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# Utilizing the Standard Trauma-Focused EMDR Protocol in Treatment of Fibromyalgia

Tricia L. Teneycke

*Antioch University - Seattle Branch*

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UTILIZING THE STANDARD TRAUMA-FOCUSED EMDR PROTOCOL IN  
TREATMENT OF FIBROMYALGIA

A Dissertation

Presented to the Faculty of  
Antioch University Seattle  
Seattle, WA

In Partial Fulfillment  
of the Requirements of the Degree  
Doctor of Psychology

By

Tricia Teneycke

December 2012

UTILIZING THE STANDARD TRAUMA-FOCUSED EMDR PROTOCOL IN  
TREATMENT OF FIBROMYALGIA

This dissertation, by Tricia Teneycke, has  
been approved by the committee members signed below  
who recommend that it be accepted by the faculty of the  
Antioch University Seattle at Seattle, WA  
in partial fulfillment of requirements for the degree of

DOCTOR OF PSYCHOLOGY

Dissertation Committee:

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Mark Russell Ph.D.,  
Chairperson

---

Melissa Kennedy, Ph.D.

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Jan Fite, Ph.D.

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Date.

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## Dedication

to my ancestors who prepared the soil

to my parents who tended the seedling

to my friends and beloved ones who provided shade and made way for the sun

to those known and unknown to me who rained down educational opportunities

to all of you, I dedicate the fruits of my labour.

## Acknowledgements

I would like to acknowledge Dr. Mark Russell for his feedback and role modeling of commitment to evidence-based treatments. I also wish to thank Dr. Melissa Kennedy for offering me opportunities to learn beyond parameters originally presented and Dr. Jan Fite for sharing with me her expertise and her steady encouragement.

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My deepest gratitude goes to “Rosalin, Grace, and Heather” for sharing their stories with me and for their willingness to set disbelief aside and try another approach to taking care of themselves and their fibromyalgia. They taught me a great deal and in so doing have provided me an opportunity to use that learning in the service of others. Namaste ladies.

Thanks also to MAPI Research Trust for permission to use the Short Form McGill Pain Questionnaire-2

## ABSTRACT

UTILIZING THE STANDARD TRAUMA-FOCUSED EMDR PROTOCOL IN  
TREATMENT OF FIBROMYALGIA

TRICIA TENEYCKE

Antioch University Seattle

Seattle, WA

Fibromyalgia is a syndrome characterized by chronic pain and fatigue. It notably impacts individuals and their families, creates notable opportunity costs for society, and places heavy demands on the medical system. Fibromyalgia has no cure. Its etiology is uncertain but likely biopsychosocial. In a subset of individuals experiencing Fibromyalgia, the experience of one or more traumatic experiences precipitates the onset of symptoms. Eye Movement Desensitization and Reprocessing (EMDR) is an evidence-based treatment for traumatic stress injuries. None of the handful of published accounts of EMDR treatment of Fibromyalgia have utilized the standard evidenced-based, trauma-focused EMDR (TF-EMDR) protocol, opting instead for untested modifications of EMDR related protocols rendering generalization of effects across studies difficult at best. The current study explored whether the use of the TF-EMDR protocol was sufficient to reduce chronic physical and psychological symptoms of Fibromyalgia in three female participants. Standardized symptom measures of post-traumatic stress, depression, pain, and Fibromyalgia-specific symptoms were administered at pre, post, and 3-month follow-up. Results indicated a decrease in symptoms across all standardized symptom measures. Participants' pain and symptoms of Fibromyalgia decreased, as did depression and trauma symptoms. Other results of treatment included: improved sleep, improved communication with loved ones, and improved sexual functioning. Treatment observations suggest TF-EMDR may

help facilitate participants' ability to: identify their emotions, observe the relationship between emotions and physical sensation, and observe (without trying to change) emotions and physical sensation. Results are promising and support the use of TF-EMDR in the treatment of Fibromyalgia patients with a history of trauma.

*Keywords:* EMDR, Fibromyalgia, chronic pain, trauma, multiple case study

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## Chapter 1: Introduction

Fibromyalgia, a syndrome characterized by chronic pain and fatigue, is experienced in industrialized countries by up to 4% of the general population (Clauw & Crofford, 2003). Not only can fibromyalgia cause suffering for the individual but it causes notable strain on society as well. Depending on severity of symptoms, individuals with fibromyalgia have been found to miss between 5 and 39 days of work per year (Schaefer et al., 2011). Compared to other disability claimants, patients receiving disability due to fibromyalgia took 2.6 times the number of sick days and had more than double the annual health costs (Robinson et al., 2003).

Diagnosis and effective treatment of fibromyalgia poses notable challenges. Fibromyalgia is the second most common disorder treated by rheumatologists, yet only 20% of appropriate patients receive effective treatment (Goldenberg, Burckhardt, & Crofford, 2004). Of those patients receiving treatment, it has been reported that less than 50% experience sufficient symptom relief (Leventhal, 1999). Frustrations with treatments that have not seemed to help, in addition to the stigma associated with having a syndrome that for many years was thought to be “all in one’s head,” leaves many individuals desperate for compassionate and effective treatments.

Fibromyalgia is often considered a stress-related disorder based on numerous reports from patients that their symptoms occurred following physiologic or psychological stress and that symptom exacerbation is often noted following stressful events (Staud, 2007). Eisen et al. (2005) demonstrated this relationship to stress in purporting that a diagnosis of Fibromyalgia is more likely in Gulf War veterans than non-Gulf War veterans.

## **Reasons for the Current Study**

This study was inspired by the author's interest in finding effective treatment for a patient with whom she was working. The patient reported her fibromyalgia symptoms had begun following a series of major life stressors. She had struggled to find treatment that adequately addressed her pain, sleep problems, and difficulties focusing and concentrating. In doing so, she had exhausted the offerings of several orthodox medical approaches. This patient's experiences seemed similar to other patients the author had previously worked with and read about. The question presented was how could clinicians best serve patients with a history of trauma who struggled with Fibromyalgia.

Psychotherapeutic treatments for chronic pain, such as Fibromyalgia, are recommended as part of a multi-modal treatment approach (Carville et al., 2008) or when orthodox physical treatments for chronic pain have failed and efforts to improve quality of life have begun (Eccleston, Williams, & Moreley, 2009). Cognitive Behavioral Therapy (CBT) and Behavior Therapy (BT) are the two most prominently studied psychotherapeutic treatments for pain (Eccleston, Williams, et al., 2009). Meta-analysis of CBT and BT have provided conflicting reports of efficacy in pain management (Eccleston, Williams, et al., 2009; Thieme & Gracely, 2009), creating uncertainty as to best practices of psychotherapeutic treatment of chronic pain. Eccleston, Palermo, Williams, Lewandowski and Morley (2009) recommend that psychological subgroupings (e.g., distinguishing histories of trauma or depression) be used in the selection of psychological treatment.

Eye Movement Desensitization and Reprocessing (EMDR) is an evidenced-based treatment for trauma (American Psychiatric Association [APA], 2004). Over the past ten years, researchers and clinicians have also begun to look at the effectiveness of EMDR in

treating chronic pain conditions (Friedberg, 2004; Grant, 2000; Grant, & Threlfo, 2002; Mazzola et al., 2009; Ray, & Page, 2002; Royle, 2008; M. C. Russell, 2008a; 2008b.)

Variations on the standard trauma-focused EMDR (TF-EMDR) protocol specific to chronic pain have emerged (de Roos & Veenstra, 2010; Grant, 2010) without fully establishing: (a) the effectiveness of the standard EMDR-TF protocol in treating chronic pain or (b) the need for deviation from the evidenced based EMDR-TF protocol. Additionally, literature is lacking on the use of EMDR in the specific treatment of Fibromyalgia as a chronic pain condition.

## Chapter 2: Literature Review

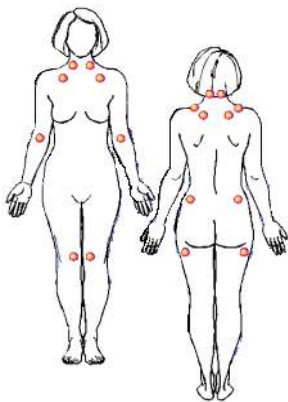
### Fibromyalgia

Fibromyalgia is a syndrome whose predominant features include chronic, widespread musculoskeletal pain; stiffness; fatigue; and problematic sleep (Schweinhardt, Sauro, & Bushnell, 2008). It is observed most commonly in women between the ages of 20 and 50 years of age (Chakrabarty & Zoorob, 2007) and for those women with lower socioeconomic status, lack of college education, and a history of divorce (Rosenzweig & Thomas, 2008). Two percent of the population in North America, South America, and Europe are likely to experience Fibromyalgia (Marcus, D., 2009). Curiously, a much smaller prevalence of fibromyalgia is found in China where rheumatoid conditions are also low (Marcus, D., 2009). In the United States, African Americans are more likely to experience fibromyalgia than Hispanic Americans and European Americans (Raphael, Janal, Nayak, Schwartz, & Gallagher, 2006).

**Diagnosing Fibromyalgia.** The American College of Rheumatology (ACR) established the diagnostic criteria for fibromyalgia (Marcus, D., 2009). Prior to making a diagnosis of fibromyalgia, several other medical conditions should be ruled out: (a) ankylosing spondylitis, (b) diabetes, (c) hepatitis C, (d) HIV/AIDS, (e) hyperparathyroidism, (f) hypothyroidism, (g) Lyme disease, (h) metastatic cancer, (i) multiple myeloma, (j) osteoarthritis, (k) osteomalacia, (l) polymyalgia rheumatica, (m) rheumatoid arthritis, (n) scleroderma, (o) Sjögren's syndrome, and (p) systemic lupus erythematosus (Marcus, D., 2009).

After eliminating the above conditions, the ACR criteria for diagnosing fibromyalgia include (a) pain must be chronic, persisting for  $\geq 3$  months; (b) pain must be widespread; (c)

pain must affect both sides of the body; (d) pain must affect areas above and below the waist; (e) axial pain must be present; and (f) 11 of 18 tender points (see Figure 1) must be painful to approximately four kilograms of pressure (or when practitioner's thumb nail blanches). Tender points are areas on the body commonly sensitive to pressure in patients experiencing Fibromyalgia. During a tender point exam, patients rate pain at each point on a scale of 0-10, with 0 being no pain at all. Ratings of two or more indicate a presence of a tender point (Marcus, D., 2009).



*Figure 1.* Fibromyalgia tender points (Rehan, 2011)

Debate related to the ACR's fibromyalgia diagnostic criteria (Marcus, D., 2009) focus on the relevance of the tenderpoint exam (Henderson & Bass, 2006). Specifically in question is the tendency for women to score higher on tender point exams (Clauw & Williams, 2002; Marcus, D., 2009; Wolfe, Ross, Anderson, & I. Russell, 1995). In addition to tenderpoint criticism, improved understanding of fibromyalgia as a syndrome of aberrant pain processing potentially rooted in an abnormal stress response (Ablin, Schoenfeld, & Buskila, 2006) has also prompted the ACR to propose new diagnostic criteria that include symptoms of fatigue, sleep disturbance, and problems of cognition (Jahan, Nanji, Qidwai, & Qasim, 2012). A full physical exam would be required and, in the place of the tender point



exam, a widespread pain index (WPI: patient evaluation of 19 regions of the body for pain in the last week, score range 0-19) and symptom severity score (SS: rating of 0-3 on four symptoms, Fatigue, Waking unrefreshed, Cognitive symptoms, Somatic; score range 0-12) would be obtained. Diagnoses would be based on either a (1) WPI of at least 7 and SS scale score of at least 5, or (2) WPI of 3-6 and SS scale score of at least 9 (Jahan, et al., 2012).

**Potential causes of Fibromyalgia.** Related to challenges in diagnosis and classification of Fibromyalgia is the uncertainty as to its etiology. A biopsychosocial model of Fibromyalgia is proposed by Yanus (1984, 2007a) and leaves the possibility open for combining several factors to create the experience of Fibromyalgia. Table 1 presents etiological factors beyond the scope of this research and provides references for the interested reader. For the purposes of this study, the following factors are investigated in greater detail: physiological (e.g., dysfunction of central pain processing, disrupted sleep, and dysfunction of the hypothalamic-pituitary axis), history of trauma, and psychological factors (e.g., catastrophizing, inhibited expression of anger, and mood).

