

1. Sadness
0   I do not feel sad.
1   I feel sad much of the time.
2   I am sad all the time.
3   I am so sad or unhappy that I can't stand it.

2. Pessimism
0   I am not discouraged about my future.
1   I feel more discouraged about my future than I used to be.
2   I do not expect things to work out for me.
3   I feel my future is hopeless and will only get worse.

3. Past Failure
0   I do not feel like a failure.
1   I have failed more than I should have.
2   As I look back, I see a lot of failures.
3   I feel I am a total failure as a person.

4. Loss of Pleasure
0   I get as much pleasure as I ever did from the things I enjoy.
1   I don't enjoy things as much as I used to.

2 I get very little pleasure from the things I used to enjoy.
3 I can't get any pleasure from the things I used to enjoy.

5.Guilty Feelings
0 I don't feel particularly guilty.
1 I feel guilty over many things I have done or should have done.
2 I feel quite guilty most of the time.
3 I feel guilty all of the time.

6. Punishment Feelings
0 I don't feel I am being punished.
1 I feel I may be punished.
2 I expect to be punished.
3 I feel I am being punished.

7. Self-Dislike
0 I feel the same about myself as ever.
1 I have lost confidence in myself.
2 I am disappointed in myself.
3 I dislike myself.

8. Self-Criticalness
0 I don't criticize or blame myself more than usual.
1 I am more critical of myself than I used to be.
2 I criticize myself for all my faults.
3 I blame myself for everything bad that happens.

9. Suicidal thoughts or Wishes
0 I don't have any thoughts of killing myself.
1 I have thoughts of killing myself, but I would not carry them out.
2 I would like to kill myself.
3 I would kill myself if I had the chance.

10. Crying
0 I don't cry anymore than I used to.
1 I cry more than I used to.
2 I cry over every little thing.
3 I feel like crying, but I can't.

11. Agitation
0 I am no more restless or wound up than usual.
1 I feel more restless or wound up than usual.
2 I am so restless or agitated that it's hard to stay still.
3 I am so restless or agitated that I have to keep moving or doing something.

12. Loss of Interest

0   I have not lost interest in other people or activities.
1   I am less interested in other people or things than before.
2   I have lost most of my interest in other people or things.
3   It's hard to get interested in anything.

13. Indecisiveness
0   I make decisions about as well as ever.
1   I find it more difficult to make decisions than usual.
2   I have much greater difficulty in making decisions than I used to.
3   I have trouble making any decisions.

14. Worthlessness
0   I do not feel I am worthless.
1   I don't consider myself as worthwhile and useful as I used to.
2   I feel more worthless as compared to other people.
3   I feel utterly worthless.

15. Loss of Energy
0   I have as much energy as ever.
1   I have less energy than I used to have.
2   I don't have enough energy to do very much.
3   I don't have enough energy to do anything.

16. Changes in Sleeping Pattern
0   I have not experienced any change in my sleeping pattern.
1a   I sleep somewhat more than usual.
1b   I sleep somewhat less than usual.
2a   I sleep a lot more than usual.
2b   I sleep a lot less than usual.
3a   I sleep most of the day.
3b   I wake up 1-2 hours early and can't get back to sleep.

17. Irritability
0   I am no more irritable than usual.
1   I am more irritable than usual.
2   I am much more irritable than usual.
3   I am irritable all the time.

18. Changes in Appetite
0   I have not experienced any change in my appetite.
1a   My appetite is somewhat less than usual.
1b   My appetite is somewhat greater than usual.
2a   My appetite is much greater than usual.
3a   I have no appetite at all.
3b   I crave food all the time.

19. Concentration Difficulty
0   I can concentrate as well as ever.
1   I can't concentrate as well as usual.
2   It's hard to keep my mind on anything for very long.
3   I find I can't concentrate on anything.

20. Tiredness or Fatigue
0   I am no more tired or fatigued than usual.
1   I get more tired or fatigued more easily than usual.
2   I am too tired or fatigued to do a lot of the things I used to do
3   I am too tired or fatigued to do most of the things I used to do.

21. Loss of Interest in Sex
0   I have not noticed any recent change in my interest in sex.
1   I am less interested in sex than I used to be.
2   I am much less interested in sex now.
3   I have lost interest in sex completely.

Revised Behavior and Symptom Identification Scale (BASIS-R; Niv, Cohen, Mintz, Ventura, & Young, 2007):
Below is a list of things some people experience. Using the scale below, fill in the box with the answer that best describes how often this has occurred IN THE PAST WEEK. 0 = never, 1 = rarely, 2 = sometimes, 3 = often and 4 = always.
1. Thinking that you have special powers
2. Hearing voices or seeing things others cannot see
3. Thinking people are watching you
4. Thinking people are against you

Couples Satisfaction Inventory (CSI-16; Funk & Rogge, 2007):

1. Please indicate the degree of happiness, all things considered, of your relationship.

Extremely Unhappy	Fairly Unhappy	A Little Unhappy	Happy	Very Happy	Extremely Happy	Perfect
0	**1**	**2**	**3**	**4**	**5**	**6**

	All the time	Most of the time	More often than not	Occa-sional ly	Rarel y	Neve r
2. In general, how often do you think that things between you and your partner are going well?	5	4	3	2	1	0

	Not at all TRUE	A little TRUE	Some-what TRUE	Most-ly TRUE	Almost Complet-ely TRUE	Complet-ely TRUE
3. Our relationship is strong	0	1	2	3	4	5
4.My relationship with my partner makes me happy	0	1	2	3	4	5
5.I have a warm and comfortable relationship with my partner	0	1	2	3	4	5
6. I really feel like **part of a team** with my partner	0	1	2	3	4	5

	Not at all	A little	Some-what	Most-ly	Almost Complete-ly	Complete-ly
7. How rewarding is your relationship with your partner?	0	1	2	3	4	5
8. How well does your partner meet your needs?	0	1	2	3	4	5
9. To what extent has your relationship met your original expectations?	0	1	2	3	4	5
10. In general, how satisfied are you with your relationship?	0	1	2	3	4	5

For each of the following items, select the answer that best describes *how you feel about your relationship*. Base your responses on your first impressions and immediate feelings about the item.

