EXPLORING PARTNER-ASSISTED THERAPY (PAT) FOR PERINATAL DEPRESSION: ARE PARTNER SUPPORT AND NON-VERBAL COMMUNICATIONS ASSOCIATED WITH WOMEN'S TREATMENT RESPONSE?

APPROVED BY SUPERVISORY COMMITTEE

Deborah J. Wiebe, Ph.D.

Anna Rachel Brandon, Ph.D, ABPP

Karen J. Prager, Ph.D, ABPP

Geetha Shivakumar, M.D.

Linda Hynan, Ph.D.

EXPLORING PARTNER-ASSISTED THERAPY (PAT) FOR PERINATAL DEPRESSION: ARE PARTNER SUPPORT AND NON-VERBAL COMMUNICATIONS ASSOCIATED WITH WOMEN'S TREATMENT RESPONSE?

Nadia Laurence CECCOTTI

DISSERTATION DEFENSE

Presented to the Faculty of the Graduate School of Biomedical Sciences

The University of Texas Southwestern Medical Center at Dallas

In Partial Fulfillment of the Requirements for the Degree of

DOCTOR OF PHILOSOPHY

The University of Texas Southwestern Medical Center at Dallas

Dallas, TX

May 17, 2012

Dissertation Committee:

Chair: Anna Rachel Brandon, Ph.D, ABPP

On-Site Chair: Deborah J. Wiebe, Ph.D.

Committee Members: Linda Hynan, Ph.D., Karen J. Prager, Ph.D, ABPP

Geetha Shivakumar, M.D.

ACKNOWLEDGMENTS

This dissertation work would not have been possible without the steady guidance of my mentor, Dr. Anna Brandon. Her vivid passion for research and writing, her relentless energy and unfailing optimism have been my constant inspiration. I am particularly grateful to her for persevering with me as my advisor despite the distance between Texas and North Carolina.

I also want to express my gratitude to Dr. Deborah Wiebe, who kindly accepted to step in the role of "on-site" committee chair to facilitate my academic success. She generously offered her time and invaluable research expertise, while juggling an almost impossible schedule.

Many thanks to the other members of my dissertation committee, who accepted to share their knowledge of different fields of research to help me grow in my work. I will fondly remember Dr. Linda Hynan's humor and patience while she was guiding me through the intricacies of statistical reasoning, and Dr. Karen Prager and Dr. Geetha Shivakumar's enthusiastic support and expert inputs.

In addition, I am grateful to Dr. Betsy Kennard and Dr. Monty Evans, chair and clinical director of my doctoral program, for their steady encouragements and for implementing creative, flexible solutions to help me balance dissertation work and family's life.

I could not have accomplished this dissertation without my family's love and comfort. Marc, Juliette and Yelena each in their own way believed in me and kept me going. My daughters have happily grown and changed while I was growing and changing professionally. Juliette grew with passion and Yelena with optimism, both of them reminding me of two essential components of life as a researcher and clinician. Marc not only offered relentless instrumental support, making time and space for my work, but his passion for education and his firm beliefs in improving yourself through rigorous critical thinking offered a wonderful model of achievement.

My friend Cindy was an essential part of my journey towards the completion of my dissertation. I want to thank her heartily. She was always there when I needed, even when I called upon her at the last minute, crying or smiling. My requests for a pat in the back, for theoretical advice or proofreading were always met with patience and kindness. While our connection grew over this lengthy process, Cindy's warm presence gave me a deeper appreciation for the meaning and importance of friendship.

ABSTRACT

Background: Poor partner support is a risk factor for perinatal depression, a disease with adverse consequences for mother, baby, and partner. This pilot study explored changes in partner verbal/non-verbal supportive behaviors, including overt displays of emotional expression, during interactions between romantic partners and depressed perinatal women participating in Partner-Assisted Therapy (PAT). A novel approach for perinatal depression currently under investigation, PAT includes the partner of a depressed woman as an active participant in her treatment over eight acute sessions and one follow-up. This is the first study to date that investigates psychotherapeutic processes by analyzing the spontaneous display of support and positive affect in romantic partners during their engagement in psychotherapy sessions.

Methods: Eleven couples (females between ≥ 8 weeks pregnant and ≤ 12 weeks postpartum, diagnosed with Major Depressive Disorder) attended eight weekly psychotherapy sessions along with their partners. Two raters coded video recordings from sessions one, four and eight (acute phase). Partner support (positive helping behaviors) was coded using the Social Support Interaction Coding System, marital affect was coded using the Specific Affect Coding System, and warm touch by the male partner to his depressed spouse was recorded by frequency and duration of time. The associations between partner support and the change in the female partner's symptoms of depression were then investigated.

Results: Our hypothesis of the inverse correlation between partner support (an increase over time) and treatment outcome was partially supported. The hypotheses that warm touch and positive marital affect would increase over time were not supported in this sample.

Conclusion: Findings suggest that an increase in partner support over time in treatment is partially associated with a decrease in female depressive symptoms. Future investigations with larger samples would support more confident interpretations and allow meaningful explorations into the processes of partner support and their implication for perinatal depression.

TABLE OF CONTENTS

CHAPTER ONE

INTRODUCTION

Statement of the Problem

Depression during pregnancy and the postpartum (perinatal period) has adverse consequences for mother, baby, and spouse/partner (Bledsoe and Grote 2006; McQueen, Montgomery et al. 2008; Yonkers, Wisner et al. 2009). Although poor partner support is a key risk factor for depression in perinatal women, past research has not included partners in treatment beyond psycho-education (Brandon et al., in submission). Partner-Assisted Therapy (PAT) for perinatal depression is a novel theory-based approach that is currently being tested for safety, feasibility, and acceptability. PAT includes the partner of a depressed pregnant or postpartum woman in the treatment of her depression, making him an active agent of her recovery during the transition to parenthood, a period that has been identified as particularly well suited for clinical interventions (Brandon et al., in submission).

This emerging field offers a unique opportunity to explore how partner support may contribute to the course of therapy in this population. Social support focuses on the ways that individuals can be helpful or supportive to their partner when they are experiencing personal distress (Baucom and Kerig 2004). Social support provided by a partner to his/her spouse has been long identified as a key protective factor against stress (Collins and Feeney 2000; Sullivan, Pasch et al. 2010) and an essential contributor to marital satisfaction and marital stability (Pasch and Bradbury 1998; Sullivan, Pasch et al. 2010). However, partner support has never been examined in the context of spontaneous intimate interactions taking place during therapy sessions. Exploring partner support in the context of PAT not only has important clinical

implications for perinatal women suffering from depression, but could inform therapy in other clinical contexts (Brandon, Shivakumar et al. 2011). The present study will examine whether a partner's support expressed across the active phase of treatment is associated with treatment response (i.e., decreased depression), and will explore several process variables that may accompany such support (i.e., warm touch and positive marital affect).

Promising findings in recent research have documented the beneficial effects of interpersonal touch on health and well-being (Gallace and Spence 2010). Although rarely investigated among romantic partners, there is emerging evidence that warm touch with a supportive male partner has specific benefits for women's stress management and health (Ditzen, Neumman et al. 2007; Holt-Lunstad, Birmingham et al. 2008). Thus, quantifying the frequency of warm touches from the partner to his depressed female partner provides a rarely implemented measure of the impact of partner support.

The PAT approach assumes that treatment improves the partner's support to his wife, which enhances the marital relationship by decreasing marital stress and improving the couple's communication (Brandon, Ceccotti et al. 2011). There is ample evidence of the link between depressive symptoms in one partner and decreased relationship satisfaction in the romantic dyad. Interactions of couples in which one spouse is depressed have been found to be more negative, hostile and conflictual (Gottman and Notarius 2000). PAT takes advantage of partners' participation in treatment to help the couple change destructive interactional patterns by increasing the empathy and support the partners have for one another and by growing acceptance of depression as a treatable illness. It thus assumes that both partners will become more competent and better adjusted in their relationship over the course of therapy (Brandon, Ceccotti et al. 2011). The literature on emotion has consistently documented the benefits of positive

emotions in interpersonal life and how positive emotions can protect individuals from distress (Fredrickson 1998). Depression has also been conceptualized as an absence of positive affect (Clark and Watson 1991; Keltner and Kring 1998). Consequently, if spouses' interactions grow more supportive during therapy, it is reasonable to expect that both partners will display more positive affect when interacting with each other. This study examined whether positive marital affect (the emotional expressions of both partners when they interact with each other) increased across the course of PAT, and whether positive marital affect was reflected in an increased marital satisfaction and a decrease in women's depressive symptoms. This could be one of the indirect processes through which partner's support contributes to the lifting of female depressive symptoms. Marital affect has been studied productively in the context of brief laboratory dyadic problem-solving discussions and conflict resolution conversations (Gottman and Notarius 2000; Baucom and Kerig 2004; Coan and Gottman 2007). Marital affect has emerged as an important predictor of both marital satisfaction and marital stability (Gottman, Coan et al. 1998). However, most studies on marital affect take place in the laboratory, with researchers imposing varying structure on participants whereas the present study proposed to examine the display of marital affect during spontaneous interactions across the course of PAT, as a first step to elucidate possible indirect effects (mediators) of partner support to decrease of depression.

Purpose of the Present Study

The purpose of this study is to explore the processes through which PAT may be effective. Two questions were examined. First, is partner support during active therapy sessions related to female treatment response? Second, is partner support associated with an increase in positive marital affect that is related to both partners' increased marital adjustment and to the woman's decrease in depressive symptoms?

Objectives

1. Investigate whether partner support increases over the course of PAT and is associated with the depressed spouse's response to treatment across the acute phase of therapy (i.e., from session one to session eight).

2. Examine if partner support to his depressed spouse during PAT is associated with an increase in positive affect during the marital interactions of both partners, and if this hypothesized positive affect partially mediates the woman's treatment response and both partners' marital adjustment. With awareness of the limitations due to small sample size, the study aims were to identify potential factors to measure in a larger study.

CHAPTER TWO

LITERATURE REVIEW

Perinatal depression is common and has adverse effects

Depression during pregnancy and the postpartum (perinatal depression) is a widespread, serious health problem for women, infants and their family. Recent evidence suggests that between 14% and 23% of pregnant women will experience a depressive disorder while pregnant (Yonkers, Wisner et al. 2009). Depression during pregnancy, is also a powerful predictor of postpartum depression (O'Hara and Swain 1996). Approximately 13% of women develop postpartum depression, most frequently within the first twelve weeks after delivery (Bledsoe and Grote 2006; McQueen, Montgomery et al. 2008). The negative consequences of perinatal depression for the mother, her baby and the family at large have been well documented (Bledsoe and Grote 2006; McQueen, Montgomery et al. 2008; Yonkers, Wisner et al. 2009). Depression during pregnancy has been associated with increased tobacco and substance abuse, lower health-related quality of life (Nicholson, Setse, Hill-Briggs et al, 2006). Other maternal consequences of antenatal depression are increases in operative deliveries, use of epidural anesthesia, risk of preeclampsia, and general illness during pregnancy (Yonkers, Wisner et al., 2009). Clinical features of newborns of depressed mothers include higher cortisol levels than newborns of non-depressed mothers, lower than optimal habituation, orientation, motor activity, greater arousal, lesser attentiveness, lesser physiological development and increased irritability (Field, Diego, Dieter et al., 2004). In addition, depressed mothers have been found to express little positive affect towards their infants (flat or negative facial and vocal expression, avoidance of eye contact) and rated their infants' behaviors as more negative, were less playful and attentive with

their children than non-depressed mothers. In turn, depressed caregivers' limited or inappropriate facial and vocal emotional expressions have direct effects on their infants' learning, behavior, and emotional regulation. Research has documented that infants of depressed mothers are less playful and active, and display less positive affect, as well as more expressions of sadness and anger (Field 1995).

Because of valid ethical concerns surrounding the inclusion of pregnant and lactating women in randomized controlled trials, solid evidence of safe and efficacious treatments for perinatal depression is lacking. Antidepressant treatment is usually the first-line approach and, although antidepressant use in pregnancy is thought to be of reasonably low-risk to the fetus (Yonkers, Wisner et al. 2009), patient-preference research suggests women are reluctant to use medications. Non-pharmacological interventions such as psychotherapy, bright light therapy, acupuncture, exercise, and omega fatty acids appear to be more widely acceptable (Goodman 2009). Recent reviews of psychosocial interventions (Dennis 2005; Dennis, Ross et al. 2007) highlighted the need for future research in this area. Alongside the question of efficacy, exploring potential unique effects of psychotherapy for this population contributes to the evidence base and has public health significance.

The perinatal period is a time particularly well suited for psychosocial interventions, but more investigations are needed to inform treatment during this life transition (Glade, Bean et al., 2005) and couples experience multiple challenges during their transition to parenthood (Gottman and Notarius 2000; Glade, Bean et al. 2005). Although this period is often hopeful, it can also be particularly stressful, creating disequilibrium, with both partners experiencing new roles, circumstances and demands that may put the marital relationship at risk. As a result, approximately 40 to 70% of couples experience a drop in marital quality during the transition to

parenthood (Gottman and Notarius 2000). Interventions during this transition may help couples adapt to new challenges, perhaps preventing the onset of maternal depression and the emergence of marital conflict (Gottman and Notarius 2000; Glade, Bean et al. 2005). Indeed, research suggests a robust relationship between marital dissatisfaction and depression (Beach, Smith et al. 1994; Keltner and Kring 1998) and the experience of depression often creates an "unavailable" partner, as the feelings of hopelessness, helplessness, and worthlessness characterizing this illness often place the responsibility for interactions on the non-depressed partner (Brandon, Shivakumar et al. 2011).

Including partners in interventions may have protective effects on perinatal depression

One of the strongest contributors to perinatal depression across studies is poor social support, particularly from the partner (O'Hara and Swain 1996; Dennis and Ross 2006; Lancaster, Gold et al. 2010). A number of risk factors for perinatal depression have been identified, including young age, low income, lower education, personal history of depression and/or anxiety, family history of depression, low self-esteem, adverse life events, marital dissatisfaction, and low social support, real or perceived by the woman (Dennis 2005; Dennis and Ross 2006; Dennis, Ross et al. 2007). Although many of these risk factors are not amenable to change, psychosocial interventions such as PAT are likely to modify the quality of social support (Dennis, Ross et al. 2007) as well as a woman's perception of adequate partner support (Dennis and Ross 2006).

The benefits of enhancing partner support are emerging. In an intervention for postpartum depression (Misri, Kostaras et al. 2000), investigators randomized 29 female participants to either a support group involving their male partners for a minimum of four sessions, or a control group in which patients attended six individual therapy sessions. Women whose partners attended

sessions experienced a significant drop in their depressive symptoms compared to those in the control group. Interestingly, women who were assisted by their partners also reported higher relationship satisfaction (Misri, Kostaras et al. 2000), potentially reflecting the benefits of believing that their partner would be there when things go wrong (Gable, Gonzaga et al. 2006). Feelings of intimacy arise and deepen between partners when they engage in behaviors that lead one another to feel understood, validated, and cared for, particularly following the disclosure of important self-relevant thoughts and feelings (Gable, Reis et al. 2004; Gable, Gonzaga et al. 2006; Sullivan, Pasch et al. 2010). Favoring disclosure of important personal information in a therapeutic environment while promoting positive helping behaviors are processes that form the core of the PAT's rationale.

Promising results of interventions designed to enhance the partner support of medical patients suggest that the same success is possible with psychiatric patients. To date, including the romantic partner of a patient in the treatment of his/her illness has been primarily researched in the medical health care setting, in particular for cancer, obesity, smoking and chronic illness. In the treatment of psychiatric illnesses, "partner-assisted" or "spouse-assisted" therapy was introduced for the treatment of anxiety disorders more than 20 years ago, but has not been sufficiently studied (Brandon, Shivakumar et al. 2011).

Partner-Assisted Therapy (PAT) for the treatment of perinatal depression

PAT for perinatal depression is a theory-based intervention targeting the risk factor of low social support and/or relationship stress in the context of the transition to parenthood. PAT is expected to ameliorate depressive symptoms by targeting emotions, role expectancies, and perceptions of partner support, incorporating techniques from Interpersonal Psychotherapy and Emotionally Focused Couples Therapy (Brandon et al., 2011, in submission). The framework of

PAT focuses upon the patient's experience of her illness and uses the partner (spouse, romantic partner, significant other) in the role of supporter/coach or as a co-agent of change and recovery (Baucom and Shoham 1998). First, the therapy aims to identify the existing maternal and paternal stressors as well as the dyadic expectations each hold around the roles of "mother" and "father". Second, the approach highlights exploring core emotions around the stressors and role expectations, examining the expectancies and modifying those that may be unrealistic. Both patient and partner are supported as the pregnant woman's symptoms and feelings are discussed, and strategies for addressing her needs for support are developed collaboratively. Finally, the couple's interactions are examined, particularly as they relate to her depression, and opportunities for increasing the partner's emotional and instrumental support are highlighted, thereby reducing the maternal stressors (Brandon et al., in submission).

Conceptually, the PAT approach assumes that treatment is improving the partner's support to his wife and thereby extends the treatment outside of therapy, as competent partners learn how to use therapy tools in every day interactions with their spouses. Thus increased efficacy of the partner's support should enhance the marital relationship by decreasing marital stress and improving communication between partners during their transition to parenthood (see Table 7 in Appendix 1).

The analysis of psychotherapy processes

This body of literature suggests that there is a need to further our understanding of the key mechanisms of change in evidence-based treatment of depression, and that the microanalysis (i.e., the detailed observation of extremely small behavioral sequences, occurring every second or few seconds) of verbal as well as non-verbal content of therapy sessions may be the best methodology to explore change processes (Mergenthaler 1996; Angus, Goldman et al. 2008).

However, current evidence is limited to a particularly small number of studies. First, possible mechanisms of change have been documented by the thematic microanalysis of psychotherapy transcripts of clinician-client interactions (Mergenthaler 1996; Lepper and Mergenthaler 2007; Angus, Goldman et al. 2008). Second, the non-verbal display of affect taking place within the therapeutic relationship between clients and therapist have been investigated through an analysis of body postures and gazes (de Roten, Fivaz-Depeursinge et al. 2000), through the examination of mutual smiling sequences (Darwiche, de Roten et al. 2008) and the analysis of prototypical affective micro-sequences (Bänninger-Huber 1992). In the proposed study, I will undertake a microanalysis of PAT sequences to explore several potential processes through which PAT may improve a woman's perinatal depression and the couple's relationship quality (i.e., warm touch and positive marital affect).

Role and benefits of warm touch

Touch is regarded as the non-verbal behavior that is the most capable of intensifying intimacy experiences (Prager 1995), and may be an important component in the effects of PAT. Research on interpersonal touch has found that people tend to assign interpretation such as affection, commitment, control, intimacy and sexual interest to touch behavior (Guerrero and Andersen 1994). More recently, Hertenstein, Keltner, Holmes et al. (2009) demonstrated that people could identify as many as six distinctive emotions from the experience of being touched on the arm by a stranger for one second. Across cultures, touch is central to soothing, signaling safety, reward and to the formation of attachments (Oveis, Gruber et al. 2009). There is growing evidence of the benefits of warm touch between romantic partners. For example, Grewen, Girdler et al., (2004) demonstrated that greater partner support (based on self report) was related to higher plasma oxytocin levels in men and women after a brief episode of warm contact.

Oxytocin (OT) is a neuropeptide that has been linked to bonding behaviors in some mammalian species, including humans (Carter 1998). These higher oxytocin levels are thought to have a positive impact on health by regulating the human stress system and subsequently lowering blood pressure (Grewen, Girdler et al. 2004). Frequent hugs between spouses in a laboratory experiment conducted by Light, Grewen and Amico (2005) have been associated with lower blood pressure and higher oxytocin levels in pre-menopausal women. Ditzen, Neumman et al. (2007) investigated whether specific kinds of physical interaction between romantic partners could reduce psychosocial stress in women. Women who received physical partner contact before the laboratory stress experiment exhibited significantly lower cortisol and heart rate responses to stress as compared with women who received social support only. Similarly, Holt-Lunstad, Birmingham and Light (2008) investigated the influence of an intervention enhancing warm touch among healthy married couples, finding that increased warm touch among these romantic dyads had a beneficial influence on multiple stress-sensitive systems in both males and females.

Evidence on warm touch between romantic partners suggests that warm physical contacts with a supportive male partner have benefits in terms of stress management and health for women. New studies also support that there may be a link between warm touch and relationship satisfaction. Preliminary findings of an experiment conducted by Oveis et al. (2011) demonstrated that romantic partners who touched more during a five-minute interview also reported more satisfaction in their relationship. Although no specific attention to warm touch was given during the PAT intervention, the present study proposed to investigate changes over time in the frequency of the male partner's spontaneous physical contacts to his depressed spouse. Increases in warm touches may be one of the processes through which the depressed woman perceives to be adequately supported by her partner.

Role and benefits of positive affect

Findings from emotion research demonstrate that positive emotions help individuals develop cognitive and social resources vital to wellbeing and healthy relationships (Gruber, Oveis et al. 2011) and provide methodological tools for studying psychotherapy processes. Exploring changes in positive emotions displayed by both partner over the course of PAT is important because it could help understand the mechanisms through which PAT may be effective. Positive marital affect, as a marker of increased marital adjustment, could be one of the indirect processes through which partner's support contributes to the lifting of the woman's depressive symptoms.

There are multiple benefits of positive emotions. While negative emotions lead to narrow attention and motivate specific actions, positive emotions broaden thought and action repertoires (Fredrickson 1998). In the cognitive domain, they lead individuals to see new connections between ideas, integrate and organize information, and generate new solutions to problems. Positive emotions also broaden the scope of action, promoting readiness to engage in different activities. For example, interest motivates exploration of the environment (Fredrickson 1998; Harker and Keltner 2001), and amusement facilitates the acquisition and storage of information as well as creative thinking when individuals experience a cognitive shift from one knowledge structure to another (Gruber, Oveis et al. 2011). Self-conscious positive emotions such as pride are deficient in depression (Diagnostic Manual of Mental Disorders-IV, APA, 2000) and contribute to the maintenance of self-esteem by signaling the accomplishment of a valued task to the self and to other members of a given cultural group (Gruber, Oveis et al. 2011). Frequent positive affect and infrequent negative affect have been found to be essential to subjective well-being (Myers and Diener 1995).

There is growing evidence that positive emotions help individuals undo or reduce the detrimental effects of negative emotions and distress (Fredrickson 1998). In one study, participants who spontaneously smiled after viewing a film that induced negative emotion recovered more quickly from the increased cardio-vascular arousal evoked by the disturbing film (Fredrickson and Levenson 1998). Bereaved individuals who were able to laugh while talking about their deceased spouse were better able to distance themselves from their distress (as measured by a dissociation between physiological arousal and subjective distress) and to recover more quickly from their loss than those individuals who did not laugh, demonstrating laughter can be conceptualized as an adaptive response to stress (Bonanno and Keltner 1997; Keltner and Bonanno 1997). Similarly, humor predicts improved psychological functioning during distress (Keltner and Bonanno 1997). One study demonstrated that the tendency to use humor as a coping mechanism predicted less distress in women 6 months after breast cancer surgery and mediated the relationship between global optimism and reduced post-surgery distress (Carver, Pozo et al. 1993). Taken all together, the numerous benefits of positive emotions and more particularly their role in the recovery from negative emotions, suggest that positive emotions are important and valuable to study in the context of PAT. An increase in positive affect over the course of treatment could indirectly influence treatment response to depression.

Positive emotions have beneficial consequences in the social realm and more particularly in romantic dyads. Cooperative and altruistic individuals display higher levels of positive emotion than non-cooperators (Schug, Matsumoto et al. 2010), and positive emotions facilitate mutually rewarding social interactions that build, strengthen and maintain social bonds (Gruber, Oveis et al. 2011). Individuals prone to positive affect tend to be more socially engaged with

others (Harker and Keltner, 2001) and more likely to be in a romantic relationship (Berry and Willingham 1997). The expression of positive emotion during conflict discussions predicts increased marital satisfaction and the reduced likelihood of divorce. Distressed couples have been found to produce an average of 1.49 positive interactions per minute during observed conversations in the laboratory, whereas non-distressed couples produced an average of 1.93 positive interactions per minute, a significant difference (Gottman, Coan et al. 1998). Trait positive affect correlated positively with increased commitment to a current relationship and the use of constructive rather than destructive strategies to deal with relationship problems (Berry and Willingham, 1997). Harker & Keltner (1998) coded the smiles of college women in their yearbook photos. The magnitude of the smile at age 21 predicted increased self-reports of the disposition to affiliate with others, reduced stress, and increased personal and marital satisfaction over the next 30 years. Additional evidence has documented that sharing positive emotions and positive events with one's partner result in greater positive affect and higher reports of life satisfaction, over and above the positive affect attributable to the event itself. The perception that a partner reacted appropriately to the disclosure of the event has also been associated with greater relationship satisfaction and intimacy (Gable, Reis et al. 2004; Gable, Gonzaga et al. 2006). Based on this review of the beneficial consequences of positive emotions in romantic relationships, our study expected that positive marital affect (the emotional expressions of both partners when they interact with each other) would increase across the course of PAT. Our investigation thus examined change in the display of marital affect across the active phase of treatment.

The scientific study of *emotional expressions* demonstrates how emotions are effectively conveyed in our repertoire of nonverbal behaviors. Facial expressions of emotions provide a rich

and powerful means to communicate human experience in its complexity (Bonanno, Keltner et al. 2002). Facial expressions correlate with the self-reported experience of emotion as well as with patterns of autonomic nervous system and central nervous system activity (Keltner, Moffit and Stouthamer-Loeber, 1995). Facial expressions of both positive and negative emotions have been associated with variations in long-term personal and social adjustment, and this was demonstrated even when facial displays were sampled from very brief temporal segments (Bonanno and Keltner, 1997; Gottman and Levenson, 1992; Keltner and Bonanno, 1997). For example, facial expressions of negative and positive emotions in the early months of bereavement have been found to predict long-term grief course (Bonanno and Keltner, 1997). Measuring smile intensity and negative facial affect in the photographs of kindergartners and their families reliably captured the children's and their parents' overall affective style (Oveis, Gruber et al. 2009). Brief samples of expressive behavior such as the intensity of college women's smiles in their yearbook photos predicted the individuals' affective styles and life trajectories (Harker and Keltner, 2001). Brief samples of participants' affective behaviors were used to analyze mechanisms of change in PAT. Facial expressions are the primary means by which important information about an individual's experience is communicated socially (Bowlby 1969; Ekman 1992; Ekman 1993; Keltner and Kring 1998). Emotional expressions play a vital role in interpersonal processes by coordinating social interactions and they influence a wide range of interactions, from spontaneous conversations to courtship practices (Keltner and Kring, 1998). Emotional expressions also contribute to adjustment in the context of romantic relationships. The expression of positive emotion allows partners to increase intimacy, convey commitment, and dissociate from the distress that is likely to arise occasionally in any long-term relationship (Keltner, Kring, and Bonanno, 1999).