Table 1

*Etiological Factors of Fibromyalgia Not Addressed in the Current Review*

Etiological factor	Description	Authors
Physiological	Genetic	Arnold et al., 2004; Buskila and Neuman, 1997; Marcus, D., 2009; Mergener, Ribas Becker, dos Santos, and de Andrade, 2011; Schmechel and Edwards, 2011
	Biochemical abnormalities	Anderberg, Lui, Berglund, and Nyberg, 1999; Rosenzweig and Thomas, 2009; I. Russell, et al., 1994; Wood, Glabus, Simpson, and Paterson, 2009

***Physiological factors.***

*Dysfunction of central pain processing.* Dysfunction of central pain processing is considered to be a major element of fibromyalgia (Burgmer et al., 2009) that may lead to a decreased threshold to pain and other noxious sensory stimuli (e.g., strong odors, loud sound and heat/cold). Kroenke, Krebs, and Bair (2009) specify that

The primary problem in [fibromyalgia] appears to be not that there is too much input coming from the pressure nociceptors peripherally, but rather that there is inadequate filtering of that activity, perhaps because of decreased activity of descending antinociceptive pathways. (p. 212)

Staud (2002) explains that the central nervous system is neuroplastic, able to change and adjust based on experiences, such as frequent stimulation. Typically with pain stimulus the body's experience of pain rises and then falls. With repeated stimulus, it takes longer for pain sensation to fall, and the spinal cord begins to remember the pain. If the pain sensation is long or intense enough, the memory becomes centrally sensitized, and not only is the spinal cord changed, but genes can become activated (it is not understood if this can be reversed). Staud (2002) described that in the case of patients with fibromyalgia, their pain baseline does not come down after pain stimuli in the same way as the typical population, and an increase in pain sensation occurs. Neurochemicals, such as Substance P and serotonin can also influence the central sensitization experienced by individuals with fibromyalgia (Staud, 2002).

*Disrupted sleep.* Disrupted sleep is a common complaint of individuals with Fibromyalgia (Rosenzweig & Thomas, 2009). Disrupted Rapid Eye Movement (REM) sleep

may decrease growth hormone synthesis leading to symptoms such as low energy malaise, muscle weakness, sensitivity to cold, impairment in cognition, low mood, and decreased lean body mass (Rosenzweig & Thomas, 2009). Theadom, Cromptley, and Humphrey (2007) found that up to 99% of individuals with Fibromyalgia report poor sleep quality. Five hours of sleep is the average duration for both individuals with fibromyalgia and insomnia (Vitorino, Carvalho, & Prado, 2006). This limited duration of sleep is notable as pain and reduced physical functioning has been associated with disrupted sleep (Affleck, Urrows, Tennen, Higgins, & Abeles, 1996). Sleep onset latency, sleep disturbances, and daytime dysfunction have been identified to be the most frequent sleep related difficulties for individuals with fibromyalgia (Theadom, & Cromptley, 2008). In a study of dysfunctional beliefs and sleep, it was found that compared to healthy controls, individuals with fibromyalgia had significantly more dysfunctional beliefs about sleep and perceived stress (Theadom & Cromptley, 2008). These dysfunctional beliefs were correlated with higher sleep disturbance and daytime dysfunction.

In a review of the fibromyalgia literature, Gur and Oktayoglu (2008) reported that restorative sleep patterns may be compromised in individuals with fibromyalgia. These patterns are facilitated by faulty central serotonergic neurotransmission (Moldofsky, Scarisbrick, 1975). When sleep disturbances occur in the healthy population, individuals are noted to experience symptoms similar to those in fibromyalgia (Moldofsky, Scarisbrick, England, & Smythe, 1975).

*Dysfunction in the hypothalamic-pituitary-adrenal axis.* The hypothalamic-pituitary-adrenal (HPA) axis is a part of the neuroendocrine system and is critical to the adaptive stress responses (Rosenzweig & Thomas, 2009). It is a significant part of the

neuroendocrine system, which influences reactions to stress and other functions, such as mood, immune system functioning and energy release and storage. HPA axis dysfunction has been linked to: Fibromyalgia (Nees et al., 2010; Riva, Mork, Westgaard, Rø, & Lundberg, 2010) depression (Wasserman, Wasserman, & Skolowski, 2010), insomnia (Basta, Chrousos, Vela-Bueno, & Vgontzas, 2007), disorders of trauma (Trickett, Noll, Susman, Shenk, & Putnam, 2010), and Borderline Personality Disorder (Wingenfeld, Spitzer, Rullkötter, & Löwe, 2010). A complex interaction of factors influences the functioning of the HPA axis. These factors include life stressors, pain, genetics, epigenetics, and trauma.

As the HPA axis is so intricately involved in the human stress response, it is no surprise that the experience of stress itself can contribute to HPA dysfunction. McBeth et al. (2005) suggested that traumas or life experiences might cause life style changes in individuals that may subsequently lead to the development of HPA axis abnormalities in those who are predisposed. McBeth and colleagues noted that psychological factors contributed to HPA changes but were not the primary cause. HPA abnormalities are believed to be the result of pain, and the stressors associated with pain (Clauw & Williams 2003). This belief is supported by the findings of a randomized control trial (RCT) of cortisol and Fibromyalgia in which pain symptoms experienced early in the day were associated with alterations in the HPA axis (McLean et al., 2005).

The HPA axis is influenced by both genetic and epigenetic factors. The HPA axis is impacted by vasoactive neuropeptides (VN) that have “immunoregulation, inflammation modulation, neurotransmitter, neurotrophic, hormonal and metabolic functions” (Staines, 2005, p. 797). VN have been associated with a range of conditions, such as asthma,

rheumatoid arthritis, systemic lupus erythematosus, and multiple sclerosis, amongst others. VN have also theoretically been implicated in fibromyalgia, Chronic Fatigue Syndrome, and Gulf War Syndrome. Animal studies have shown that prenatal and early postnatal environmental factors epigenetically influence HPA functioning in adulthood (Weaver, 2009). Parental behaviors (e.g., care-taking, neglect, or abuse) impact the HPA responses to stress in children, which is biologically embedded across the lifespan by epigenetic programming.

The role of the HPA axis in the experience of fibromyalgia has been extensively examined with mixed results (McLean et al., 2005). The majority of studies have indicated abnormalities, such as elevated cortisol levels and blunted response to acute stress that would be consistent with hyperactivity of the HPA axis. This pattern has also been seen in individuals with histories of childhood adversity (Heim, Newport, Mletzko, Miller, & Nemeroff, 2008)

Heim, Newport, Bonsall, Miller, and Nemroff (2001), in a study of the Adrenocorticotrophic hormone (ACTH) and cortisol (hormones in the HPA axis) responses of women with and without abuse histories and mood and anxiety disorders, found that women with a history of abuse and no depression had exaggerated ACTH stress response. Women experiencing depression, with or without an abuse history, had a blunted ACTH response. Women with both depression and an abuse history were the most likely to suffer from comorbid Post Traumatic Stress Disorder (PTSD) and reported more recent, chronic stress than any other group. Heim and colleagues postulated

Stress early in life may initially lead to sensitization of the anterior pituitary to [Corticoid-Releasing Factor] CRF, possibly reflecting a biological vulnerability to

the effects of stress. This vulnerability may result in relatively high CRF secretion whenever these women are stressed, which may eventually lead to pituitary receptor down-regulation and depression and anxiety because of the behavioral effects of CRF at extrahypothalamic sites. (p. 580)

Heim et al. believed that this adrenal insufficiency is likely to increase women's risks of developing autoimmune disorders or pain syndromes, such as fibromyalgia.

***History of physical or psychological trauma.*** Comorbidity of PTSD and chronic pain has been reported at a modal rate of 7-8% (Beck, J. & Clapp, 2011). Forty-six percent of individuals with fibromyalgia in a Canadian community sample were found to have PTSD (Sareen et al., 2007). There has been a great deal of research regarding the influence of traumatic stress and the development of fibromyalgia (Amir et al., 1997; Amital et al., 2006; Raphael, 2006; Raphael, Malvin, & Sangeetha, 2004; White, Carette, Harth, & Teasell, 2000). Abdominal cramps and disturbances of concentration are more prevalent in Fibromyalgia patients with a history of trauma (Riberto, Pato, & Battistell, 2006). The most commonly investigated source of trauma has been sexual and physical abuse during childhood or adulthood (Cicccone, Elliot, & Chandler, 2005; Imbierowicz & Egle, 2003). In a systematic review of 18 studies investigating the relationship between fibromyalgia and a history of emotional; physical; or sexual abuse, Häuser, Kosseva, Üceyler, Klose, and Sommer (2011) found an association but noted poor quality of the studies confounded results.

In a critical review of the literature, Raphael and colleagues (2006) identified two factors that complicate the investigation of the influence of trauma on fibromyalgia: biased sampling of health care seeking individuals and reliance on self-report of abuse. It is thought

that only 12-28% (respectively White, Nielson, Harth, Ostbye, & Speechley, 2002; Raphael, et al., 2006) of individuals who meet criteria for fibromyalgia receive a diagnosis. Many people may meet the criteria for fibromyalgia, but they will not receive a diagnosis if they do not seek out medical attention. It is thought that trauma history is associated with healthcare seeking rather than fibromyalgia itself (Raphael, et al., 2006). A study by Alexander and colleagues (1998) compared abuse histories of patients with fibromyalgia, non-patients with fibromyalgia, and controls and found that the trauma histories of non-patients were not greater than controls (also see Biggs, Aziz, Tomenson, & Creed, 2003; Leserman, Li, Drossman, Hu, 1998).

Studies of fibromyalgia and trauma that have relied on self-reports of past abuse are problematic as they rely on retrospective reports that can be marked by poor recall and unreliability (Fergusson, Horwood, & Woodward, 2000; Widom, & Morris, 1997). Self-reports would be less problematic if individuals tended to under recall abuses; however, recall bias tends to increase the recall of abuses (Raphael, 1987). Studies that relied on court documented abuses of childhood rather than self-report eliminated this confounding variable. Two studies of pain in adulthood addressed this issue (Brown, Berenson, & Cohen, 2005; Raphael, Widom, & Lange, 2001). Neither study found a relationship between childhood trauma and adult chronic pain in *documented* cases of abuse; however, both studies found a relationship between *self-reported* abuse and pain in adulthood (Brown et al., 2005; Raphael et al., 2001). The findings regarding individuals who seek health care and those that self-report abuse suggest that it may not be the actual experience of abuse that leads to a diagnosis of PTSD or fibromyalgia, but, the experience of abuse may influence other factors.

Although there appear to be high rates of PTSD amongst those that also have fibromyalgia, there have been studies of trauma (e.g., September 11) that indicate a traumatic event did not contribute to new onsets of fibromyalgia in the community (Raphael, Natelson, Janal, & Nyak, 2002; Williams, Brown, Clauw, & Gendreau, 2003). Raphael, Janal, & Nyak (2004) explain

Women with [fibromyalgia] are at risk for PTSD because they have a biological or constitutional propensity for PTSD, not because they are exposed to more traumatic events than other women. Thus, when confronted with a fixed number of fixed magnitude of traumatic events, women with [Fibromyalgia] are more vulnerable to PTSD than are other women... This hypothesis is consistent with the view of [fibromyalgia] as a part of [a]... spectrum syndrome... in which there is shared constitutional risk to several syndromes, including major depression, PTSD and [fibromyalgia]. (pp. 38-39)

Yehuda and McFarlane (1995) concur, pointing out that not everyone who experiences trauma manifests a disordered response. For example, not everyone who has been in combat or experienced rape will develop PTSD. Rather, PTSD is an extreme response to common stressful events rather than a common response to traumatic events. Perhaps the HPA axis as noted above is a determining factor in the development of PTSD (Trickett et al., 2010) and/or fibromyalgia (Riva et al., 2010) in one individual but not in another.