11.	INTERESTING	5	4	3	2	1	0	BORING
12.	BAD	0	1	2	3	4	5	GOOD
13.	FULL	5	4	3	2	1	0	EMPTY
14.	STURDY	5	4	3	2	1	0	FRAGILE
15.	DISCOURAGING	0	1	2	3	4	5	HOPEFUL
16.	ENJOYABLE	5	4	3	2	1	0	MISERABLE

Couple Questionnaire (Christensen, 2009):
Many people, at one time or another, get physical with their partners with they're angry. For example, some people threaten to hurt their partners, some push or shove, and some slap or hit. Put a check by any items which have occurred in the last year.

a.____ When my partner and I had a disagreement or argument, I engaged in an act of

physical aggression against my partner such as pushing, slapping, shoving, hitting, beating, or some other act of aggression.

      b.____   When my partner and I had a disagreement or argument, my partner engaged in an act of physical aggression against me such as pushing, slapping, shoving, hitting, beating, or some other act of aggression.

      c.____   All things considered, I did not feel I could express my opinion at times without fear of physical reprisal from my partner (e.g., partner physically punishing me for what I have said).

<u>Credibility and Expectancy Questionnaire</u> (CEQ; Devilly & Borkovec, 2000):

We would like you to indicate below how much you believe, right now, that the therapy you are receiving will help to reduce your anxiety. Belief usually has two aspects to it: (1) what one thinks will happen and (2) what one feels will happen. Sometimes these are similar; sometimes they are different. Please answer the questions below. In the first set, answer in terms of what you think. In the second set answer in terms of what you really and truly feel. We do not want your therapist to ever see these ratings, so please keep the sheet covered when you are done.

Set I

1. At this point, how logical does the therapy offered to you seem?

1	2	3	4
	5	6	7
	8	9	
not at all logical	somewhat logical	very logical	

2. At this point, how successful do you think this treatment will be in reducing your or your partner's anxiety symptoms?

1	2	3	4
	5	6	7
	8	9	
not at all useful	somewhat useful	very useful	

3. How confident would you be in recommending this treatment to a friend who experiences similar problems?

1	2	3	4
	5	6	7
	8	9	
not at all confident	somewhat confident	very confident	

4. By the end of the therapy period, how much improvement in your or your partner's anxiety symptoms do you think will occur?

0%	10%	20%	30%
	40%	50%	60%
	70%	80%	90%
	100%		

Set II

For this set, close your eyes for a few moments, and try to identify what you really feel about the therapy and its likely success. Then answer the following questions.

1. At this point, how much do you really feel that therapy will help you to reduce your or your partner's anxiety symptoms?

1	2	3	4
	5	6	7
	8	9	
not at all	somewhat	very much	

2. By the end of the therapy period, how much improvement in your or your partner's anxiety symptoms do you really feel will occur?

0%	10%	20%	30%
	40%	50%	60%
	70%	80%	90%
	100%		

Generalized Anxiety Disorder Questionnaire IV (GAD-Q-IV; Newman et al., 2002):

1. Do you experience excessive worry? YES NO

2. Is your worry excessive in intensity, frequency, or amount of distress it causes? YES NO

3. Do you find it difficult to control the worry (or stop worrying) once it starts? YES NO

4. Do you worry excessively or uncontrollably about minor things such as being late for an appointment, minor repairs, homework, etc.? YES NO

5. Please list the most frequent topics about which you worry excessively or uncontrollably:

_____

_____

_____

6. During the last six months, have you been bothered by excessive worries more days than not? YES NO

7. During the past six months , have you often been bothered by any of the following symptoms?
 - restlessness or feeling keyed up or on edge
 - being easily fatigued
 - difficulty concentrating or mind going blank
 - irritability
 - muscle tension
 - difficulty falling/staying asleep or restless/unsatisfying sleep

8. How much do worry and physical symptoms interfere with your life, work, social activities, family, etc.?

*   *   *   *   *   *   *   *   *
None   Moderate   Mild   Severe   Very Severe

9. How much are you bothered by worry and physical symptoms (how much distress does it cause you)?

*   *   *   *   *   *   *   *   *
None   Moderate   Mild   Severe   Very Severe

<u>Penn State Worry Questionnaire</u> (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990):
Instructions: Rate each of the following statements on a scale of 1 ("not at all typical of me") to 5 typical of me"). Please do not leave any items blank.

1. If I do not have enough time to do everything, I do not worry about it.
2. My worries overwhelm me.
3. I do not tend to worry about things.
4. Many situations make me worry.
5. I know I should not worry about things, but I just cannot help it.
6. When I am under pressure I worry a lot.
7. I am always worrying about something.
8. I find it easy to dismiss worrisome thoughts.
9. As soon as I finish one task, I start to worry about everything else I have to do.
10. I never worry about anything.
11. When there is nothing more I can do about a concern, I do not worry about it anymore.
12. I have been a worrier all my life.
13. I notice that I have been worrying about things.
14. Once I start worrying, I cannot stop.
15. I worry all the time.
16. I worry about projects until they are all done.

<u>Acceptance and Action Questionnaire</u> (AAQ; Hayes, Strosahl, et al., 2004):
Below you will find a list of statements. Please rate the truth of each statement as it applies to you. Use the following scale to make your choice. 1: Never True; 2: Very Rarely True; 3: Seldom True; 4: Sometimes True; 5: Frequently True; 6: Almost Always True; 7: Always True.

1.   I am able to take action on a problem even if I am uncertain what is the right thing to do.
2.   I often catch myself daydreaming about things I've done and what I would do differently next time.
3.   When I feel depressed or anxious, I am unable to take care of my responsibilities.
4.   I rarely worry about getting my anxieties, worries, and feelings under control.