In sum, although they are "fleeting signs of the course of life" (Keltner, Kring and Bonanno, 1999), emotional expressions are a remarkable indicator of emotions and enable researchers to study the dynamics of emotions in reliable ways. Studying facial expressions adds to the knowledge we can obtain from self-reports of emotional experiences. The coding of emotional expressions has been applied to pictures (Harker and Keltner 2001; Oveis, Gruber et al. 2009), to the measurement of the facial expressions of subjects watching brief clips of films designed to elicit intense positive and negative emotions (Kring and Sloan 1991). In videotaped therapy sessions, the coding of emotional expressions has been utilized in a small number of studies, such as the exhaustive case-study analysis of psychoanalytic treatment by Bänninger-Huber (1992).

Couple's observation research has enabled investigators to conceptualize specific micro-analytic coding systems that can be applied to measure in a very detailed fashion the affect displayed between romantic partners (Gottman and Notarius 2000; Baucom and Kerig 2004). As a result, emotional expression has emerged as an important predictor of both marital satisfaction and marital stability (Gottman, Coan et al. 1998). For example, there is substantial evidence that positive emotions, in addition to helping behaviors in marriage, predict marital stability even when observed in the context of problem solving tasks (Pasch, Bradbury et al. 1997; Gottman, Coan et al. 1998; Waldinger, Shulz et al. 2004). Coding systems were created to assess a range of affective couple behaviors occurring while partners were problem-solving or discussing conflictual issues (Gottman and Notarius 2000; Baucom and Kerig 2004). More recently, the literature points out that the focus of research should shift from studying conflict and negative interactions to studying more positive interactions and communications between partners (Heyman 2001; Baucom and Kerig 2004).

Given the findings from emotion research and couple's observation research, this study proposed that partners' change in emotional display will be observable, from less positive and less engaged to more positive over the course of PAT. This observation, if confirmed, would shed light on the processes of partners' change. Similar information has been repeatedly used to predict marital satisfaction through observing video-recordings of romantic partners interacting during a structured task in the laboratory (Gottman and Notarius 2000; Heyman 2001; Baucom and Kerig 2004; Waldinger, Shulz et al. 2004). However, to date there is no known study that has investigated romantic partners' spontaneous display of dyadic affect during videotaped psychotherapy sessions.

Depression: a deficit in positive affect leading to interpersonal impairments

Depression has long been conceptualized as distinctively characterized by the combined presence of negative affect in the absence of positive affect and of pleasurable experiences (Clark and Watson 1991). In unipolar depression, the enduring experience of sadness is accompanied by the incapacity to respond to positive emotional stimuli and to derive pleasure from them (anhedonia) (Diagnostic Manual of Mental Disorders-IV, APA 2000). Anhedonia is a distinctive feature of depression, distinguishing depression from other psychopathologies such as anxiety (Harker and Keltner 2001). People with high levels of negative affect are likely to experience emotions such as anxiety and anger, whereas people with low levels of positive affect or even with an absence of positive affect will tend to feel sadness and apathy, resulting in the loss of pleasurable engagement (Clark and Watson 1991; Keltner and Kring 1998; Gruber, Oveis et al. 2011). There is substantial evidence that, when compared with healthy controls, depressed individuals exhibit a diminished response to pleasant stimuli. Clinically depressed patients

display limited facial expressions, particularly expressions of positive emotions (Berenbaum and Oltmanns 1992; Sloan, Strauss et al. 1997). If compared with schizophrenic patients and healthy controls, depressed individuals show fewer facial expressions in response to positive stimuli, but not to negative stimuli (Berenbaum and Oltmanns 1992). Similarly, depressed women demonstrated a reduced response to pleasant film clips in a more recent investigation (Sloan, Strauss et al. 2001). A meta-analysis of laboratory studies comparing the emotional reactivity of depressed individuals to healthy controls demonstrated that depression is associated with reduced reactivity to several different kinds of positive visual stimuli (Bylsma, Morris et al. 2008). Based on knowledge regarding depression as a deficit in positive affect, our study expected that women's affect would change positively over the acute phase of treatment, reflecting positive change in marital affect and response to treatment.

The emotional disturbance that is experienced in depression may lead to interpersonal impairments. Clinically depressed individuals have fewer social skills, fewer close relationships, less elaborated social networks, less rewarding relationships, fewer social contacts, less social support and more marital problems and family arguments (Keltner and Kring, 1998; Harker and Keltner, 2001, for a review). First, depressed individuals have been shown to be less expressive than non-depressed people, suggesting that they will not provide cues for others' social behavior. More generally, they may fail to provide important signals about their own emotional states, intentions, and experiences when they interact with others. Consequently, the low positivity of depressed individuals is likely to contribute to damage relationships or may fail to initiate or maintain relationships (Keltner and Kring 1998). Second, the deficits in emotional self-regulation characterizing depression, such as the incapacity to respond to positive stimuli or use positive events to shift into positive emotional states, correspond to deficits in the reward-

oriented motivational system of depressed individuals (Tomarkenand and Keener 1998). Such emotional self-regulation deficits interfere with social interactions. Because they may not derive pleasure or reward from interpersonal relationships, depressed individuals are likely to be interpersonally disengaged and to create social contexts that perpetuate their negative experiences (Keltner and Kring 1998). Several findings link negative moods and emotions to assessments of reduced relationship satisfaction (Keltner and Kring 1998). For example, depressed individuals have been found to be more pessimistic in expectations about their current and future social relationships than non-depressed individuals, and to perceive family relationships as less supportive.

Depression specifically appears to undermine the interpersonal interactions and relationship satisfaction among romantic dyads (Gottman, Coan et al. 1998; Keltner and Kring 1998), making it a particularly important variable to assess in the context of PAT. Gottman and Notarius (2000) reviewed studies examining the marital interactions of control couples and couples in which either the wife or the husband was clinically depressed. Depressed couples were more negative in their interactions than were non-depressed couples, and couples with a depressed wife were more negative than couples with a depressed husband. Gotlib and Beach (1995) demonstrated that depressed-wives became increasingly negative in their verbal behavior over the course of the interaction with their partner and perceived the interaction as more hostile. Beach and Fincham (1994) proposed that individuals with high negative affect may be more likely to display negative communication patterns in interactions with their partner and may have more marital dissatisfaction as a result. They further suggested that increases in positive affect may be necessary to improve marital communication in couples where one partner is depressed. According to these authors, interventions aimed at changing mood may indirectly facilitate close

relationships and interventions aimed at improving marital relationships may also be beneficial for treating depression.

PAT targets a women's depression by improving her partner's support, assuming that his participation and more effective support will promote more positive and enjoyable spousal interactions, will improve communication and enhance the marital relationship. One aim of the proposed study was to explore whether there was an increase in positive affect during partners' interactions while in PAT, and whether positive marital affect was associated with a decrease in depressive symptoms and is reflected in increased marital adjustment.

Rationale, Aims, and Hypotheses of the Present Study

Rationale

The review of different but connected fields of research, including emotion research, the findings and methods from couples' observation research and the emergent investigation of warm touch, suggests that integrating these approaches could be well suited to further our understanding of the complex mechanisms at play in a novel therapeutic approach for perinatal depression. The overt display of emotional expression during partners' interactions, and a partner's verbal and non-verbal support are expected to inform the process of change over the course of treatment in PAT. To date, no study has attempted to investigate the process of change in psychotherapy by analyzing the spontaneous display of support and positive affect in romantic partners engaged in therapy sessions. Given the prevalence and adverse effects of perinatal depression, understanding the impact of psychotherapy in this population has public health significance.

Study Aims

The proposed study aimed to explore the processes by which change occurs for partners over the course of partner-assisted therapy (PAT) for perinatal depression, providing initial information about potential mediators of treatment response.

Aim I: Partner support

- Investigate potential associations between change in the male partner's support during PAT with his depressed spouse's response to treatment across the acute phase of PAT (i.e., from session one to session eight).

Aim 2: Marital Affect

- Examine if the partner's support to his depressed spouse during PAT was associated with an increase in positive affect during the marital interactions of both partners, and if this change in positive affect partially mediated the woman's treatment response and both partners' marital adjustment.

Hypotheses

Aim 1: Partner support

- Hypothesis 1.a: We hypothesized that there would be an increase in partner support as measured by the frequency of positive helping behaviors and warm touches by the partner to his depressed spouse across the acute phase of treatment (i.e., from session one to session eight).
- Hypothesis 1.b: We hypothesized that there would be an inverse association between partner's support (i.e., positive helping behaviors and warm touches) towards his depressed spouse and her depression symptom score at session eight. Specifically, we expected depressive symptoms to decrease as partner support and warm touch increase.

Aim 2: Marital affect

- Hypothesis 2.a: We hypothesized that the positive marital affect displayed by both partners would increase from session one to session eight.
- Hypothesis 2.b: We hypothesized that the increased support by the male partner to his depressed spouse would be associated with increases in displayed positive marital affect by both partners, which in turn would predict treatment response of the depressed females and would predict the relationship satisfaction of both partners (marital adjustment). That is positive affect in spousal interactions would partially mediate the association of husbands' support with treatment outcomes.

Definitions

Of note, because the majority of our study's couples were married (9 out of 11 couples), we often refer to partners in all relationships as "spouse", "husbands" and "wives" to facilitate fluency of writing. Similarly, we labeled as "marital" the affect or the interactions that took place between the female participants and their male partners, regardless of their official marital status (see description of our study's population in chapter three and Table 1 for additional details).

Partner Support:

- Measured by the Frequency of Helping Behaviors by the male partner towards his spouse (Positive Instrumental, Positive Emotional, Positive Other) according to the Social Support Interaction Coding System (SSICS) – (Pasch, Harris et al. 2004).
- Warm touch by the male partner was measured by frequency of warm tactile contacts.

Marital Affect

- Measured in both partners when they interact with each other by the Specific Affect Coding System (SPAFF) - manualized observational coding system developed for observing specific affective behaviors during marital interactions (Coan and Gottman 2007).

Depressive Symptoms

- Measured by the Hamilton Rating Scale for Depression-17 Item (HRSD-17) (Hamilton, 1960): a score of ≤ 9 at Session 8 indicates treatment response.

Marital Adjustment

- Relationship satisfaction was assessed by the Dyadic Assessment Scale (DAS), (Spanier and Filsinger, 1983).

CHAPTER THREE

METHODS

Participants

Data from an existing data set collected to test the feasibility and acceptability of PAT for perinatal depression was analyzed. Participants were recruited for the PAT study from patients visiting the newly established Women's Mental Health Center (WMHC) of UT Southwestern for evaluation and treatment of mood disorders in the context of reproductive events. Patients of the WMHC were referred from Dallas community health care professionals, the Parkland Health and Hospital System, and UT Southwestern affiliated obstetricians. All women who met study inclusion criteria were invited to participate during the time of enrollment (June 2008-December 2010). A total of fourteen women were approached. Twelve women and their partners were recruited who fulfilled inclusion criteria. One couple was disqualified after Session 2 at which time partner violence was revealed (see Table 1 for demographic description). Video-recorded psychotherapy sessions of the remaining 11 couples were analyzed. Participants had given their informed consent to have all of their psychotherapy sessions video-recorded and the Institutional Review Boards of the University of Texas Southwestern Medical Center at Dallas had approved the study's procedure.

Inclusion and Exclusion Criteria

Women who were 18 years or older, more than 12 weeks estimated gestational age or less than 12 weeks postpartum, married or cohabiting with their partner, either not receiving psychotropic medication or on a stable regimen (more than 4 weeks), and English-speaking were invited to participate and asked to present study participation information to their partners.

Exclusion criteria were co-morbid substance abuse/dependence, cognitive disorder or schizophrenia, endorsed partner violence, presence of psychotic or manic symptoms, on-going individual psychotherapy, and/or the preference to initiate pharmacological treatment (women on a stable dose of antidepressant medication were accepted).

Table 1: Demographic Characteristics of Participants Enrolled (*N*=11 couples)

	Female Participant ***N* = 11**		**Partners** ***N* = 11**	
Characteristics	***Mean (SD)***	***Median (Range)***	***Mean (SD)***	***Median (Range)***
Age (years)	30.6 (4.7)	29 (25-40)	31.2 (4.5)	30 (25-39)
Relationship Length (years)	3.2 (3)	2.5 (0.5-11)	3.2 (3)	2.5 (0.5 -11)
Education	16 (1.8)	16 (14-20)	14.5 (2.2)	16 (11-16)
	N= 11	*%*	*N=11*	*%*
Ethnicity				
Latina/o	3	27.3%	3	27.3%
Caucasian	6	54.5%	6	54.5%
African American	2	18.2%	2	18.2%
Pregnancy Status				
Primigravida	8	72.7%	NA	
Postpartum (at study entrance)	2	18.1%	NA	
Marital Status				
Married	9	81.8%		
Living together	2	18.2%		
Other Children in Home	4	36.4%		
Household Income				
> $100,000	4	36.4%		
$80,000 – 99,999	2	18.2%		
$60,000 – 79,000	0			
$40,000 – 59,999	4	36.4%		
$20,000 – 39,999	0			
< 19,999	1	9%		
Employment Status				
Full-time Employed	6	54.6%	11	100%
Part-time	1	9%	0	
Unemployed	4	36.4%	0	

Design and Procedure

Design

The parent study was an open label safety and feasibility trial of Partner-Assisted Therapy (PAT). Prior to study recruitment, institutional approval was given. All participants received the intervention in a pre-post repeated measures design.

Procedure

Patients and their partners interested in participating in the PAT study were scheduled for a second visit to the WMHC, at which time the fulfillment of inclusion criteria was established and the process of consent was completed. Both partners received the Structured Clinical Interview for the Diagnosis of Axis I Mental Disorders (SCID-IV, Research version) and the clinician-rated Hamilton Rating Scale for Depression, 17-Item ($HRSD\text{-}D_{17}$). They were considered study eligible if the woman met full criteria for Major Depressive Disorder and if her Hamilton Rating Scale for Depression, 17-Item ($HRSD\text{-}D_{17}$) score was greater than 16. The screening process spanned two clinic visits (intake interview and appointment devoted to screening and consent process).

Course of Partner-Assisted Therapy

The couples attended eight weekly psychotherapy sessions, with twelve weeks allowed for completion of the eight sessions to accommodate unexpected events and changes in schedule. The treatment targeted depressive symptoms and partner support, and consisted of three phases of treatment over the eight sessions (see Table 7 in Appendix 1). After being oriented to the process of psychotherapy in session one, the first active phase was characterized by accessing the depressive experience from the perspectives of both partners, eliciting how they each understood

the events or stressors that may have occurred prior to the onset of her depression and any associations they may have made between a "trigger" and the symptoms. The middle phase of treatment explored the role expectations each partner had of themselves and other, as well as the interactions between them that were perceived as supportive or unsupportive. Other ways of interacting were explored for both their potential effect and likelihood of occurrence (willingness of partner to modify behaviors). The final stage consolidated changes, explored additional sources of support, and processed what the experience of therapy had been like for each partner. At each visit, participants and partners completed the Edinburgh Postnatal Depression Scale (EPDS) to assess the expectant mother's symptoms. Each session thus began by a discussion of the EPDS scales of symptoms, with particular curiosity around discrepancies between the female's reporting of her own symptoms and her partner's evaluation of her depressive status.

Measures

At baseline, session four (midpoint), and session eight, all participants completed a battery of measures including the Hamilton Rating Scale for Depression, 17-Item (HRSD-D_{17}) and the Dyadic Adjustment Scale (DAS) as described below. In addition to these survey measures, several variables of interest were measured through coding of video-recordings of the couples during therapy. The total number of video-recordings of the 50 minute-PAT sessions available for analysis was 76 (some sessions were not recorded primarily due to technical difficulties). Videos of sessions one, four and eight were analyzed as they corresponded to major data collection. Session two was substituted for session one for one couple who did not have a video of the first session. Similarly, session seven was substituted for session eight for couples that were not video recorded during the final session (3 couples). This resulted in 33 sessions that were coded across the 11 couples.

Survey measures

- Marital Adjustment

  Marital adjustment was assessed using the **Dyadic Assessment Scale (DAS**, Spanier, 1976). The Dyadic Adjustment Scale (DAS) is a self-report inventory that assesses relationship satisfaction or adjustment and is one of the most commonly used measures for this purpose (see Appendix 3 for details). Thirty-two items evaluate several aspects of the relationship, including finances, affection, and sexuality. Factor analysis identified four measured aspects of the relationship: Dyadic Satisfaction, Dyadic Cohesion, Dyadic Consensus, and Affectional Expression. The theoretical range of total scores possible is 0-151, and a score below 100 suggests relationship distress. A single total score was used in the study's analysis. Internal consistency of the DAS is reported as Cronbach's $\alpha = .96$. Known-groups validity has been indicated by the ability of the DAS to discriminate between married and divorced couples on each item; concurrent validity has been demonstrated with a number of other relationship scales (Kurdek, 1999; Spanier and Filsinger, 1983) The DAS has been used at least twice to document marital satisfaction in pregnant populations with married or cohabiting couples (Zelkowitz et al., 2004; Dimitrovsky et al., 2002) and the Dyadic Satisfaction subscale of the measure has been validated in a large (*N*=3694) longitudinal study of pregnant women, that reported a Cronbach's α range of 0.83 - 0.88 (Mamun et al., 2004).

- Depressive Symptoms

  The Hamilton Depression Rating Scale (HRSD-D_{17}) is a 17-question multiple choice clinician-rated instrument that rates the severity of a patient's depression (Hamilton 1960).

Originally published in 1960 by Hamilton, the revised 17-item version is the most widely used outcome measure in treatment studies of major depressive disorder (Zimmerman, Posternak et al. 2005). Satisfactory interrater reliability has been reported (ranging from 0.88-0.98 for individual items and 0.94 for the total score) (Bech, Gram et al. 1975). This measure has also been used several times in studies of perinatal women suffering from depression (Spinelli and Endicott 2003). The properties of the Hamilton-17 have been investigated in a population of 150 perinatal women who were between 36 weeks of gestation and 16 weeks postpartum (Ross et al., 2003), and in a population of 534 pregnant and postpartum women suffering from mental illnesses (28 weeks of gestation to 6 months postpartum), documenting that all four scales of the measure were highly predictive of Major Depressive Episode (Ji et al, 2011). These investigations also demonstrated that the HRSD-$D_{17,}$ like other traditional depression screening and severity measures, is susceptible to inflation due to the overlapping symptoms of depression and characteristics of pregnancy. Therefore, the scores for inclusion in our sample (16 versus the common threshold of 14) and the score to assume response (9 versus the common threshold of 7) were similarly elevated in an effort to prevent false diagnosis and missed response (Spinelli 1997; Fava, Rush et al. 2003; see Appendix 2 for details).

Coding Measures

- Partner Support:
    - Partner support was first measured by **the frequency of helping behaviors displayed by the male partner** towards his depressed spouse during spontaneous sequences of dyadic interaction between partners. After identifying the segments during which the male partner displays supportive behaviors in a given session,

occurrences of Helping behavior (i.e., positive behaviors) were coded using the Social Support Interaction Coding System (SSICS)–(Pasch, Harris et al. 2004). This is a micro-analytic system, i.e., a system that looks at the dyadic interaction in an extremely detailed manner (coding every few seconds), in which each speech turn and non-verbal communication of the "Helpee" and the "Helper" is coded for positive and negative behaviors. Helper behaviors are classified as either positive instrumental (e.g., specific, helpful questions, advice or gestures of support), positive emotional (e.g., reassurance, encouragement, validation), positive other (all other positive behaviors facilitating the discussion), or negative (e.g., criticism, rejection, blaming, minimization or exaggeration, being inattentive or disengaged). Helpers' behaviors can be coded as "off task" or "neutral" (see Appendix 4 for details). Because the purpose of our investigation was to characterize the positive support offered by the male partner to his spouse, the categories of "off task" or "neutral" were not considered in the present analyses, nor were negative behaviors. Similarly the Helpee's behaviors were not taken into account. There are no articles to date that documented the use of the SSICS in the pregnant or postpartum population. Satisfactory inter-rater reliabilities of .86-.88 (based on intra-class correlations calculations) have been reported for the coding of positive helping behaviors of Helpers (Pasch, Bradbury et al. 1999). General validity has not been reported for this measure (Kerig & Baucom, 2004).

- Occurrences of **warm touch by the male partner** were also recorded as an additional measure of his support to the depressed female. Warm touch was measured by frequency and duration of tactile contacts when they occurred spontaneously over the course of an entire session.

- Marital Affect

The most recent version of **The Specific Affect Coding System (SPAFF)** conceptualized by Coan and Gottman (2007) was used to code the couples' conflict interactions and/or problem-solving discussions as they arised spontaneously over the course of a given session. The system indexes specific affects expressed during problem resolution discussions. SPAFF focuses solely on the affects expressed, drawing on facial expression, vocal tone and speech content to characterize the emotions displayed. Coders categorized the affects displayed using five positive codes (interest, validation, affection/care, humor, enjoyment/delight/enthusiasm), 10 negative codes (anger, disgust, contempt, belligerence, domineering, fear/tension/anxiety, defensiveness, whining, sadness, stonewalling), and a neutral affect code (see Appendix 5 for details). The SPAFF is the most fully developed manualized coding system for observing specific emotions and has been widely used (Kerig and Baucom, 2004; Heymann, 2001). The SPAFF manual sets forth rules for coding verbal and nonverbal information in order to identify the 16 discrete variables. Because the SPAFF was the first second-generation coding system developed, it has the best evidence of construct and criterion validity for its constructs (Heyman, 2001). For example, SPAFF affection, anger, belligerence, contempt, domineering, humor, sad, and validation codes all generated findings supportive of discriminative validity. The high intensity negative summary category (i.e., belligerence, defensiveness, contempt) has shown preliminary signs of predictive validity. Although these codes have been used in different configurations, it appears overall that these negative affects are risk factors for later divorce (Heyman, 2001). Studies using SPAFF coding have been able to predict divorce with over 90% accuracy, and up to 14 years longitudinally (Kerig & Baucom, 2004). Although the coding system

was not used to predict marital stability in our study, it was chosen as the best measure to capture the complexity of affect that was displayed during romantic partners' interactions. In a study by Waldinger, Schulz et al. (2004), the performance of naïve raters of emotional display that were using the SPAFF were compared to expert raters' performance. Findings indicate that naïve raters' coding was highly correlated with expert raters. This is consistent with the fact that the SPAFF was designed to use coders' judgments as "culturally competent observers" (Coan and Gottman 2007). Culturally informed observers are able to code emotional expressions, their subtle cues and the wide variety in which they are expressed (rules and exceptions, verbal as well as non-verbal cues) thanks to their accumulated knowledge of the cultural context in which they operate. By contrast, technical coders acquire coding abilities through training in the identification of discrete physical features of emotional expressions and by following explicit rules that may not fully capture the complexity of emotional life in the context of interpersonal interactions (Baucom and Kerig 2004; Coan and Gottman 2007).

Data and Coding Procedures

Videotapes of session one, four and eight for each couple were randomly viewed a first time by the investigator in order to identify the temporal sequences during which the male partner displayed helping behaviors towards his depressed spouse. These segments were then coded using the SSICS. Secondly, meaningful segments of interactions between the female participant and her partner were identified in the same fashion by the investigator in order to later code the affect display of the dyad using the SPAFF. The frequency of warm touches was assessed by simply counting occurrences and length (in seconds) of warm contacts during entire videotaped sessions.

In order to capture warm touch behaviors and because participants were not encouraged to touch during therapy, it appeared necessary to count the partner's tactile contacts when and if they occurred during whole sessions.

Once identified as defined above, video segments were divided up equally and randomly selected. Approximately one half of the selected sections were given to each of the two independent observers to code, a strategy followed by other researchers (Baucom and Kerig 2004). The two raters were the investigator, located at UT Southwestern Medical Center in Dallas, and a research assistant from the University of North Carolina at Chapel Hill.

During the training phase of the investigation and in order to become proficient in the two coding systems that were utilized, both the investigator and the research assistant practiced on video segments that were not from the sessions that would be later analyzed (i.e., none of the training coding tapes were from sessions one, four or eight of PAT). Weekly to bi-weekly meetings were conducted via Skype over the course of the investigation to first train the research assistant, and then to establish and maintain inter-rater reliability between the two raters. During the training period, coding disagreements were resolved by reviewing/discussing the videotaped behaviors on a case-by-case basis. Due to lack of time, if a disagreement occurred during the final coding of the videotaped segments, the researcher made the final decision on the appropriate code to use.

Traditionally, in the field of couple observational research, coders' agreement is assessed on 20 to 25% of the data (Floyd and Rogers 2004). In our study, 24% of the coded video-segments were used to evaluate interrater agreement. Interrater agreement was assessed by computing Cohen's Kappa coefficients. The Cohen's Kappa statistic, commonly used to measure interrater reliability, ranges from 0 (agreement by chance) to 1.0 (perfect agreement) with

thresholds set for "moderate agreement" (0.40 - 0.59), "substantial agreement" (.60 - .79), or "outstanding agreement" (.80 – 1.00) (Landis & Koch, 1977). Results for this study demonstrated moderate to high interrater reliability for both coding systems. Specifically, for the SSICS, the interrater reliability for the coders was found to have a mean Kappa of .79, with a minimum value of .45 and a maximum value of .88. For the SPAFF coding of the female marital affect, Cohen's Kappa coefficients had a mean of .77, with a minimum value of .65 and a maximum value of .87. For the SPAFF coding of the male marital affect, Cohen's Kappa coefficients had a mean of .79, with a minimum value of .65 and a maximum value of 1.

Due to lack of additional funding, data was double entered by the study investigator and the preparation for data analysis was conducted in Excel, following the guidelines presented in Elliot, Hynan et al., 2006. Data was then analyzed using the SPSS statistical software.

Statistical Analysis

Preliminary Analyses

The data was evaluated for normality and outliers. The assumption of normality was not met for the frequency and duration of warm touch and a non-parametric statistical analysis (Friedman analysis of variance) was thus used for this variable. A logarithmic transformation (Log Base 10) was performed on the warm touch duration due to the presence of extreme values in the distribution of this variable.

Aim One (Partner support)

Hypothesis 1.a proposed a change in positive helping behaviors over time (as measured by the SSICS). Data met the assumption of normality and was analyzed using a one-way repeated measure analysis of variance (ANOVA). The independent variable was time (session 1,

session 4 and 8). The dependent variables were 1 - The frequency of positive helping behaviors (SSICS), 2 – The frequency and duration of warm touches by the male partner towards the depressed female.