***Psychological factors.*** In a study of illness perception, van Wilgen, van Ittersum, Kaptein, and van Wijhe (2008) found that 31% of participants with fibromyalgia attributed their illness to psychological factors, such as stress, perfectionism or psychological trauma. Psychological challenges, such as catastrophizing (van Wilgen et al., 2008), inhibited



expression of anger (Cui et al., 2009), and mood disorder (Clauw & Williams, 2002) have been linked to the experience of fibromyalgia.

*Catastrophizing.* Catastrophizing in relation to chronic pain is defined as: “a generally maladaptive cognitive and emotional mental set that involves feelings of helplessness when in pain, rumination about pain symptoms, and magnification of pain-related complaints” (Campbell & Edwards, 2009, p. 97). van Wilgen et al. (2008) found that catastrophizing was associated with fibromyalgia patients’ low understanding of their symptoms, the cyclical nature of the illness, and the emotional expression associated with it. Campbell and Edwards (2009) note that although usually categorized solely as psychological, catastrophizing may also be biological. They suggest that the combined effects of cognitions and affect may influence changes in the pain neuromatrix of the brain and neuromuscular, cardiovascular, immune, and neuron-endocrine systems. These combined effects could account for the increased experience of pain correlated to catastrophizing behavior.

*Inhibited expression of anger.* Anger has been found to be mildly associated with pain (Cui et al., 2009). Compared to healthy persons, patients with chronic pain have been observed to have a greater tendency to use avoidant coping, and more state anger and anger turned inward (Amir et al., 2000). In a study of the expression of anger in a group of women with fibromyalgia, it was found that the experience of anger and the tendency to inhibit anger was predictive of heightened pain in daily life (van Middendorp et al., 2010). In the same study it was found that those women who were more likely to express their anger and demonstrate behavior that was congruent with feeling angry could prevent or reduce increases in their pain. Burns, Quartana, and Bruehl (2008) conducted a meta-

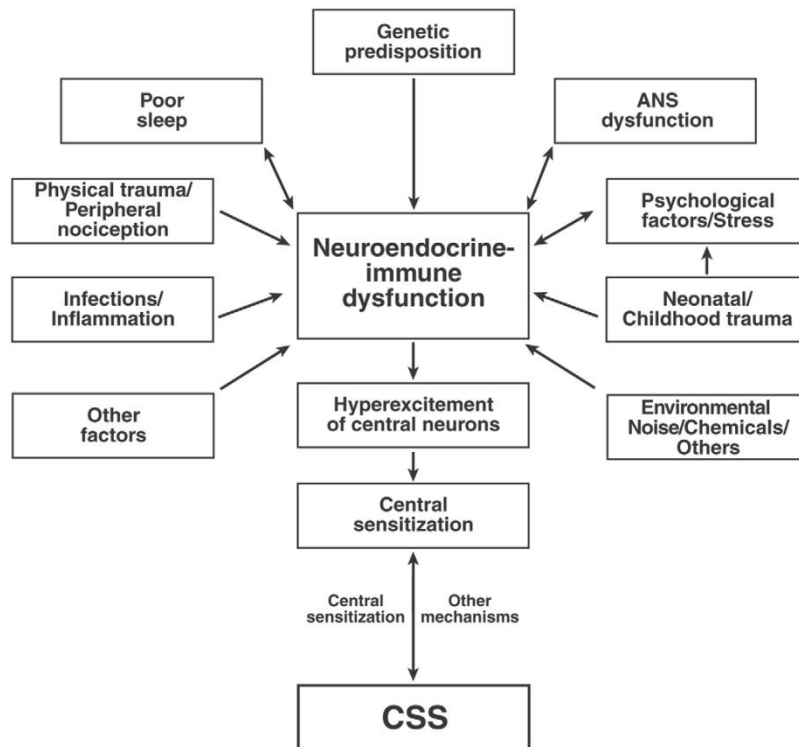
analysis that indicated when depression was controlled for, the effects of anger on pain were nil. Negative affect (a tendency to experience dissatisfaction, negative emotions and high levels of distress) is the contributor to chronic pain with anger inhibition acting as an amplifier of that negative affect.

*Mood disorder.* Twenty to forty percent of individuals with fibromyalgia have an identifiable current mood disorder (Clauw & Williams, 2002). That approximately 60% of individuals with fibromyalgia do not have depression, combined with indications that there are physiological differences between depression and fibromyalgia (e.g., the stress response system, seen in Chrousos & Gold, 1992), suggests potentially different etiologies. In a study that avoided the sampling bias of a health care seeking population by using a community sample, Raphael et al. (2006) found comorbidities with current Major Depressive Disorder (MDD) and anxiety disorders. Women with fibromyalgia were three times more likely to currently experience MDD. Raphael and colleagues speculated this increased likelihood might be due to increased recurrence of MDD episodes. This assertion is supported by research that indicates an increased occurrence and duration of MDD in individuals with chronic mental illnesses (Patten, 2005). Low Global Assessment of Functioning (GAF) scores and reports of suicidal ideation were much more likely to be reported by participants with fibromyalgia who endorsed a lifetime experience of MDD. This increased likelihood may further support the role of the chronic experience of pain on depressive mood. Participants with fibromyalgia were five times more likely to experience anxiety disorders, particularly Obsessive Compulsive Disorder and PTSD. No participant had a current PTSD diagnosis; participants were more likely to have had a lifetime history of PTSD (Patten, 2005).

Numerous factors have been examined in an effort to understand the etiology of fibromyalgia. The biopsychosocial model of pain establishes a framework for understanding the relationship between these factors.

***Biopsychosocial model.*** Central Sensitivity Syndrome (CSS) was first proposed by Yanus (1984). Yanus suggested that several chronic pain conditions where central sensitivity (CS) occurs fall within the class of CSS. Fibromyalgia is one of these conditions. Yanus (2007a) suggested that CS occurs through the hyper-excitement of central neurons via various synaptic and neurotransmitter activities. This hyper-excitement causes abnormal and intense enhancement of pain by the central nervous system (CNS); hypersensitivity to both noxious (e.g., odors, extreme temperatures and loud sounds) and innocuous (e.g., touch) stimuli results. Neuroplasticity within the CNS sustains the CS without need for additional stimulus.

Yanus (2007a) suggested that various factors, similar to those identified in regard to Fibromyalgia above, may contribute to CS and CSS. Yanus called this the biopsychosocial mechanisms of CSS. Due to these multiple factors, Yanus called on treatment providers to provide individualized treatment that is based on both the biological and psychosocial contributors to the painful symptoms of CSS, including fibromyalgia. Figure 2 illustrates the interrelating factors of CSS.



*Figure 2.* Biopsychosocial Model. Yanus (2007a) “Simplified suggested biopsychosocial mechanisms for CS and CSS with interacting factors. ANS, autonomic nervous system. The relationship between central sensitization and CSS may be bidirectional; chronicity of CSS may accentuate central sensitization” (p. 347)

The biopsychosocial model of fibromyalgia continues to gain support from recent genetic studies (Mergener et al., 2011; Schmechel & Edwards, 2011) and health care practitioners (Borrell-Carrió, Suchman, & Epstein, 2004).

### **Treatment of Fibromyalgia**

Treatment guidelines for fibromyalgia have been provided by the European League Against Rheumatism (EULAR; Carville et al., 2008) and the American Pain Society (APS: Goldenberg et al., 2004). As of this writing the APS guidelines have been determined to be not for current use (APS, 2005). Multiple treatment approaches were recommended by

the EULAR (Carville et al., 2008): pharmacology, physical or manual therapies, and psychotherapy, with pharmacological treatment having the strongest support due to stronger research designs (randomization, and double blinding). In this review, factors found to be related to fibromyalgia treatment adherence is reviewed first, as it is only possible for patients to receive benefit from treatments if they remain active and second, specific recommendations for multi-modal Fibromyalgia treatment is described.

**Factors impacting treatment adherence.** At present, there is no cure for fibromyalgia; therefore, all treatments are intended for symptom and pain control (Marcus, D., 2009). Patients' adherence to both medical and psychological treatments has been found to be impacted by several factors, such as: somatization (Turk & Rudy, 1991), perceived disability (Carosella, Lackner, & Feuerstein, 1994), pain intensity (Barnes, Smith, Gatchel, & Mayer, 1989; Carosella et al., 1994) distressing feelings about one's current health, avoidant-coping strategies, and poor role or physical functioning (Sherbourne et al., 1992). Of particular note to this study are the following factors: provider patient relationship, self-efficacy, depression, and trauma.

***Provider patient relationship.*** Early beliefs that fibromyalgia was purely psychological or an exaggeration of pain symptoms led to difficulties in physician-patient relationships and distress on the part of patients (van Wilgen et al., 2008). Early reliance on subjective reporting of symptoms of patients who were sometimes suspected of seeking out secondary gains, combined with uncertainty on the part of treatment providers about the etiology of the unseen pathology, likely contributed to this tension. Contrary to beliefs around secondary gains, it has been found that individuals who received a fibromyalgia diagnosis do not have adverse effects in long-term functioning (White et al., 2002).

Objective studies that do not rely on patients' subjective descriptions of their experience (Gracely, Petzek, Wolf, & Clauw, 2002; Wood et al., 2009) have served to decrease stigma and have led more researchers and practitioners to further investigate the underpinnings of this illness.

Fibromyalgia should not be framed as solely biomedical as this framing creates a diagnostic contest for patients who are compelled to focus on symptoms that seem to defy explanation (Hadler, 2003). When a solely biomedical approach is first endorsed and a psychological approach is subsequently suggested, patients feel blamed, stigmatized and disillusioned. Yanus (2007a, 2007b) and Masi, White, and Pilcher (2002) call respectively for biopsychosocial and person-centered treatment approaches. These approaches acknowledge advances in objective research in addition to the subjective experiences of those experiencing fibromyalgia, and the unique aggregate of personality and life experiences that define them as individuals.

After critical review of the current effectiveness of pain management care, the Change Pain International Advisory Board called for a more patient-centered approach to the treatment of pain that incorporates "a shared therapeutic pact between physician and patient based on efficacious communication rather than on information alone" (Coluzzi & Berti, 2011, p. 289). This approach can improve outcomes as it increases the chances that patients will remain engaged in treatment (Dobkin, Sita, & Sewitch, 2006; Dobkin et al., 2009; Koudriavtseva, Onesti, Pestalozza, Sperduti, & Jandolo, 2011). In addition to a positive treatment alliance, patients' sense of self-efficacy is an important factor in treatment adherence (Lynch, 2004).

***Self-efficacy.*** Self-efficacy is the ability to handle difficult situations (Bandura, Cioffi, Taylor, & Brouillard, 1988). This perceived sense is an important factor in general adherence to medical interventions (Culos-Reed & Brawley, 2000; Griva, Myers, & Newman, 2000; Lyons & Cronan, 1999) and the treatment of fibromyalgia. (Culos-Reed & Brawley, 2000; Dobkin et al., 2010; Lynch, 2004). One's sense of self-efficacy has not only predicted treatment adherence, but it has also been found to be a predictor of functional ability (Culos-Reed & Brawley, 2000). Not surprisingly, the American College of Rheumatology (2002) has recommended treatments, such as education and Cognitive Behavior Therapy (CBT), be used adjunctively to enhance fibromyalgia patients' perception of self-efficacy. In a study of primary care patients being treated for depression, Ludman et al. (2003) found that an increased sense of self-efficacy predicted improvement in depression scores and treatment adherence.

***Depression.*** Although the relationship between depression and fibromyalgia is unclear, 20-40% of fibromyalgia patients experience depression (Clauw & Williams, 2002). This prevalence has important treatment implications as depression has been noted to hamper treatment adherence for medical conditions, such as hypertension (Bautista, Vera-Cala, Colombo, & Smith, 2012), diabetes (Kavanaugh, Gooley, & Wilson, 1993), multiple sclerosis (Tarrants, Oleen-Burkey, Castelli-Haley, & Lage, 2011) and HIV (Lucey et al., 2011). Tarrants and colleagues (2011) found that patients experiencing depression were approximately half as likely to be treatment adherent as those without. Lucey et al. (2011), in a study of medication adherence of individuals with HIV-related sensory neuropathy, found a complex relationship between depression and pain catastrophizing. This relationship is pertinent to this study, as catastrophizing has been identified as an issue for

individuals dealing with fibromyalgia as well (van Wilgen et al., 2008). Related to self-efficacy, it has been noted that depression, with an accompanied sense of helplessness, negatively impacted the treatment adherence with kidney transplant patients (Kiley, Lam, & Pollak, 1993).