5. I'm not afraid of my feelings.
6. When I evaluate something negatively, I usually recognize that this is just a reaction, not an objective fact.
7. When I compare myself to other people, it seems that most of them are handling their lives better than I do.
8. Anxiety is bad.
9. If I could magically remove all the painful experiences I've had in my life, I would do so.

Perceived Criticism Measure-Type (PCM-T; Renshaw, Blais, & Caska, 2010):
On a scale from 1 (not at all constructively/harshly critical) to 10 (very constructively/harshly critical):
1. How much do you think your partner criticizes you in a helpful, constructive way?
2. How much do you think your partner criticizes you in a harsh, hurtful way?

Family Accommodation Questionnaire-Modified (FAQ-M; Zaider, Heimberg, & Iida, 2010):
In the past month:

1. How often did you reassure your partner?

0	Never
1	1-3 times/month
2	1 or 2 times/week
3	3-6 times/week
4	Daily

2. How often did you assist your partner in avoiding things that might make him or her more anxious?

0	Never
1	1-3 times/month
2	1 or 2 times/week
3	3-6 times/week
4	Daily

3. Have you avoided doing things, going places, or being with people because of your partner's anxiety?

0	Never
1	1-3 times/month
2	1 or 2 times/week
3	3-6 times/week
4	Daily

4. To what degree have you modified your family routine because of your partner's anxiety?

0	No
1	Mild
2	Moderate
3	Severe

4   Extreme

5. To what degree have you had to do things for the family that are usually your partner's responsibility?

0	No
1	Mild
2	Moderate
3	Severe
4	Extreme

6. To what degree have you modified your work schedule because of your partner's needs?

0	No
1	Mild
2	Moderate
3	Severe
4	Extreme

7. To what degree have you modified your leisure activities because of your partner's needs?

0	No
1	Mild
2	Moderate
3	Severe
4	Extreme

8. Does helping your partner in these ways cause you distress?

0	No
1	Mild
2	Moderate
3	Severe
4	Extreme

9. Has your partner become distressed/anxious when you have not provided assistance? To what degree?

0	No
1	Mild
2	Moderate
3	Severe
4	Extreme

10. Has your partner become angry/abusive when you have not provided assistance? To what degree?

0	No
1	Mild
2	Moderate
3	Severe
4	Extreme

Communication Patterns Questionnaire (CPQ-CC; Heavey, Larson, Zumtobel, & Christensen, 1996):
Please rate the how likely this pattern is to occur in your relationship, from 1 (very unlikely) to 9 (very likely).

1. Mutual discussion: both members try to discuss the problem
2. Mutual blame: both members blame, accuse, and criticize each other
3. Mutual expression: both members express their feelings to each other
4. Mutual threat: both members threaten each other with negative consequences
5. Mutual negotiation: both members suggest possible solutions and compromises
6. Verbal aggression: man calls woman names, swears at her, or attacks her character
7. Verbal aggression: woman calls man names, swears at him, or attacks his character

Communication During Conflict Questionnaire (CDCQ; Christensen, 2010):
When couples have disagreements, they often engage in negative behaviors like those below. In item A below, you will indicate how your partner typically behaves during problematic conflict. In item B below, you will indicate how you typically behave during problematic conflict.

A. During conflicts my partner is most likely to (**circle the number of only <u>one</u> category** below and **check all the behaviors** that your partner does within that category)

1. Move against me by
   ____ Criticizing, blaming, fault finding, attacking, finger pointing
   ____ Demanding, nagging, pressuring, reminding, pushing
   ____ Controlling, competing, showing who is right, allying with others against me
   ____ Arguing, escalating, exaggerating

2. Move away from me by
   _____ Withdrawing, escaping, avoiding, distancing, shutting down
   _____ Hiding, evading, being secretive, misleading
   _____ Dismissing, minimizing, denying my concerns, resisting my efforts
   _____ Defending, justifying, explaining self

3. Hang on to me by
   _____ Pursuing, clinging, hovering, not letting me go
   _____ Intruding, invading, being nosey
   _____ Questioning, investigating, monitoring, keeping watch over me

B. During conflicts, I am most likely to (**circle the number of only <u>one</u> category** below and **check all the behaviors** that you do within that category)

1. Move against partner by
   ____ Criticizing, blaming, fault finding, attacking, finger pointing
   ____ Demanding, nagging, pressuring, reminding, pushing
   ____ Controlling, competing, showing who is right

_____ Arguing, escalating, exaggerating

2. Move away from partner by
_____ Withdrawing, escaping, avoiding, distancing, shutting down
_____ Hiding, evading, being secretive, misleading
_____ Dismissing, minimizing, denying partner's concerns, resisting his/her efforts
_____ Defending, justifying, explaining self

3. Hang on to partner by
_____ Pursuing, clinging, hovering, not letting me go
_____ Intruding, invading, being nosey
_____ Questioning, investigating, monitoring, keeping watch over partner

Appendix B: Clinical Overview of the IBCT-GAD Intervention

IBCT-GAD is a modification of Integrative Behavioral Couple Therapy (IBCT) aimed specifically at couples in which at least one partner has Generalized Anxiety Disorder (GAD) and both believe these symptoms affect their relationship. Its conceptualization of both the GAD and the relational distress falls into the category of the "third wave" of behaviorism; that is, it is acceptance- and mindfulness-based.