Hypothesis 1.b proposed that partner's support change between session 1 and session 8 would predict lower depressive symptoms at session 8. In other terms it suggested that the female participant's depressive symptoms would decrease (from session 1 to session 8) as partner's support (SSICS) increased (from session 1 to session 8) and we expected that there would be an inverse association between the change in partner's support and the change in female depressive symptoms between session 1 and session 8. Hypothesis 1. b was analyzed using linear regression.

Aim 2 (Marital support)

Hypothesis 2.a proposed that the positive marital affect (displayed by both partners) would increase across time (session 1, session 4 and session 8) and was analyzed using a two-way repeated measures analysis of variance. The independent variable was time (session 1, 4 and 8), and the dependent variables were the mothers' positive affect and her partners' positive affect.

Hypothesis 2.b proposed that the increased support by the male partner to his depressed spouse would be associated with increases in displayed positive marital affect by both partners, which in turn would predict treatment response of the depressed females and would predict the relationship satisfaction of both partners (marital adjustment). Hypothesis 2.b suggested that positive affect in spousal interactions would partially mediate the association of husbands' support with treatment outcomes. This hypothesis was examined using a correlational analysis as the predicted mediation model was not supported.

CHAPTER FOUR

RESULTS

Aim 1: Partner Support and Warm Touch

Partner Support:

Hypothesis 1.a predicted an increase in partner support as measured by the frequency of positive helping behaviors (SSICS) by the male partner to his depressed spouse from session one to session eight. Descriptive statistics for male support are reported in Table 1.a

Table 1a. Frequency of positive helping behaviors (SSICS) over sessions of PAT

	M	*SD*	*95% CI*	*Median*	*Range*
Session 1	19.18	9.673	12.68 – 25.68	23.00	2 - 28
Session 4	18.00	10.677	10.83 – 25.17	12.00	2 - 32
Session 8	21.64	9.058	15.55 – 27.72	22.00	8 - 39

Data met the assumptions of normality and equal variances and were analyzed using a one-way repeated measure analysis of variance (ANOVA). The independent variable was time (session 1, 4 and 8). There were no main effects for time F (1, 10) = .367, p = .558 when the frequency of positive behaviors was analyzed. Although the frequency of positive helping behaviors appeared to increase over time, this increase was not statistically significant.

Warm Touch:

Descriptive statistics for the frequency and duration of warm touch are reported in Table 2.a and Table 2.b

Table 2a. Frequency of partners' warm touch over sessions of PAT

	M	*SD*	*95% CI*	*Median*	*Range*
Session 1	4.64	7.801	-.60 – 9.88	1.00	0 - 26
Session 4	.73	1.272	-.13 – 1.58	0	0 - 4
Session 8	1.91	2.737	.07 – 3.75	1.00	0 - 8

Table 2b. Duration (in seconds) of partners' warm touch over sessions of PAT

	M	*SD*	*95% CI*	*Median*	*Range*
Session 1	295.45	621.857	-122.31 – 713.22	2.00	0 - 1997
Session 4	10.73	26.699	-7.21 – 28.66	0	0 - 89
Session 8	31.73	64.352	-11.51 – 74.96	1.00	0 - 192

We expected an increase over time in the frequency and duration of the male partner's warm touch towards his depressed spouse. Frequency data met the assumption of normality and we performed a one-way repeated measure analysis of variance (ANOVA). The independent variable was time (session 1, 4 and 8). There were no main effects for frequency over time F (1, 10) = 2.210, p = .168. If anything, the pattern of means suggests the frequency of warm touch decreased over time and there was no support for the hypothesis that warm touch would increase in frequency over time.

Data regarding the duration of warm touch did not meet the assumption of normality and was analyzed with the non-parametric Friedman test. The test was significant, χ^2 (2, N=11) =

7.588, $p = .023$. The Kendall coefficient of concordance was .345, indicated a decrease in the duration of warm touch over time. The mean rank for duration for each session was, session 1 = 2.59, session 4 = 1.64 and session 8 = 1.77.

Hypothesis 1.b predicted that there would be an inverse association between partner's support (i.e., positive helping behaviors measured by the SSICS) towards his depressed spouse and the female depression symptom score at session eight. Specifically, we expected that the female participant's depressive symptoms would decrease (from session 1 to session 8) as partner's support would increase over time. Descriptive statistics for change in depression score measured by the Hamilton Rating Scale for Depression-17 Item (HRSD-17) are reported in Table 2.c.

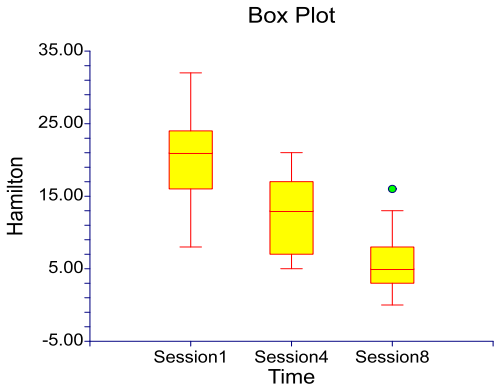
Table 2.c. Female participants' scores on the Hamilton Rating Scale for Depression (HRSD-17) over sessions of PAT (scores ≤ 9 indicate treatment response).

	M	*SD*	*95% CI*	*Median*	*Range*
Session 1	20.00	6.841	15.40 - 24.60	21.00	8 - 32
Session 4	12.91	5.612	9.14 - 16.68	13.00	5 - 21
Session 8	6.36	4.653	3.24 - 9.49	5.00	0 - 16

The pattern of means on the HRSD-17 suggests that female depressive symptoms decreased over time. To test this, we conducted a Repeated measures ANOVA for female depression scores over time (sessions 1, 4 and 8). The overall effect of time was significant F (2, 30) = 15.36, $p < 0.01$, partial eta squared $\eta^2 = .51$, indicating a moderate relationship between time and decrease in symptoms. The Bonferroni post-hoc pairwise testing revealed that session 8 was significantly different than sessions 1 and 4 and that session 4 was also significantly

different than session 1 (see Figure 1 below).

Figure 1: Decrease in depressive symptoms over time



Hypothesis 1. b was analyzed using a linear regression model. A Pearson product-moment regression model was computed between the two variables of change in depression score from session 1 to session 8 and change in SSICS score from session 1 to session 8. There was a non-significant negative correlation (r = -.425) between change in depression scores (Y) and changes in frequency of positive helping behaviors on the SSICS (X), Y= -.425X + 12.95 R^2 = .181, p = .452, meaning that 18% of the women's decrease in depression scores was related to the increase in partners helping behaviors on the SSICS. Therefore, an increase in male behaviors was related to a non-statistically significant reduction in the females' depression scores.

Aim 2: Marital affect

In Hypothesis 2.a, we expected that the positive marital affect (displayed by both partners and measured by the SPAFF) would increase across time (session 1, session 4 and session 8). Descriptive statistics regarding the female positive affect are reported in Table 3.a and the male positive affect in Table 3.b.

Table 3.a. Characteristics of Female Positive Affect (SPAFF) over sessions of PAT

	M	*SD*	*95% CI*	*Median*	*Range*
Session 1	46.82	27.734	28.19 – 65.45	35.00	15 - 90
Session 4	73.45	28.804	54.10 – 92.81	65.00	36 - 116
Session 8	67.27	32.339	45.55 – 89.00	71.00	12 - 129

Table 3.b. Characteristics of Male Positive Affect (SPAFF) over sessions of PAT

	M	*SD*	*95% CI*	*Median*	*Range*
Session 1	64.00	27.251	45.69 – 82.31	56.00	27 - 104
Session 4	69.73	32.050	48.20 – 91.26	62.00	20 - 127
Session 8	68.64	32.974	46.48– 90.79	61.00	36 - 134

To test our hypothesis, we conducted a two-way analyses of variance with one-within factor (time) and one between factors (gender). Results indicated a significant main effect for gender, $F(1, 10) = 7.840$, $p = .019$. There were no significant main effects for time, $F(1, 1.5) = .558$, $p = .541$ and no significant effects for time by gender, $F(1, 1.4) = 2.024$, $p = .174$. Post-hoc pairwise tests revealed that females had a greater increase in positive affect over time than males but that this increase was not significant.

Hypothesis 2. b. predicted that the increased support by the male partner to his depressed spouse would be associated with increases in displayed positive marital affect by both partners, which in turn would predict treatment response of the depressed females and predict the relationship satisfaction of both partners (marital adjustment measured by the DAS).

The descriptive statistics regarding the female and male Dyadic Adjustment Scale (DAS) for our sample are reported respectively in Tables 4.a and 4.b.

Table 4.a. Characteristics of Female Dyadic Adjustment Scale (DAS) over sessions of PAT (Scores < 100 suggest relationship distress).

	M	*SD*	*95% CI*	*Median*	*Range*
Session 1	102.73	8.990	96.69 – 108.77	105	85 - 115
Session 4	105.64	9.437	99.30 – 111.98	103	94 - 128
Session 8	107.27	15.831	96.64 – 117.91	106	71 - 131

Table 4.b. Characteristics of Male Dyadic Adjustment Scale (DAS) over sessions of PAT (Scores < 100 suggest relationship distress).

	M	*SD*	*95% CI*	*Median*	*Range*
Session 1	104.45	13.148	95.62 – 113.29	105	72 - 119
Session 4	108.55	9.720	102.02 – 115.08	111	89 - 120
Session 8	112.18	12.123	104.04 – 120.33	115	88 - 127

To test the effect of time on the Dyadic Adjustment Scale, we conducted a two within groups ANOVA to compare session 1 with session 8 (time) and compare genders (females vs. partners) and time by gender simultaneously. All effects were non-significant. There were no statistical differences between beginning and end of treatment sessions or between genders and no interaction between time and gender.

Hypothesis 2.b suggested that positive affect in spousal interactions would partially mediate the association of husbands' support with treatment outcomes and with the relationship

satisfaction of both partners. The mediation model (bootstrapping) that was initially proposed was not supported because our analyses revealed no significant changes in marital affect (SPAFF), in partners' positive helping behaviors (SSICS) and in marital adjustment (DAS - Dyadic Adjustment Scale). Therefore, we conducted a correlation analysis to examine the associations between change in partner support, change in marital affect (both male and female SPAFF), change in female depression scores and change in relationship satisfaction for both the males and females (DAS) between session 1 and session 8. Results showed evidence of one correlation that was significant, positive and expected between the change in female Dyadic Adjustment Scale (DAS) and the male Dyadic Adjustment Scale (DAS) over time: Pearson Correlation $r = .628$, $p = .038$. Pearson Correlations are reported in Table 4c (see page 50).

Table 4.c.: Pearson Correlations for session 1 to session 8 changes in depression score (HRSD-17), partner support (SSICS), female and male marital affect (SPAFF) and male and female relationship satisfaction (DAS), *N*=11, *df* = 9.

P values above diagonal & Pearson Correlations below diagonal	S1 to S8 - Depression Score (HRSD)	S1 to S8 - Partner Support (SSICS)	S1 to S8 - Female Dyadic Adjustment Scale (DAS)	S1 to S8 - Male Dyadic Adjustment Scale (DAS)	S1 to S8 - Female Positive Affect (SPAFF)	S1 to S8 - Male Positive Affect (SPAFF)
S1 to S8 - Depression Score (HRSD)	1	*p* =.193	*p* =.313	*p* = .348	*p* = .692	*p* = .556
S1 to S8 - Partner Support (SSICS)	-.425	1	*p* = .247	*p* = .819	*p* = .883	*p* = .470
S1 to S8 - Female Dyadic Adjustment Scale (DAS)	-.336	-.381	1	***p* = .038**	*p* = .841	*p* = .979
S1 to S8 - Male Dyadic Adjustment Scale (DAS)	-.314	.078	**.628**	1	*p* = .724	*p* = .541
S1 to S8 - Female Positive Affect (SPAFF)	-.135	-.050	.069	-.121	1	*p* = .206
S1 to S8 - Male Positive Affect (SPAFF)	.200	.244	.009	-.207	.414	1

Qualitative Data

Positive affects were recorded as follows according to the SPAFF. "Interest" was coded when one partner demonstrated verbal attention (e.g., clarification seeking) or non-verbal attention for his/her spouse (e.g., eye contact, turning towards the spouse, looking at the spouse while he/she was talking). "Validation" was coded when one partner communicated understanding and acceptance to his/her spouse (e.g., back channeling, direct expression of understanding, summarizing, communication of agreement/respect, sentence finishing). "Humor" was coded when mutual amusement was observed (e.g., shared laughter, good-natured teasing/joking, laughing/smiling at partner). "Affection-Care-Empathy" was recorded when comfort, caring and concern were observed between partners (e.g., warm statements, compliments, empathy, reminiscing of warm memories). "Enjoyment-Delight" was coded when positive interest and/or surprise and enthusiasm were observed (e.g., positive excitement, facial expressions of joy and happiness, expansiveness).

Table 5.a. Positive Affects displayed by Females across sessions 1, 4 and 8.

	M	*SD*	*Median*	*Range*
Interest	32.74	18.40	31.5	7 - 74
Validation	18.09	17.23	14	0 - 69
Humor	5.79	7.31	0	0 - 24
Affection-Care-Empathy	1.73	3.23	0	0 - 10
Enjoyment-Delight	0.88	2.87	0	0 - 12

Tables 5.a and 5.b report the nature of the main positive affects displayed by our study's couples across sessions of PAT. The main positive affects displayed by females were "interest"

and “validation”, followed by “humor” and “affection-care-empathy”. The main positive affects displayed by males were “interest” and “validation”, followed by “affection-care-empathy” and “humor”.

Table 5.b. Positive Affects displayed by Males across sessions 1, 4 and 8.

	M	*SD*	*Median*	*Range*
Interest	33.27	16.8	32	6 - 76
Validation	21.91	13.36	21	0 – 51
Affection-Care-Empathy	4.79	6.85	0	0 - 28
Humor	4.30	5.70	0	0 - 18
Enjoyment-Delight	0.42	1.71	0	0 - 8

Based on the SPAFF, negative affects were recorded as follows. “Tension” was coded for observed occurrences of fear, tension/uneasiness, worry, anxiety or nervous anticipation (e.g., fidgeting, nervous laughter, doubt). “Sadness” was recorded for verbal and non-verbal behaviors communicating loss, resignation, helplessness, hopelessness, (e.g., tearfulness, expression of hurt feelings, sighing, etc). “Anger” was recorded when verbal or non-verbal behaviors expressed frustration/impatience/irritation, complaints, angry commands or questions. “Domineering” was coded when there were indications of one partner attempting to exert control over his/her spouse or threats (e.g., invalidation, lecturing/patronizing, manipulative questions, etc…). “Whining” was coded when plaintive (quality of voice) forms of emotional protests were observed. “Contempt/Criticism” were coded when blaming, sarcasm, hostile, non-shared humor and other forms of lack of respect or intention to hurt were observed, including eye-rolls, character attacks

and long list of complaints (kitchen sinking). “Defensiveness” was used when behaviors expressed innocent victimhood or righteous indignation (e.g., “yes-but” statements, cross-complaining, minimization of partner’s complaint or excuses). Some couples displayed close to no negative affects (mainly “tension”) while three couples displayed most of the negative affects recorded. “Whining” was never observed for males and “sadness” was observed primarily for females. “Belligerence”, “Disgust” and “Stonewalling” were coded so rarely and by so few spouses that these codes were eliminated from subsequent analyses and are thus not reported in our study’s tables.

Table 6.a. Negative Affects displayed by Females across sessions 1, 4 and 8.

	M	*SD*	*Median*	*Range*
Sadness	8.55	9.65	6	0 - 35
Tension	8.33	7.68	8	0 - 26
Anger	4.15	7.33	0	0 - 30
Whining	1.79	3.97	0	0 - 16
Defensiveness	0.79	2.79	0	0 - 14
Contempt	0.61	1.98	0	0 - 8

Table 6.b. Negative Affects displayed by Males across sessions 1, 4 and 8.

	M	*SD*	*Median*	*Range*
Tension	5.52	5.98	6	0 - 20
Anger	2.97	7.18	0	0 - 24
Sadness	1.00	3.24	0	0 - 13
Defensiveness	0.61	2.47	0	0 - 12
Contempt	0.45	1.46	0	0 - 45
Domineering	0.36	2.09	0	0 - 12

Tables 6.a and 6.b below report the nature of the negative affects displayed by our study's couples across sessions of PAT. The main negative affects displayed by females were "sadness" and "tension", followed by "anger" and "whining". The main negative affects displayed by males were "tension" and "anger", followed by "sadness".

CHAPTER FIVE

DISCUSSION

The purpose of this investigation was to develop an approach to quantitatively evaluate non-verbal expressions of positive partner support in the video recordings of "real time" dyadic psychotherapy sessions, and test the usefulness of this approach for assessing associations between male partner support and female depressive symptom amelioration. With awareness of the limitations of our small sample size (11 couples), the overall goal of the study was to find trends that could suggest mechanisms of action to focus upon in future research with the Partner-Assisted Therapy (PAT) approach. A secondary aim of our study was to adapt the coding systems traditionally used in couples observational research (*i.e.*, SSICS for the measurement of partner support and SPAFF for the measurement of marital affect) from use in controlled research (by assigning a standardized marital conflict task to discussion in a laboratory) to use in uncontrolled therapy sessions, where interactions between partners are spontaneous and occur in the presence of a third party, the therapist. After completing this task, our next aims were to quantify specified overt partner behaviors related to partner support, evaluate potential associations of these behaviors with female treatment response, explore in both partners whether male partner support was associated with an increase in positive marital affect and marital adjustment and, lastly, investigate the relationship of these increases in affect and adjustment to the woman's decrease in depressive symptoms. This investigation represents the first scientific attempt to apply couple observational coding systems to *in vivo* therapy sessions.

Partner Support and Treatment Outcome

We hypothesized that there would be an increase in partner support while the female depression score at session eight would decrease. This hypothesis was partially supported. There were significant differences in depressive symptoms (HRSD-17) for the interaction of session by person ($p<0.001$) and the main effects of session ($p<0.001$). Women had high levels of depressive symptoms at baseline ($m = 20.00$, $sd = 6.84$) that declined significantly by session 8 ($m = 6.36$, $sd = 4.65$), the final session in the acute phase of treatment. We also expected that the partner support would increase from session one to session eight of PAT. Although the frequency of partner supportive behaviors increased as expected between the beginning and the end of treatment (12.83% increase over 8 sessions of therapy), this increase did not reach statistical significance. This is likely due to the low power of our study, recommending further investigation in larger samples.

Our hypothesis of the inverse correlation between partner support and treatment outcome was also partially supported by a moderate Pearson coefficient of -.425 that, though not statistically significant ($p < .452$), suggested that the two variables were inversely correlated in the direction that we had expected. In the fields of mental health and psychotherapy research, several authors have emphasized the difference between "statistically significant results" and "clinically useful results" in measuring treatment effect (Jacobson et al., 1999). In psychotherapy research, an effect size based on a correlation of .3, considered small by statistical standards, could still mean that patients showed a clinically significant improvement during treatment (Rutlege & Loh, 2004). In our study, the correlation indicated a moderate association between decrease in female symptoms and increase in male partner support. It is thus reasonable to propose that this small pilot study identified a trend that could be further investigated for

statistical significance in a larger sample size, adding to our understanding of the possible effects of the inclusion of partner support to enhance treatment effects. To inform such potential future research, we conducted a power analysis using the Simple Interactive Statistical Analysis System to determine the sample size of future studies that would be adequately powered. A sample size of N =11 (our study) achieves a power of 26% with a significance level of 0.05 to detect a correlation of -0.425 between partner support and treatment outcome. To increase power to 80% ($p < 0.05$), a sample size of $N = 41$ would be necessary to reach an effect size of 0.425. A sample of 55 couples would further increase power to detect differences to more than 90%.

Several factors prevent comparison of our small sample with other reports: 1) No other study to date has documented how partner support, measured by the SSICS, may change over time during the course of a therapeutic intervention; 2) the SSICS has not been employed to measure partner support in the pregnant and postpartum population; 3) studies that used the SSICS to investigate the association between partner support and relationship satisfaction or marital distress report means of helping behaviors that are computed by dividing the number of times each SSICS code was scored for each spouse by the total number of speaking turns of each spouse (Sullivan et al., 2010; Pasch & Bradbury, 1998; because our study followed the manual for the SSICS, it did not record speaking turns). However, by this first attempt to apply the SSICS to therapy sessions, we have provided preliminary evidence that the use of this coding system in future therapy research is feasible and reliable. Although time consuming, the SSICS can strengthen research by offering an objective and interesting complement to more common self-report assessments.

Warm Touch

Our hypothesis that the frequency and duration of warm touch would increase over time was not supported. Duration of warm touch significantly decreased over time, as did frequency of warm touch (although the effect was not significant). Importantly, as indicated by the means and standard deviations per session, there was significant variability in warm touch duration across couples and sessions in our sample (Session 1, $m = 295.4$, $sd = 621$; Session 8, $m = 31.7$ seconds, $sd = 64.35$). For example, some male partners never demonstrated affectionate gestures towards their spouse in the context of the therapy room, while a few partners (five of them) would leave their hands on their spouse's shoulder for durations of several minutes. The present finding regarding the decrease in warm touch duration over time also may suggest that the male partners who displayed affectionate touch did so more particularly at the beginning of treatment to support their female partners when they were more significantly depressed. As the female partner was less depressed or was relatively free of symptoms at the end of treatment, the partners may have felt less compelled to use touch. Another intervening factor could be that, in our sample of 11 couples, five couples occasionally brought their new babies to the PAT sessions (three couples became parents during the course of the study, and two were enrolled after the birth of their baby). Based on our observation of PAT sessions, it is reasonable to hypothesize that once the baby was born, the male partners offered their wives other forms of support than warm touch. For example, to enable their spouse to participate fully in the therapy session, male partners often offered the instrumental support of holding, feeding, and/or diapering the infant. Another factor to take into consideration is that, unlike other studies investigating warm touch between romantic partners, no encouragement or instruction was given to the couples to engage in affectionate touch during sessions (Gallace & Spence, 2010, Grewen 2005, Light et al, 2005).

With these factors taken into consideration, our study may provide preliminary evidence that the presence of warm touch is a variable of questionable value for the evaluation of partner support in the pregnant and postpartum population.

Marital Affect

Our hypothesis that positive marital affect (displayed by both partners) would increase across time (session 1, 4 and 8) was not statistically supported. Although positive marital affect did increase from the beginning to the end of treatment for both genders, we found gender differences in the trend, with females demonstrating a greater increase in positive affect (43.68%) than the males (7.25%). As with the other analyses, the low power of our study may explain this finding. However, this larger increase in female positive affect is certainly congruent with symptom improvement in the females, suggesting that the reduction in depression in combination with the PAT sessions went beyond just ameliorating symptoms to improving interpersonal functioning.

The SPAFF recording of positive and negative affect has been reported in several studies investigating marital stability and marital dissolution (Sullivan et al., 2010; Pasch & Bradbury, 1998; Gottman et al., 1998; Pasch et al., 1997). Of note, these studies often blended together affect codes for the purpose of simplicity (*e.g.* summing both female and male affects and combining "validation" with "affection-care-empathy"), or chose to focus on only two or three affects relevant to their study hypotheses. These manuscripts also offered correlations between types of affect and other variables, but did not consistently report means or standard deviations as directed in the manual (Coan and Gottman, 2007). These differences in data presentation make comparison between studies difficult if not impossible. However, our finding that the positive affects that were primarily displayed by our study couples were "interest," "validation,"

"humor," and "affection-care-empathy," is consistent with prior findings (Sullivan et al., 2010; Waldinger et al., 2004).

Marital Satisfaction:

We hypothesized that the increased support by the male partner to his depressed spouse would be associated with increases in displayed positive marital affect by both partners, which in turn would predict treatment response of the depressed females and predict the relationship satisfaction of both partners (marital adjustment). Although this hypothesis was not statistically supported, the means of the female and male Dyadic Adjustment Scale (DAS) over sessions of PAT showed a trend for increase, 4.42% increase for the females and 7.40% increase for the males. In our study, the means for the female DAS during the acute phase of PAT (session 1, m = 102. 73, sd = 8.9; session 8, m = 107.27, sd =15.8) are slightly lower than the means documented at one point in time in a large sample of married couples (N = 900 husbands and wives) from the *non-distressed* population (m = 109.75, sd = 16.2) (South et al., 2009). This is not surprising as the association between depression and poorer quality of marital adjustment has been well established (Mamun et al. 2009). The range of means of the male DAS during the acute phase of PAT (session 1, m = 104. 45, sd = 13.1; session 8, m = 112.18, sd = 12.1) is congruent with the means reported for men in the large normal/non-distressed sample (m = 108.72, sd =14.8) (South et al., 2009). Additionally, it has been reported in the literature that husbands and wives DAS scores are highly correlated, producing r values consistently around .70 (Waldinger et al., 2004). In our study, males and females DAS were indeed significantly correlated (r = .628, p = .038). The interplay between treatment for perinatal depression and marital adjustment needs further investigation.

Limitations

The small sample size, while practical for testing the safety, feasibility, and acceptability of PAT during its development, limits the interpretations one can draw from the findings. Nevertheless, data from this study demonstrated promising trends that can inform future research. Our small study sample represented wide diversity in independent variables such as ethnicity, marital and pregnancy status, family composition and size, but the small number of enrolled couples did not allow for supplementary, more complex analyses between these variables of interest and partner support or symptom improvement. We believe this study contributes to the existing literature as the first demonstration of the application of basic coding tools from laboratory-controlled couples' research to live psychotherapy settings. This being stated, one factor that may limit the possibility of study replication is the cost versus the usefulness of a relatively lengthy coding procedure for psychotherapy sessions. From our experience, it would be more feasible and informative to use the SSICS coding system alone. Relative to the SPAFF, the SSICS offers a more efficient coding system (training and procedure) yet generates a promising objective measure of partner supportive behaviors.

Conclusions and Implications for Future Research

This exploratory study aimed to elucidate some of the processes involved in PAT during treatment for perinatal depression. There is promising evidence that including partners in treatment may facilitate partner support and, in turn, bring about a decrease in female depressive symptoms. Our results also suggest that the SSICS measure is a feasible way to assess changes in partner support, particularly when used to augment traditional self-report measures. Finally, we gathered preliminary evidence that the presence/absence of warm touch may not be relevant for the evaluation of partner support, marital satisfaction, or treatment response in the pregnant and

postpartum population. Although limited in scope, our findings encourage future research to further investigate the identified trends toward significance by testing the presented hypotheses in larger sample sizes. The associations between partner support, relationship satisfaction, positive marital affect, and successful treatment for perinatal depression may be complex, but are critical to identify if we are to properly facilitate healthy transitions to parenthood in today's couples.

REFERENCES

Angus, L., R. Goldman, et al. (2008). "Introduction. One case, multiple measures: An intensive case-analytic approach to understanding client change processes in evidence-based, emotion-focused therapy of depression." Psychotherapy Research **18**(6): 629-633.