**Trauma.** Due to the centrality of the experience of trauma in the current study, it is logical to examine trauma symptoms in relation to treatment adherence. Cardiac research frequently has shown a link between non-adherence and the experience of trauma (Favaro et al., 2011; Shemesh et al., 2011; Zen, Whooley, Zhao, & Cohen, 2012). Favaro et al. (2011), recommend psychiatric assessment after heart transplant; post-traumatic thoughts (avoidant or intrusive) about transplantation are common and have been found to impair patients' ability to consistently adhere to pharmacological treatment. This link between trauma and treatment non-adherence was also found in a study of patients with myocardial infarction and PTSD (Shemesh et al., 2011); however, it is of note in this study the link between non-adherence and PTSD was stronger than the link with depression. In a study of 1,022 men and women who experienced heart disease, those with PTSD were more likely to report physical inactivity and medication non-adherence (Zen et al., 2012). In the treatment of autoimmune related hepatitis, treatment adherence is also negatively impacted by post-traumatic stress (Kerkar et al., 2006)

**Recommended treatments for Fibromyalgia.** Multi-component treatments, pharmacological and non-pharmacological, are currently considered best practice (Carville et al., 2008; DVA, 2001; Häuser, Bernardy, Arnold, Offenbächer, & Schiltenwolf, 2009; Nüesch, Häuser, Bernardy, Barth, & Jüni, 2012). Multi-component treatment was found to reduce pain, fatigue, depressive symptoms, and limitations to health-related quality of life,



as well as improving perception of self-efficacy over pain and physical fitness in a meta-analysis of nine randomized control trials (RCT) of Fibromyalgia (Häuser et al., 2009). Specific meta-analytic recommendations for multi-component treatment have been pregabalin or SNRIs, with the addition of aerobic exercise and CBT (Nüesch et al., 2012). Recommendations for four treatment categories used in multi-component treatment for fibromyalgia are reviewed: pharmacological treatment, physical treatment, alternative medical treatment, and psychological treatment.

***Pharmacological treatment.*** Based on meta-analyses of research published up to 2005, Kroenke, et al., (2009) recommended the following types of medications: (a) Tricyclic Anti-depressants; (b) cyclobenzaprine (muscle relaxant); (c) tramadol (analgesic); (d) Serotonin Norepinephrine Reuptake Inhibitors (SNRI, an anti-depressant, i.e. duloxetine, milnacipran); and (e)  $\alpha 2\delta$ -ligand anticonvulsants (pregabalin, gabapentin). A meta-analysis, specific to anti-depressant treatment of fibromyalgia (Häuser, Bernardy, Uäeyler, & Sommer, 2009), found improvements in pain, depression, fatigue, sleep disturbances, and health-related quality of life. A large effect size was noted for Tricyclic Anti-depressants, a medium effect size for Monoamine oxidase inhibitors (MAOI), and a small effect size for Selective Serotonin Reuptake Inhibitors (SSRI) and SNRIs. The EULAR (Carville et al., 2008) made the following pharmacological recommendations: Tramadol, antidepressants, Pramipexole, Pregabalin, Tropicsetron, simple analgesics (in some cases), Paracetamol, Acetaminophen, and weak opioids. McCarberg (2011) reviewed research done in 2009 following EULAR (Carville et al., 2008) and APS (Goldenberg et al., 2004) recommendations and made note of the effectiveness of pregabalin, deloxetine, and

milnacipran through clinical trials with more rigorous design and standardized outcome measures.

*Treatment limitations.* Contrary to the above recommendations, Nüesch and colleagues (2012) challenge the clinical relevance of pharmacological treatment. When only examining studies with more than 100 participants, effects of SNRIs and pregabalin compared to placebo were statistically significant, but were small and not clinically meaningful.

Polypharmacy is a treatment concern for patients with Fibromyalgia (McCarber, 2011). In a study of medication adherence, 81% of fibromyalgia participants used between three and seven medications in the previous six months (Sewitch et al., 2004). This polypharmacy could increase risks of exacerbation of adverse events or unwanted drug interactions. In addition, it has been recommended that physicians avoid prescribing drugs, such as opiates, with abuse potential (McCarberg, 2011). The EULAR (Carville et al., 2008) has recommended use of weak opiates. McCarberg (2011) cited no evidence to support opiate efficacy for fibromyalgia symptoms and cautioned creation of opiate-induced hyperalgesia for a population already dealing with central nervous system sensitivity.

Not only can the medications themselves cause adverse effects, but, non-adherence to pharmacological intervention is also an issue for fibromyalgia patients. Sewitch et al (2004) found 47.2% of participants were nonadherent to pharmacological treatment, 33.3% were intentionally nonadherent (chose not to follow recommendations), and 40% were unintentionally nonadherent (careless or forgetful). When patients are committed to taking medications, McCarberg (2011) noted managed care's possible restriction of patient access to milnacipran, duloxetine, and pregabalin in favor of generics. A failure of the generic

medication, and, therefore, a time period with inadequate symptom management, is required prior to being granted access to better-researched brand name drugs. This process is taxing on patients and physicians.

***Physical Treatments.*** The DVA (2001) and the EULAR (Carville et al., 2008) have endorsed exercise in the treatment of fibromyalgia. Specifically, they recommended aerobic exercise for 60 minutes three times a week, and strength training for 60 minutes two times a week. A systematic review, based on Cochrane review practices, assessed the efficacy aerobic exercise in the treatment of fibromyalgia (Brosseau et al., 2008). The authors found “it remains inconclusive as to whether gains in aerobic conditioning are correlated with decreases in symptoms of fibromyalgia given limitation” (p. 863) based on the quality of studies (e.g., inconsistency in exercise programs and outcome measures and poor methodological quality of studies). Small to moderate effects of aerobic exercise compared to placebo have been identified in other meta-analyses (Kelley, Kelly, Hootman, & Jones, 2010; Nüesch et al., 2012).

Heated pool treatments, with or without exercise, were recommended by the EULAR (Carville et al., 2008). Based on a meta-analysis, Langhorst, Musial, Klose, and Häuser (2009) indicated moderate, short-term beneficial effects to hydrotherapy and caution that methodological flaws in the research may overestimate effects. The DVA (2001) also provides a more cautioned recommendation of hydrotherapy.

Acupuncture, biofeedback, trigger point injection, and stretching are identified as possibly beneficial based on an assessment of general agreement in the literature (DVA, 2001). Massage therapy, relaxation therapy, myofascial release, and spinal manipulation are considered to have potential benefit based on questionable research according to the DVA

(2001). Depending on the needs of the patient, the EULAR suggested relaxation, rehabilitation, and physical therapy could potentially be beneficial in the treatment of Fibromyalgia (Carville et al., 2008).

*Treatment limitations.* The EULAR (Carville et al., 2008) recommended exercise for the treatment of Fibromyalgia despite poor support from the literature, citing a belief that exercise was safe and beneficial for overall health. Poor quality of the trials and outcome measures evaluated were thought to inhibit results indicating the positive effect of exercise. However, it is also possible that lack of patient motivation to exercise negatively impacted outcomes. In studies of exercise with patients with fibromyalgia, attrition rates of 40-62% were observed (Dobkin et al., 2006a; Meyer & Lemly, 2000 respectively) with participant refusal to participate in an exercise program reported by Meyer and Lemly (2000).

*Alternative medical treatments.* No firm conclusions about alternative medical treatments could be made in a meta-analysis of 70 randomized and non-randomized studies due to methodological inconsistencies; however, authors described acupuncture and several types of meditation practices to be promising (Porter, Jason, Boulton, Bothne, & Coleman, 2010). Treatment with the nutritional supplements magnesium, l-carnitine, and S-adenosylmethionine were described as warranting further research. Rozenzweig and Thomas (2009) also recommend acupuncture and add support for transcutaneous electric nerve stimulation, massage, and a balanced diet. Treatment limitations were not investigated due to the preliminary status of these alternative medical treatments.

*Psychological treatments.* Biopsychosocial conceptualizations of Fibromyalgia (Yanus, 2007a) and modest efficacy of traditional and recent pharmacological treatments (Thieme & Gracely, 2009) call for psychotherapeutic treatments designed to reduce pain-

reinforcing behaviors and cognitions. According to a Cochrane review (Eccleston, Williams, et al., 2009) psychological therapies are used following failure of orthodox physical treatments in alleviating pain when pain management and improvement of quality of life become the treatment goals. McCarberg (2011), however, suggested medication management of symptoms prior to non-pharmacological treatments, such as CBT, to improve treatment adherence and success.

Psychotherapeutic treatment of pain is frequently underutilized (Bennett et al., 2007). Bennett et al. found that 86% of internet survey respondents who received treatment for chronic pain endorsed resting, 47% endorsed relaxation, and only 8% endorsed using CBT to manage their Fibromyalgia symptoms. Despite this underutilization, evidence is accumulating that supports the use of psychotherapeutic treatment of chronic pain, including Fibromyalgia. A meta-analysis of 25 RCT studies of the psychotherapeutic treatment of pain in children and adolescents indicated there were positive effects of psychological intervention on the reduction of Fibromyalgia pain immediately following treatment and at follow up (also for headache and abdominal pain; Eccleston, Palermo, Williams, Lewandowski, & Morley, 2010). This meta-analysis noted pain reduction was achieved with CBT, relaxation therapy, and biofeedback. Thieme and Gracely (2009) conducted a meta-analysis of 32 published and high quality RCT studies of the treatment of fibromyalgia with CBT, Operant Behavior Therapy (OBT), relaxation, biofeedback, hypnotherapy, and writing interventions. They found relaxation was not useful as a monotherapy and that hypnotherapy and writing intervention treatments were mildly effective. Relative to other therapies, the largest effect sizes occurred in CBT and OBT groups in regard to pain reduction. Since CBT and Behavior Therapy (BT) appear to be the most consistent and

promising psychotherapeutic treatments to date, they will be elaborated on. Due to the nature of the current study, consideration is given to recommended use and limitations of CBT and BT for the treatment of trauma as well (APA, 2004; Bisson & Andrew, 2009). In particular, distinction is made between use of BT's operant therapy for pain treatment and exposure therapy for trauma treatment.

*Cognitive Behavioral Therapy.* CBT is recommended in practice guidelines for the psychological treatment of fibromyalgia (Carville et al., 2008; DVA, 2008). Johnson and Kazantzis (2004) described CBT treatment of pain as addressing "assessment, education, skill acquisition, generalization, and maintenance" (p. 190). During education and goal setting, therapists work collaboratively to renegotiate patients' conceptualization of their own pain (e.g., from initially wanting to completely eliminate pain to more realistically wanting to increase activity level). CBT treatment strategies that support this more adaptive experience of pain include (1) development of more adaptive cognitions (e.g., decreasing catastrophic thinking), (2) increased ability to manage affect connected to pain experience (e.g., anger, depression, anxiety), and (3) support of resumption of physical activity (e.g., addressing maladaptive cognitions inhibiting exercise). Skill development, such as use of imagery or distraction, and relaxation techniques are used. Based on a meta-analysis, Thieme and Gracely (2009) recommended CBT for fibromyalgia patients with higher levels of emotional distress, maladaptive coping, less catastrophizing, low support-seeking from spouses, and low pain behaviors. Degotardi et al. (2006) found that CBT and its use of psychoeducation reduced children's fibromyalgia pain and improved their ability to manage their disorder.

*Treatment limitations.* Questionable demonstration of the efficacy of CBT (Eccleston, Williams, et al., 2009), challenges of homework use (Kazantzis & Deane, 1999), and length of treatment needed to demonstrate effect (Minelli & Vaona, 2012) are possible limitations to CBT treatment. In a Cochrane review, Eccleston, Williams, et al. (2009) concluded, “the evidence of effectiveness of CBT and BT [for chronic pain treatment is weak” (p. 20). They described CBT as having promise due to small positive effects on pain, disability, and mood. Conflicting study results were reported with authors postulating that these conflicts might be a result of limitations in the understanding of the complex interaction of factors involved in chronic pain. A meta-analysis by Minelli and Vaona (2012) suggested CBT does not provide better results than other non-pharmacological treatments on outcomes of pain, fatigue, sleep disturbance, and quality of life. They did however note that CBT seemed to address symptoms of depression in the short-term, which improved self-management of pain and decreased medical appointments. The cost benefit of the decrease in medical appointments versus the costs of offering CBT treatment is not yet understood (Minelli & Vaona, 2012; see also Hagglund & Fillingim, 1998).