This theory of GAD (drawn from Orsillo, Roemer, & Barlow, 2003; as well as Hayes, Wilson, Gifford, Follette, & Stosahl, 1996) states that the "problem" is not the experience of anxiety, it is the choice to respond to this anxiety in an "experientially avoidant" way. Experiential avoidance is any behavior intended to change the nature of the individual's internal experience, i.e., the experience of anxiety. The avoidance behavior most classically associated with GAD is worry: "a predominantly verbal-linguistic attempt to avoid future aversive events" (Borkovec, 1994, p. 7). Although this may not be intuitive, there is evidence that worry functions to temporarily reduce an individual's anxiety; it is less arousing to engage in verbal-linguistic processes than to fully attend to the visual image of a feared scenario (Borkovec, Alcaine, & Behar, 2004). Other behaviors used to avoid the experience of anxiety can include asking others for reassurance that the feared event will not happen (which also tends to reduce anxiety), spending a great deal of time in distracting activities (e.g., watching television), or refusing to engage in behaviors associated with the content of worry (e.g., not taking a promotion because of fear of failure).

This kind of avoidance may at times be benign, and indeed, worry can be helpful if it quickly results in problem-solving that prevents a feared event from occurring. However,

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unproductive worry does not result in actual problem-solving, only in temporarily reduced anxiety about the feared event, and therefore it has an avoidant function. Experiential avoidance of anxiety is problematic for several reasons. It prevents extinction learning: the individual prevents himself or herself from having an opportunity to learn on a behavioral level that despite the experience of anxiety, the feared event does not happen, and therefore extinction does not occur. Similarly, avoidance prevents the individual from accessing disconfirming evidence ("even though I thought I had a tumor, I didn't") that would alter cognitive misappraisals. Avoidance also prevents simple habituation: with sustained exposures to the feared idea, the individual's anxious response to this idea is likely to diminish on its own for physiological reasons. Moreover, avoidance prevents the individual from learning that even if the anxiety does not diminish, he or she is able to acquire coping skills and therefore develop a sense of self-efficacy.

Some anxious individuals might respond that they are happy to keep their avoidant-type coping and do not see the need to develop new learning or skills so long as they are managing. However, experiential avoidance is most clearly detrimental in how it often prevents individuals from engaging in valued life activities: work, pursuing a hobby, maintaining friendships, and so forth. For example, time spent in worry may negatively affect a student's class performance, choosing to distract from rather than addressing health concerns may prevent an individual from getting needed medical care, and – particularly important for this intervention – frequent reassurance-seeking behavior may irritate an individual's partner or other family members. As defined in the DSM-IV-TR, individuals with GAD must be those who not only engage in frequent worry but also experience significant distress or impaired functioning as a result (American Psychiatric Association, 2000). Therefore, for individuals who meet criteria for GAD,

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it is reasonable to ask in what way their responses to their anxiety are resulting in this impairment.

Following this conceptualization, the general approach to treating GAD taken by third-wave therapies such as Mindfulness-Based Cognitive Therapy (Evans et al., 2008), Acceptance and Commitment Therapy (Hayes, Strosahl, & Wilson, 1999), and Acceptance-Based Behavior Therapy (Roemer & Orsillo, 2005) is to teach patients to be more mindfully aware of their experience of anxiety (and how they tend to respond to it), accept that they tend to become anxious, become willing to experience anxiety rather than avoid it, clarify their values, identify behaviors associated with these values that they could be engaging in, and commit to engaging in these behaviors even when they are feeling anxious or afraid. For example, an individual who becomes anxious when she considers the possibility that her partner will leave her may experience an urge to ask him again whether he really unconditionally loves her. However, instead, she will notice the anxiety and the urge, accept that she is feeling this but still has a choice about her response, remind herself of her commitment to nurturing her relationship with her partner, and choose to ask him about his day in order to engage in a supportive conversation.

IBCT's intervention strategy for couples is similarly based on a principle of acceptance (Christensen et al., 2004). Its theory of relationship distress states that although couples often attribute their conflicts to personality differences, in actuality all couples have such differences, and conflicts do not always result. Instead, certain influential experiences in association with these differences – and certain behavioral responses to the differences – are what result in clinical-level distress. For example, many couples differ in their basic likelihood of experiencing anxiety, possibly due to differences in behavioral inhibition (e.g., Kagan, 1989), neuroticism

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(Eysenck, 1981), or emotional vulnerability (Linehan, 1993). Yet, not all relationships between a relatively high-anxiety partner and a relatively low-anxiety partner are distressed.

If either partner has past experiences that create "emotional sensitivities" or concerns around the topic of anxiety, this difference is more likely to become problematic. For example, a highly anxious individual with a childhood experience of being often told that she was foolish to worry so much (see Linehan, 1993, for a more thorough description of this type of "invalidating environment") may be more likely to be troubled when she observes that she feels much more anxious about the household finances than her partner does. Conversely, a highly anxious person who grew up in a family in which worry about family members was equated with caring about them may be bothered by his partner's lack of worry. Or, a low-anxiety individual whose previous partner refused to work outside the home because of his severe panic disorder may be unusually concerned about a moderate level of generalized anxiety in her current partner. These kinds of developed sensitivities determine which of the many differences between two people are likely to be the ones that result in relationship difficulties.

Also, differences are more likely to cause problems during times of stress. Conflicts over a GAD individual's worry about money are likely to be less acute if the family is financially stable than if one individual is unemployed. Moreover, the extent to which both partners are able to cope with one individual's anxious tendencies may become limited by the burden of other stressors, even ones unrelated to the topics of anxiety.

Lastly, the two partners' behavioral choices about how to respond to these differences, sensitivities, and stressors strongly influence to what extent the differences will become problems. As was described in Study II, partners' communication behaviors can be usefully classified into three types (Horney, 1937; Christensen, 2010). "Moving against" the partner

includes demanding, criticizing, controlling, and arguing. "Moving away from" the partner is withdrawing, avoiding, dismissing, and evading. "Hanging on to" (or, "moving anxiously toward") the partner is clinging, pursuing, and monitoring (Christensen, 2010). These behaviors by each partner then combine into dyadic patterns (such as demand/withdraw; Eldridge & Christensen, 2002). Of course, partners may also communicate in constructive ways, such as sharing their views and feelings or negotiating compromises.