Bänninger-Huber, E. (1992). "Prototypical affective microsequences in psychotherapeutic interaction." Psychotherapy Research **2**: 291-306.

Baucom, D., H and P. K. Kerig (2004). Coding Couples' Interactions: Introduction and Overview. Couple Observational Coding Systems. P. K. Kerig and D. Baucom, H. Mahwah, New Jersey London, Lawrence Erlbaum Associates, Publishers**:** 3-25.

Baucom, D., H and V. Shoham (1998). "Empirically supported couple and family interventions for marital distress and adult mental health problems." Journal of Consulting & Clinical Psychology **66**(1): 53-88.

Beach, S. R. H. and F. D. Fincham (1994). Toward an integrated model of negative affectivity in marriage. Emotion in marriage and marital therapy. S. M. G. Johnson, L. S. New York: Bruner/Mazel**:** 227-255.

Beach, S. R. H., D. A. Smith, et al. (1994). "Marital interventions for depression: Empirical foundation and future prospects." Applied & Preventive Psychology **3**: 233-250.

Bech, P., L. F. Gram, et al. (1975). "Quantitative rating of depressive states." Acta Psychiatrica Scandinavica **51**(3): 161-170.

Berenbaum, H. and T. F. Oltmanns (1992). "Emotional experience and expression in schizophrenia and depression." Journal of Abnormal Psychology **101**(1): 37-44.

Berry, D. S. and J. K. Willingham (1997). "Affective Traits, Responses to Conflict, and Satisfaction in Romantic Relationships." Journal of Research in Personality **31**: 564-576.

Bledsoe, S. E. and N. K. Grote (2006). "Treating Depression During Pregnancy and the Postpartum: A Preliminary Meta-Analysis." Research on Social Work Practice **16**(2): 109-120.

Bonanno, G. A. and D. Keltner (1997). "Facial Expressions of Emotion and the Course of Conjugal Bereavement." Journal of Abnormal Psychology **106**(1): 126-137.

Bonanno, G. A., D. Keltner, et al. (2002). "When the Face Reveals What Words Do Not: Facial Expressions of Emotion, Smiling, and the Willingness to Disclose Childhood Sexual Abuse." Journal of Personality and Social Psychology **83**(1): 94-110.

Bowlby, J. (1969). Attachment, New York, Basic Books.

Brandon, A. R., N. L. Ceccotti, et al. (2011). "Partner-Assisted Therapy (PAT) for Perinatal Depression." in submission.

Brandon, A. R., G. Shivakumar, et al. (2011). "Partner-Assisted Therapies (PAT): How Partners can be incorporated into the treatment of Mental Disorders." in submission.

Bylsma, L. M., B. H. Morris, et al. (2008). "A meta-analysis of emotional reactivity in major depressive disorder." Clinical Psychology Review **28**: 676-691.

Carter, C. S. (1998). "Neuroendocrine Perspectives on Social Attachment and love." Psychoneuroendocrinology **23**: 779-818.

Carver, C. S., C. Pozo, et al. (1993). "How coping mediates the effect of optimism on distress: A study of women with early stage breast cancer." Journal of Personality and Social Psychology **65**(2).

Clark, L. A. and D. Watson (1991). "Tripartite Model of Anxiety and Depression: Psychometric Evidence aT axonomic Implications." Journal of Abnormal Psychology **100**(3): 316-336.
Coan, J. A. and J. M. Gottman (2007). The Specific Affect Coding System (SPAFF).
Collins, N. L. and B. C. Feeney (2000). "A Safe Haven: An Attachment Theory Perspective on Support Seeking and Caregiving in Intimate Relationships." Journal of Personality and Social Psychology **78**: 1053-1073.
Darwiche, J., Y. de Roten, et al. (2008). "Mutual smiling episodes and therapeutic alliance in a therapist-couple discussion task." Swiss Journal of Psychology **67**(4): 231-239.
de Roten, Y., E. Fivaz-Depeursinge, et al. (2000). "Body and Gaze formations and the communicational alliance in couple-therapist triads." Psychotherapy Research **10**(1): 30-46.
Dennis, C.-L. (2005). "Psychosocial and psychological interventions for prevention of postnatal depression: systematic review." British Medical Journal **331**: 1-8.
Dennis, C.-L. and L. E. Ross (2006). "Women's perceptions of partner support and conflict in the development of postpartum depressive symptoms." Journal of Advanced Nursing **56**(6): 588–599.
Dennis, C. L., L. E. Ross, et al. (2007). Psychosocial and psychological interventions for treating antenatal depression (Review). The Cochrane Review by the Cochrane Collaboration, John Wiley & Sons, Ltd.
Dimitrovsky, L., Levy-Shiff, R., Schattner-Zanany, I (2002). "Dimensions of depression and perfectionism in pregnant and non-pregnant women: their levels and interrelationships and their relationship to marital satisfaction". The Journal of Psychology, **136** (6), 631-646.
Ditzen, B., I. Neumman, et al. (2007). "Effects of different parts of couple interaction on cortisol and heart rate responses to stress in women." Psychoneuroendocrinology **32**: 565-574.
Ekman, P. (1992). "An argument for Basic Emotions." Cognition and Emotion **6**: 169-200.
Ekman, P. (1993). "Facial expression and emotion. ." American Psychologist **48**: 384-392.
Fava, M., A. J. Rush, et al. (2003). "Background and rationale for the Sequenced Treatment Alternatives to Relieve Depression (STAR*D) study." Psychiatric Clinics of North America **26**(2): 457-494.
Field, T. (1995). "Infants of Depressed Mothers." Infant Behavior and Development **18**(1-13).
Floyd, F. J. and C. H. Rogers (2004). Methodological Guidelines for Conducting Observations of Couples. Couple Observational Coding Systems. P. K. Kerig and D. Baucom, H. Mahwah, New Jersey, Lawrence Erlbaum Associates.
Fredrickson, B. L. (1998). "What Good are Positive Emotions?" Review of General Psychology **2**(3): 300-319.
Fredrickson, B. L. and R. W. Levenson (1998). "Positive Emotions Speed Recovery from the Cardiovascular Sequelae of Negative Emotions." Cognition and Emotion **12**(2): 191-220.
Gable, S. L., G. C. Gonzaga, et al. (2006). "Will you be there for me when things go right? Supportive Responses to Positive Event Disclosures." Journal of Personality and Social Psychology **91**(5): 904-917.
Gable, S. L., H. T. Reis, et al. (2004). "What Do You Do When Things Go Right? The Intrapersonal and Interpersonal Benefits of Sharing Positive Events." Journal of Personality and Social Psychology **87**(2): 228-245.
Gallace, A. and C. Spence (2010). "The science of interpersonal touch: an overview." Neuroscience and biobehavioral reviews **34**: 246-259.

Glade, A. C., R. A. Bean, et al. (2005). "A Prime Time for Marital/Relational Intervention: A Review of the Transition to Parenthood Literature with Treatment Recommendations." The American Journal of Family Therapy **33**: 319-336.

Goodman, J. H. (2009). "Women's Attitudes, Preferences, and Perceived Barriers to Treatment for Perinatal Depression." Birth **36**(1): 60-69.

Gottman, J., M, J. Coan, et al. (1998). "Predicting Marital Happiness and Stability from Newlywed Interactions." Journal of Marriage and Family **60**(1): 5-22.

Gottman, J., M and C. Notarius, I (2000). "Decade Review: Observing Marital Interaction." Journal of Marriage and Family **62**(4): 927-947.

Gruber, J., C. Oveis, et al. (2011). "A discrete emotions approach to positive emotion disturbance in depression." Cognition and Emotion **25**(1): 40-52.

Guerrero, L. K. and P. A. Andersen (1994). "Patterns of Matching and Initiation: Touch Behavior and Touch Avoidance across Romantic Relationship Stages." Journal of Nonverbal Behavior.

Hamilton, M. (1960). "A rating scale for depression." Journal of Neurology, Neurosurgury, and Psychiatry **23**: 56-62.

Harker, L. and D. Keltner (2001). "Expressions of Positive Emotion in Women's College Yearbook Pictures and Their Relationship to Personality and Life Outcomes Across Adulthood." Journal of Personality and Social Psychology **80**(1): 112-124.

Hertenstein, M. J., D. Keltner, et al. (2009). "The Communication of Emotion via Touch." Emotion **9**(4): 566-573.

Heyman, R. E. (2001). "Observation of Couple Conflicts: Clinical Assessment Applications, Stubborn Truths, and Shaky Foundations." Psychological Assessment **13**(1): 5-35.

Holt-Lunstad, J., W. A. Birmingham, et al. (2008). "Influence of a "Warm Touch" Support Enhancement Intervention Among Married Couples on Ambulatory Blood Pressure, Oxytocin, Alpha Amylase, and Cortisol." Psychosomatic Medicine **70**: 976-985.

Jacobson, N., S., Roberts, L., J et al. (1999). "Methods for defining and determining the clinical significance of treatment effects: description, application, and alternatives." Journal of Consulting and Clinical Psychology **67**(3): 300-307.

Ji, S., Long, Q. et al. (2011). "Validity of depression rating scales during pregnancy and the postpartum period: impact of trimester and parity." Journal of Psychiatric Research **45**: 213-219.

Keltner, D. and G. A. Bonanno (1997). "A Study of Laughter and Dissociation: Distinct Correlates of Laughter and Smiling During Bereavement." Journal of Personality and Social Psychology **73**(4): 687-702.

Keltner, D. and A. M. Kring (1998). "Emotion, Social Function, and Psychopathology." Review of General Psychology **2**(3): 320-342.

Kring, A. M. and D. Sloan (1991). "The Facial Expression Coding System (FACES) - A Users Guide."

Lancaster, C. A., K. J. Gold, et al. (2010). "Risk factors for depressive symptoms during pregnancy: a systematic review." American Journal of Obstetrics & Gynecology: 5-14.

Landis, R. J. and Koch, G. G. (1977) The measurement of observer agreement for categorical data. Biometrics **33**:159-174.

Lepper, G. and E. Mergenthaler (2007). "Therapeutic collaboration: How does it work?" Psychotherapy Research **17**(5): 576-587.

Light, K. C., K. M. Grewen, et al. (2005). "More frequent partner hugs and higher oxytocin levels are linked to lower blood pressure and heart rate in premenopausal women." Biological Psychology **69**(1): 5-21.

Mamun, A. A., Clavarino, A. M., et al. (2009). "Maternal depression and the quality of marital relationship: a 14-year prospective study." Journal of Women's Health, **18** (12): 2023-2030.

McQueen, K., P. Montgomery, et al. (2008). "Evidence-Based Recommendations for Depressive Symptoms in Postpartum Women." Journal of Obstetric, Gynecologic, & Neonatal Nursing **37**: 127-136.

Mergenthaler, E. (1996). "Emotion-Abstraction Patterns in Verbatim Protocols: A new way of Describing Psychotherapeutic Processes." Journal of Consulting & Clinical Psychology **64**(6): 1306-1315.

Misri, S., X. Kostaras, et al. (2000). "The impact of partner support in the treatment of postpartum depression." Canadian Journal of Psychiatry **45**: 554-558.

Myers, D. G. and E. Diener (1995). "Who is happy?" Psychological Science **6**(1): 10-19.

O'Hara, M. W. and M. Swain (1996). "Rates and Risks of Postpartum Depression: A meta-analysis." International Review of Psychiatry **8**: 37-54.

Oveis, C., J. Gruber, et al. (2009). "Smile Intensity and Warm Touch as Thin Slices of Child and Family Affective Style." Emotion **9**(4): 544-548.

Pasch, L. A. and T. N. Bradbury (1998). "Social Support, Conflict, and the development of marital dysfunction." Journal of Consulting and Clinical Psychology **66**(2): 219-230.

Pasch, L. A., T. N. Bradbury, et al. (1997). "Social Support in Marriage: an analysis of intraindividual and interpersonal components." Book Sourcebook of Social Support and Personality. Edited by Gregory Pierce, Brian Lakey, Irwin Sarason, Barbara Sarason (Plenum Press, New York): 229-256.

Pasch, L. A., K. W. Harris, et al. (2004). The Social Support Interaction Coding System (SSICS). Couple Observational Coding Systems. P. K. Kerig and D. Baucom, H. Mahwah, New Jersey London, Lawrence Erlbaum Associates, Publishers.

Prager, K. J. (1995). The Psychology of Intimacy. New York, NY, The Guilford Press.

Ross, L., E., Gilbert Evans, S.E. , et al. (2003). "Measurement issues in postpartum depression part 2: Assessment of somatic symptoms using the Hamilton Rating Scale for Depression". Archives of Women's Mental Health **6**:59-64.

Rutledge, T. and Loh, C. (2004). "Effect sizes and statistical testing in the determination of clinical significance in behavioral medicine research."Annuals of Behavioral Medicine **27**(2): 138-145.

Schug, J., D. Matsumoto, et al. (2010). "Emotional expressivity as a signal of cooperation." Evolution and Human Behavior **31**: 87-94.

Sloan, D., M. E. Strauss, et al. (1997). "Subjective and expressive emotional responses in depression." Journal of Affective Disorders **46**(1997): 135-141.

Sloan, D., M. E. Strauss, et al. (2001). "Diminished Response to Pleasant Stimuli by Depressed Women." Journal of Abnormal Psychology **110**(3): 488-493.

Spinelli, M. (1997). "Interpersonal psychotherapy for depressed antepartum women: A pilot study." American Journal of Psychiatry **154**(7): 1028-1030.

Spinelli, M. and J. Endicott (2003). "Controlled clinical trial of interpersonal psychotherapy versus parenting education for depressed pregnant women." American Journal of Psychiatry **160**(3): 555.

South, S., C, Krueger, R., F, Iacono, W., G (2009). "Factorial invariance of the Dyadic Adjustment Scale across gender." Psychological Assessment **21**(4): 622-628.
Sullivan, K. T., L. A. Pasch, et al. (2010). "Social Support, Problem Solving, and the Longitudinal Course of Newlywed Marriage." Journal of Personality and Social Psychology **98**(4): 631-644.
Tomarkenand, A. J. and A. D. Keener (1998). "Frontal Brain Asymmetry and Depression: A Self-regulatory Perspective." Cognition and Emotion **12**(3): 387-420.
Waldinger, R. J., M. S. Shulz, et al. (2004). "Reading Others' Emotions: The Role of Intuitive Judgments in Predicting Marital Satisfaction, Quality and Stability." Journal of Family Psychology **18**(1): 58-71.
Yonkers, K. A., K. L. Wisner, et al. (2009). "The management of depression during pregnancy: a report from the American Psychiatric Association and the American College of Obstetricians and Gynecologists." Obstetrics and Gynecology **114**(3): 703-713.
Zelkowitz, P., Schinazi, J., Katofsky, L., Saucier, J.F. et al. (2004). "Factors associated with depression in pregnant immigrant women". Transcultural Psychiatry **4** (4): 445-464.
Zimmerman, M., M. A. Posternak, et al. (2005). "Is the cutoff to define remission on the Hamilton Rating Scale for Depression too high?" Journal of Nervous and Mental Disorders **193**: 170-175.

APPENDICES

Appendix 1: Table 7: Partner-Assisted Therapy Treatment Structure.

Study Measures:
Appendix 2: Hamilton Rating Scale for Depression – 17 items (HRSD-17)
Appendix 3: Dyadic Adjustment Scale (DAS)
Appendix 4: Social Support Interaction Coding System (SSICS)
Appendix 5: Adapted version of the Specific Affect Coding System (SPAFF)

Other PAT study documents:
Appendix 6: PAT Consent form partner
Appendix 7: PAT Consent form woman
Appendix 8: PAT project summary IRB approval

Appendix 1, Table 7: Partner-Assisted Therapy Treatment Structure

COMMON COMPONENTS (each session)	Partners complete Edinburgh Postnatal Depression Scale symptom measure Therapist and partners score EPDS measures and discuss similarities/differences Partners are encouraged to express experience of symptoms
SPECIFIC COMPONENTS OF EACH SESSION	
Session 1: Orientation	The couple is oriented to the process of psychotherapy in this first Conjoint session. The orientation includes a discussion of the following: 1) Number of sessions is set at eight with a refresher session scheduled six-eight weeks later. 2) Appointment times are set; rescheduling and cancellation policy stated. 3) Couple-therapist contact between sessions is clarified. a) The couple should be encouraged to call between sessions if either partner has concerns about the patient's suicidality or if other serious symptoms present (psychosis, substance abuse, homicidal thoughts or behavior, etc.). b) If an emergency call is placed outside office hours, the couple is informed that the on call clinician will be paged and will call them on the number they provide the operator within 15 minutes. 4) Administration of the Edinburgh Postnatal Depression Scale, original version and partner version. The measure is introduced as a manner of quantifying the intensity of the patient's depression, both from her experience and from her partner's observations. It will be completed at the beginning of each session throughout the treatment. Guide the partners through summing the items, and discuss the total, curiously noting the similarities/discrepancies between the two scores. 5) Introduce the rationale behind PAT clearly, avoiding jargon. a) Brief explanation of attachment theory. b) Brief summary of research findings on partner support and perinatal depression. c) Invitation to couple to explore any application of this information to their experience of depression, particularly the relevant stressors that preceded the onset.
Sessions 2-3: Accessing the Depressive Experience	The goal of this initial stage of therapy is for the partners to each articulate what the experience of depression is like for them and how they understand its onset and course. 1) Therapist and couple hypothesize concerning events/stressors/conflicts that may have occurred prior to and since onset. 2) Therapist draws out each partner's needs for the other and mutual perceptions of support; EPDS responses are discussed, exploring mismatches in responses. 3) Identify existing behaviors of support and strengths in relationship.
Sessions 4-6: Intensifying Support and Restructuring Interactions	The goal of the middle stage of therapy is to establish her support needs along with responses she would perceive as supportive, evaluating his capacity to meet these needs, and identifying others who might be able to fill gaps. Also explored are parental and relationship role expectations, both self and other, of partners. (In couples expecting their first child, this may require more time and processing than in couples who have experienced previous childbearing transitions.) 1) Simultaneously holding in consideration partners' independent needs for support, therapist guides an exploration of how the couple expects their own needs to be met in the face of increasing parental responsibilities, strategizing ways and resources for meeting those needs. 2) Key interactions presented by the couple previously as being unsupportive are revisited and these new strategies are applied in scenarios to test for efficacy.
Sessions 7-9: Consolidating Changes and Exploring Additional Resources for Support	The goal of the final stage of therapy is to review symptom improvement and relationship to positive changes in interactions, exploring ways for the couple to continue independent progress. 1) If the EPDS scores are above 10, the therapist continues to work with the couple exploring the symptoms, analyzing exacerbating factors, and intensifying support. 2) Adjournment involves processing what the experience of therapy has been like for each partner, and agreeing upon actions to take if symptoms return.

PAT (Partner-Assisted Therapy)

HAMILTON RATING SCALE FOR DEPRESSION (17-item)

Pt. ID: _____ Date: _____
Pt. Init.: _____ Session No.: _____
Rater Init.: _____

1. DEPRESSED MOOD (sad, blue, gloomy, weepy, pessimistic, helpless, hopeless, worthless)
- 0 Not depressed.
- 1 Feeling state only elicited on questioning
- 2 Occasional weeping. Spontaneously reports feeling states.
- 3 Frequent weeping. obvious behavioral evidences in face, posture, voice. Speaks mostly about feeling states.
- 4 Exhibits virtually only these feeling states verbally and non-verbally. May have "gone beyond weeping".

2. GUILT FEELINGS AND DELUSIONS
- 0 Absent.
- 1 Self-reproach, feels they have let people down.
- 2 Expresses guilt regarding past errors or misdeeds.
- 3 Present illness is deserved punishment. Ruminates over past errors and sins.
- 4 Severe self-reproach. Guilty delusions, e.g. making other people ill. Deserves to die. May have accusatory/ denouncing hallucinations.

3. SUICIDE
- 0 Absent.
- 1 Feels life is empty, not worth living.
- 2 Recurrent thoughts or wishes about death of self.
- 3 Active suicidal thoughts, threats, gestures.
- 4 Serious suicide attempt.

4. INITIAL INSOMNIA
- 0 Absent.
- 1 Mild, infrequent; more than ½ hr occasionally
- 2 Obvious and severe; more than ½ hr usually

5. MIDDLE INSOMNIA
- 0 Absent (rate 1 if hypnotic is being used).
- 1 Complains of feeling restless and disturbed during night)
- 2 Wakes during night; reads/smokes in bed, up out of bed except to void

6. DELAYED INSOMNIA
- 0 Absent.
- 1 Wakes earlier than usual but goes back to sleep.
- 2 Wakes 1-3 hours before usual; unable to sleep again.

7. WORK AND INTERESTS (Apathy: loss of interest in work, hobbies, social life. Anhedonia: unable to feel pleasure)
- 0 No disturbance.
- 1 Feels incapable, listless, less efficient (rate fatigue under #13)
- 2 Has to push to work/play. No active interests, little satisfaction.
- 3 Clearly decreased efficiency. No spontaneous activity. Marked loss of interest.
- 4 Stopped working because of present illness. Doesn't shave, bathe, etc. Avoids ward chores, needs urging.

8. PSYCHOMOTOR RETARDATION (slowing of thought, speech, movement)
- 0 Absent.
- 1 Slightly flattened affect, fixed facial expression.
- 2 Monotonous voice, delayed answering, sits motionless.
- 3 Interview difficult and prolonged. Moves slowly.
- 4 Depressive stupor. Interview impossible.

9. AGITATION (may co-exist with retardation)
- 0 Absent.
- 1 Fidgety. Clenching fists or chair arm. Kicking feet.
- 2 Wringing hands, pulling hair, picking at hands or clothes. Restless, pacing.
- 3 Can't sit still. Much movement and restlessness/ pacing.
- 4 Interview conducted "on the run", constant pacing, pulling off clothes, tearing at hair, constant picking at face/hands.

10. PSYCHIC ANXIETY (present illness – not prior disposition. Tense, irritable, apprehensive, fearful, phobic, panic attacks)
- 0 Absent.
- 1 Minimal distress, admitted only on direct questioning.
- 2 Spontaneously expresses discomfort; worries over trivia.
- 3 Obviously apprehensive in facial expressions and speech.
- 4 Severely anxious, panicky, forgetful.

11. SOMATIC ANXIETY (Physio sxs of anxiety: fainting, blurry vision, headache, tremor, sweating, flushing, hyperventilation, palpitations, indigestion, etc.)
- 0 Absent.
- 1 Trivial.
- 2 Mild.
- 3 Moderate.
- 4 Severe

12. APPETITE
- 0 Normal.
- 1 Eats spontaneously, but without pleasure.
- 2 Marked decrease of appetite and food intake. Eats only with urging, requests laxatives.

13. SOMATIC ENERGY
- 0 Normal.
- 1 Occasional, mild fatigue, easy tiring, aching.
- 2 Obviously low in energy, constantly tired, heavy dragging feeling in limbs.

14. LIBIDO
- 0 Normal for age and marital status.
- 1 Mildly decreased drive and satisfaction.
- 2 Definite loss of desire, functional impotence

15. HYPOCHONDRIASIS
- 0 Absent.
- 1 Mildly preoccupied w/bodily functions & physical sxs
- 2 Moderately concerned with physical health
- 3 Morbid convictions of organic disease – brain tumor, cancer
- 4 Bizarre delusions – worms eating head, rotting inside, bowels blocked

16. LOSS OF INSIGHT
- 0 Acknowledges being depressed and ill
- 1 Acknowledges illness but attributes to bad food, climate, work, virus, need for rest
- 2 Denies being ill at all

17. WEIGHT LOSS
- 0 No weight loss; less than 1 lb by scale
- 1 Probable weight loss; or greater than 1 lb by scale
- 2 Definite weight loss; or greater than 2 lbs by scale

TOTAL =

D A S

Graham B. Spanier, Ph.D.

Client ID _____ **Sex** M F **Age** _____ **Marital Status** _____

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. Circle one star for each item.

	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 termination of 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 others' 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 do the following 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 or disagree. Indicate if either item caused differences of opinions or were problems in the past few weeks.

29. Being too tired for sex	Yes	No
30. Not showing love	Yes	No

31. The stars on the following line represent different degrees of happiness in your relationship. The middle point, "happy," represents the degree of happiness of most relationships. Circle the star below the phrase 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? Write the statement number in the box.

Choose Number ☐

5 I want desperately for my relationship to succeed, and would go to almost any length to see that it does.
4 I want very much for my relationship to succeed, and will do all I can to see that it does.
3 I want very much for my relationship to succeed, and will do my fair share to see that it does.
2 It would be nice if my relationship succeeded, but I can't do much more than I am doing now to keep the relationship going.
1 It would be nice if it succeeded, but I refuse to do any more than I am doing now to keep the relationship going.
0 My relationship can never succeed, and there is no more that I can do to keep the relationship going.

D A S — Scoring Page

Graham B. Spanier, Ph.D.

Client ID _____ **Sex** M F **Age** _____ **Marital Status** _____

Transfer each circled item response to the box on the same line.
Then add the values in each column to find the subscale scores.
The Dyadic Adjustment Score is found by summing the subscale scores at the bottom of the page.