Homework is a core component of CBT treatment (Kazantzis, Busch, Ronan, Merrick, 2007) for a variety of conditions (Dunn, Delfabbro, & Harvey, 2012; Johnson & Kazantzis, 2004; Leahy, 2002). Homework is a way to generalize learning within the therapy session to the client’s personal environment. Kazantzis, Deane, and Ronan (2004) found that therapy with homework produced greater change than only in-session therapy. Homework compliance is positively related to improved treatment outcomes (Bogalo & Moss-Morris, 2006; Rees, 2003; Westra, Dozois, & Marcus, M., 2007). O'Brien, Petrie, and Raeburn (1992) caution that the more the patient is expected to do and the more complicated

participation in therapy, the more likely there will be partial or full non-adherence. This caution was seen in a report that challenging homework was cited as reason for withdrawal from treatment (Dunn, Delfabbro, & Harvey, 2012).

There can be a reluctance to engage in homework both on the part of therapists and patients alike (Bryant, Simons, & Thase, 1999; Rees, 2006). Kazantzis and Deane (1999) found that only 25% of surveyed psychologists used systematic homework procedures. In a systematic review by Kazantzis et al. (2004), inconsistent methods of reporting compliance data made it difficult to make meaningful interpretation of compliance rates; however, there appeared to be a range of 49-94% completion of homework and 68-120 minutes of homework completed per week. Quality of homework, in addition to the quantity completed, influences the beneficial effects of CBT (Bogalo & Moss-Morris, 2006; Schmidt & Woolaway-Bickel, 2000).

Duration of therapy prior to notable change in symptoms is a practical concern for individuals experiencing chronic pain or Fibromyalgia. Thieme and Gracely's systematic review (2009) found that long-term change in pain intensity was related to a greater number of CBT treatment hours (on average 24 hours with a range of 12-36). Treatment with CBT under 20 hours duration was found to have only short-term changes in pain intensity.

Attrition rates have been reported at 26% (Thorn et al., 2011; Whetherell et al., 2011),

*Behavior Therapy.* The operant pain model associated with the work of Fordyce assumes that pain begins as a reflex and is maintained through the reinforcement of operant conditioning (Thieme & Gracely, 2009). Pain behaviors communicate the experience of pain to others and elicit responses from them. When care-giving responses are provided, an individual's experience of pain is reinforced. In a study of sensitivity to cold, Flor,



Breitenstein, Birbaumer, and Fürst (1995) found that chronic back pain patients with solicitous spouses had reduced pain thresholds and lower pain tolerance levels, compared to healthy controls and their spouses. BT in the treatment of chronic pain focuses on changing these observable pain behaviors, reducing use of pain medication, increasing physical activity, and training in assertive pain incompatible behaviors (Rosenzweig & Thomas, 2009). Examples of behavioral approaches include relaxation training, biofeedback, behavior management programs (Eccleston, Palermo, et al., 2009), graded activity, activity pacing, and time-contingent medication administration (Gatzounis, Schrooten, Crombez, & Vlaeyen, 2012).

*Treatment limitations: operant therapies.* There is conflicting evidence regarding the use of BT in the treatment of chronic pain. A systematic review by Thieme and Gracely (2009) supported the use of BT for Fibromyalgia; whereas, a Cochrane study cautioned that there were not enough RCTs to confidently draw conclusions about the utility of BT in the treatment of chronic pain (Eccleston, Williams, et al., 2009). Eccleston, Williams et al., suggested that BT had no effect on disability or mood; however, they indicated BT had a “small but robust effect” (2009, p. 20) on pain immediately following treatment, compared to doing nothing. In a small, uncontrolled study of exposure therapy in the treatment of chronic pain related to motor vehicle accident (MVA), Wald, Taylor, Chiri, and Sicia (2010) found that there were decreases of trauma symptoms but no changes in PTSD diagnoses, and there was a worsening of pain following trauma-related exposure therapy. Other studies indicated exposure therapy was able to increase acceptance of pain but did not change the intensity of pain (Flink, Nicholas, Boersma, Linton, 2009; Wicksell, Ahlqvist, Bring, Melin, & Olsson, 2008).

Concerns of attrition (40%) and cost-ineffectiveness of BT arose from a study of the treatment of chronic low back pain with a group training protocol guided by behavioral principles versus physical therapy (van der Roer, van Tulder, van Mechelen, & de Vet, 2008). Comparable functional outcomes were observed despite greater administration costs of the behavioral training group (also see Hagglund & Fillingim, 1998).

*Treatment limitations: exposure therapies.* In a small study of exposure therapy ( $n = 5$ ) in the treatment of chronic pain related to MVA it was found that there were small improvements in PTSD symptoms, no changes in PTSD diagnoses, and a worsening of pain after trauma-related exposure therapy (Wald, et al., 2010). Other studies indicated exposure therapy was able to increase acceptance of pain but not change pain intensity (Flink, et al., 2009; Wicksell et al., 2008).

**EMDR: complimentary to multi-component treatment.** Although best practices for the treatment of Fibromyalgia continue to be debated, a notable body of evidence seems to support multi-component treatment of Fibromyalgia that includes pharmacological and non-pharmacological interventions, including psychotherapy (Carville et al., 2012; Nüesch et al., 2012). Medications can be used to decrease symptoms enough to allow for more successful participation in psychotherapy (McCarberg, 2011), and psychotherapy can potentially improve Fibromyalgia patients' sense of self-efficacy (Lynch, 2004) and therefore, treatment adherence (Ludman et al., 2003). Increased treatment adherence allows for greater possibility of pain reduction (Palermo et al., 2010).

CBT and BT have been recommended for the psychotherapeutic treatment of Fibromyalgia or chronic pain with mixed reports of benefit (Eccleston, Williams et al., 2009; Thieme & Gracely, 2009). Issues related to homework (Dunn et al., 2012; Rees,

2006), length of treatment (Thieme & Gracely, 2009), poor cost benefit based on outcomes (Minelli & Vaona, 2012), and tolerability of treatment (van der Roer et al., 2008) give reason to consider alternative psychotherapeutic treatments for fibromyalgia.

Individualized selection of psychotherapeutic treatment based on patient need and characteristics may lead to more effective fibromyalgia symptom outcomes (Eccleston, Williams et al., 2009; Thieme, Turk, & Flor, 2007). Based on their meta-analysis of psychological therapies used to treat chronic pain, Eccleston, Williams et al., (2009) recommended that treatment of chronic pain be based on a specific theoretical model that guides the “content, dose, timing and quality” (p. 21) of treatment rather than pragmatically constructing multi-component therapies that address multiple targets. They recommend individualized treatment based on psychological sub-groupings (e.g., those experiencing trauma) rather than group membership to a medical condition (e.g., fibromyalgia). Efforts to identify psychological indicators for selection of treatment have begun to be identified (see Table 2).

Table 2

*Characteristics Predictive of Successful Psychotherapeutic Intervention*

Positive responders		Negative responders
CBT	BT	
Greater: Affective distress <sup>a,b</sup> Adaptive cognition and coping resources <sup>a</sup> Shorter illness duration <sup>c</sup>	Greater: Pain behavior <sup>b</sup> Physical impairment <sup>b</sup> Number of physician visits <sup>b</sup> Solicitous spouse behavior <sup>b</sup> Catastrophizing <sup>b</sup>	Greater: Physical impairment <sup>b</sup> Pain behavior <sup>b</sup>
Lower: Catastrophizing <sup>a,b</sup> Solicitous behavior	Lower: Pretreatment physical impairment <sup>d</sup>	Lower: Pain perception <sup>b</sup>

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Pain<sup>a,b</sup>  
Pretreatment physical  
impairment<sup>c</sup>

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Note. <sup>a</sup>Turk, Okifuji, Sinclair, and Starz, (1998); <sup>b</sup> Thieme, et al., (2007); <sup>c</sup> Keel, Bodoky, Gerhard, & Müller (1998); <sup>d</sup>Sinclair and Wallston (2001).

Fibromyalgia has been associated with stress responses (e.g., HPA axis dysfunction, Nees et al., 2010) and a history of traumatic experience (Raphael et al., 2006). As an evidenced-based treatment of trauma (APA, 2004), EMDR could prove to be an effective treatment for the subgroup of fibromyalgia sufferers who have a history of traumatic experiences.

### **EMDR**

EMDR is an integrative psychotherapeutic approach that was first developed by Shapiro (1989) as a treatment for PTSD. Since that time, numerous studies, including randomized control trials, have established EMDR's efficacy in treating trauma (Schubert & Lee, 2009). EMDR has been widely recognized as an evidence-based treatment for PTSD by major domestic and international practice guideline, including the Department of Veterans Affairs and Department of Defense (DVA & DoD, 2004, 2010), American Psychiatric Association (2004), and the International Society for Traumatic Stress Studies (Foa, Keane, & Friedman, 2000; Forbes et al., 2010).

EMDR utilizes a three-pronged approach targeting a client's past, present, and future. Focusing on negative experiences from the past facilitates learning about the self and contextualizing of experience. The present is addressed through desensitization of triggers that the client currently finds inappropriately distressing. Future goals are addressed through development of templates that guide future action, relationships, and experience of the self (Shapiro, 2001).

**Description of the Standard Trauma-Focused (TF) EMDR Protocol.** The standard TF-EMDR proposal involves eight different phases (Shapiro, 2001). The first phase involves a thorough *history taking and development of a plan for treatment*. Target memories that represent the most poignant elements of traumatic experiences are identified and prioritized. In the second phase *preparation* education is provided, and resource development occurs in order to fully prepare patients with skills to deal with what is often a new and powerful way of addressing distressing memories. The third phase *assessment* has patients consider target memories and related distressing emotions and physical sensations. Patients are asked to rate the intensity of their emotions via a Subjective Units of Distress scale (SUDS), ranging numerically from 0 (no distress) to 10 (the most distress they can imagine experiencing). Associated negative cognitions (NC) are then identified, and patients are encouraged to consider a positive cognition (PC) which is an adaptive self-statement that would ideally replace the current NC. Once this is done, the perceived felt validity of the new PC is measured through a Validity of Cognition (VOC) scale, which is a Likert scale ranging numerically from 1 (completely or 100% untrue) to 7 (completely or 100% true).

*Desensitization* is the fourth phase. During this stage, the previously identified target memories are addressed. Patients are asked to focus on a mental image of the target memory, as well as the distressing emotion, physical sensation and NC, while simultaneously attending to sets of bilateral stimulation (BLS), what Shapiro (2001) refers to as *dual-focused attention*. Traditionally, BLS occurs through soliciting the patient's rapid, back and forth eye movements from tracking the therapist's hand movements or a light. BLS can also be generated by tracking audible tones or kinesthetic sensations from

alternating tapping (Shapiro, 1994; van den Hout et al., 2011). Following each set of BLS, patients are asked, “What do you notice now?” For the most part, material that is described is used as the focus of the next set of BLS. This process continues until SUDS have reached a 0 or 1 or until the end of a session. If a target memory is not fully addressed in a session, the SUDS and VOC can be reassessed at the next session, and BLS sets are resumed.

The fifth phase is *installation*. During this stage, BLS is used to increase the strength of the PC and the integration of personal insights gleaned from the reprocessing. This process continues until the client reports a VOC of 6 or 7. A *body scan* is the focus of the sixth phase and is used to assess for any physical tension that may remain in the body, starting at the head and moving down to the toes. If tensions are noted, they are addressed with further bilateral sets until the client reports the absence of tension or other bodily discomfort. When comfort or positive sensation is observed, BLS is used to further install this strength.

*Closure* is considered the seventh phase. Closure may occur after the successful resolution of a target memory, or it may occur midway through processing when time has run out in a session. Internal resources (e.g., safe place) established during initial stages of EMDR may be used. *Reevaluation* is the eighth stage and is used to begin new sessions. The therapist will assess whether treatment gains are being maintained as well as the current status of incomplete target memories.