As suggested above, there are many behaviors individuals with GAD may use to avoid the experience of anxiety that are visible to and have an effect on their partners: worrying out loud, asking for reassurance that the feared event will not occur (e.g., asking the other partner to say they will stay together forever), spending time engaged in worry (including frequent checking, excessive research, and over-preparing) rather than engaging in important tasks, and refusing to approach situations that are likely to increase anxiety (such as going to work). When these behaviors involve communication with the partner, they tend to fall into the category of "hanging on to" communication behaviors. However, individuals with GAD may also use aggressive "moving against" behaviors, as when demanding that the other partner change in a way that will alleviate their anxiety. For example, someone who is highly anxious about their infant's safety may criticize and make demands of their partner until the other partner changes his or her parenting practices. Alternatively, a GAD individual may engage in "moving away from" withdrawal-type behaviors, perhaps in refusing to discuss the topic of anxiety with the other partner at all.

The ineffective communication behaviors of non-GAD partners seem to fall into two broad categories: those that are aggressively critical of the GAD partner's avoidant behaviors and those that are accommodating of these behaviors. Observing how much time GAD

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individuals spend attempting to reduce their anxiety can become frustrating for many partners, who then respond by criticizing these behaviors and using other "moving against" tactics to push them to stop. This is a pattern commonly observed in the families of individuals with mental illness (e.g., Leff & Vaughn, 1985). Note that like the GAD partner's behaviors, the non-GAD partner's behaviors can also be understood as a type of experiential avoidance. In this case, the emotional experiences non-GAD individuals are attempting to avoid may be frustration, guilt or shame, or possibly their own anxiety about the possible consequences of the GAD person's behavior.

The second pattern of responding to anxious behavior has been primarily described for families of patients with Obsessive-Compulsive Disorder, but appears to apply to all anxiety disorders: accommodation of symptoms (Geffken et al., 2006). Accommodation is any behavior that assists the individual in engaging in avoidance behavior. Many people would find it understandable that, for example, a person concerned about an upcoming doctor's appointment would want to spend hours on the computer researching explanations for her symptoms rather than attend a planned engagement. Therefore, her partner might be willing to cancel for her, help her research, listen to her worrying, and reassure her that she will be fine. The communication behaviors of this type are best described as the "hanging on to" type. However, accommodation can also be a "moving away from" behavior when it looks like simply withdrawing from the anxious partner. Withdrawal is functionally accommodating of symptoms when it allows the GAD partner to engage in avoidance behavior without the typical natural consequence of mild negative feedback from others along with encouragement to engage in more appropriate behavior. All these behaviors by the non-GAD partner are also most likely attempts to reduce his or her feelings of anxiety, guilt, or perhaps sadness about the GAD partner's quality of life.

Over time, the combination of "moving against," "moving away from," and "hanging on to" communication behaviors used by each partner is likely to exacerbate the initial effect of their differences and emotional sensitivities. Couples often find themselves in a "trap" where, for example, the only way the high-anxiety partner can think of to alleviate her anxiety is to continue asking for reassurance, while the only way the low-anxiety partner can think of to alleviate his frustration about the time spent reassuring her is to criticize her for being so anxious. Both partners' reactions only increase the intensity of the other person's responding, and no resolution is found.

IBCT is based on the idea that differences and emotional sensitivities are phenomena that are best accepted rather than changed. Partners' efforts to change one another's basic personality traits and emotional response patterns in order to reduce short-term distress have typically ended in damage to the relationship, much as efforts to briefly reduce anxious responses often result in impaired occupational and social functioning. Couples who are able to accept and even identify the positives in each other's traits often paradoxically find this increases their ability to change what can be changed: their patterns of communication (Jacobson & Christensen, 1996).

There are two primary types of acceptance promoted by IBCT: unified detachment and empathic joining. Unified detachment is a couple's ability to mindfully observe the pattern of interaction between the two of them, even developing a functional analysis or conceptualization of these events in much the way that a couple therapist would. Indeed, it has been described as a form of dyadic mindfulness (McGinn, Benson, & Christensen, 2010). A couple that is observing their own interactions is one that is able to accept that these events occurred (rather than, e.g., each denying their own role) and approach the challenge of understanding them better as a team,

rather than as adversaries. This goal is parallel to the anxious individual's goal of being able to mindfully observe anxiety without necessarily reacting with the behaviors it inspires.

Empathic joining is two partners' emotional experience of being understood and validated by one another, that is, hearing that the other partner is able to empathize with their reactions even if he or she disagrees. For example, a GAD/non-GAD couple is experiencing empathic joining if the non-GAD wife is able to tell her husband how guilty she feels when she hears him worrying about her health, and he is able to express empathy for her sense of guilt (without reacting to it with additional worry). Similarly, individuals with generalized anxiety must be able to feel some empathy and emotional acceptance of their own experiences of anxiety, or it will be difficult for them to tolerate these experiences long enough to be genuinely mindful of them. Furthermore, expressing anxiety to a partner and receiving an empathic response is likely to increase the GAD individual's ability to feel emotional acceptance toward his or her own anxiety. In this way, the dyadic and individual processes of promoting acceptance are likely to be mutually reinforcing.

IBCT does not specifically state that couples are attempting to change their behaviors to be more in keeping with their values and goals, but there is a sense in which this is implicit in the idea that they are attempting to make their relationship more satisfying for both of them. Explicit values work may be helpful to some couples that need clarification about what type of relationship they would like to have. For example, couples naturally differ in the degree of emotional sharing that occurs in their relationship: some happy couples obtain much of their emotional support from same-sex friends, while other couples function as each other's best friends and provide emotional support for all domains of their lives. A couple in which both partners truly prefer the second model but often limit their sharing with one another because of

anxiety about being a burden may benefit from recognizing the value they place on emotional sharing and choosing to engage in this behavior even when they feel anxious.