Client Name _____

Item	DC	DS	AE	DH						
1.					5	4	3	2	1	0
2.					5	4	3	2	1	0
3.					5	4	3	2	1	0
4.					5	4	3	2	1	0
5.					5	4	3	2	1	0
6.					5	4	3	2	1	0
7.					5	4	3	2	1	0
8.					5	4	3	2	1	0
9.					5	4	3	2	1	0
10.					5	4	3	2	1	0
11.					5	4	3	2	1	0
12.					5	4	3	2	1	0
13.					5	4	3	2	1	0
14.					5	4	3	2	1	0
15.					5	4	3	2	1	0
16.					0	1	2	3	4	5
17.					0	1	2	3	4	5
18.					5	4	3	2	1	0
19.					5	4	3	2	1	0
20.					0	1	2	3	4	5
21.					0	1	2	3	4	5
22.					0	1	2	3	4	5
23.						4	3	2	1	0
24.						4	3	2	1	0
25.					0	1	2	3	4	5
26.					0	1	2	3	4	5
27.					0	1	2	3	4	5
28.					0	1	2	3	4	5
29.					0	1				
30.					0	1				
31.					0	1	2	3	4	5	6
32.										
	DC	DS	AE	DH						

Dyadic Adjustment Score

DC + DS + AE + DH = DA

Acronyms

DC = Dyadic Consensus
DS = Dyadic Satisfaction
AE = Affectional Expression
DH = Dyadic Cohesion
DA = Dyadic Adjustment

DAS Profile

Client ID _____ **Sex** **M** **F** **Age** _____ **Marital Status** _____

T-Score	Dyadic Consensus		Dyadic Satisfaction		Affectional Expression		Dyadic Cohesion		Dyadic Adjustment		T-Score
	Married	Divorced	Married	Divorced	Married	Divorced	Married	Divorced	Married	Divorced	
80+								>22		>140	80+
79								22		139/140	79
78										137/138	78
77		65		50				21		134/136	77
76		64		49						132/133	76
75		63		48		12	24			130/131	75
74		62		47				20		127/129	74
73		61		46			23			125/126	73
72		60		45				19		122/124	72
71		59		44		11				120/121	71
70		58		43			22	18	150/151	118/119	70
69		56/57		42					148/149	115/117	69
68		55		41		10	21	17	146/147	113/114	68
67		54		40					145	110/112	67
66		53		39			20	16	143/144	108/109	66
65	65	52		38					141/142	106/107	65
64	64	51		37		9		15	139/140	103/105	64
63	63	50	50	36	12		19		138	101/102	63
62	62	49	49	35				14	136/137	99/100	62
61	61	48		34			18		134/135	96/98	61
60	60	46/47	48	32/33		8		13	132/133	94/95	60
59		45	47	31	11		17		130/131	91/93	59
58	59	44	46	30				12	129	89/90	58
57	58	43		29		7			127/128	87/88	57
56	57	42	45	28			16	11	125/126	84/86	56
55	56	41	44	27					123/124	82/83	55
54	55	40		26	10		15	10	122	80/81	54
53		39	43	25		6			120/121	77/79	53
52	54	38	42	24				9	118/119	75/76	52
51	53	36/37	41	23			14		116/117	72/74	51
50	52	35		22	9	5		8	114/115	70/71	50
49	51	34	40	21			13		113	68/69	49
48	50	33	39	20				7	111/112	65/67	48
47	49	32	38	19			12		109/110	63/64	47
46		31		18	8	4		6	107/108	60/62	46
45	48	30	37	17					106	58/59	45
44	47	29	36	16			11	5	104/105	56/57	44
43	46	28		15		3			102/103	53/55	43
42	45	26/27	35	14			10	4	100/101	51/52	42
41	44	25	34	13	7				98/99	49/50	41
40	43	24	33	12			9	3	97	46/48	40
39		23		11		2			95/96	44/45	39
38	42	22	32	10				2	93/94	41/43	38
37	41	21	31	9	6		8		91/92	39/40	37
36	40	20		8				1	89/90	37/38	36
35	39	19	30	7		1	7		88	34/36	35
34	38	18	29	6				0	86/87	32/33	34
33		16/17	28	5	5				84/85	30/31	33
32	37	15		4		0	6		82/83	27/29	32
31	36	14	27	3					81	25/26	31
30	35	13	26	2			5		79/80	22/24	30
29	34	12		1					77/78	20/21	29
28	33	11	25	0	4		4		75/76	18/19	28
27	32	10	24						73/74	15/17	27
26		9	23						72	13/14	26
25	31	8					3		70/71	11/12	25
24	30	6/7	22		3				68/69	8/10	24
23	29	5	21				2		66/67	6/7	23
22	28	4	20				.		65	3/5	22
21	27	3							63/64	1/2	21
20	<27	<3	<20		<3		<2		<63	0	20

Social Support Interaction Coding System

Originally developed by: Bradbury & Pasch, 1994

Please contact Lauri Pasch or Kieran Sullivan with any questions:

Kieran Sullivan
Department of Psychology
Santa Clara University
Santa Clara, CA 95053
408) 554-4480
ksullivan@scu.edu

Lauri A. Pasch
3333 California Street, Suite 465
University of California, San Francisco
San Francisco, CA 94143-0848
(415) 476-7760
lauri.pasch@ucsfmedctr.org

A. Preliminary Issues

1. This coding system is designed to assess the behaviors that couples display when one spouse is asked to discuss a personal difficulty that they would like to resolve or some personal characteristic that he/she would like to change (this person is the "helpee") while the other spouse is allowed to contribute in whatever way he/she wants (this person is the "helper").

2. This is a working document. We would appreciate your comments and suggestions. We ask that you contact us before using, citing, or quoting it. If you use the coding system, the proper citation is:

   Pasch, L.A., Harris, K.M., Sullivan, K.T., & Bradbury, T.N. (2004). The social support interaction coding system. In P.Kerig and D. Baucom (Eds.) *Couple Observational Coding Systems*. Mahwah, N.J.: Lawrence Erlbaum.

3. Assistance in implementing this coding system can be obtained by contacting Dr. Lauri A. Pasch and Dr. Kieran T. Sullivan. A tape providing examples of each code is available, as well as master coded tapes.

B. Coding Guidelines

1. Code each speaking turn of both spouses.
2. The coding system has two dimensions: speaker (helper vs. helpee) and speaker's action (positive, negative, neutral, off-task; see below for specific categories).
3. Consider the context and tone of each action. The same literal statement can have distinctly different meanings depending on the interactive context and the tone in which it was conveyed.
4. Consider alternative behaviors that the helper could have exhibited. View each behavior as something that the spouse has actively chosen to do in that circumstance, and recognize the person could have chosen otherwise.
4. Coders should begin listening to each speech turn with the idea that it will be neutral unless it meets criteria for another code.

C. Summary of Coding Categories

Same for Helper and Helpee

NT = Neutral
OT = Off-Task

Helper Codes

PI = Positive Instrumental
PE = Positive Emotional
PO = Positive Other
NG = Negative

Helpee Codes

PS = Positive
NG = Negative

Note regarding order of codes:

When a given segment or speaking turn contains content that would receive two different codes, use the following order to determine which code takes precedence: negative, off-task, neutral, positive.

D. Coding Categories

Codes that are the same for Helper and Helpee

Neutral (NT)

1. Descriptive information about the problem that does not meet criteria for positive, negative, or off-task.
2. Repeated analyses of the problem that do not further contribute to understanding or solutions to the problem.
3. Use NT for on-task speech that is difficult to understand, ambiguous, or too brief to be coded as positive or negative.
4. NT is used when a given speech turn contains elements of positive or negative codes but does not meet threshold criteria. NT may also be used when a given speech turn contains subthreshold elements of both positive and negative codes.

Off-Task (OT)

1. Spouse talks about matters not relevant to the problem under discussion.
2. Spouse continues to talk about irrelevant material, regardless of who originally took the discussion off-task.

Note: Off-Task is reserved for situations in which the conversation has clearly departed from the task at hand. Speech that strays from the topic but seems to follow from the interaction is coded based on its content. Examples that are not Off-Task:

H: See, whenever we discuss anything it comes back to how irresponsible you are. You're even like that with money. Last week you forgot to...

H: Talking about this reminds me what a great wife you are. I'm so glad I married you, honey, aren't you glad?

Note that in these examples, the subsequent speech turns may indeed clearly depart from the topic under discussion and thus would be coded Off-task.

Helper Codes

Positive Instrumental (PI)

1. Suggests a specific plan of action.
   "What if we tried getting up a half hour earlier and doing stretches to help your back?"
2. Gently suggests a new way of handling the problem:
   "I know you have tried reasoning with her, I wonder if maybe it is time to try asking her specifically to change the rules in this case."
3. Emphasizes need for a specific plan, or demonstrates willingness to prepare
   one with helpee.
   "Would it help if we tried to think of a few different ways you can respond the next time he does that to you?"
4. Offers to assist in some specific way.
5. Offers constructive feedback.
6. Asks helpee what would be most helpful for him/her (helper) to do.
   "Do you think it would help if I took the kids for a few hours on Saturday morning so you could focus on getting some work done?"
7. Asks helpee specific questions aimed at narrowing the problem, or asks helpee questions about the next steps to take:
   "OK, so tomorrow, when you see Jack, what are you going ask him?"
   "Is that something that happens only when you see Jim, or does it happen with everyone?"
8. Suggest strategies for managing feelings or other aspects of the problem:
   "When you feel nervous like that, you might try rehearsing in your mind what you are going to say."

Positive Emotional (PE)

Note: If a unit can be coded as either PE or PI, code it as PE. PE and PI take precedence over PO.
Note: For PE, the unit must have affect-related content. Use PE when feeling words are used.

1. Helps spouse to express or clarify feelings about problem:
   "I'm wondering if it has more to do with how you feel about your self ... that it worries you to admit that you need to go exercise."
   cf. "You just don't want to admit that you are out of shape."
2. Tries to bolster spouse's self-esteem.
   "I can see you getting better at it everyday."
3. Reassures or consoles spouse.
4. Conveys understanding of spouse's concerns and difficulties, acknowledges appropriateness of helpee's feelings.
   "I know this is hard for you, you really loved that job, and it was hard to leave."
5. Provides genuine, appropriate encouragement (for example, comments on recent improvements regarding the problem):
   "So that should make you feel good -- that you have taken steps to improve things."
6. Expresses affection, or information to suggest that helpee is loved, cared for, or esteemed.
7. Expresses commitment to helping the spouse in general--says he/she will "always be there" for helpee.

8. Validates spouse as a person.
9. Expresses concern about spouse.
10. Helps spouse to be optimistic.
11. Joins with spouse in expressing feelings (even negative ones) about problem, reveals own feelings in a helpful way:
W: “I'm worried that my illness may keep getting worse.”
H: “I get really worried too when I think about that happening to you.”

Positive Other (PO)

1. Offers a specific, clear analysis of problem (note that this has to be more than simple description and is not a suggestion or advice).
2. Summarizes in a helpful way what has been said. (This may include summarizing suggestions that were given or feelings expressed).
3. Assists spouse in defining problem.
4. Asks general questions that reveal willingness to help and interest.
5. Helps spouse reframe problem in a useful way (except when giving advice or making a specific suggestion.)
"We have been thinking about this as a self-esteem problem, when maybe it has to do with the environment at your job."
6. Recognizes humor in situation; helps spouse see humor, uses humor in a useful way. Note: Humor is coded depending on the specific nature. Sarcastic or belittling humor is negative. Notice whether laughter is mutual in making coding decisions.
7. Agreement with spouse, acknowledgement of the appropriateness of helpee's beliefs or interpretations.
8. Is accepting of spouse's difficulties and shortcomings.
H: "My medication affects my energy."
W: "I know, we just have to try to accept that and set reasonable goals.
cf.W: "That's just an excuse not to get your work done."
9. Makes a positive process comment.
"This is turning out easier than I thought."
10. Comments on value or strength of relationship.
"Sure it will be an adjustment, but Lord knows, it's not like we have problems adjusting to things."
11. Reveals own experience in a helpful way (except when giving specific advice or suggestion, which would be PI, or when expressing feelings, which would be PE).
12. Refocuses discussion after it is off-task.
"Let's get back to your problem with Jim, do you think you know how you want to deal with it?"
13. Elaborates on previous positive statement.
14. Encourages helpee to continue speaking.
15. Attends clearly to partner.
16. Helps to define what he or she can do that will and won't be helpful.
"I'd be happy to remind you to do that, but I'm worried it will sound like I'm nagging."

Negative (NG)

1. Criticizes spouse, spouse's approach to problem, or spouse's behavior.
W: I have trouble controlling my eating habits.
H: Yeah, I have always thought that is a big problem of yours.
cf. H: Yeah, I could see how that might be. What could help?
2. Blaming, accusing, criticizing spouse, pointing out spouse's weaknesses
(Note: These are negative even when they bring the discussion back on-

task, or point out important problems):
"You never can stay on topic -- you are afraid to admit you were wrong."

3. Uses sarcasm, humiliation, sarcastic humor.
"I doubt you'd be able to get past the first class."

4. Asks an insulting, inappropriate, or pointed question with negative tone:
"So what have you been doing for the past four years?"

5. Gives useless advice:
"You really just need to figure this out and get on with it."

6. Expresses boredom or lack of interest in helpee and the problem.
"Are we done talking about your weight problem, I really don't see the issue here."

7. Withdraws from discussion, acts very passive.

8. Tells spouse what they should do to improve situation.
"I already told you, you just have to stop going over to your mother's house, end of story."

9. Demands that helpee consider his/her recommendations.

10. Offers analysis of problem without consideration of partner's views or comments.

11. Talks about self and own problems in unproductive way.

12. Discounts significance of problem, denies problem.

13. Expresses doubt or pessimism about helpee's chances of improving or changing (can include reminders of past failures):
H: I used to lift weights three times a week and it was great ...
W: Yeah, but that was only as part of the class you were taking.
cf. W: Yeah -- was there something you learned from the class that could get you motivated like that again?

14. Expresses negative affect (anger, contempt, whining, etc). Note: Expression of anger or sadness at the source of the problem would not be included here (e.g., "I get really angry also when your mother treats you that way").

15. Misses or mishandles easy opportunity to support spouse:
W: So what do you think I should do?
H: Whatever…I don't know. (NG, depending on tone)
cf. H: I'm not quite sure just yet -- what do you see as your options now?

16. Acts defensively.

Helpee Codes

Positive (PS)

1. Offers a specific, clear analysis of problem (note that this has to be more than simple description).
   "So I'd like to get a promotion at work, but I'm not sure where to start to convince Sally I'm the right person for the job."
2. Responds to helper's question with thoughtful response, showing that he/she is using spouse as an aid. (May sometimes include disagreement with spouse when part of the analysis and not just rejecting help).
3. Recognizing how good things will be when problem is resolved; using this recognition as motivation or to emphasize value of relationship.
4. States needs in clear, useful way.
   "I think it would really help if I had time on weekends to practice."
5. Expresses feelings about the problem(even negative ones), especially in response to partner's inquiry in a productive way.
   "I guess I do feel worried about it, not knowing when the next chance will be."
6. Solicits support or information from spouse.
7. Gives self benefit of doubt, lowers expectations in productive way:
   "I just have to give myself credit, like it will take time to get comfortable in my new job."
8. Asks spouse to play a role in implementing the proposed change.
9. Asks for specific feedback or assistance.
   "Can you help me to see if I'm doing the exercises right?"
10. Comments on value of support from spouse, appreciation of support.
11. Refocuses discussion after it is off-task.
12. Agreement or validation of suggestion from spouse:
    W: So that should make you feel pretty good.
    H: Yeah, it does make me feel good.
13. Gaining strength from past; reflecting on the past in some productive way.
14. Recognizes humor in situation.
15. Comments positively on process of conversation:
    "I just feel so much better when I talk about this with you, and you say 'You are meant for that line of work.'"
16. Comments on value or strength of relationship, expresses affection.
17. Makes a specific and sincere statement of changes he/she will make.

Negative (NG)

1. Expects spouse to take charge of problem.
   "OK, so how are you going to make me exercise more?"
2. Rejects help. (Note: Helpee may disagree with helper sincerely and not receive a negative code, as long as he or she acknowledges helpfulness of spouse in some way).
   "Yeah, but that would never work." (NG)
   "That would be good, but I wonder if I would be confident enough to do it. (PS)
3. Needless repetition of problem and all the possible solutions.
4. Pleads with partner to help.
   "You gotta help me with this, tell me what to do!"
5. Denies problem, denies responsibility for the problem.
6. Makes excuses for why the problem persists, acts defensively.
7. Criticizes spouse for not helping, now or in the past.
8. Accuses partner of not giving appropriate help, information, revealing

feelings. (Note: Accusations are negative even when they bring out important points or refocus discussion on task).

"Why do you refuse to tell me how you feel about my losing weight?"

9. Makes demands for support or change.
10. Becomes glum, withdrawn, pessimistic about future change.
11. Expresses negative affect (anger, contempt, whining, etc) unproductively.
12. Asks a question but does not allow partner to answer.
13. Blames partner for problem, holds him/her responsible.

"I keep gaining (weight) just because you always bring home candy."

14. Focuses negatively on process.

"You're really not doing much good for me here."

15. Criticizes partner's behavior.

"Excuse me, but I am talking to you."

E. References for papers using or describing the SSICS

Bradbury, T.N., & Pasch, L.A. (1997). Assessment of social support in marital interaction: The Social Support Interaction Coding System. *Archives of Psychiatric and Clinical Evaluation, 8* (2), 147-153.

Davila, J., Bradbury, T.N., Cohan, C.L., & Tochluk, S. (1997). Marital functioning and depressive symptoms: Evidence for a stress generation model. *Journal of Personality and Social Psychology, 73,* 849-861.

Holtzworth-Munroe, A., Stuart, G.L., Sandin, E., Smutzler, N., & McLaughlin, W. (1997). Comparing the social support behaviors of violent and nonviolent husbands during discussions of wife personal problems. *Personal Relationships, 4,* 395-412.

Pasch, L.A., Bradbury, T.N., & Davila, J. (1997). Gender, negative affectivity, and observed social support behavior in marital interaction. *Personal Relationships, 4,* 361-378.

Pasch, L.A., Bradbury, T.N., & Sullivan, K.T. (1997). Social support in marriage: An analysis of intraindividual and interpersonal components. In G. Pierce, B. Lakey, I. Sarason, & B. Sarason (Eds.), *Sourcebook on social support and personality.* (pp. 229-256). New York: Plenum.

Pasch, L.A., & Bradbury, T.N. (1998). Social support, conflict, and the development of marital dysfunction. *Journal of Consulting and Clinical Psychology, 66*, 219-230.

Pasch, L.A., Harris, K.M., Sullivan, K.T., & Bradbury, T.N. (2004). The social support interaction coding system. In P.Kerig and D. Baucom (Eds.) *Couple Observational Coding Systems*. Mahwah, N.J.: Lawrence Erlbaum.

Sullivan, K.T., Pasch, L.A., Eldridge, K.A., & Bradbury, T.N. (1998). Social support in marriage: Translating research into practical applications for clinicians. *The Family Journal, 6*, 263-271.

Sullivan, K.T., Pasch, L.A., Johnson, M.J., & Bradbury, T.N. (2010). Social support, problem-solving, and the longitudinal course of newlywed marriage. *Journal of Personality and Social Psychology, 98,* 631-644.

Adapted Version of The Specific Affect Coding System (SPAFF)
Coan, J.A., & Gottman, J.M. (2007)

Rules for Coding

Rule 1:
View a Behavior as Though It Were Chosen From a Collection of Possible Alternatives
Rule 2:
View Behavior as if It Were Designed to Portraya Character in a Play or a Film—as if It Were Written to Follow a Script
Rule 3:
Watch a Person as if You Were an Actor Who Had to Play That Person in a Film

SPAFF's Codes:

- **Verbal Content**
- **Facial Behaviors**
- **Voice Tones**
- **Other Forms of Communication**
  (At the exception of Warm Touch, which will be coded separately)
  Ex: gestures such as offering a glass to partner, handing a tissue to partner, etc….

Coding Dimensions:

- *Function* of the code in interpersonal communication
- *Indicators* of the code
- *Physical Cues* for the code
- Specific *counter-indicators* regarding the code.

Indicators and physical cues provide information about behaviors that *probably* derive from the presence of the code, whereas counter-indicators provide information about behaviors that *probably do not* derive from the presence of the code.

SPAFF's Current Codes

5 Positive Affects

- Enjoyment/Enthusiasm/Delight
- Affection/Care
- Humor
- Interest/Surprise
- Validation

11 Negative Affects

- Anger
- Sadness
- Belligerence
- Contempt
- Criticism
- Disgust
- Defensiveness
- Domineering/Threats
- Fear/Tension
- Stonewalling
- Whining

Neutral

Positive Affects

1. Affection/Care

Function

Affection expresses genuine caring and concern and offers comfort. Often the voice slows and becomes quieter or lower. Its function is to facilitate closeness and bonding.

Indicators

1. ***Reminiscing****.* The speaker shares warm memories of something she & the receiver enjoyed together.

2. ***Caring/warm statements****.* Direct statements of affection or concern, such as "I love you," "I care about you," "I worry about you," and so forth.

3. ***Compliments****.* Statements that communicate pride in or admiration of one's partner (e.g., "you are so smart!" or "you did such a great job with the . . .")

4. ***Empathy****.* Empathizing individuals mirror the affect of their partners. Such mirroring need not be verbal, but however it is expressed, it should be obvious that the intent of the mirroring is to express an understanding of the partner's feelings. Importantly, empathy does more than simply validate the partner's thoughts and feelings—by mirroring the affect of the partner at the same time, it conveys a level of care that surpasses validation per se.

5. ***The common cause****.* An important indicator of Affection, similar to empathy, is the common cause, whereby individuals engage in virtually any affective behavior ***together*** as a form of building trust, closeness, consensus, or bonding (Concerned questions/statements). This indicator can sometimes be confusing. Insults, such as remarking that "Bob is a jerk," can be coded Affection if intended to express obvious agreement. A shared anger, a shared fear, a shared and vocalized political opinion—all of these things could be coded Affection.

6. ***Flirting****.* When individuals flirt, they are communicating desire for their partners. The verbal expression would be "I want you," but flirting needn't be verbal. Flirting can be playful, sweet, warm, intense, or all of these.

Physical Cues

There are no particular AUs that indicate affection, but Aus 6 + 12 will commonly be seen.

Counter-indicators

Defensive affection. Occasionally, a speaker will insist that he loves the receiver as a defensive maneuver. The indicators of defensiveness (discussed later) will usually give this away. Watch for defensive voice tone, a defensive context, and a lack of warm, positive feeling underlying the affectionate message.

2. Enthusiasm/Enjoyment/Delight

Function

The function of enthusiasm is to express a passionate interest in a person or activity, as well as a positive valence associated with that interest. Enthusiasm is infectious and often sudden, loud, boisterous, and energetic. Nonverbal behaviors prominently accompany verbal expressions of eagerness and joy.

Indicators

1. ***Anticipation****.* Anticipatory behaviors are hopeful, future-oriented, and often childlike. They may be accompanied by fidgeting and distraction.

2. ***Positive surprise****.* This is an emphatically happy reaction to some unanticipated event or remark. Prominent smiles and loud verbalizations characterize this indicator, statements with exclamation points (e.g., AU 1+2+6+12+24, accompanied by "Really!?")

3. ***Positive excitement****.* Similar to positive surprise, positive excitement includes expressions of joy and anticipation at very high levels of intensity.

4. ***Joy/Happiness/Delight.*** Joyful moments reflect high levels of often suddenly felt happiness, similar to positive surprise but less intense. Joy will frequently follow receipt of a compliment and will often be accompanied by broad, warm smiles and bright, alert, positive facial expressions.

5. ***Expansiveness****.* Expansive individuals feel creative, motivated, and inspired and convey an effervescent and elated affect.

Physical Cues

AUs 1+2, 5, 6+12, 23, 24, 25–27 will commonly be seen. Individuals will sometimes sit up or forward in their chairs, and their voices will increase in pitch and volume.

Counter-indicators

1. *Interest indicators.* Enthusiasm can sometimes look like Interest and vice versa. Interested questions are accompanied by positive affect but of a lower intensity than those coded Enthusiasm.\

2. Negative Surprise. Surprise reactions are not unequivocally positive, and it is important to be watchful for surprise reactions that contain either a lack of positive affect or the presence of negative affect.

3. Humor

Function

The function of humor is to share in mutual amusement and joy following a mutually recognized moment of absurdity or fun. Humor is relatively unique within the SPAFF in that it cannot be coded in isolation. The humor code requires a moment of *shared* amusement.

Indicators

1. ***Good-natured teasing.*** When an individual teases, she highlights qualities or behaviors in her partner that *both* agree are somewhat ridiculous, cute, or otherwise funny.
2. ***Wit and silliness.*** Wit is expressed as an apt or clever observation that is considered by both individuals to be humorous. This could manifest as a funny observation or the straightforward telling of a joke.
3. ***Private jokes.*** Private jokes can include moments of shared laughter and obvious amusement that derive from coded messages or moments of sudden mutually recognized humor that are opaque to all but the two individuals who are communicating.
4. ***Fun and exaggeration.*** A very playful form of humor; here individuals share active, animated, and exaggerated play or imitation behavior. High energy and a deeper form of laughter often accompany this indicator.
5. ***Nervous giggling.*** Occasionally, individuals will begin to chuckle with each other for no apparent reason. This could result from a private joke or may indicate a brief release of nervous tension given the experimental context. The affect underlying the giggling should be obviously positive and shared, unlike a similar form of giggling associated with the Fear/Tension code.

Physical Cues

AUs include 1, 2, 6, 12, 6 + 12, and 25–27.

Counter-indicators

1. *Unshared humor.* Laughter or amusement that is not shared is never coded Humor.
2. *Tense humor.* Humor that is obviously both a nervous reaction to a high level of tension in the conversation and either lacking in any positive energy or unshared .
3. *Affectionate humor.* Sometimes a joke will be coupled with affectionate messages. Such moments are more properly coded Affection.
4. *Belligerent humor.* A form of unshared humor, one individual makes jokes that are intended to "get a rise" out of the other or make the other angry.
5. *Contemptuous humor.* Jokes that are intended to be hurtful or insulting and that are unshared. This is sometimes confused with teasing. A good rule for distinguishing contemptuous humor from good-natured teasing is to attend closely to the degree to which both individuals are amused.

4. Interest

Function

The function of this behavior is to communicate genuine interest in one's partner through active elaboration or clarification seeking. As used in the SPAFF, Interest is characterized as a positively valenced behavior that emphasizes information gathering about the partner as opposed to minor or trivial factual information.

Indicators

1. ***Nonverbal attention with positive affect.*** Interested persons will frequently attempt to actively communicate their interest through nonverbal behaviors, such as leaning forward in their chairs, affecting a warm tone of voice, and making steady eye contact (positive energy). The interested person will communicate focused, respectful, and active engagement with what his or her partner is saying. If cues associated with Fear/Tension are not present, the interested person will sometimes communicate low levels of excitement (not to be confused with Enthusiasm) that communicates a desire to hear more.
2. ***Elaboration and clarification seeking.*** Interested individuals will often ask specific questions in order to gather additional information. Frequently, such questions will be accompanied by nonverbal behaviors such as those described in indicator 1. It is important that questions that serve to elicit more information are not accompanied by nonverbal negative affect, as such affect can indicate other affective agendas. Elaboration and clarification-seeking questions can include questions about a partner's opinions and questions that serve to paraphrase what a partner has been saying. Paraphrasing questions are easy to confuse with paraphrasing statements that are coded as Validation (discussed later).
3. ***Open-ended questions.*** Almost any question that does not require a "yes" or "no" response and that allows the partner to express him- or herself in greater detail.

(Interest)

Physical Cues

AUs 1+2, 6, 12, 6+12, leaning forward, positive valence.

Counter-indicators

1. *Lack of eye contact.* Eye contact is not absolutely essential for coding interest, but a lack of eye contact can indicate that interest is feigned or that questions are serving some other affective function.
2. *No pauses following questions.* When questions are frequent and no opportunity is provided for a partner to respond to them, it is unlikely that genuine interest is being observed. Relentless question asking, especially if it appears to be leading the partner to a very specific series of answers, can be a sign of Domineering behavior.
3. *Low-balling questions.* Similar to counter-indicator 2, low-balling questions are those to which there is only one rational answer. An example would be, "Don't you want me to be happy?" Such a question is properly coded as Domineering.
4. *Exchange of general factual information.* It is important, though sometimes difficult, to distinguish between questions that communicate an interest in the partner and those that communicate an interest in settling some minor factual issue. An example of a non-interested (per SPAFF) question might be "What time is it?"