**Hypothesized mechanism of action of EMDR.** Bilateral stimulation and dual focused attention are distinguishing and key elements of EMDR (Shapiro, 2001). BLS can be accomplished by directing the patient to follow horizontal, vertical, or diagonal visual stimulus with their eyes; by listening to tones alternating from ear to ear; or by attending to

alternating kinesthetic sensations, such as hand buzzers or alternating tapping on either side of the body. Dual focused attention occurs when the patient is asked to recall a traumatic memory while also paying attention to the selected BLS. The specific neurological mechanism of action associated with BLS and dual focus of attention has yet to be identified (Maxfield, 2008).

In 2009, Gunter and Bodner conducted a review of the literature investigating EMDR's potential neurological mechanisms of action. Subsequently, four possible mechanisms were identified: disruption in working memory; psychological distancing; increased hemispheric communication; and psychophysiological causes (e.g., orienting response, evocation of REM-like mind body states, and reciprocal inhibition). Gunter and Bodner suggested the independent factors currently being explored will in the future likely be seen as an integrated mechanism of action. Bergmann (1998, 2008) presented a theoretical model, supported by neuroimaging studies, that suggested dual attention and BLS activates the thalamus (ventrolateral and central-lateral nuclei), which may assist in the repair and integration of somatosensory, cognitive, memory, frontal lobe, and synchronized hemispheric function.

Specific to treatment of the physical body, Pearson (2009) postulated that BLS activates a distributed neural network focusing specifically on the parietal lobes. Pearson noted that BLS can promote neural plasticity that impacts both the body, as seen in vestibular stimulation in the treatment of hemineglect (Pierce & Buxbaum, 2002), and the mind, as seen in the treatment of trauma (Schubert & Lee, 2009). Parietal lobes have been associated with: "working memory, spatial representation, eye movements, guidance of actions, alertness, mental imagery, symbolic capacity, pain processing, meditation and

ecstatic states” (Pearson, 2009, p. 42). The above functions, combined with parietal functions regarding our sense of self (body schema, relations to extrapersonal space and concepts of the self), may allow for integration of the previous, traumatized sense of self and the current sense of self. Pearson noted applications to treatment of phantom limb pain, (J. Schneider, Hofmann, Rost, & Shapiro, 2008) and body dysmorphic disorder (Brown, McGoldrick, & Buchanan, 1997). Pearson (2009) hypothesized that sensory stimulation in these cases activates a distributed network, which includes the parietal cortex, and results in the updating of the internal representation of the body and an integrated awareness that the limb is no longer present or that the body is no longer deformed. This author would suggest that updating of the internal representations of the body could also influence treatment of chronic pain, such as seen in fibromyalgia, which also involves physiological sensation and frequently traumatic emotional factors.

Another pertinent theory related to EMDR’s neural mechanism of action and fibromyalgia is Stickgold’s (2002, 2008) theory of sleep-dependent memory processing. This theory suggests that EMDR may stimulate acetylcholine, which activates REM-like sleep states, leading to reduction in episodic memories (hippocampus) and negative affect of PTSD (amygdala). It is thought this accelerates the processing of trauma memories into general semantic networks. Disrupted sleep is characteristic to both individuals with fibromyalgia (Rozenzweig & Thomas, 2009) and those with PTSD (APA, 2000), therefore the current author suggests consideration of theory as pertinent for addressing the needs of individuals dealing with fibromyalgia and symptoms of trauma.

**Adaptive Information Processing model of EMDR.** Shapiro’s (2001) original Adaptive Information Processing (AIP) model posits that EMDR is able to stimulate one’s



information processing system and thereby facilitate a more thorough and adaptive resolution of traumatic memories. In order for the brain to make sense of incoming stimuli, it must assimilate stimuli into existing neural networks. The AIP model proposes that most non-organic psychopathology is based in distressing past experiences that have been inadequately and maladaptively processed (Shapiro, 2001). When this new information has not been properly processed, associated thoughts, emotions, images, and physical sensations are incorrectly and inefficiently stored. This storage malfunction leads to intrusive and overwhelming memories and sensations from the past, which can lead to current maladaptive functioning. Maladaptive processing also restricts integration within memory networks (Shapiro, 2007), leaving incorrect information that is no longer appropriate (e.g., problem-solving strategies of childhood used in adulthood) to interfere with learning and adaptation.

**Criticism of EMDR.** Criticisms of EMDR include (a) there are methodological flaws in research, (b) effective therapeutic elements have been taken from other treatments, such as exposure therapies, (c) new elements of EMDR, such as BLS, are unnecessary and, (d) the mechanism of action was not known prior to its clinical use (Lilienfeld, Lynn, & Lohr, 2003). In 2002, Perkins and Rouanzoin provided a comprehensive review of the EMDR literature and concluded that much of the criticism about EMDR was due to: (a) a lack of an empirically-validated model capable of explaining the mechanism of action for EMDR, (b) inaccurate and selective reporting of EMDR research, (c) presence of some poorly designed empirical studies, (d) inadequate treatment fidelity, and (e) several biased or inaccurate reviews coming from a small group of critical authors. Although criticism of

EMDR may be seen by some as a detriment, criticism has encouraged more rigorous scientific design in EMDR studies.

Detailed investigation of these criticisms is beyond the scope of this paper; however, the interested reader is encouraged to review the following articles for more information addressing criticism related to neural mechanism of action: Gunter and Bodner (2009); Maxfield and Hyer (2002); Perkins and Rouanzoin (2002); Schubert and Lee (2009); and Söndergaard and Elofson (2008). In regards to criticism that EMDR is simply a repackaged exposure therapy (Lilienfeld et al., 2003; McNally, 1999), Shapiro (2007) described how EMDR originated from a behavioral tradition. However, as EMDR has developed, it has moved from a here and now treatment (similar to behavioral and cognitive behavioral therapies) to one that sees current suffering as an effect of inappropriate storage of past memories and experiences. The reader interested in learning more about distinguishing features of EMDR from exposure therapy is encouraged to see Gunter and Bodner (2009); Lee, Taylor, and Drummond (2006; also addresses utility of eye movements); and Stickgold (2008).

### **EMDR and the Treatment of Chronic Pain: Arguments for Use.**

It has been recommended that the selection of a psychotherapeutic treatment for chronic pain be based on psychological variables rather than on membership in a medical diagnostic group, such as fibromyalgia (Eccleston, Williams, et al., 2009). Increased focus on evidence based treatments (EBT) seeks to provide the most effective and cost efficient treatment as possible (Kazdin, 2008). EBTs are “interventions or techniques... that have produced therapeutic change in controlled trials” (Kazdin, 2008, p. 147). EMDR has been identified as an EBT for trauma (APA, 2004). Based on this, EMDR could be considered a

targeted treatment for the subgroup of fibromyalgia sufferers who have experienced trauma. EMDR may be effective in treatment of large “T” traumas, such as early childhood adversities (Imbierowicz & Egle, 2003) or small “t” traumas, such as repeated stressors related to dealing with chronic pain (Grant & Threlfo, 2002).

**EMDR benefits specific to needs of fibromyalgia patients.** Elements of EMDR treatment may be congruent with some of the specific needs of fibromyalgia patients. Collaborative development of treatment plans and procedural tactics that respect patients’ autonomy and assign to patients internal locus of control support the establishment of strong treatment alliances between patient therapist (Coluzzi & Berti, 2011) and increased patient self-efficacy (Culos-Reed & Brawley, 2000). These factors, in turn, support greater patient treatment adherence (Koudriavtseva et al., 2011). EMDR is capable of addressing comorbid conditions of fibromyalgia, such as depression and symptoms of trauma (van Rood & de Roos, 2009). This capability may reduce the need for pharmacological interventions, including polypharmacy, which can contribute to adverse reactions and dependency (McCarberg, 2011). EMDR may be an efficient system of delivering symptom improvement and abatement by addressing comorbid psychiatric conditions in addition to chronic pain (van Rood & de Roos, 2009). This efficiency may be appealing for symptom and treatment weary fibromyalgia patients.

**EMDR as a viable alternative to existing psychotherapeutic approaches.** EMDR may provide an additional psychotherapy treatment option for chronic pain and fibromyalgia patients. Recommended treatments currently include CBT and BT (Carville et al., 2008; Eccleston, Williams, et al., 2009; Thieme & Gracely, 2009). EMDR grew out of the behavioral model and integrated other therapeutic elements, such as bilateral stimulation

(BLS) and focus on cognitive, emotional, and sensory experiences (Shapiro, 2001). EMDR incorporates use of coping skills seen in CBT treatment (Estergard, 1999). During EMDR, the patient is supported in his or her consideration of the behavior or state of being he or she would like to have in the future. The patient's cognitions are strategically targeted and resource states built to address this future vision. Although different from CBT and BT, similar characteristics of the standard EMDR-TF protocol support its use with patients with fibromyalgia.

If the benefits of CBT and BT could be delivered in one integrated treatment model that is guided by specific theory and targeted to a specific subgroup of patients, as suggested by Eccleston, Williams et al., (2009), EMDR could be considered for treatment of chronic pain and fibromyalgia. Reasons to use EMDR are made even more compelling as EMDR appears to be as effective as exposure therapies (Bisson & Andrew, 2009), if not trending towards greater efficacy (Ironson, Freund, Strauss, & Williams, 2002; Lee, Gavriel, Drummond, Richards, & Greenwald, 2002; Power et al., 2002). EMDR has comparable efficacy to CBT (Seidler & Wagner, 2006) with evidence suggesting that EMDR may offer faster treatment than CBT (van Etten & Taylor, 1998). EMDR has been observed to require 6.8 sessions (van Rood & de Roos, 2009) whereas CBT has been observed to require 12-36 sessions (Thieme & Gracely, 2009). EMDR does not require homework, which can be a treatment hindrance of CBT and BT (Dunn et al., 2012; Rees, 2006; Rothbaum et al., 2005). Additionally, EMDR may be more tolerable for patients allowing for better treatment adherence rates. The DVA and DoD (2004), in regard to the treatment of trauma, described EMDR to be "more easily tolerated for patients who have difficulties engaging in prolonged exposure therapy" (p. 2).

**EMDR addresses traumatic and emotional experiences related to pain.** Grant and Threlfo (2002) proposed that EMDR could be a viable treatment for chronic pain as: (a) trauma is a primary risk factor in chronic pain, and EMDR is an evidence-based treatment of trauma; (b) the life-changing events associated with chronic pain are in and of themselves “small t” traumas (e.g., loss of ability to care for self, financial and social strain); (c) emotion plays a role in the neurophysiological experience of pain (involving primarily the amygdala, hippocampus and prefrontal cortex), and EMDR is designed to address this emotional component; and (d) chronic pain involves disturbed emotions and sensations, which are addressed by the EMDR protocol.

Unresolved traumatic memories may escalate the experience of pain (Ray & Zbik, 2003). This connection is supported in chronic pain research (Clauw & Williams, 2002; van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005) and research specific to fibromyalgia (Amital et al., 2006; Ciaccone, Donald, Elliott, & Chandler, 2005; Imbierowicz, & Egle, 2003; Raphael, 2006). It stands to reason that treatments, such as EMDR, which target emotional experiences in addition to thoughts and behaviors, would be effective treatments for chronic pain.

**EMDR offers a theoretical model for improvement.** The AIP model (Shapiro, 2001) supports the use of TF-EMDR in the treatment of chronic pain. In order to increase current adaptive functioning, Shapiro (2001) suggested AIP assists individuals in a natural learning process that integrates experiences and establishes adaptive cognitions about the self. Grant and Threlfo (2002) observed that EMDR patients experiencing chronic pain and from their observations were able to develop adaptive cognitions regarding their ability to be in control of their own pain.

### **Use of TF-EMDR and EMDR Variations in the Treatment of Chronic Pain.**

There are three approaches to EMDR chronic pain treatment, which herein is referred to as: 1) TF-EMDR protocol, 2) EMDR chronic pain variations, and 3) EMDR related protocols. EMDR chronic pain variations use as their basis the eight-phase model of TF-EMDR and target memories related to traumatic events, the traumatic experience of chronic pain, and current pain absent of relationship to trauma (see Table 3). EMDR related protocols use an element of EMDR or EMD in combination with another treatment for chronic pain (e.g., hypnotherapy; see Table 4 [Ray & Page, 2002]).