In summary, IBCT holds that a couple with significant differences in their susceptibility to anxiety could nonetheless avoid relationship distress over the issue if they developed a constructive pattern of communication by practicing unified detachment and empathic joining. Perhaps both might have learned about and endorsed the acceptance-based understanding of GAD described above. Therefore, when the GAD partner felt anxious while answering work emails and began to ask her for reassurance that he would not be fired, the non-GAD partner might notice and gently describe what she was observing ("It sounds like you're looking for reassurance from me about this"). In response, he might laugh and acknowledge that in fact he was feeling highly anxious and felt a strong urge to worry and ask for reassurance. She might say that she was sorry to hear he was feeling so anxious that day, he would thank her, and they would exchange sympathetic smiles. Then, they would agree he would return to answering his emails and she would return to the book she was reading, rather than continuing on the subject.

In this way, a couple might in one conversation combine an acceptance-based approach to individual GAD symptoms and an acceptance-based approach to dyadic communication about these symptoms. Note how they treat these approaches in parallel: (1) both partners mindfully observe their own internal experiences and observe the visible behavior of the other partner. Both partners (2) warmly accept their own and one another's emotional experience, understanding from where it originates. Then, (3) both partners choose for themselves (and when appropriate, help the other person choose) new behaviors based on their values and goals.

The objective of IBCT-GAD is to teach couples these skills in such a way that the parallel processes become synergistic. Increasing individuals' mindfulness of their own

experiences, empathy for their own feelings, and understanding of how to change their behavior in individual contexts is in some sense easier than asking them to empathize with the partner they are currently struggling with. It is possible that practicing these skills on their own will eventually help them apply mindfulness and empathy to the behavior they see in their partners. However, attempting acceptance of one's own anxiety may be less impactful of an experience than having a structured but highly emotional conversation with one's partner about accepting differences. Ideally, what individuals learn from these "teamwork" experiences will then be translatable to how they behave when alone. Therefore, both the individual and joint experiences during the IBCT-GAD program are expected to inform one another and enhance the effect of the treatment.

As a final note: one danger of treating psychopathology and relationship distress simultaneously is that it may encourage the partner who is not the identified patient to blame all the problems in the relationship on the identified patient. IBCT-GAD sets out to avoid this issue by refusing to categorize the GAD individual's anxiety separately from aversive internal states observed by the non-GAD individual. Although only one may be diagnosable, both are experiences worthy of acceptance and empathy, and neither are good reasons to act in a way inconsistent with the individual's values. The skills needed to "avoid avoidance" are universally helpful and most likely perfected by no one. The goal of IBCT-GAD, therefore, is to refine the skills of both partners as much as possible in order to improve both their individual qualities of life and the quality of their relationship.

Appendix C: Examples of Responses to OurRelationship Program

Couple in which patient's GAD symptoms improved:

Responses by wife (GAD patient):

1. Our Core Issue: Lack of communication and effort. Communication involving strong emotion. When emotions are high, both of us tend to want to fight it out until one of us backs down. Usually, the one who backs down does so because their feelings were hurt during the argument, or they have just had enough and need to take a break to cool down. Taking that cooling down time does seem to calm things down a bit so that we can address the problem we were trying to discuss earlier, but getting to that cooling down period is tough sometimes. This is because we both want to get our points across and be "right."

2. Example of Our Differences: When we argue, or when one is offended by the other, I feel like you just try to defend yourself and re-hash everything rather than solving the problem at hand. Also, when we argue I get emotional quicker if you remain combative rather than agreeing that we've reached a bump in the road and try to work on solutions together.

My Role in Our Differences: more emotional when in arguments

My Partner's Role in Our Differences: more defensive

Positive Aspects of Our Differences: Differences in our emotional reactivity make our relationship better because you have the ability to help me through any stressful times I may be having.

Example of an Emotionally Sensitive Issue: When you don't like something I have said (like something that was not directed towards you) and you ask me "why did you say that?" I get

angry because I feel disappointed that I can never find the right things to say to you...about anything.

My Underlying Emotion: disappointed.

The Emotion I Show: anger.

My Partner's Underlying Emotion: overwhelmed.

The Emotion My Partner Shows: defensiveness.

Past Events Affecting My Emotion: I can't think of any.

How I Can Deal with Stress Better: I can let him know that other things may be bothering me but they are not about him.

How I React to Stress: When I'm stressed, my reactions may be more emotional. I actually feel like I cannot even talk about something stressful, because all of a sudden an argument will begin because I am "being negative" "all the time."

How Partner Responds To Stress: When you're stressed, you seem to shut down. When you shut down, I may ask you what is going on and you may blow up at me. In return, I get angry because of the blow up, even though I know the reason for it was not because of something I did.

Example of Our Pattern: When we are arguing, you tend to defend yourself more. For example when you say "I wouldn't have to say this if you hadn't done/said that."

Description of Our Communication Pattern: I think our pattern of anger and defensiveness has remained the same level of badness over time because we are not working on better ways to communicate with each other. The intensified pattern makes it very difficult for us to solve any issues because we are both too upset to even have a civil conversation.

3. Change I Want to Make: I will try to start with a positive before the "tornado" begins in the future.

4. Changes that Happened: We seem to be able to communicate more effectively, I would like more time however to see more benefits. More time to use tools gained from this experience. I noticed that I have a better understanding of how our patterns have gotten worse, and with our differences and stresses along with our patterns, we are getting no where. Our emotional reactivity seems to be a big problem as well.

5. New Description of Core Issue: We have an issue with communicating effectively when emotions are high. It just started getting worse over time. It occurs because we both want to be right and get our points across no matter what.

Responses by husband (non-GAD partner):

1. Core Issue: Acceptance and understanding. Communication involving strong emotions. When I get frustrated, I feel like I am taking on her worries as my own instead of just being there for her if she needs help. I shouldn't let her stress me out, instead I want to be calm, relaxed and supportive (which is who I see myself as) but I have not been as calm relaxed and supportive since I took on more responsibility trying to create a new career path. I have been trying to learn how to balance our marriage, learn a new trade, and start my own business. I feel as soon as we figure out the key balance, our lives will be full of harmony!