5. Validation

Function

The function of validation is to communicate sincere understanding and acceptance of one's partner or of one's partner's views and opinions. In the SPAFF, Validation is considered to be a positively valenced behavior.

Indicators

1. ***Back channels****.* Back channels are behaviors that indicate attentive and affirmative listening through the use of paralinguistic and physical cues, such as head nods and "uh-huhs" or other physical and vocal assenting behaviors. Usually, back channels are accompanied by eye contact.
2. ***Direct expressions of understanding****.* Direct expressions of understanding include explicit expressions of respect or agreement (e.g., "I agree," or "that's a very good point").
3. ***Paraphrasing, summarizing****.* In this behavior, individuals repeat back what their partners have told them, usually verbatim, but sometimes in a slightly altered style.
4. ***Apologies, agreement and respect.***
5. ***Sentence finishing****.* In this behavior, individuals will place endings on the sentences their partners have begun. This behavior lets partners know that both individuals are "on the same page." Importantly, sentence finishing is an indicator of validation only if it is delivered in a package of positive affect (see "Physical Cues").

Physical Cues

AUs 1+2, 6, 12, 6+12. Head nod, eye contact, non-confrontational voice tone.

Counter-indicators

1. Lack of eye contact. A lack of eye contact can mean that the back channels being offered are insincere, as in humoring. Back channels without eye contact can also be associated with sarcastic behavior.
2. Bobbing heads. "Bobbing heads" are head nods that appear so automatic and repetitive that they essentially become meaningless. Bobbing heads can also be a sign of exasperation—a kind of nonverbal request to "shut up."
3. Affect mirroring. Sometimes, the various indicators of validation occur in the context of strong mirroring of affect, as when an individual says, "I understand how you're feeling" while expressing facial signs of sadness in response to their crying partners. The SPAFF considers such expressions to be signs of empathy, and such signs are properly coded Affection.
4. Interrupting. Sentence finishing can be an important indicator of Validation, but if the sentence finishing is abrupt or is delivered with negative affect, it is likely nothing more than an interruption related to Domineering, Defensiveness, or other negative affective behaviors.

Negative Affects

1. Anger

Function

In the SPAFF, anger functions to respond to perceived violations of the speaker's rights to autonomy and respect. It serves as a kind of "affective underlining" of displeasure and complaint, indicating that an interpersonal boundary has been transgressed. Some SPAFF coders have called the SPAFF code of Anger "angry affect without belligerence, contempt, defensiveness, disgust or attempts to dominate." This is largely true.

Indicators

1. ***Frustration/Impatience****.* A relatively low intensity form of Anger, here facial expressions of anger become apparent at low levels and the voice may lower in pitch and tempo. The anger will appear constrained or out of the obvious awareness of the speaker. Otherwise, the person may not express anger verbally at all.

2. ***Angry "I-statements."/Irritation/Annoyance.*** These are verbal statements that express personal feelings, as in "I am so angry!" or "I am so frustrated right now!" Raising voice.

3. ***Angry questions****.* Questions asked with angry affect any usually with sharp exhalations, as in "Why?!"

4. ***Command****s.* Commands are not attempts to dominate but rather are strong, affectively intense attempts to stop a recent or ongoing violation of the speaker's autonomy or dignity. Sharp exhalations and strong angry affect frequently accompany commands.

Examples include "Stop!" or "Don't speak to me like I'm a child!"

Physical Cues

Aus 4, 5, 7, 4+5, 4+5+7, 23, 24. The lips will frequently thin, with the red of the upper lip disappearing or the lips pressed together; the teeth will clench; and the muscles of the jaw and neck will tighten. The voice may suddenly increase in pitch, amplitude, and tempo and may include a kind of "growl" as when yelling.

Counter-indicators

• *Blends with other codes.* Angry affect is frequently observed during moments in which indicators of other negative codes are present. In these instances, Anger is never coded.

2. Sadness

Function

In the SPAFF, the Sadness code refers to behaviors that communicate loss, resignation, helplessness, pessimism, hopelessness, or a plaintive or poignant quiescence.

Indicators

1. ***Sighing****.* Sighs, especially deep sighs, very frequently occur in the context of Sadness. Thus sighing is nearly always considered an indication of sad feelings (note, however, *"relief" as a counter-indicators).*

2. ***Pouting/Sulking****.* Sadness physical cues in the context of being rebuffed, ignored, or not getting one's way. Pouting may cause the sad person to appear to withdraw from the conversation.

3. ***Resignation.*** Sad individuals will frequently behave as if resigned or hopeless. This behavior is communicated through a pattern of very low energy, slouching, long pauses between words, and so forth. In the resigned person, nearly all movement appears to require extra effort.

4. ***Crying.*** Nearly all instances of crying indicate sadness (but see "*happy tears" as a counter-indicators.)* Sometimes individuals can be observed "choking back tears," or trying not to cry. Physical cues and tears welling up in the eyes will give them away.

5. ***Hurt feelings****.* In response to moments of high negativity, such as belligerence, contempt, or anger, individuals will sometimes report or appear to have hurt feelings. Such moments are coded as Sadness.

Physical Cues

AUs 1, 6, 15, 17, 1+6, 1+15, 1+6+15, 1+6+15+17. Shoulders may droop, & individuals may hang their heads or look down. The lips and the chin may tremble. The voice may quaver in terms of pitch and amplitude and may occasionally break.

Counter-indicators

1. *No back channels.* A lack of responding that is attributable to the deliberate attempt to communicate lack of interest is not a form of pouting and is more properly coded Stonewalling.

2. *Relief.* Individuals who display a sudden decrease in energy as a result of the diffusion of tension or an escape from responsibility may be showing evidence of relief, which may be coded as Neutral.

3. *Happy tears.* Happy tears are here intended to mean one of two things. First, tears can sometimes result from intense laughter. Second, tears can sometimes result from sudden moments of shared intimacy, compliments, accomplishments, and so forth. These instances of tears are more properly coded as Humor, Enthusiasm, or Affection.

3. Belligerence

Function

The function of Belligerence is to "get a rise" out of the receiver through provocation of anger. The belligerent speaker is, in a sense, looking for a fight.

Indicators

1. ***Taunting questions****.* These are questions whose function is to irritate or confuse the receiver. An example might include the frequent and irritating use of the question "Why?" in the context of a serious discussion. Frequently the belligerent speaker is seen struggling to suppress a smirk while asking taunting questions as the receiver becomes increasingly enraged.

2. ***Unreciprocated humor.*** Sometimes, the belligerent speaker appears to actually believe he or she is being funny, even though the receiver is obviously annoyed. Such moments of unreciprocated humor are neither playful, fun, and shared (as in humor), nor sarcastic, mocking, & insulting (as in contempt). Belligerent speakers do not appear to get the message that the humor is not universally funny, or the fact that the jokes are annoying the receiver may increase the level of humor experienced by the speaker.

3. ***Interpersonal terrorism****.* Here, the belligerent speaker is posing direct challenges to the agreed-on rules or boundaries of the relationship. Frequently, such behavior takes the form of a dare, as in "What would you do if I did?" or "What are you going to do about it?" It can also be accompanied by a kind of emotional "strutting," whereby the belligerent person will make use of loud commands such as "Don't interrupt me!" as a means of demonstrating his or her power. This is often seen in violent men as a vestigial reminder of how dangerous they can be.

Physical Cues

AUs 1 or 2. Jaw thrust forward.

Counter-indicators

1. Good-natured teasing. Good-natured "jabs" at the receiver's foibles are not coded as belligerence, especially if the humor or the teasing appears to be shared.

2. Hostile humor. Unreciprocated humor that is obviously hostile, mocking, belittling, or insulting is coded Contempt.

4. Contempt

Function

The function of contemptuous behavior is to belittle, hurt, or humiliate. Contempt can be any statement made from a superior position to the partner, such as correcting an angry person's grammar. Such behavior deliberately and forthrightly communicates an icy lack of respect, often cruelty. On theoretical and empirical grounds, we regard this behavior as extremely detrimental to interpersonal relationships (Coan et al., 1997; Gottman, 1993a; Gottman et al., 1998; Gottman & Levenson, 1992), and so the SPAFF gives it precedence over most other behaviors.

Indicators

1. ***Sarcasm.*** Sarcasm in conversation frequently precedes derisive laughter at the receiver's expense or manifests as a ridiculing comment regarding something the receiver has said. Frequent examples include the ironic use of such statements as "sure!" or "I'll bet you did!"

2. ***Mockery.*** When speakers mock, they repeat something the receiver has said while exaggeratedly imitating the receiver's manner of speech or emotional state for the purpose of making the receiver look ridiculous or stupid.

3. ***Insults****.* Insults are active and straightforward forms of contempt—they are shows of disrespect for the receiver through obvious verbal cruelty.

4. ***Hostile humor****.* Often, the contemptuous speaker uses a form of unshared humor that, though an apparent joke, utilizes sarcasm, mocking, or insults to achieve the aim of contempt. By delivering such messages as a "joke," the speaker may be attempting to leave him- or herself an "out" (as in, "hey, I was only joking"). Hostile humor can be momentarily confusing for coders and receivers alike. The contemptuous speaker may laugh heartily, and sometimes the receiver will briefly and reflexively laugh along. Such moments are not coded as Humor.

Physical Cues

AU 14 (uni- or bilateral). *Note:* ***Eye rolls*** *are nearly always coded as contempt.*

Counter-indicators

Good-natured teasing. Good-natured "jabs" at the receiver's foibles are not coded as contempt. A good indication that contempt is not occurring is that the context of the conversation appears to contradict contemptuous intentions or that the speaker and receiver appear to both experience laughter and joy as a result of the teasing.

5. Criticism

Function

Criticism functions as an attack on someone's character or personality in a way that is not obviously insulting, as in Contempt. It is a complaint that suggests that the partner's personality is defective. It is often accompanied by blame & is quite distinct from complaining. Complaints refer to specific instances of behavior, whereas Criticisms are characterized by negative global assessments of a person's abilities or value as a person. Complaints accompanied by "you always" or "you never" statements are considered criticisms. Criticism may or may not make reference to a specific event.

Indicators

1. ***Blaming****.* In blaming, one individual assigns fault to another, along with a personal attack or global accusation, as in "the reason the engine blew up is that you *never* put oil in it."

2. ***Character attacks****.* Often expressed as "you never/you always" generalizations, character attacks are critical of a person's personality or abilities in very general ways.

Examples include statements such as "you don't care," "you always put yourself first," & so forth.

3. ***Kitchen sinking****.* This is essentially a long list of complaints.

Even though any particular item on the list may not fit criteria for Criticism per se, a long list functions to illustrate the incompetence or personality defects of the person on the receiving end. For example, an individual might "kitchen sink" using complaints and "I" statements, such as, "I don't feel listened to by you, and you don't touch me very often, and I asked you to do certain chores, but you didn't, and we don't do very many fun things together lately."

4. ***Betrayal statements.*** Similar to blaming, betrayal statements specifically reference trust and commitment, implying that the person on the receiving end is either not committed, untrustworthy, or both. "How could you?" is a question frequently indicative of Criticism.

5. ***Negative mind reading****.* Generally speaking, mind reading statements express attributions about another's feelings, behaviors, or motives. They indicate Criticism when negative or accompanied by negative affect. An example of negative mind reading would be "you just don't like Tom because he smokes."

Physical Cues

There are no particular AUs that indicate Criticism.

Counter-indicators

• ***Insults****.* Critical statements designed to inflict gratuitous emotional pain (e.g., "you're an idiot") are coded contempt.

6. Defensiveness

Function

Defensiveness functions to deflect responsibility or blame. It communicates a kind of innocent victimhood or righteous indignation (e.g., as a counterattack) on the part of the speaker, implying that whatever bad thing being discussed is not the speaker's fault. Defensive speakers can engage in defending themselves or friends & loved ones who may be under attack by their partners.

Indicators

1. ***The "yes-but."*** SPAFF coders refer to statements that start off as momentary agreements but very quickly end in disagreements as "yes-buts." They are common indicators of defensiveness.

2. ***Cross-complaining.*** This behavior involves meeting one complaint with an immediate counter-complaint. In this way, complaints are simply not responded to—cross-complaints deflect them by leading the conversation into a suddenly new direction.

3. ***Minimization****.* Defensive speakers will frequently try to minimize a complaint by asserting that the problem they are potentially responsible for was scarcely a problem in the first place. A minimizing speaker might say, for example, "You're right, I did forget to put the garbage out, but there was hardly any garbage anyway, so it really isn't a problem. It can wait until next week."

4. ***Excuses****.* Excuses are attempts to locate responsibility or blame in something other than the speaker, as in, "well, traffic was all backed up, there was nothing I could do."

5. ***Aggressive defenses****.* Oftentimes a speaker will aggressively assert things, for example, "I did *not!*" These are vehement denials of responsibility that come across as childish, as in "did not/did too" interactions.

Physical Cues

AUs 1, 2, 1 + 2, arms folded across chest. The voice will increase in pitch and amplitude.

Counterindicators

Invalidations. Statements designed to directly contradict the receiver (e.g., "you are wrong" or "that's simply untrue"), spoken in a lower pitched voice tone, are more properly coded Domineering.

7. Disgust

Function

Disgust is a relatively involuntary verbal or nonverbal reaction to a stimulus that is perceived to be noxious. Harmful substances (e.g., feces, rotted food) reliably elicit disgust, but disgust can also occur for moral or symbolic reasons (Rozin, Lowery, & Ebert, 1994).

Indicators

1. ***Involuntary revulsion****.* Here the object of disgust is some obvious image of, or reference to, an aversive, noxious stimulus, as in momentary descriptions of a gruesome physical injury.

2. ***Moral objection****.* Here the object of disgust is an action or idea that the speaker finds repulsive for moral or other symbolic reasons, as in responses to undesirable sexual practices or even political positions.

Physical Cues

The physical cues of Disgust are robust and specific. AUs 9, 10, 4, 15, and 17 can sometimes be seen, either singly or in any combination. The tongue will sometimes protrude, and the head will sometimes turn to one side as if avoiding the noxious stimulus.

Counter-indicators

1. Mockery, insults, or belittlement. If the function of a disgust response, whether verbal or nonverbal, appears to be to communicate obvious disrespect of the receiver, it is more properly coded as Contempt. This includes instances in which the speaker appears to be disgusted by the behavior of the receiver.

2. Disapproval without Disgust affect. Disapproval, absent other obvious signs of disgust, can be coded Neutral (when lacking in obvious affective tone), Domineering (when spoken in a patronizing tone), or Anger (with angry affect).

8. Domineering/Threats

Function

The function of Domineering behavior is to exert and demonstrate control over one's partner or a conversation. Domineering behaviors attempt to impose compliance on the receiver's responses or behaviors. **Threats** are a particularly hostile form of domineering behavior in that their function is to control the behavior of the receiver by setting explicit conditions under which the receiver will be punished for behaving in ways the speaker finds undesirable.

Indicators

1. ***Invalidation****.* Invalidation deliberately and forcefully contradicts the validity of the receiver's point of view (e.g., "that's just wrong") or expressed feelings (e.g., "oh, you are not afraid, quit exaggerating").

2. ***Lecturing and patronizing****.* This indicator identifies attempts to belittle or dis-empower a person or a person's arguments. Many "sub-indicators" suggest the presence of lecturing and patronizing, including pointing or wagging a finger while talking, citing authorities (e.g., "well, Dr. Phil says . . ."), speaking in platitudes and clichés, appealing to an ambiguous "everyone" (as in "everyone knows"), and so forth. A distinctly patronizing quality often accompanies these behaviors. Look for finger pointing used for emphasis.

3. ***Low balling****.* Low balling expresses itself in the form of questions that have predetermined answers. The questions are not merely rhetorical but also have a manipulative quality, such as, "You want me to be happy, don't you?" Low-balling behaviors are similar to sales ploys that seek to force unwary customers to answer "yes" to very simple questions (e.g., "Do you want your children to achieve their potential?") in order to manipulate them into purchasing a product.

4. ***Incessant speech****.* By using incessant speech, domineering persons can ensure that the receiver is not allowed an opportunity to respond. It is a form of forcibly maintaining the floor in a conversation at all times. Incessant speech often has a repetitious, steady, almost rhythmic quality in the voice. When speaking incessantly, domineering persons often repeat or summarize their point of view while paying very little attention to the verbal content of things said by the people with whom they are speaking. Look for finger pointing used for emphasis.

5. ***Glowering****.* Glowering is really a kind of steady gaze, often characterized by the head tilted forward with the chin down, and the outer portions of the eyebrows raised—an eyebrow configuration we refer to as "the horns" because, when configured in this way, the eyebrows do indeed resemble horns. Thus, when glowering, the "horns" are emphasized, and the person may be leaning the head, body, or both forward.

Indicators for Threats

1. ***Bans****.* These are direct "if/then" statements that forbid certain behaviors and threaten to impose punitive (sometimes violent) consequences if those behaviors occur. An example might be "if you ever speak to me like that again, I'll. . . ."

2. ***Ultimatums****.* Ultimatums reflect demands for change within some defined context or time period. An example might include "if you don't start doing your share around here by next month, I'm moving out."

Physical Cues

AU 2 ("the horns"), head forward, body forward, finger pointing, head cocked to one side.

Physical Cues for Threats
AU 1, 2 ("the horns"), 1+2, 1+2+5, head forward, body forward, finger pointing, head cocked to one side.
Counter-indicators
Contemptuous patronizing. Whenever the content of patronizing becomes blatantly insulting, it should be coded Contempt.
Counter-Indicators for Threats
Good-natured teasing. Good-natured "jabs" at the receiver's foibles and those that include humorous threats (as in, "ooh, I'm going to get you for that!") are coded as Humor.

9. Fear/Tension

Function
Fear/Tension communicates, usually involuntarily, fear, worry, anxiety, nervous anticipation, or dread.
Indicators
1. ***Speech disturbances****.* Fearful or tense speakers will often have a difficult time expressing or even knowing what they want to say. This will manifest as incomplete or unfinished statements, stuttering, or *frequent* and *rapid* "uhs" and "ahs." Watch also for shallow, rapid breathing.
(Note that the *occasional* use of "ah, "er," or "umm" can simply reflect attempts to keep the floor or turn at speech.)
2. ***Shifts in fundamental frequency****.* In studies of vocal quality, *chest register* refers to a lower pitch characterized by vibratory sensations felt in the sternum and trachea, and *head register* refers to a higher pitch characterized by vibratory sensations felt in the head. Either of these states can characterize a *fundamental frequency,* or the lowest frequency, of sound waves characterizing a person's speech. In fear/tension, one can often detect a shift in fundamental frequency that moves from a chest register to a head register.
3. Fidgeting*.* Fearful or tense individuals will fidget, repeatedly shifting their position in their chairs (as if in the "hot seat"), plucking at clothes or hands, rubbing their faces (especially the temple, mouth, and chin), or biting the lips or inside of their mouths.
4. ***Nervous laughter****.* Unshared laughter or giggling that doesn't appear to fit in the conversation and likely is a response to nervous tension (e.g., no jokes or humorous moments have occurred). Often, the fearful or tense individual will seem unable to stop. The smile will often appear "pasted on" (see "Physical Cues").
5. ***Nervous gestures****.* Certain gestures of the arms and face can indicate fear/tension, such as arms akimbo (folded across the chest) and hands frequently touching the face.
Physical Cues
AUs 1, 2, 4, 12, 20, 1+2+4, 1+2+4+5. Watch for frequent eye movements, frequent gulping, biting of lips and inside of mouth, and the "unfelt smile," a smile without AU6 that has been associated with neurophysiological patterns suggestive of behavioral withdrawal (Ekman & Davidson, 1993; Ekman, Davidson, & Friesen, 1990).
Counterindicators
1. *Away behaviors.* Away behaviors, such as paying attention to trivial objects in the room, looking at one's own hands or nails, and so forth, when unaccompanied by anxious affect and when in the context of high negative affect, are more properly coded as Stonewalling.
2. *Foreign object.* Sometimes individuals will become occupied with picking their teeth or removing something from their eye in the midst of a conversation. Such behaviors may be associated with increased anxiety but are more likely simply Neutral.
3. *Shared nervous laughter.* Nervous laughter that is shared among two or more individuals can quickly escalate into a shared moment of positive affect that is more properly coded as Humor.

10. Stonewalling

Function
Stonewalling functions to communicate an unwillingness to listen or respond to the receiver.
Indicators
1. ***Active away behavior****.* The speaker focuses on some trivial object in order to avoid contact with the receiver. Such away behavior frequently entails the use of "automanipulation," a behavior characterized by playing with hair or hands (e.g., cleaning fingernails or looking at split ends). This behavior is "active" in Stonewalling in that it is not a function of idleness but rather purposefully communicates an unwillingness to pay attention, especially during conversational moments characterized by high levels of negative affect. The "speaker" (i.e., the contemptuous person) is communicating the message, "I'd rather not be here right now, and I don't want to listen to you."

(Stonewalling)

2. ***No back channels****.* The stonewalling person offers no vocal or non-vocal back channels such as one would find in Validation. There are no head nods, the neck is rigid, there are no vocal or verbal assents (as in "ummhmmm," "yeah," "uh-huh," etc.), and no other verbal responses. There is little if any facial movement and certainly no facial mirroring or eye contact. The "noback- channeling" behavior may occur very abruptly, as if intended to suddenly put up an obvious, though technically invisible, wall between the speaker and the receiver.

3. ***Monitoring gaze.*** Within the context of "no back channels," stonewalling individuals will occasionally steal glances at their partners, as if to remind their partners to notice their lack of listening behavior. This can appear as a intermittent glance in the partner's direction, as if the partner is an annoyance that must be endured, much as one might occasionally glance over at a noisy person in a library.

Physical Cues

In Stonewalling, the face will typically appear stiff or frozen. The jaw may be clenched, and the muscles of the neck may be obviously flexed. Other times, the face will show no obvious signs of emotion at all, deliberately arranged to appear neutral.

Counter-indicators

1. *Boredom.* Individuals can sometimes become bored or otherwise run out of things to say to each other. Sometimes, this will cause them to sit quietly without interacting for seemingly long periods of time. Away behavior can characterize these moments, but they should not be confused with Stonewalling behavior. Stonewalling does not result from idleness or boredom but is rather a form of active and aggressive communication, most frequently observed during heated moments.

2. Sleepiness. If an individual stops offering back channels but also appears to be very sleepy (as sometimes happens), his or her behavior is more properly coded as Neutral.

3. Resignation. Sometimes individuals will become sad or defeated during an intense conversation. During such moments, they can appear to be Stonewalling for want of back-channeling behavior. It is important to recognize when this is occurring and to code accordingly. Most often, resigned behaviors such as these are coded as Sadness.

11. Whining

Function

Whining functions to make what might otherwise be an ordinary complaint into a plaintive or pleading form of emotional protest. Whining suggests an innocent victim stance, communicating something like "What are you picking on me for?" or "What about all the good I do?"

Indicators

1. Whiny protest*.* Whining is really characterized by a quality of voice paired with a complaint or protest. This voice quality is high-pitched, nasal, "sing-songy," or otherwise annoyingly plaintive. For example, the question "why" might be expressed in a high-pitched voice and drawn out with an exaggerated "eeee" sound at the end, as in "whyyyyeeee?"

Physical Cues

AUs 1, 1 + 2, 1 + 2 + 15.

Counter-indicators

1. Defensive whining. Sometimes defensive behaviors can be expressed in a whiny voice style. Such moments are more properly coded Defensive.

Neutral

Function

The Neutral code represents a sort of "dividing line" between positive and negative SPAFF codes. It is relatively non-affective and is associated with the exchange of un-valenced information.

The voice will have a relaxed quality, with an even pitch and volume. It is important to become familiar with an individual's neutral behavior early on in a coding session, as facial morphology and other characterological mannerisms that are actually neutral for a given person can often seem affective to coders unfamiliar with them.

Indicators

1. *Information exchanges.*
2. *Non-codable moments.* Sometimes it will be unclear whether a behavior is affective or what a particular affective behavior represents. In the SPAFF, such moments are coded Neutral.

Physical Cues

The neutral face is apparent, though care must be taken to avoid coding baseline facial morphologies as affective facial behavior.

Counter-indicators

1. *Loaded issue.* It is possible that a moment of behavior that seems to be a neutral exchange of information actually makes reference to an issue that has emotional relevance to the speaker, the receiver, or both. Such moments are not properly coded Neutral.
2. *Any codable affect.*

The University of Texas Southwestern Medical Center at Dallas
Parkland Health & Hospital System
Children's Medical Center
Texas Scottish Rite Hospital for Children
Presbyterian Hospital of Dallas

CONSENT TO PARTICIPATE IN RESEARCH

Title of Research:	Partner-Assisted Therapy intervention (PAT) for Perinatal Depression
Funding Agency/Sponsor:	1K23MH085007-01A1
Study Doctors:	Anna R. Brandon, Ph.D. GeethaShivakumar, M.D. Neysa Johnson, M.D.
Research Coordinator:	Nadia Ceccotti, M.Ed.
Research Personnel:	Patricia Cross

You may call these study doctors or research personnel during regular office hours at 214-648-4607. At other times, you may call them at 214-648-5555.

Instructions:
Please read this consent form carefully and take your time making a decision about whether to participate. As the researchers discuss this consent form with you, please ask him/her to explain any words or information that you do not clearly understand. The purpose of the study, risks, inconveniences, discomforts, and other important information about the study are listed below. If you decide to participate, you will be given a copy of this form to keep.

Why is this study being done?
This study is being done to develop a manual for Partner-Assisted Therapy for the treatment of women who are depressed during fertility treatment, pregnancy, and the postpartum. Partner-Assisted Therapy will consist of psychotherapy with you and your partner with the goal of improving her depressive symptoms as well as helping her deal with the changes of pregnancy, childbirth, and the year after childbirth.

Why is this considered research?
This is a research study because Partner-Assisted Therapy (PAT) is an investigational treatment for depression during fertility treatment, pregnancy, and the postpartum period. The word "investigational" means that PAT is still being tested in research studies. The results of this research may lead to development of effective treatment options during and after pregnancy in women with depression.

The following definitions may help you understand this study:

- Standard medical care means the regular care you would receive from your personal doctor if you choose not to participate in this research.

IRB File Number: 122007-011
Approval Period Begins: DEC 0 7 2009
Approval Period Ends: NOV 3 0 2010

- Researchers means the study doctor and research personnel at the University of Texas Southwestern Medical Center at Dallas and its affiliated hospitals.