**EMDR chronic pain variations.** Since EMDR's 1989 inception, a plethora of modified EMDR protocols have been developed by clinicians, including those for the treatment of pain (e.g., Luber, 2010). A description of these modified EMDR protocols in regard to treatment of pain disorders will be examined, followed by a review of research support.

Table 3

*Comparison of TF-EMDR and EMDR Chronic Pain Protocols*

	TF-EMDR <sup>a</sup>	Pain Control with EMDR	Current Pain Protocol	EMDR and Phantom Pain Research Protocol
Author(s)	Shapiro <sup>a</sup>	Grant <sup>b</sup>	de Roos and Veenstra's <sup>c</sup>	Wilson and Tinker <sup>d</sup>
Context	The standard evidence-based protocol	First pain variation of TF-EMDR	Incorporates Grant's protocol and the Dutch Standard EMDR Protocol	Proposed research tool
Treatment Focus	Past trauma	1) Traumatic pain associated with an event. 2) Current pain and associated emotional distress	Current pain This occurs following TF-EMDR treatment of 1) Traumatic memory related to onset of pain. 2) Memories associated with traumatic experience of having pain.	1) Traumatic memory related to onset of pain. 2) Memories associated with traumatic experience of having pain. 3) Current pain
Phase 1: History taking & treatment planning	History taking and treatment planning	1) Clinician assesses whether pain is associated with trauma. If pain is not associated it is visually and sensorially described and pain is made the target based on this description.	1) Gather information related to description, location, and intensity of pain; aggravating and relieving factors; diagnoses and previous treatment; addictive behaviors; current functioning; and history of	1) Hour 1: What happened; Hour 2: Changes in lifestyle, self-esteem, previous treatment; Hour 3: Detailed analysis of PLP and use of McGill Pain Scale; Hour 4: EMDR addressing worst aspect of

			trauma and pain related incidents.	amputation. 2) Use of Phantom Limb Scale (0 = no pain, 10 = worst pain).
Phase 2: Preparation	Provide education regarding EMDR process, development of internal resources.	1) Instill hope. 2) Develop internal resources to address overwhelm related to pain management 3) Offer case management services if there are complex needs or numerous care providers.	1) Preferential selection of BLS. 2) Education as to the purpose of pain, how pain impacts the nervous system, and how one can describe pain.	1) Safe Place internal resource development.
Phase 3: Assessment	Identification of target memories and positive cognitions; establishment of baseline SUDS and VOC scores	1) Education as to how to detach and observe pain. 2) Identify pain target, NC, and measure and prioritize SUDS for each pain site.	1) Current pain is focused on via a drawing. 2) NC and PC related to current pain is identified. 3) Clinician asks patient to identify pain in the body and then rate Subjective Units of Pain (SUP) rather than SUDS.	1) Use as many targets as possible to ensure trauma memory is completely desensitized before shifting to focus on pain.
Phase 4: Desensitization	Focus on target memory and NC while simultaneously attending to BLS. Used to bring SUDS to 0 or 1	1) Greater focus is given to decreasing sensation of pain during BLS than trauma memories.	1) Patient focuses on pain and NC during BLS. 2) Similar to TF-EMDR, if SUP score is not changing or hovers above zero the patient is asked what prevents a score of zero.	1) Every aspect of trauma related to amputation should be desensitized prior to targeting physical pain. 2) Current pain is addressed until resolved.



Phase 5: Installation	BLS to increase the PC to a VOC of 6 or 7.	1) If solely focusing on pain, antidote imagery (see other additions) should be installed.	1) If SUP drops to 0/10, follow TF-EMDR installation. 2) It is rare for SUP to drop to 0/10, therefore choose one of either: a) coping statement; b) antidote imagery; or c) positive closure (see Phase 7).	Similar to TF-EMDR
Phase 6: Body Scan	Following, instillation the patient identifies tension or sensation from head down to toes. Leads to further BLS of tension/sensation or instillation of comfort/strength.	1) Body scan is used throughout desensitization rather than just at the end. 2) Clinicians are encouraged to direct attention to changes in pain and clarify vague responses (e.g., what does feeling “better” mean?)	1) Body Scan is rarely used as SUP rarely achieves 0/10. If used, the Body scan would address tension or pain.	Similar to TF-EMDR
Phase 7: Closure	Resolution of target memory or use of internal resources developed in Preparation stage (e.g. Safe place) to safely contain session content.	1) Effort is made to have patients leave session feeling better and more masterful, even if target is not resolved. 2) Safe place resource is used for pain targets related to trauma and antidote imagery is used for pain targets. 3) Address	1) Positive closure is used when a session ends with a SUP above zero. Similar to the Grant protocol, effort is made to have patient leave the office feeling better (e.g., “What is thee most positive thing you have learned about yourself during the session regarding your pain?”	Similar to TF-EMDR

		recommendations of other care providers.	(p. 556)	
Phase 8: Reevaluation	Used to begin each session to assess maintenance of treatment gains and status of incomplete targets.	Similar to TF-EMDR	1) Recommend use of a symptom log between sessions for reevaluation purposes. This is especially due to experimental nature of this new protocol.	Similar to TF-EMDR 1) Only begin addressing phantom pain when trauma memory is desensitized. Include measurement of Phantom Pain Scale.
Other additions to the protocol	Not applicable.	See “Grant’s altered approaches and additions to TF-EMDR” (in this text): 1) Antidote Imagery 2) Treatment planning specific to risk factors 3) Psychoeducation 4) Homework: Take home audio recordings	1) It is recommended that treatment end when a SUP score has remained unchanged for three successive sessions. This is based on authors’ observation regarding the unlikelihood of additional change beyond this point.	1) Authors note importance of building a relationship with the client. 2) A record is kept of how many BLS are used for desensitization.

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*Note.* <sup>a</sup>Shapiro (2001); <sup>b</sup>Grant (2009a, 2009b, 2010); <sup>c</sup>de Roos and Veenstra (2010); <sup>d</sup>Wilson and Tinker (2010).  
Scripted protocols for the three pain protocols are available in Luber, 2010.

**Grant's Pain Control with EMDR protocol.** Grant (1999, 2009a, 2009b, 2010) has published a chronic pain-EMDR protocol, based on a decade of clinical experience working with this population. Grant's protocol follows the eight-phases of the TF-EMDR protocol (Shapiro, 2001) but makes adaptations and additions to specifically address the needs of patients experiencing chronic pain. A contrast of Grant's pain protocol with the TF-EMDR is presented in Table 3, a summary of Grant's additions is provided below, and the reader is encouraged to see Grant (2010) for the scripted protocol.

***Grant's altered approaches and additions to TF-EMDR.*** As noted in Table 3, Grant's (2010) protocol addresses traumatic pain associated with a traumatic event as well as non-traumatic pain that is currently experienced. Where Shapiro (2001) has suggested targeting earliest memories for most efficient reduction of distress, Grant (2010) has suggested that when pain is linked to injury or disease rather than trauma it is more effective to target currently-experienced pain and associated emotional distress. Additional alterations to the TF-EMDR protocol are noted below.

*Negative beliefs may be valid but too intense to be adaptive.* Similar to TF-EMDR, the NCs of individuals experiencing pain are conceptualized as maladaptive or irrational because the cause (traumatic or non-traumatic) is over and no longer a threat. However, individuals struggling with chronic pain may currently have something physically wrong with them. In this situation, beliefs, such as, "I'm out of control" or "I'm helpless" may have some validity (e.g., they may be helpless to change the progression of an illness), but the intensity or centrality to their sense of being is problematic. The goal of the pain protocol is development of beliefs that patients can control their pain and can be whole persons, not just disabilities or chronic pain sufferers (Grant, 2009b).

*Antidote imagery.* During ‘installation’ of PCs, Grant provides for additional installation of “imaginal resources for controlling future pain” (Grant, 2009a, p. 101). This is in recognition of the reality that sometimes it is not possible to completely relieve pain due to ongoing physical injuries/illness. Imaginal resources address the trauma of a future with pain and provide a technique for addressing it. The therapist assists the client to learn how to control or moderate his or her pain with a somatic resource or *antidote imagery*. After a client reports a decrease in pain, the therapist encourages him/her to elaborate on how that feels (e.g., softer, smaller), to think of something that reminds him/her of those feelings (e.g., something softer might be an image of a cloud), and create a one-word anchor to the feeling-state. Instillation of the antidote imagery then occurs.

*Treatment planning specific to pain risk factors.* Per the AIP model, pain can be a symptom of unresolved trauma. In order to determine whether a client’s pain is due to a physical injury or due to psycho-biological factors, a Pain Risk Factor Questionnaire (Grant, 2009a) is administered. Grant (2009b) proposes eight pain risk factors: physical injury or illness, emotional neglect, childhood trauma, insufficient safety and support, increased physiological arousal, emotional disconnection, negative thinking/catastrophizing, and PTSD; and six treatment elements: safety and support, reconnecting with your feelings, controlling stressful emotions, changing your thinking, resolving trauma and building resilience.

*Psychoeducation.* Consistent with other chronic pain treatment modalities (e.g., CBT approaches; Bogalo & Moss-Morris, 2006) and in line with the EULAR recommendations (Carville et al., 2008), Grant (2009b) incorporates psychoeducation and homework about

pain management as an adjunct to EMDR treatment. Topics addressed include sleep, exercise, goal setting, and increasing positive experiences.

*Homework.* In personal communication, M. Grant (2010) noted that he provides a take-home CD, including guided desensitization and reprocessing with bilateral audio stimulation, to nearly all of his chronic pain patients. Take-home BLS was found to be beneficial following 2 EMD sessions in a small study of fibromyalgia patients. (Friedberg, 2004). Homework would allow patients to continue processing material brought up in session and increase opportunities for relaxation between sessions; however, poor homework compliance may diminish these effects.

Grant (2010) described his protocol as a “work in progress” (p. 521) that should be supplemented by the clinician’s own clinical experience and client need. Grant identified chronic pain as a complex problem that requires a multimodal approach, therefore encouraging the clinician to incorporate “psychoeducation, supportive therapy, pain management skills-training (e.g., hypnosis, visualization, meditation), case management, and so on” (p. 521).

***Research investigating Grant’s protocol.*** Investigation into Grant’s EMDR Pain Control with EMDR protocol has included two multiple case studies (Grant, 2000; Grant & Threlfo, 2002) and a quasi-experimental study (Mazzola et al., 2009). All three of these studies will be detailed here.

In Grant’s (2000) first presentation of EMDR as a new treatment for chronic pain, a sparsely detailed account of EMDR with pain adaptations (e.g., use of audiotapes and focus on pain rather than trauma), was presented along side of the course of treatment for two women experiencing chronic pain. Grant reported that these participants experienced

symptom improvement; however, treatment procedures were not clearly described and there was a lack of: objective measures, multiple sources of data, or triangulation of data.

In a multiple case study of three women with tolerable chronic pain, Grant and Threlfo (2002) sought to examine whether a chronic pain variation of the EMDR protocol could alleviate chronic pain and reduce emotional distress associated with chronic pain. Each participant received nine, one-hour EMDR sessions. Their symptoms were measured pre- and post-treatment with self-report measures. Upon completion of EMDR, participants demonstrated a decrease in pain levels and pain-related affect, and they demonstrated an increased perception of their ability to cope with their pain. Results were maintained at a two-month follow-up for all three participants; one participant was contacted at a two-year follow-up point and reported maintained positive effects. One of the case studies presented in this study was also presented in Grant (2000).