2. Example of Our Differences - My Core Issue: I don't feel as strongly about some things as she does and vice versa.

My Role in Our Differences: less worried

My Partner's Role in Our Differences: more worried

Positive Aspects of Our Differences: I feel like we complement each other perfectly when we are feeling great

Example of an Emotionally Sensitive Issue: any time we argue

My Underlying Emotion: disappointment

The Emotion I Show: confusion and anger

My Partner's Underlying Emotion: anxiety

The Emotion My Partner Shows: confusion and anger

Past Events Affecting My Emotion: normal insecurities

How I Can Deal with Stress Better: I can be more organized with scheduling for work and school.

How I React to Stress: When I'm stressed I have a much shorter fuse and my patience is very thin, I get frustrated by how easily we get into an argument over things should be easily solved.

How Partner Responds To Stress: When you're stressed I feel stressed as well. And then I resent you for putting more stress on me when I feel like you don't need to be stressed in the first place. But I need to understand and accept that you are going to be this way and try to be supportive.

Example of Our Pattern: We both defend why we feel one way and the other person should feel another way.

Description of Our Communication Pattern: We both have very strong opinions and feel like the other one does not care about it.

3. Change I Want to Make: Not talk to each other when we are angry, always know when the other person is not mad at you, but something else.

4. Changes that Happened: We are more understanding of the real reasons behind our frustrations, which also allows us to accept each other for who we are as people. She is NOT very understanding and cannot adapt to change smoothly, very anxious and I am not and its becoming to feel like a chore to deal with. And I feel like I am missing out on opportunities because of it which in turn makes me resent her anxiety I think.

5. New Description of Core Issue: I think we weren't taking each other's feelings into consideration enough which led to a cycle of "tornados."

Couple in which GAD patient's symptoms did not improve:

Responses by wife (GAD patient):

1. Our Core Issue: I am not interested in sex. I feel that we have lost our intimacy. I am torn in many directions: elderly mother, and adult children that are unhappily employed. My husband was laid off of his job 3 weeks ago. I feel that everyone is pulling me in so many directions that I do not have the emotional strength to be "there" for my husband in his difficult time. I have a demanding job and I am physically and emotionally exhausted at the end of the day. My "to do" list is so long, and I put sex on that list. I feel guilty that I am never in the mood. Spark is missing/emotionally disconnected. I have a very busy life with a full time and part time job. My

full time job is not satisfying anymore, but I cannot leave because he was recently laid off. In addition, I have an elderly mother that needs help. She is very negative about life, and being with her is extremely stressful. In addition, I constantly worry about my two adult children. Lastly, because of his surgery resulting from prostrate cancer, our sex life cannot be spontaneous, and involves planning. Many times while we are planning, one or both of us becomes tired. Because of all the issues in my personal life, I am not longer prioritizing our marriage. I feel guilty about it, but I do not want another item on my "to do" list.

Why It's Important To Me To Improve Core Issue: It would bring the joy back to our relationship

2. Example of Our Differences: You and I don't react to stress the same way.

My Role in Our Differences: more emotionally, gets overwhelmed very easy

My Partner's Role in Our Differences: very laid back

Positive Aspects of Our Differences: Our differences make our relationship better because when I get overwhelmed, you can see the big picture.

Example of an Emotionally Sensitive Issue: When I have so much to do in my life, please take the initiative to make decisions around the house without asking me.

My Underlying Emotion: disappointed

The Emotion I Show: overwhelmed

My Partner's Underlying Emotion: unloved

The Emotion My Partner Shows: frustration

Past Events Affecting My Emotion: I can't think of any

How I Can Deal with Stress Better: Work out after school so I don't bring the stress of my job home.

How I React to Stress: When I am stressed I don't need our relationship to be an additional source of stress.

How I Would Like You to Handle Stress Differently: Grocery shop and begin preparing dinner when I arrive home late.

How Partner Responds To Stress: When you are stressed you lose your patience with me.

Example of Our Pattern: When you make a decision, often you say I criticize what you have done. You tell me you would do more if I wasn't so critical.

Description of Our Communication Pattern: I am frustrated with all of the external stressors in my life and take them out on you. You try to be patient, but it is difficult for you.

3. Change I Want to Make: I want comfort and emotional support rather than problem solving or suggestions to calm down.

How I Want You to Change: Alan should just listen when I vent. He should not try to "fix" the situation.

4. Changes that Happened: I am trying harder not to complain so much. As a result, we have had more fun together. Alan has been more patient with me. My being overwhelmed frustrates Alan. Because of this, he feels unloved.

5. Core Issue: Our problem started because I was so stressed from my job, kids, mother, that I was not taking the time to communicate with Alan. He was reaching out to me, and instead, I was backing away. Because of this program, we have begun to spend more time together, and do

a better job of talking to one another. Alan is also trying not to "fix" my problems, but is doing a better job of just listening.

Responses by husband (non-GAD partner):

1. Our Core Issue: My wife not making our relationship a priority. She does have a lot of other things demanding her attention and causing stress - a job she doesn't like, an elderly mother who is becoming a concern living alone, an adult daughter who seems to be drifting aimlessly, an adult son who has an abusive boss and, very recently, my unemployment. And so our relationship - and me - is always last on her list and frequently gets little or no attention. This affects all aspects of our marriage. She usually is too tired or too distracted for sex, or simply not interested (though we both have physical problems that make sex problematic as well). But the non-sexual impacts are even more important in my mind. We don't spend nearly enough time together and we certainly don't talk and just have fun being together like we used to. She always seems to be somewhere else mentally, always stressing about one of the "problems" in her life. I would like to help her deal with all of those issues, at least provide moral support and be someone she could talk to about them. But she doesn't seem to want to or be able to communicate. She internalizes most of it and so even when we are together, I feel like I am alone because she really isn't ever focused on us. Something else is always more important. I realize the issues in her life are significant and worrisome. But our relationship is important too and she's got to find a way to focus on it at least some of the time because otherwise it's going to wither and die. Need our relationship to be a priority. We can't connect if we don't spend time together and in the last several months we haven't spent nearly as much time together as we used to. We both work full time, so that does put time at a premium, but we need to make the time for

us to be together. Sometimes everything else just has to take a back seat. She does have more demands on her time than I do. Her mother lives nearby and needs a lot of help, her daughter lives out of town but is still very needy and she has lots of friends. But sometimes the household chores and the phone calls and the emails just have to take a back seat because sometimes - not all the time, but sometimes - the two of us just have to be more important than everything else. The activity we do doesn't have to be anything special - it could just be talking for a few minutes. But I have to know that our relationship important to her - important enough to make sure it gets the attention it deserves, even if that means putting everything else aside once in a while.