Why am I being asked to take part in this research study?
You are being asked to take part in this study because you are a partner of a woman with an episode of major depression who is more than 8 weeks pregnant estimated by the last menstrual period, within 12 weeks after giving birth, or who is currently receiving fertility treatment. Major depression includes symptoms like feeling sad most of the time, a loss of interest in work or activities, change in appetite or sleeping habits, loss of energy, suicidal thoughts, and or feeling hopeless.

Do I have to take part in this research study?"
No. You have the right to choose whether you want to take part in this research study. If you decide to participate and later change your mind, you are free to stop participation at any time.

If you decide not to take part in this research study it will not change your legal rights or the quality of health care that you receive at this center.

How many people will take part in this study?
About 15 women, who are pregnant, postpartum, or undergoing fertility treatment, and their partners (a total of 30 subjects) will take part in this study at the Women's Mental Health Center at UT Southwestern Medical Center.

What is involved in the study?
If you volunteer to take part in this research study, you will be asked to sign this consent form and will have the following procedures.

Screening Procedures
To help decide if you qualify to be in this study, the researchers may ask you and your partner questions about health, including medications you take and any surgical procedures she has had.

Your contact information, such as, name, address, telephone number will also be asked. You will also be asked demographic information such as, age, sex, ethnic origin.

There will be eight visits during a twelve-week period and one visit at six to eight weeks postpartum or, in postpartum and assisted reproduction couples, at 4 weeks after your eighth therapy session. Your study doctor will ask you questions about your partner's mood and depression at each visit. You may also have to fill out certain forms to answer questions about her depression. Along with this, you and your partner will need to attend eight psychotherapy sessions over a 12-week period, and an additional session six to eight weeks after your partner has had your baby, or 4 weeks after your eighth therapy session if you have already had your baby, or your partner is undergoing fertility treatment.

Procedures and Evaluations during the Research

There are eight clinic visits for therapy during the ten-week study. The first visit may last up to 2 hours. You will need to come in for a visit once a week during your participation. Therapy sessions are 60-minutes long. There will be one final therapy visit at six to eight weeks postpartum or at 4 weeks after your eighth therapy session if you are already postpartum, or your partner is undergoing fertility treatment.

All sessions will be digitally video-recorded in order to rate the intervention for its adherence to the manual, a set of instructions guiding the therapist. The digital files will be saved on a password protected portable hard drive with limited access kept in a locked file in a locked office, and erased after the rating process.

Please initial the appropriate box if you would like to give your permission for the sessions to be recorded:

_____ Yes, _____ No.

Visit 1 (Screening)

- The study and intervention will be described and consent taken.
- Medical and psychiatric history will be reviewed for you and your partner.
- Demographic (such as, age, gender, ethnicity, etc) and contact information (such as, name address, telephone number, email address, etc.) will be obtained.
- You will undergo psychological evaluations and ratings. You and your partner will undergo a measure used for diagnosing depression.

Visit 2-9

- Each visit will be a 60-minute therapy session with you and your partner.
- Questions about mood and postpartum symptoms will be asked at each visit using rating scales and questionnaires.

Visit 10

- You will need to attend one refresher psychotherapy session six to eight weeks after your baby is born or, if your baby has already been born, or your partner is undergoing fertility treatment, at 4 weeks after your eighth therapy session.
- Questions about mood and postpartum symptoms will be asked at this visit using rating scales and questionnaires.

How long can I expect to be in this study?
Your participation in the study will begin with your screening visit and last until your refresher session. During treatment for your partner's depression, you will be asked to come in for 8 therapy sessions with your partner over a twelve-week period. Six to eight weeks after your baby is born, or 4 weeks after your eighth therapy session if your baby has already been born, or if your partner is undergoing assisted reproduction, a final refresher session will be scheduled for you and your partner to attend. Your participation in the study will end at the refresher visit unless you choose to withdraw earlier.

You can choose to stop participating for any reason at any time. However, if you decide to stop participating in the study, we encourage you to tell the researchers. You may be asked if you would be willing to complete some study termination tests.

IRB File Number: 122007-011
Approval Period Begins: DEC 07 2009
Approval Period Ends: NOV 30 2010

What are the risks of the study?
Because of your participation in this study, you are at risk for the following side effects. You should discuss these with the researchers and your regular health care provider:

Psychological Stress
Some of the questions we will ask you as part of this study may make you feel uncomfortable. You may refuse to answer any of the questions, take a break or stop your participation in this study at any time.

Loss of Confidentiality
Any time information is collected; there is a potential risk for loss of confidentiality. Every effort will be made to keep your information confidential; however, this cannot be guaranteed.

To help us further protect the information, the investigators have applied for a Certificate of Confidentiality from the U.S. Department of Health and Human Services (DHHS). This Certificate adds special protections for research information that identifies you and will help researchers protect your privacy.
With this Certificate of Confidentiality, the researchers cannot be forced to disclose information that may identify you in any judicial, administrative, legislative, or other proceeding, whether at the federal, state, or local level. There are situations, however, where we will voluntarily disclose information consistent with state or other laws, such as:

- to DHHS for audit or program evaluation purposes;
- information regarding test results for certain communicable diseases to the Texas Department of State Health Services, including, but not limited to HIV, Hepatitis, Anthrax, and Smallpox;
- if you pose imminent physical harm to yourself or others;
- if you pose immediate mental or emotional injury to yourself;
- if the researchers learn that a child has been, or may be, abused or neglected; or
- if the researchers learn that an elderly or disabled person has been, or is being, abused, neglected or exploited.

The researchers will not, in any case, disclose information about you or your participation in this study unless it is included in the Authorization for Use and Disclosure of Protected Health Information for Research Purposes as stated above.

The Certificate of Confidentiality does not prevent you or a member of your family from voluntarily releasing information about your involvement in this research study. In addition, the researchers may not use the Certificate to withhold information about your participation in this research study if you have provided written consent to anyone allowing the researchers to release such information (including your employer or an insurance company). This means that you or your family must also actively protect your privacy.

A Certificate of Confidentiality does not represent an endorsement of this research project by the Department of Health & Human Services or any other Federal government agency.

The investigator has received a Certificate of Confidentiality.

Other Risks
There may possibly be other side effects that are unknown at this time. If you are concerned about other unknown side effects, please discuss this with the researchers.

IRB File Number: 122007-011
Approval Period Begins: DEC 0 7 2009
Approval Period Ends: NOV 3 0 2010

How will risks be minimized or prevented?
Potential risks and discomforts must be minimized to the greatest extent possible by using procedures such as appropriate training of personnel, monitoring, withdrawal upon evidence of difficulty or adverse event, referral for treatment, counseling or other necessary follow-up. If needed, there may be frequent evaluations and ratings or extra visits. You will be given information on how to reach study personnel during weekends, holidays and after hours. In the event that the depression worsens, you will be referred to the staff psychiatrist at the Women's Mental Health Center for careful evaluation of severity of depression as well as risk management.

What will my responsibilities be during the study?
While you are part of this study, the researchers will follow you closely to determine whether there are problems that need medical care. It is your responsibility to do the following:

- Ask questions about anything you do not understand.
- Keep your appointments.
- Follow the researchers' instructions.
- Let the researchers know if your telephone number or address changes.

If I agree to take part in this research study, will I be told of any new risks that may be found during the course of the study?
Yes. You will be told if any new information becomes available during the study that could cause you to change your mind about continuing to participate or that is important to your health or safety.

What should I do if I think I am having problems?
Telephone numbers where the researchers can be reached are listed on the first page of this consent form.

What are the possible benefits of this study?
If you agree to take part in this study, there may or may not be direct benefits to you. The researchers cannot guarantee that you will benefit from participation in this research.

We hope the information learned from this study will benefit other pregnant women who have depression in the future. Information gained from this research could lead to better treatment for antenatal and postpartum depression, the prevention of postpartum depression, and improvements in recommendations for appropriate care.

What options are available if I decide not to take part in this research study?
You do not have to participate in this research to receive care for your partner's depression. Instead of being in this study, there are the following options:

- Individual psychotherapy with or without antidepressant medication

Please talk to the researchers or your personal doctor about these options.

Will I be paid if I take part in this research study?
Yes. You will receive a $25 gift card to Target or Walmart at visits 4 and 8, as well as at the final refresher session. This compensation is to offset the time spent in completing the questionnaires at these visits.

Will my insurance provider or I be charged for the costs of any part of this research study?
No. Neither you, nor your insurance provider, will be charged for anything done only for this research study (i.e., the Screening Procedures, Experimental Procedures, or Monitoring/Follow-up Procedures described above).

However, the standard medical care for your condition (care you would have received whether or not you were in this study) is your responsibility (or the responsibility of your insurance provider or governmental program). You will be charged, in the standard manner, for any procedures performed for your standard medical care.

What will happen if I am harmed as a result of taking part in this study?
It is important that you report any illness or injury to the research team listed at the top of this form immediately.

Compensation for an injury resulting from your participation in this research is not available from the University of Texas Southwestern Medical Center at Dallas.

You retain your legal rights during your participation in this research

Can I stop taking part in this research study?
Yes. If you decide to participate and later change your mind, you are free to stop taking part in the research study at any time.

If you decide to stop taking part in this research study, it will not affect your relationship with the UT Southwestern staff or doctors. Whether you participate or not will have no effect on your legal rights or the quality of your health care.

If you are a medical student, fellow, faculty, or staff at the Medical Center, your status will not be affected in any way.

If I agree to take part in this research study, can I be removed from the study without my consent?
Yes. The researchers may decide to take you off this study if:

- Your partner's medical problem remains unchanged or becomes worse.
- The researchers believe that participation in the research is no longer safe for you or your partner.
- The researchers believe that other treatment may be more helpful.
- The sponsor stops the research for the safety of the participants.
- The sponsor cancels the research.
- You are unable to keep appointments or to follow the researcher's instructions.

Will my information be kept confidential?
Information about you that is collected for this research study will remain confidential unless you give your permission to share it with others, or as described below. You should know that the UT Southwestern Institutional Review Board may look at and/or copy your medical records for research, quality assurance, and data analysis.

The therapy sessions will all be digitally video-recorded, and portions of the digital files will be observed by two psychotherapy experts who are assisting the principal investigator in the development of a manual for including partners of depressed individuals in therapy. In preparation for the consultations, the research assistant for this study will also view portions of the sessions. The videos will be preserved digitally on the University of Texas Southwestern Medical Center's protected server during the course of the study and password protected with limited access. At the conclusion of the study, the digital files will be deleted.

In addition to this consent form, you will be asked to sign an "Authorization for Use and Disclosure of Protected Health Information." This authorization will give more details about how your information will be used for this research study, and who may see and/or get copies of your information.

IRB File Number: 122007-011
Approval Period Begins: DEC 0 7 2009
Approval Period Ends: NOV 3 0 2010

Whom do I call if I have questions or problems?
For questions about the study, contact Anna Brandon, Ph.D. at 214-648-0103 during regular business hours and at 214-648-5555 after hours and on weekends and holidays.

For questions about your rights as a research participant, contact the UT Southwestern Institutional Review Board (IRB) Office at 214-648-3060.

Contact for Future Research Studies at Women's Mental Health Center
You also agree to allow Dr. Anna Brandon or a member of her staff to contact you to invite you to participate in future follow-up studies of families during the perinatal period. The research staff will use the contact information provided by you in this form.
Please initial here if you do not want to be contacted to participate in future research:
Please, do not contact me for future research: _____

SIGNATURES:

YOU WILL BE GIVEN A COPY OF THIS CONSENT FORM TO KEEP.

Your signature below certifies the following:

- You have read (or been read) the information provided above.
- You have received answers to all of your questions and have been told who to call if you have any more questions.
- You have freely decided to participate in this research.
- You understand that you are not giving up any of your legal rights.

_____

Participant's Name (printed)

_____ _____

Participant's Signature Date

In the event that the research team cannot locate you with the contact information you have provided, would you provide the names and contact numbers of two individuals who usually know how to reach you? Our contact with them would only involve asking for your current telephone number and address.

_____ _____

Contact #1 (Name/Relation) Telephone number

_____ _____

Contact #2 (Name/Relation) Telephone number

_____

Name of person obtaining consent (printed)

_____ _____

Signature of person obtaining consent Date

IRB File Number: 122007-011
Approval Period Begins: DEC 0 7 2009
Approval Period Ends: NOV 3 0 2010

The University of Texas Southwestern Medical Center at Dallas
Children's Medical Center of Dallas, Parkland Health & Hospital System
Retina Foundation of the Southwest, Texas Scottish Rite Hospital for Children
The University of Texas Southwestern Moncrief Cancer Center

Authorization for Use and Disclosure of Health Information for Research Purposes

NAME OF RESEARCH PARTICIPANT: _____

What is the purpose of this form?
This authorization describes how information about you and your health will be used and shared by the researcher(s) when you participate in the research study: "Partner-Assisted Therapy Intervention (PAT) for Perinatal Depression", that is, psychotherapy with you and your partner with the goal of improving her depressive symptoms as well as helping both of you deal with the changes of pregnancy, childbirth, and the year after childbirth. Health information is considered "protected health information" when it may directly identify you as an individual. By signing this form you are agreeing to permit the researchers and other others (described in detail below) to have access to and share this information. If you have questions, please ask a member of the research team.

Who will be able to use or share my health information?
The University of Texas Southwestern Medical Center at Dallas will share your information with Anna R. Brandon, Ph.D. and her staff for the purpose of this research study.

Will my protected health information be shared with someone other than the Researchers?
Yes, the Researchers may share your health information with others who may be working with the Researchers on the Research Project ("Recipients") for purposes directly related to the conduct of this research study or as required by law. These other people or entities include:

- The UT Southwestern Institutional Review Board (IRB). This is a group of people who are responsible for assuring that the rights of participants in research are respected. Members and staff of the IRB at UT Southwestern may review the records of your participation in this research. A representative of the IRB may contact you for information about your experience with this research. If you do not want to answer their questions, you may refuse to do so.
- Representatives of domestic and foreign governmental and regulatory agencies may be granted direct access to your health information for oversight, compliance activities, and determination of approval for new medicines, devices, or procedures.

How will my health information be protected?
Whenever possible your health information will be kept confidential as required by law. Federal privacy laws may not apply to other institutions, companies or agencies collaborating with UT Southwestern on this research project. UT Southwestern cannot guarantee the confidentiality of your health information after it has been shared with the Recipients.

Why is my personal contact information being used?
Your personal contact information is important for the UT Southwestern Medical Center research team to contact you during the study. However, your personal contact information will not be released without your permission.

IRB Number: 122007-011
Approval Date: DEC 07 2009
Expiration Date: This Form does not expire unless modified.

What health information will be collected, used and shared (disclosed)?
The Researchers will collect your medical and treatment history including history of medications; drug and alcohol use history; trauma history; information collected from psychological evaluations and ratings done by research personnel and questionnaires filled out by you each time you come for a visit.

- Medical and mental health history
- History of medications
- Psychological evaluations and ratings
- Mental health questionnaires
- Digitally Video-Recorded Psychotherapy Sessions
- Psychotherapy Progress Notes
- Adverse Events
- Information about referrals and/or follow-up

Will my health information be used in a research report?
Yes, the research team may fill out a research report. (This is sometimes called "a case report".) The research report will not include your name, address, or telephone or social security number. The research report may include your date of birth, initials, dates you received medical care and a tracking code. The research report will also include information the research team collects for the study.

Will my health information be used for other purposes?
Yes, the Researchers and Recipients may use your health information to create research data that does not identify you. Research data that does not identify you may be used and shared by the Researchers and Recipients in a publication about the results of the Research Project or for other research purposes not related to the Research Project.

Do I have to sign this authorization?
No, this authorization is voluntary. Your health care providers will continue to provide you with health care services even if you choose not to sign this authorization. However, if you choose not to sign this authorization, you cannot take part in this Research Project.

How long will my permission last?
This authorization has no expiration date. You may cancel this authorization at any time. If you decide to cancel this authorization, you will no longer be able to take part in the Research Project. The Researchers may still use and share the health information that they have already collected before you canceled the authorization. To cancel this authorization, you must make this request in writing to: Ann Brandon, Ph.D., 6363 Forest Park Road, Suite 8.815, TX 75235, 214-648-0103.

Will I receive a copy of this authorization?
Yes, a copy of this authorization will be provided to you.

Signatures:

By signing this document you are permitting UT Southwestern Medical Center to use and disclose health information about you for research purposes as described above.

_____ _____

Signature of Research Participant (Partner) Date

IRB Number: 122007-011
Approval Date: DEC 07 2009
Expiration Date: This Form does not expire unless modified.

The University of Texas Southwestern Medical Center at Dallas
Parkland Health & Hospital System
Children's Medical Center
Texas Scottish Rite Hospital for Children
Presbyterian Hospital of Dallas

CONSENT TO PARTICIPATE IN RESEARCH

Title of Research:	Partner-Assisted Therapy intervention (PAT) for Perinatal Depression
Funding Agency/Sponsor:	1K23MH085007-01A1
Study Doctors:	Anna R. Brandon, Ph.D. GeethaShivakumar, M.D. Neysa Johnson, M.D.
Research Coordinator:	Nadia Ceccotti, M.A.
Research Personnel:	Patricia Cross

You may call these study doctors or research personnel during regular office hours at 214-648-4607. At other times, you may call them at 214-648-5555.

Instructions:
Please read this consent form carefully and take your time making a decision about whether to participate. As the researchers discuss this consent form with you, please ask him/her to explain any words or information that you do not clearly understand. The purpose of the study, risks, inconveniences, discomforts, and other important information about the study are listed below. If you decide to participate, you will be given a copy of this form to keep.

Why is this study being done?
This study is being done to develop a manual for Partner-Assisted Therapy for the treatment of women who are depressed during fertility treatment, pregnancy, and the postpartum period. Partner-Assisted Therapy will consist of psychotherapy with you and your partner with the goal of improving your depressive symptoms as well as helping you deal with the changes of pregnancy, childbirth, and the year after childbirth.

Why is this considered research?
This is a research study because Partner-Assisted Therapy (PAT) is an investigational treatment for depression during fertility treatment, pregnancy, and the postpartum period. The word "investigational" means that PAT is still being tested in research studies. The results of this research may lead to development of effective treatment options during and after pregnancy in women with depression.

The following definitions may help you understand this study:

- Standard medical care means the regular care you would receive from your personal doctor if you choose not to participate in this research.

IRB File Number: 122007-011
Approval Period Begins: DEC 07 2009
Approval Period Ends: NOV 30 2010

- Researchers means the study doctor and research personnel at the University of Texas Southwestern Medical Center at Dallas and its affiliated hospitals.

Why am I being asked to take part in this research study?
You are being asked to take part in this study because you are a woman with an episode of major depression who is pregnant more than 8 weeks pregnant estimated by last menstrual period, within 12 weeks after giving birth, or who is currently receiving fertility treatment. Major depression includes symptoms like feeling sad most of the time, a loss of interest in work or activities, change in appetite or sleeping habits, loss of energy, suicidal thoughts, and or feeling hopeless.

Do I have to take part in this research study?"
No. You have the right to choose whether you want to take part in this research study. If you decide to participate and later change your mind, you are free to stop participation at any time.

If you decide not to take part in this research study it will not change your legal rights or the quality of health care that you receive at this center.

How many people will take part in this study?
About 15 women, who are pregnant, postpartum, or undergoing fertility treatment, and their partners (a total of 30 subjects) will take part in this study at the Women's Mental Health Center at UT Southwestern Medical Center.

What is involved in the study?
If you volunteer to take part in this research study, you will be asked to sign this consent form and will have the following procedures.

Screening Procedures
To help decide if you qualify to be in this study, the researchers may ask you questions about your health, including medications you take and any surgical procedures you have had. Your contact information, such as, name, address, telephone number will also be asked. You will also be asked demographic information such as age, sex, ethnic origin.

There will be eight visits during a twelve-week period and one visit at six to eight weeks postpartum, or in assisted reproduction couples, at 4 weeks after your eighth therapy session. Your study doctor will ask you questions about your mood and depression at each visit. You may also have to fill out certain forms to answer questions about your depression. Along with this, you and your partner will need to attend eight psychotherapy sessions over a 12-week period and an additional refresher session six to eight weeks after you have your baby, or 4 weeks after therapy session number 8 if you have already had your baby, or you are undergoing fertility treatment.

Procedures and Evaluations during the Research

There are eight clinic visits for therapy during the ten-week study. The first visit may last up to 2 hours. You will need to come in for a visit once a week during your participation. Therapy sessions are 60-minutes long. There will be one final therapy visit at either six to eight weeks postpartum or at 4 weeks after your eighth therapy session if you have already had your baby, or you are undergoing fertility treatment.

All sessions will be digitally video-recorded in order to rate the intervention for its adherence to the manual, a set of instructions guiding the therapist. The digital files will be saved on a password protected portable hard drive with limited access kept in a locked file in a locked office, and erased after the rating process.

IRB File Number: 122007-011
Approval Period Begins: DEC 07 2009
Approval Period Ends: NOV 30 2010

Please initial the appropriate box if you would like to give your permission for the sessions to be recorded:

_____ Yes _____ No.

Visit 1 (Screening)

- The study and intervention will be described and consent taken.
- Your medical and psychiatric history will be reviewed.
- Demographic (such as, age, gender, ethnicity, etc) and contact information (such as, name address, telephone number, email address, etc.) will be obtained.
- You will undergo psychological evaluations and ratings, in addition to an interview measure used for diagnosing depression.

Visit 2-9

- Each visit will be a 60-minute therapy session with you and your partner.
- Questions about mood and postpartum symptoms will be asked at each visit using rating scales and questionnaires.

Visit 10

- You will need to attend one refresher psychotherapy session six to eight weeks after your baby is born, or at 4 weeks after your final visit if you have already had your baby, or you are undergoing fertility treatment.
- Questions about mood and postpartum symptoms will be asked at this visit using rating scales and questionnaires.

How long can I expect to be in this study?
Your participation in the study will begin with your first therapy session and last until your refresher session. During the acute treatment for your depression, you will be asked to come in for 8 therapy sessions with your partner over a twelve week period. Six to eight weeks after your baby is born or 4 weeks after your eighth therapy session, if you have already had your baby or you are undergoing fertility treatment, a final refresher session will be scheduled for you and your partner to attend. Your participation in the study will end at the refresher visit unless you choose to withdraw earlier.

You can choose to stop participating for any reason at any time. However, if you decide to stop participating in the study, we encourage you to tell the researchers. You may be asked if you would be willing to complete some study termination tests.

What are the risks of the study?
Because of your participation in this study, you are at risk for the following side effects. You should discuss these with the researchers and your regular health care provider:

Psychological Stress
Some of the questions we will ask you as part of this study may make you feel uncomfortable. You may refuse to answer any of the questions, take a break or stop your participation in this study at any time. Your depression may get better or it may even worsen.

Loss of Confidentiality
Any time information is collected, there is a potential risk for loss of confidentiality. Every effort will be made to keep your information confidential; however, this cannot be guaranteed.

To help us further protect the information, the investigators have applied for a Certificate of Confidentiality from the U.S. Department of Health and Human Services (DHHS). This Certificate adds special protections for research information that identifies you and will help researchers protect your privacy.

With this Certificate of Confidentiality, the researchers cannot be forced to disclose information that may identify you in any judicial, administrative, legislative, or other proceeding, whether at the federal, state, or local level. There are situations, however, where we will voluntarily disclose information consistent with state or other laws, such as:

- to DHHS for audit or program evaluation purposes;
- information regarding test results for certain communicable diseases to the Texas Department of State Health Services, including, but not limited to HIV, Hepatitis, Anthrax, and Smallpox;
- if you pose imminent physical harm to yourself or others;
- if you pose immediate mental or emotional injury to yourself;
- if the researchers learn that a child has been, or may be, abused or neglected; or
- if the researchers learn that an elderly or disabled person has been, or is being, abused, neglected or exploited.

The researchers will not, in any case, disclose information about you or your participation in this study unless it is included in the Authorization for Use and Disclosure of Protected Health Information for Research Purposes as stated above.

The Certificate of Confidentiality does not prevent you or a member of your family from voluntarily releasing information about your involvement in this research study. In addition, the researchers may not use the Certificate to withhold information about your participation in this research study if you have provided written consent to anyone allowing the researchers to release such information (including your employer or an insurance company). This means that you or your family must also actively protect your privacy.

A Certificate of Confidentiality does not represent an endorsement of this research project by the Department of Health & Human Services or any other Federal government agency.

The investigator has received a Certificate of Confidentiality.

Other Risks
There may possibly be other side effects that are unknown at this time. If you are concerned about other unknown side effects, please discuss this with the researchers.

IRB File Number: 122007-011
Approval Period Begins: DEC 0 7 2009
Approval Period Ends: NOV 3 0 2010

How will risks be minimized or prevented?
Potential risks and discomforts must be minimized to the greatest extent possible by using procedures such as appropriate training of personnel, monitoring, withdrawal upon evidence of difficulty or adverse event, referral for treatment, counseling or other necessary follow-up. If needed, there may be frequent evaluations and ratings or extra visits. You will be given information on how to reach study personnel during weekends, holidays and after hours. In the event that the depression worsens, you will be referred to the staff psychiatrist at the Women's Mental Health Center for careful evaluation of severity of depression as well as risk management.

What will my responsibilities be during the study?
While you are part of this study, the researchers will follow you closely to determine whether there are problems that need medical care. It is your responsibility to do the following:

- Ask questions about anything you do not understand.
- Keep your appointments.
- Follow the researchers' instructions.
- Let the researchers know if your telephone number or address changes.
- Tell the researchers before you take any new medication, even if it is prescribed by another doctor for a different medical problem or something purchased over the counter.
- Tell your regular doctor about your participation in this study.
- Report to the researchers any injury or illnesses while you are on study even if you do not think there is a relationship.

If I agree to take part in this research study, will I be told of any new risks that may be found during the course of the study?
Yes. You will be told if any new information becomes available during the study that could cause you to change your mind about continuing to participate or that is important to your health or safety.

What should I do if I think I am having problems?
If you have unusual symptoms, pain, or any other problems while you are in the study, you should report them to the researchers right away. Telephone numbers where they can be reached are listed on the first page of this consent form.

If you have a sudden, serious problem, like difficulty breathing or severe pain, go to the nearest hospital emergency room, or call 911 (or the correct emergency telephone number in your area). Tell emergency personnel about any medications you are taking, including any medications you are taking for this study.

What are the possible benefits of this study?
If you agree to take part in this study, there may or may not be direct benefits to you. The researchers cannot guarantee that you will benefit from participation in this research.

We hope the information learned from this study will benefit other pregnant and postpartum women who have depression in the future. Information gained from this research could lead to better treatment for antenatal and postnatal depression, the prevention of postpartum depression, and improvements in recommendations for appropriate care.

What options are available if I decide not to take part in this research study?
You do not have to participate in this research to receive care for your depression. Instead of being in this study, you have the following options:

- Individual psychotherapy with or without antidepressant medication

Please talk to the researchers or your personal doctor about these options.

Will I be paid if I take part in this research study?
Yes. You will receive a $25 gift card to either Target or Walmart at visits 4 and 8, as well as at the final refresher session. This compensation is to offset the time spent in completing the questionnaires at these visits.

Will my insurance provider or I be charged for the costs of any part of this research study?
No. Neither you, nor your insurance provider, will be charged for anything done only for this research study (i.e., the Screening Procedures, Experimental Procedures, or Monitoring/Follow-up Procedures described above).

However, the standard medical care for your condition (care you would have received whether or not you were in this study) is your responsibility (or the responsibility of your insurance provider or governmental program). You will be charged, in the standard manner, for any procedures performed for your standard medical care.

What will happen if I am harmed as a result of taking part in this study?
It is important that you report any illness or injury to the research team listed at the top of this form immediately.

Compensation for an injury resulting from your participation in this research is not available from the University of Texas Southwestern Medical Center at Dallas.

You retain your legal rights during your participation in this research

Can I stop taking part in this research study?
Yes. If you decide to participate and later change your mind, you are free to stop taking part in the research study at any time.

If you decide to stop taking part in this research study, it will not affect your relationship with the UT Southwestern staff or doctors. Whether you participate or not will have no effect on your legal rights or the quality of your health care.

If you are a medical student, fellow, faculty, or staff at the Medical Center, your status will not be affected in any way.

If I agree to take part in this research study, can I be removed from the study without my consent?
Yes. The researchers may decide to take you off this study if:

- Your medical problem remains unchanged or becomes worse.
- The researchers believe that participation in the research is no longer safe for you.
- The researchers believe that other treatment may be more helpful.
- The sponsor stops the research for the safety of the participants.
- The sponsor cancels the research.
- You are unable to keep appointments or to follow the researcher's instructions.

Will my information be kept confidential?
Information about you that is collected for this research study will remain confidential unless you give your permission to share it with others, or as described below. You should know that the UT Southwestern Institutional Review Board may look at and/or copy your medical records for research, quality assurance, and data analysis.

The therapy sessions will all be digitally video-recorded, and portions of the digital files will be observed by two psychotherapy experts who are assisting the principal investigator in the development of a manual for including partners of depressed individuals in therapy. In preparation for the consultations, the research assistant for this study will also view portions of the sessions. The videos will be preserved digitally on the University of Texas Southwestern Medical Center's protected server during the course of the study and password protected with limited access. At the conclusion of the study, the digital files will be deleted.

In addition to this consent form, you will be asked to sign an "Authorization for Use and Disclosure of Protected Health Information." This authorization will give more details about how your information will be used for this research study, and who may see and/or get copies of your information.

Whom do I call if I have questions or problems?
For questions about the study, contact Anna Brandon, Ph.D. at 214-648-0103 during regular business hours and at 214-648-5555 after hours and on weekends and holidays.

For questions about your rights as a research participant, contact the UT Southwestern Institutional Review Board (IRB) Office at 214-648-3060.

Contact for Future Research Studies at Women's Mental Health Center
You also agree to allow Dr. Anna Brandon or a member of her staff to contact you to invite you to participate in future follow-up studies of families during the perinatal period. The research staff will use the contact information provided by you in this form.
Please initial here if you do not want to be contacted to participate in future research:

Please, do not contact me for future research: _____

IRB File Number: 122007-011
Approval Period Begins: DEC 0 7 2009
Approval Period Ends: NOV 3 0 2010

SIGNATURES:

YOU WILL BE GIVEN A COPY OF THIS CONSENT FORM TO KEEP.

Your signature below certifies the following:

- You have read (or been read) the information provided above.
- You have received answers to all of your questions and have been told who to call if you have any more questions.
- You have freely decided to participate in this research.
- You understand that you are not giving up any of your legal rights.

_____

Participant's Name (printed)

_____ _____

Participant's Signature Date

In the event that the research team cannot locate you with the contact information you have provided, would you provide the names and contact numbers of two individuals who usually know how to reach you? Our contact with them would only involve asking for your current telephone number and address.

_____ _____

Contact #1 (Name/Relation) Telephone number

_____ _____

Contact #2 (Name/Relation) Telephone number

_____

Name of person obtaining consent (printed)

_____ _____

Signature of person obtaining consent Date

IRB File Number: 122007-011
Approval Period Begins: DEC 0 7 2009
Approval Period Ends: NOV 3 0 2010

DO NOT DISCLOSE

The University of Texas Southwestern Medical Center at Dallas
Children's Medical Center of Dallas, Parkland Health & Hospital System
Retina Foundation of the Southwest, Texas Scottish Rite Hospital for Children
The University of Texas Southwestern Moncrief Cancer Center

Woman's Version

Authorization for Use and Disclosure of Health Information for Research Purposes

NAME OF RESEARCH PARTICIPANT: _____

What is the purpose of this form?
This authorization describes how information about you and your health will be used and shared by the researcher(s) when you participate in the research study: "Partner-Assisted Therapy Intervention (PAT) for Perinatal Depression", that is, psychotherapy with you and your partner with the goal of improving your depressive symptoms as well as helping you deal with the changes of pregnancy, childbirth, and the year after childbirth. Health information is considered "protected health information" when it may directly identify you as an individual. By signing this form you are agreeing to permit the researchers and other others (described in detail below) to have access to and share this information. If you have questions, please ask a member of the research team.

Who will be able to use or share my health information?
The University of Texas Southwestern Medical Center at Dallas will share your information with Anna R. Brandon, Ph.D. and her staff for the purpose of this research study.

Will my protected health information be shared with someone other than the Researchers?
Yes, the Researchers may share your health information with others who may be working with the Researchers on the Research Project ("Recipients") for purposes directly related to the conduct of this research study or as required by law. These other people or entities include:

- The UT Southwestern Institutional Review Board (IRB). This is a group of people who are responsible for assuring that the rights of participants in research are respected. Members and staff of the IRB at UT Southwestern may review the records of your participation in this research. A representative of the IRB may contact you for information about your experience with this research. If you do not want to answer their questions, you may refuse to do so.
- Representatives of domestic and foreign governmental and regulatory agencies may be granted direct access to your health information for oversight, compliance activities, and determination of approval for new medicines, devices, or procedures.

How will my health information be protected?
Whenever possible your health information will be kept confidential as required by law. Federal privacy laws may not apply to other institutions, companies or agencies collaborating with UT Southwestern on this research project. UT Southwestern cannot guarantee the confidentiality of your health information after it has been shared with the Recipients.

Why is my personal contact information being used?
Your personal contact information is important for the UT Southwestern Medical Center research team to contact you during the study. However, your personal contact information will not be released without your permission.

IRB Number: 122007-011
Approval Date: DEC 07 2009
Expiration Date: This Form does not expire unless modified.

What health information will be collected, used and shared (disclosed)?
The Researchers will collect your medical and treatment history including history of medications; drug and alcohol use history; trauma history; information collected from psychological evaluations and ratings done by research personnel and questionnaires filled out by you each time you come for a visit.

- Medical and mental health history
- History of medications
- Psychological evaluations and ratings
- Mental health questionnaires
- Digitally Video-Recorded Psychotherapy Sessions
- Psychotherapy Progress Notes
- Adverse Events
- Information about referrals and/or follow-up

Will my health information be used in a research report?
Yes, the research team may fill out a research report. (This is sometimes called "a case report".) The research report will not include your name, address, or telephone or social security number. The research report may include your date of birth, initials, dates you received medical care and a tracking code. The research report will also include information the research team collects for the study.

Will my health information be used for other purposes?
Yes, the Researchers and Recipients may use your health information to create research data that does not identify you. Research data that does not identify you may be used and shared by the Researchers and Recipients in a publication about the results of the Research Project or for other research purposes not related to the Research Project.

Do I have to sign this authorization?
No, this authorization is voluntary. Your health care providers will continue to provide you with health care services even if you choose not to sign this authorization. However, if you choose not to sign this authorization, you cannot take part in this Research Project.

How long will my permission last?
This authorization has no expiration date. You may cancel this authorization at any time. If you decide to cancel this authorization, you will no longer be able to take part in the Research Project. The Researchers may still use and share the health information that they have already collected before you canceled the authorization. To cancel this authorization, you must make this request in writing to: Ann Brandon, Ph.D., 6363 Forest Park Road, Suite 8.815, TX 75235, 214-648-0103.

Will I receive a copy of this authorization?
Yes, a copy of this authorization will be provided to you.

Signatures:

By signing this document you are permitting UT Southwestern Medical Center to use and disclose health information about you for research purposes as described above.

_____ _____

Signature of Research Participant (Pregnant Subject) Date

IRB Number: 122007-011
Approval Date: DEC 07 2009
Expiration Date: This Form does not expire unless modified.

The University of Texas Southwestern Medical Center at Dallas
Institutional Review Board

PROJECT SUMMARY

Principal Investigator: Anna R. Brandon, Ph.D.

Study Title: Partner-Assisted Therapy (PAT) Intervention for Perinatal Depression

Sponsor/Funding Source: 1K23 MH085007-01A1, Principal Investigator, Anna R. Brandon, Ph.D.

Purpose:
This research project investigates an intervention for depression during the perinatal period that focuses upon the crucial aspect of a woman's relationship with her partner and the ability of that partner to be helpful in the delivery of psychotherapeutic treatment. The overarching goal for this project is to provide pilot data for an application to acquire federal funding for a randomized clinical trial to establish efficacy.

Aim 1: The primary aim is to develop a Partner-Assisted Therapy intervention (PAT) for perinatal depression and write a manual for its administration.

Aim 2: The secondary aim is to conduct a small pilot trial of the manual to demonstrate (1) patient and partner acceptance of the treatment, (2) investigators' ability to recruit sufficient couples, (3) feasibility of treatment delivery, and (4) clinically significant patient improvement in depressive symptoms.

Background:

Depression during pregnancy is a public health problem critical because of the consequences for both mother and fetus/newborn, as well as the need for empirically supported non-pharmacological treatments. Depressed pregnant women demonstrate poorer self-care, are at increased risk for the use of addictive substances, and experience an elevated level of obstetric complications, compared to those who are not depressed [1]. When depression persists or begins in the postpartum period, maternal well-being and infant development are at risk. Depression is universally acknowledged as one of the impediments to healthy infant development and has been associated in numerous studies with impaired intimate relationships.

Given that depression has also been associated with decreased fertility rates, treatments for infertility are beginning to include attention to psychiatric factors [2]. The paucity of studies and multiple confounding variables limit our knowledge of if or how psychosocial interventions may benefit couples undergoing assisted reproductive interventions. Increased anxiety and depression have been documented after unsuccessful treatment, with symptoms persisting to at least six months post-treatment.[3] Anecdotal evidence gathered from internet blog sites testify to the stress and emotional lability incurred during treatment, regardless of outcome. Although the controversy of assisted reproduction in same-sex couples has been dampened, even less is known about the mental health of this sub-group of women and their partners also dealing with the ambiguities of uncertain parenthood.

No evidence-based standard of care has been established for treatment of depression in perinatal women, although both pharmacological and psychotherapeutic interventions have been explored. Controversy surrounding the safety of psychotropic medications during pregnancy requires careful consideration of the possible risks and benefits of initiating or continuing such medications[4]. Only one empirical trial of psychotherapy for Major Depressive Disorder diagnosed during pregnancy has been published [5].

IRB #: 122007-011
Approval Date: DEC 07 2009

Research on the risk factors and predictors for depression in the perinatal period has consistently revealed that social support, and particularly partner support, is negatively associated with depressive symptomatology [6-8]. Not only does just a woman's perception of her partner's support appear to have the power of moderating emotional distress [9], but reported partner support has been associated with reductions in such distress [10]. Therefore, the opportunity for a partner to be involved in a collaborative relationship with the therapist in the treatment of perinatal depression could be of great benefit [11]. In addition, other applications of couple therapy to non-pregnant dyads in which one partner suffers from depression have found, in addition to the amelioration of the depressed partner's symptoms, the quality of the couple's relationship improves significantly [12, 13]. It has been suggested that the transition to parenthood is an ideal time for this type of relationship support [14].

In view of what is known (as well as unknown), an investigation of the efficacy of a dyadic approach to depression during pregnancy is important in the search for efficacious non-pharmacological interventions. Not only could an exploration of a partner-assisted therapy address acute treatment needs, it would add to our knowledge by allowing an evaluation of the moderators and mediators of this association between depression and partner satisfaction during the transition to parenthood.

Concise Summary of Project – PHASE I:

Methods:
Women referred to the Principal Investigator for psychiatric assessment who are diagnosed with Major Depressive Disorder and meet study criteria will be invited to participate in a research study investigating the use of an 8-session program of PAT. The pilot study will include 15 women who, with their partners, agree to psychotherapeutic treatment for depression, i.e. a total of 30 subjects.

For each patient, there will be ten clinic visits (inclusive of study intake) during acute treatment and one visit six to eight weeks postpartum or four weeks after the eighth therapy session if patients are already postpartum or undergoing fertility treatment. Patients will be scheduled to attend eight therapy sessions at the clinic within a twelve-week period. Patients will receive a $25 gift card to Target or Walmart for visits 4, 8, and at the final refresher session. All the psychotherapy sessions will be video-recorded. Since the final visit may occur six to eight weeks after the baby is born, the exact duration of participation is dependent upon the baby's estimated gestational age at the time the participant begins treatment, but the number of clinic visits remains the same. All women undergoing fertility treatment, pregnant and postpartum women referred to the Women's Mental Health Center for evaluation who meet study criteria will receive information about the study at the time of diagnosis of Major Depressive Disorder. Should a woman elect to participate, she will return for an intake visit with her partner and the consent process will be carried out at that time, provided that she still meets eligibility criteria when she returns.

Study Procedures:

Screening Procedures
At the intake visit with woman and partner, the study and intervention will be described to the couple and the process of consent will be initiated. They will be asked questions about their health, including medications, surgical procedures. Contact information, such as, name, address, telephone number will also be asked. They will also be asked demographic information such as, age, sex, ethnic origin.

The partner and well as the subject will undergo the standardized protocol for establishing depression, the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID) and the Hamilton Rating Scale for Depression ($HAM\text{-}D_{17}$), which is the standard for measuring symptom severity.

IRB #: 122007-011
Approval Date: DEC 07 2009

Procedures and Evaluations during the Research

Couples will attend eight psychotherapy sessions over a twelve-week period and an additional refresher session at six-weeks postpartum or four weeks after their last PAT session. (See Appendix I, Manual Outline for details of intervention.) A twelve-week period is allowed for the eight visits to accommodate for any unforeseen cancellations or need for rescheduling. At each visit, participants will complete measures assessing the severity of the expectant mother's depression (Edinburgh Postnatal Depression Scale (EPDS) and Edinburgh Postnatal Depression Scale – Partner version (EPDS-P).

Visit 1

- The study and intervention will be described and consent taken. The process and purpose of video-recording will be carefully explained.
- Medical and psychiatric history will be reviewed.
- Demographic and contact information will be obtained.
- In addition to the depression measures, subjects will complete the Dyadic Adjustment Scale (DAS), the Antenatal Partner Support Scale (APSS) or the Postpartum Partner Support Scale and the Maternal/Paternal Antenatal Attachment Scale (MAAS/PAAS).

Visit 2-9

- Each visit will be a 60-minute therapy session with subject and the partner.
- Questions about mood and postpartum symptoms will be asked at each visit using rating scales and questionnaires.
- At Session four (midpoint) and at Session eight, both partners will complete the DAS, APSS or PPSS, and MAAS/PAAS.
- The primary outcome measure, the HAM-D_{17}, will be administered to both partners at the eighth session.
- All sessions will be video-recorded.

Visit 10

- Subjects will need to attend one refresher psychotherapy session six to eight weeks postpartum or four weeks after the eighth therapy session if the couple is already postpartum at enrollment.
- Questions about mood and postpartum symptoms will be asked at this visit using rating scales and questionnaires.
- Both partners will complete the DAS, Postpartum Partner Support Scale (PPSS), and the Infant Behavior Questionnaire (IBQ)[1].
- This session will be video-recorded.

In view of the exploratory nature of this pilot, women who do not recover by Week 8 (HAM-D_{17}score $\leq$ 7) will be educated about other treatments such as individual psychotherapy or medication, but also offered the alternative to continue Partner-Assisted Therapy for an additional 8 weeks.

In the event that a participant's depression worsens and she expresses the desire for a treatment change, she will be referred to the staff psychiatrist at the Women's Mental Health Center, for a careful evaluation of disease severity and risk management.

[1] Women undergoing fertility treatment and their partners will not complete the IBQ

IRB #: 122007-011
Approval Date: DEC 07 2009

Criteria for Inclusion of Subjects:

Inclusion Criteria:

1) Between 8 weeks gestational age estimated by last menses or within 12 weeks postpartum,
2) Undergoing assisted reproduction (initiated at least one month before referral),
3) Fulfill SCID-IV criteria for Major Depressive Disorder,
4) Score $\geq$16 on the HAM-D_{17},
5) Agree to attend 9 video-recorded therapy sessions,
6) Are married or cohabiting for at least six months in a committed relationship, and
7) Partner agrees to participate.

Criteria for Exclusion of Subjects:

Exclusion Criteria:

1) Presence of psychotic symptoms or current diagnoses of Bipolar Disorder, Schizophrenia, or active Substance Abuse/Dependence,
2) Endorsement of domestic violence,
3) Serious obstetric risk or fetal anomaly,
4) Currently engaged in psychotherapy, and/or
5) On an unstable medication treatment regimen (starting medication or requiring changes in medications) or preference to begin pharmacological treatment (patients who are currently on a stable treatment regimen and do not require medication changes but still meet all inclusion criteria are eligible to participate), and
6) Non-English speaking patient or partner. (At this time, funding and personnel available for the study are limited. In addition, sessions need to be conducted in English to allow our monolingual rating experts to evaluate adherence to the manual. A future randomized clinical trial will include Spanish-speaking subjects.)

Sources of Research Material:

Information to be collected:

Contact information (name, mailing address, telephone number, e-mail address)

Demographic information (age, sex, educational qualifications, etc.)

Medical and treatment history including history of medications

Psychological Evaluations, Ratings and Questionnaires

Psychotherapy Progress Notes

Digitally Video-Recorded Psychotherapy Sessions

Adverse Events

Follow-up or referral Information

Concise Summary of Project – PHASE II:

Approximately six months to one year post-completion of the Partner Assisted Therapy, participants (the female subject and her partner) will be invited to attend a focus group for the purpose of collecting patient satisfaction with the treatment and feedback regarding potential refinements.

IRB #: 122007-011
Approval Date: DEC 07 2009

Phase-II data collection

All self-report measures from follow-up session

Recruitment Methods and Consenting Process:

- Potential subjects for this research will be referred to the Women's Mental Health Center at UT Southwestern for Treatment of perinatal depression.
- Printed information will be posted at various locations throughout the UT Southwestern campus and the Baylor campus with information on depression during pregnancy, contact information for evaluation, and the opportunity to participate in research.
- Community obstetricians will receive information about the UT Southwestern Women's Mental Health Center, the resources available for screening, evaluation, and treatment, and a list of ongoing research studies.
- Evaluations and treatment will be conducted at the UT Southwestern Women's Mental Health Center and at Baylor University Medical Center in the Department of Obstetrics and Gynecology.
- The Research Study Coordinator will review the Consent Form with potential subjects and answer any questions they have. Each subject will also be invited to ask the principal investigator any questions about the study. All subjects (including partners) will sign the Consent Form and HIPAA form before starting participation in the study. They will be given a copy of each to keep.

Potential Risks:

Psychological Stress: Some of the questions asked in the process of screening and participation in this study may cause discomfort. However, individuals may decline to answer any question, request a break, or stop participation at any time. Subjects' depression may worsen.

Loss of Confidentiality: Any time information is collected; there is a potential risk for loss of confidentiality. Every effort will be made to keep all information confidential; however, this cannot be guaranteed.

Special Precautions:

Subjects will have access to a researcher on call 24 hours per day. If subjects have questions concerning their rights as a research subject, they may call the UT Southwestern Institutional Review Board (IRB) at the University of Texas Southwestern Medical Center at Dallas in addition to talking with the study clinicians.

Potential risks and discomforts will be minimized to the greatest extent possible by using procedures such as appropriate training of personnel, monitoring, withdrawal of the subject upon evidence of difficulty or adverse event, and referral for treatment, counseling or other necessary follow-up.
All patients will be given information on how to reach research personnel outside business hours and during weekends or holidays. Any adverse event or serious adverse event will be reported to the IRB within 48 hours. We will also document calls by patients placed after-hours.

Procedures to Maintain Confidentiality:

Any information that is obtained in connection with research that can be identified with a subject will remain confidential and will be disclosed only with a subject's permission. With reference to paper forms, all completed forms will be kept in a locked file cabinet. Only the principal investigator, faculty sponsor and research coordinator will have keys to this file. Digital video files will be preserved on a password-protected portable hard drive secured with limited access in a locked file cabinet in a

IRB #: 122007-011
Approval Date: DEC 07 2009

separate locked office than the data files or the patient consent files. All files will be deleted after supervision and rating for adherence to manual. The principal investigator and research assistant will review the video files, and portions of some sessions will be viewed by two external expert raters. The portions to be externally rated will be electronically delivered on the university systems, and the experts will delete after viewing, rating, and commenting. Electronic data bases will be password protected and only research personnel will have access to them. With reference to the study database, initially, patient-identifying information will be necessary to link data sources.

Once all data has been obtained, entered and checked for accuracy, the following procedure will be used to protect confidentiality:

- Assignment of a patient identification number to each unique patient in the database for tracking purposes,
- deletion of patient identifying information from the database utilized for analyses, and
- upon completion of analyses, identifying information will be permanently erased from the database used for analyses, as this database will contain all information required to meet ethical requirements to duplicate results without the patient identification number. (In instances where representatives of the IRB might audit this study's research information to ensure that patient rights and good clinical practices are respected, any de-identified patient information would be provided as requested.)
- This study also requires a Certificate of Confidentiality (COC), which was received from the NIH on March 20, 2008.

Potential Benefits:
Subjects may or may not receive direct benefit from participation in this research study. However, patients could possibly experience relief in their symptoms of depression during the study.

Information learned from this study will benefit other women with depression during and after pregnancy in the future. Information gained from this research could also lead to better care and treatment not just during pregnancy, but into the postpartum year.

Biostatistics:
Statistical Analyses:
The primary outcome of the treatment will be the change in HAM-D_{17} scores from baseline to week eight. Recovery will be defined by a HAM-D_{17} score of ≤ 7. In view of the exploratory purpose of this study, no power analyses were performed for planning the sample size.

In accordance with the initial stage of therapy development, namely manual development, statistical analyses will not be an integral part of this project. In relation to the small feasibility pilot, the primary outcome of the treatment will be the change in HAM-D_{17} scores from baseline to week eight. Recovery will be defined by a HAM-D_{17} score of ≤ 7. In view of the exploratory purpose of this study, no power analyses were performed for planning the sample size.

Pilot data analyses will include the following exploratory processes. To measure change over time in the levels of depressive symptomatology and partner satisfaction in the participant (HAM-D_{17}, EPDS, and DAS) and from the perception of the partner (EPDS-P and DAS), a mixed model strategy will be employed in order to account for any missing data and important covariates such as history of psychiatric illness, estimated gestational age, number of children at home, and years of marriage or cohabitation. To evaluate agreement between participant and partner, a weighted kappa of the EPDS and EPDS-P will be calculated at each couples session timepoint and an intraclass correlation coefficient will be used to analyze the change from baseline to final measure. To investigate the relationship between partner satisfaction, caregiver style, maternal/paternal antenatal attachment, and the severity of depressive symptoms, Spearman's correlations will be performed between the DAS,

IRB #: 122007-011
Approval Date: DEC 07 2009

APSS/PPSS, MAAS/PAAS, EPDS, and EPDS-P. To further evaluate the ability of partner satisfaction to predict change in depressive symptoms, a multiple regression analysis will be performed with the participant's EPDS score as the dependent variable and the DAS scores from the participant and her partner as the independent variables. Appropriate post-hoc analyses will be performed.

IRB #: 122007-011
Approval Date: DEC 07 2009

References

1. Zuckerman BS, Amaro H, Bauchner H. Depression during pregnancy: Relationship to poor health behaviors. American Journal of Obstetrics and Gynecology 1989;160:1107-1111.
2. Williams KE, Marsh WK, Rasgon NL. Mood disorders and fertility in women: a critical review of the literature and implications for future research. Hum Reprod Update 2007 Nov-Dec;13(6):607-616.
3. Verhaak CM, Smeenk JM, van Minnen A, Kremer JA, Kraaimaat FW. A longitudinal, prospective study on emotional adjustment before, during and after consecutive fertility treatment cycles. Hum Reprod 2005 Aug;20(8):2253-2260.
4. Rubinow DR. Antidepressant treatment during pregnancy: Between Scylla and Charybdis. Am J Psychiatry 2006;163(6):954-956.
5. Spinelli M, Endicott J. Controlled clinical trial of interpersonal psychotherapy versus parenting education for depressed pregnant women. American Journal of Psychiatry 2003;160(3):555.
6. O'Hara MW. Social support, life events, and depression during pregnancy and the puerperium. Arch Gen Psychiatry 1986;43(6):569-573.
7. O'Hara MW, Swain M. Rates and risk of postpartum depression: A meta-analysis. International Review of Psychiatry 1996;8:37-54.
8. Robertson E, Grace S, Wallington T, Stewart DE. Antenatal risk factors for postpartum depression: a synthesis of recent literature: General Hospital Psychiatry Vol 26(4) Jul-Aug 2004, 289-295; 2004.
9. Dennis CL, Ross L. Women's perceptions of partner support and conflict in the development of postpartum depressive symptoms. Journal of Advanced Nursing 2006;56(6):588-599.
10. Chapman HA, Hobfoil SE, Ritter C. Partners' stress underestimations lead to women's distress: A study of pregnant inner-city women. Journal of Personality and Social Psychology 1997;73(2):418-425.
11. Misri S, Kostaras X, Fox D, Kostaras D. The impact of partner support in the treatment of postpartum depression. Canadian Journal of Psychiatry 2000;45:554-558.
12. Kung WW. The intertwined relationship between depression and marital distress: Elements of marital therapy conducive to effective treatment outcome. Journal of Marital & Family Therapy 2000 Jan;26(1):51-63.
13. Beach S. Affective disorders. Journal of Marital & Family Therapy 2003 Apr;29(2):247-261.
14. Glade AC, Bean RA, Vira R. A prime time for marital/relational intervention: A review of the transition to parenthood literature with treatment recommendations. The American Journal of Family Therapy 2005;33:319-336.

IRB #: 122007-011
Approval Date: DEC 07 2009