Why It's Important To Me To Improve Core Issue: In the past I've always enjoyed spending time with her even if the activity itself was nothing special - cooking together, taking a walk, etc. I miss that. She rarely makes time for us now. Everything else in her life is more important. I would be a lot happier if that weren't the case.

2. Example of Our Differences: I get annoyed when you won't accept my reassurance that things will be alright and continue to list all of the terrible things that will happen. You must think I am minimizing your concerns and not being supportive, which I assume makes you feel the need to express those concerns even more. It's a vicious cycle.

My Role in Our Differences: Calm/optimistic, assume there's a solution

My Partner's Role in Our Differences: Anxious, focused on worst possible outcome

Positive Aspects of Our Differences: I've always loved how passionate you are about the things you care about. When something matters to you it really matters. I still love that. And your passion keeps me from ignoring things that really do need some attention. Some things that need

doing just wouldn't get done around here if it weren't for you reminding me forcefully about them.

Example of an Emotionally Sensitive Issue: Almost any time I ask if you want to do something together - watch TV, cook, whatever. Many times you say no because you want to/have to do a, b or c. It's the cumulative effect that causes my fear. It's fine that you have something else that you would rather do or needs to get done on any of those occasions, but when no happens too often, I start getting afraid. But I don't feel comfortable showing you that so I get frustrated and lash out.

My Underlying Emotion: fear that I'm not important to you anymore.

The Emotion I Show: Frustration with us not spending time together

My Partner's Underlying Emotion: anger that I don't get how overwhelmed you are

The Emotion My Partner Shows: impatience with my "neediness"

Past Events Affecting My Emotion: I'm very sensitive to criticism - real or imagined. The combination of the criticism I receive - or imagine I receive from her - and her not wanting or being able to do as much together as I would like is what creates my fear. Not to blame my first wife for all my issues, but she was relentlessly critical - and that wasn't imagined. The effects are still with me.

How I Can Deal with Stress Better: Share more about job search worries or frustrations. Take more initiative around the house and just deal with any resulting criticism from her about how I did things

How I React to Stress: I need your "approval" even more than usual, so it bothers me even more when you don't have time for us. So if I'm stressed, I'm more likely to want to hang with you and if you reject me - even if I know it has nothing to do with me - it upsets me even more.

How I Would Like You to Handle Stress Differently: Show interest in what's going on with my job search. Understand that when I do a household chore I'm doing it the best way I know how and try to frame your response as improvement suggestions rather than criticism. I really do want to do things the right way.

How Partner Responds To Stress: When you're stressed by worries about your Mom or by a bad day at work, I know you tend to see me as just one more demand on your time and have even less patience for what you see as my neediness. I just wish you would allow me to help you deal with the other stuff and perhaps see that spending time together could make handling your stressors less difficult.

Example of Our Pattern: When I'm looking to get some attention from you and you refuse, I know I try to force things - not physically, but I try to be in your face to convince you to stop what you're doing and pay attention to me, And when I do that you withdraw and try to get away from me, which makes me pursue you even more. It becomes a cycle.

Description of Our Communication Pattern: Things have certainly gotten worse in the last few months. I think moving into the new house has caused you additional stress. School starting didn't help and your Mom is getting needier. So you feel like you have more and more on your plate - and now my job situation - and I'm just one more "to-do". I know I could be more tolerant and back off sooner when I see you just need some space, but it's hard for me because I feel rejected.

3. Change I Want to Make:

1) I should care more about the relationship and less about being right. I need to accept her feelings/actions and not judge them.

2) When we do argue, I can't pursue her. I've got to "sound the alarm" - tell her we're getting into the same old pattern and then back off

3) I should stop minimizing her anxieties by telling her to "calm down" or "stop making mountains out of molehills". I should empathize more even if I don't fully understand

How I Want You to Change: When I try to back off during an argument, reassure me that you do want to talk sometime. Tell me how I can help you cope with the things making you anxious - or if there's no way for me to help, tell me that.

4. Changes that Happened: She seems to be trying harder to not let the usual external stressors affect our day to day interactions. The last few days she has been more like the "old" her - much less critical and more focused in the moment than worrying about other things. She even offered to make me eggs yesterday - first time in quite a while! I hope I'm being more tolerant of the things she's worried about and how they impact her. I'm trying. I'm now taking more of the factors affecting her into account - the impact of her external stress - and have articulated that the true reason I react the way I do is because I'm fearful that I'm not important to her. I need frequent validation.

5. Core Issue: She has a lot on her plate - a difficult job, a needy, elderly mother and adult children who have problems that they want to share with her - and quite often they get so much of her attention that she has very little left for us. This has been an issue for some time but has gotten worse in the last year or so since her daughter moved out of town, her mother's health has continued to decline and she went back to work full time. Instead of viewing me as a resource and perhaps a way to alleviate the impact of all the external stress, she sees me/us as just another

thing to check off on her to-do list - and we're usually at the bottom of the list. I resent how

unimportant our relationship seemingly is to her. Lately, however, things have improved. She is

really making an effort to connect with me. I think the program has a lot to do with it.

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