In a quasi-experimental study of the treatment of chronic pain, Mazzola et al. (2009) conducted 12, ninety-minute sessions of Grant's EMDR pain protocol (1999) with 38 participants (32 women and 6 men) recruited from a pain center. Of these participants, 30 identified as having headaches, four as having fibromyalgia and ten as having neuropathic pain. Participants concomitantly received only psychopharmacological treatment. Baseline and follow-up scores were obtained. Seventy-three percent of participants met SCID-II Axis II criteria with 44.7% of these participants meeting criteria for obsessive-compulsive disorder (there was no follow-up data regarding these diagnoses). Following EMDR treatment, participants had decreased their consumption of medication and demonstrated statistically significant improvements in: (a) SF-36 domains (Physical Functioning, Role-Physical, Bodily Pain, General Health, Vitality, Social Functioning, Role-Emotional and

Mental Health), (b) BDI depression scores, (c) STAI anxiety scores, and (d) Visual Analogue Scale pain levels.

Methodological problems with this study included a lack of a control group and the use of a clinical sample. Raphael et al. (2006) caution that use of a clinical sample would be biased as individuals seeking out treatment are more likely to have a history of trauma. However, this may not be an issue if the researchers sought to target this subgroup of individuals with a history of trauma who are health-care seekers. Use of Grant's (1999) chronic-pain protocol in this study makes it challenging to compare results to other studies of the TF-EMDR protocol in the treatment of chronic pain.

Limited research on Grant's EMDR pain protocol has been conducted (Grant, 2000; Grant & Threlfo, 2002; Mazzola et al., 2009), and no research has been conducted to compare its effects to that of TF-EMDR. Despite this lack of research, other chronic pain protocols, such as de Roos and Veenstra (2010), have already incorporated Grant's (1999) adaptations. It is, therefore, necessary to conduct research that compares the efficacy of Grant's protocol over the TF-EMDR protocol (for pain related and unrelated to trauma). Caution should be taken in development of new pain protocols based on those that have yet to demonstrate efficacy over an already evidenced based TF-EMDR protocol. Additional research into Grant's protocol and the TF-EMDR protocol would add credibility to the use of EMDR for treatment of chronic pain as well as further guidance regarding when a TF-EMDR variations protocol should be used.

**de Roos and Veenstra's EMDR Pain Protocol for Current Pain.** The EMDR pain protocol developed by de Roos and Veenstra (2010) follows the same eight phases as the TF-EMDR protocol (Shapiro, 2001); however, variations targeting current experiences

of pain occur in each phase (see Table 3). This protocol also incorporates Grants' pain protocol (1999) and the Dutch Standard EMDR Protocol (as cited in de Roos & Veenstra, 2010).

The goal of chronic pain treatment is to relieve pain swiftly; therefore, consideration as to the most efficient target is critical. de Roos and Veenstra (2010) described three types of targets for the individual experiencing chronic pain: (a) traumatic memory (related to the onset of pain); (b) pain related memories (associated with the traumatic experience of having chronic pain, e.g., loss of a job); and (c) current pain (which does not involve a memory). de Roos and Veenstra consider "should treatment commence with addressing trauma targets or is a direct focus on the current pain indicated? At the moment, no definitive guidelines exist in this regard" (p. 537). They recommend the TF-EMDR protocol be used for (a) traumatic memories, due to its evidenced based status and rapid results and (b) for pain related memories as pain related memories may intensify and maintain the significance of the pain. de Roos and Veenstra recommend that if pain related memories are targeted with TF-EMDR, patients should be asked to focus specifically on the location of where their pain is in order to activate brain regions associated with these locations. The EMDR Pain Protocol for Current Pain should only be used following use of TF-EMDR to address pain related to trauma.

***Research investigating de Roos and Veenstra's current pain protocol.*** A study of the treatment of ten individuals with PLP using the de Roos and Veenstra EMDR protocol (2010) demonstrated substantial improvements in pain nearly three years following treatment and pain levels within the normal range of the Dutch population (de Roos et al., 2010). Per the PLP protocol, the TF-EMDR protocol was first used to address trauma



associated with amputation and trauma associated with having pain. Pain unrelated to trauma and experienced in session was always addressed last and with the PLP protocol that was influenced by the Grant protocol. Two participants did not improve. In considering why EMDR had not benefited them, de Roos Veenstra, de Jongh, et al. (2010), noted that these participants did not perceive their amputations as traumatic (rather as life saving) and they had experienced pain for a lengthy amount of time before treatment. Limitations of this study were a small number of participants and lack of a control group.

**Wilson and Tinker's EMDR and Phantom Pain Research Protocol.** Wilson and Tinker's (2010) Phantom Limb research protocol has fewer adaptations made to it than the previous two protocols (See Table 3). This closer alignment with TF-EMDR is due to the likelihood of an experience of trauma related to the amputation of a limb versus other chronic pain conditions. This protocol was developed during case series research that has been underway since 1996 and has included "a few before and after EMDR magnetoencephalograms" (Wilson & Tinker, 2010, p. 559). No other research has explored the use of this protocol. Trauma and trauma related to pain memories are first targeted with TF-EMDR; only once trauma memories are resolved is current pain is addressed. Pain sensation is targeted until eliminated.

Expected resolution times for leg, breast, or finger amputation is one session whereas it can take longer for arm and hand amputations (Tinker & Wilson, 2005). Tactile bilateral stimulation of the upper lip for arm and hand amputations is recommended to speed the treatment process. If pain is fully resolved, it is recommended that the clinician work with the physician to decrease and eventually eliminate the use of medication. Follow-up assessments are recommended (30 and 60 days) and patients are instructed to return for

treatment immediately if pain returns. The use of Wilson and Tinker's protocol (2010) as a research tool calls for its standardized questions and measurements (e.g., the McGill Pain Questionnaire; Melzack, 1987) that would aid in consistent record keeping needed for research.

***Research investigating Wilson and Tinker's Phantom Pain Research Protocol.*** To date, there has been no research examining the usefulness of this protocol. The publication of this research specific protocol would allow for greater standardization of procedures and, therefore, more effective comparison of results. This protocol most closely follows the TF-EMDR protocol.

**EMDR related protocols.** In the EMDR chronic pain variations described above, the eight-phases of the TF-EMDR protocol are observed, albeit with adaptations and additions. In the following section, studies are presented that have an element of EMDR combined with an alternative therapy: *EMDR chronic pain variations*. Table 4 presents research related to these approaches. One of these EMDR related protocols investigated the treatment of fibromyalgia (Friedberg, 2004) and therefore is reviewed in greater detail.

In 2004, Friedberg conducted a pilot study exploring the use of Eye Movement Desensitization (EMD, without the reprocessing) in the relief of pain, fatigue, anxiety, and depression in six female participants with diagnoses of fibromyalgia. Baseline symptoms were measured and two 60-minute EMD sessions occurred within a week of each other. Following the first session of EMD, participants were taught to do EMD at home with alternating finger taps on their upper legs or with an audiotape. In session two, take-home logs of pain, stress, and fatigue were reviewed, and additional EMD occurred to reinforce the learning of the first session. Participants were asked to treat themselves with EMD for

three months following the second session, and at the end of this time a follow-up assessment occurred. Most participants were able to self-administer EMD without negative effects. Participants tended to be more relaxed, and have reductions in stress, pain and fatigue.

The methods of the Friedberg study (2004) contrasted with the traditional EMDR protocol in three ways: (a) a focus on participants' most intense symptoms rather than target memories, (b) the use of EMD versus EMDR, and (c) the use of self-administered EMD (modeled after traditional pain management practices, such as CBT) rather than therapist administered EMDR. The author did describe this as a pilot study, but several methodological flaws exist. Different BLS techniques (tapping, tones, eye movements) were used, confounding potential differential effects of the various BLS methods. The study did not have an RCT design, and the sample size was too small to confidently indicate that reductions in symptomology were not better accounted for by chance.

Table 4

*Studies Examining Treatment of Pain with EMDR Related Protocols*

Reference	Condition	Research Design	Protocol Variation	Results
Friedberg (2004)	fibromyalgia	Quasi experimental: Pre-post test, $n = 6$	Two sessions of EMD with self-administration and homework.	Observed improvement in anxiety, depression, fibromyalgia impact, and fatigue
Hekmat, Groth, and Rogers (1994)	Acute pain	RCT: Laboratory setting using hand submersion in ice water to create pain; one treatment session, $n = 30$	1) EMD/R with bilateral eye movements and figure eight movements, 2) EMD/Music, and 3) control.	EMD/R significantly facilitated coping with pain related to ice water submersion. Hypnotic susceptibility did not significantly impact results.
Marcus, S. (2008)	Migraine	Quasi experimental: Pre-post test, random assignment to standard care or Integrated EMDR treatment (I-EMDR), $n = 43$	I-EMDR treatment: diaphragmatic breathing, head compressions and then figure eight EMDR BLS for 30-90 sec.	Both conditions reduced pain. I-EMDR did so more rapidly and with significantly greater improvement immediately following treatment.
Ray and Page (2002)	Chronic Pain	Quasi experimental: Pre-post test, $n = 15$	One 90 minute session: EMDR/hypnotherapy or hypnotherapy/EMDR. Target during EMDR: focus on pain or NC, images, or feelings regarding pain.	Non-significant decline in self-reported pain ( $F(1,13) = 0.14$ ; $p = ns$ ).

**Studies examining TF-EMDR in the treatment of chronic pain.** Promising studies on the use of TF-EMDR to facilitate pain reduction have emerged (see Table 5) and provide reasoning for additional research. To date, there have been no Cochrane reviews examining TF-EMDR treatment of chronic pain or fibromyalgia; however, there has been one systematic review of studies related to EMDR and Medically Unexplained Symptoms (MUS; van Rood & de Roos, 2009). There has been one dissertation RCT of chronic pain (Estergard, 1999). Single and multiple case study research has been the primary tool for exploring TF-EMDR treatment of chronic pain conditions (See Table 5). All case studies, across a range of chronic pain conditions, demonstrated decreases in pain and suggested promise in using TF-EMDR with the specific pain condition in question. Due to this general trend, these case studies will not be detailed beyond Table 5. A single case study of EMDR treatment of fibromyalgia (Kavakcı, Kaptanoğlu, Kuğu, & Doğan, 2010) was found; however, it will not be reported in detail, as full text in English was not available for review. An English abstract indicated improvement in pain and symptoms of depression and trauma following EMDR with gains maintained at 6-month follow-up. It is thought that TF-EMDR was used; however, this cannot be verified.

Table 5

*Studies Examining Treatment of Pain with the TF-EMDR Protocols*

Reference	Condition	Research Design	Results
Estergard (1999)	Chronic Pain	Dissertation, matched subjects, $n = 37$	Following six EMDR treatment sessions a reduction in pain ( $t[16] = -3.28, p < .005$ ) and dysphoria ( $F(7, 245) = 3.99, p < .002$ ), was observed. No follow-up results were obtained.
McCann (1992)	Severe burns	Single case study	Reported amelioration of PTSD symptoms, improvements in engagement in rehabilitation and daily living. Improvements were maintained at 1-year follow-up.
Royle (2008)	CFS	Single case study	Following nine sessions, there was a reported decrease in fatigue and hours of sleep and a return to work. Gains were maintained at 1-year follow-up.
M. C. Russell, (2008a)	PLP	Single case study	Following four sessions, PLP was eliminated and reductions in PTSD, depression, and phantom limb tingling were observed. No follow-up results were obtained.
M. C. Russell, (2008c)	MUS	Single case study	Following five sessions, there was a reported improvement of restful sleep, energy, mood, overall health, and positive social engagement. No reports of MUS at 6-month follow-up.
J. Schneider, Hoffman, Rost, & Shapiro (2008)	PLP	5 case studies	Following 3-15 sessions there was a reported decrease in PLP, depression and PTSD symptoms, and reductions or elimination of pain medications. Gains were maintained at 1-2 year follow-ups.

Silver, Rogers, & M. C. Russell, (2008)	MUS	1 case study of chronic pain.	Following two sessions, there was a reported improvement in PTSD and depression symptoms and elimination of MUS (shaking). Gains were maintained at 6-month follow-up.
Torun (2010)	Vaginismus	2 case studies	Following three sessions, there was reported pain free sexual intercourse. Gains were maintained at 2-month follow-up.
Wilensky (2006)	PLP	5 case studies	Elimination or reduction of pain to negligible levels. Two participants reported maintenance of treatment gains at 1 and 3 years follow-up; other participants chose to end their treatment due to satisfaction with improvements.

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Note. CFS: Chronic Fatigue Syndrome; MUS: Medically Unexplained Symptoms; PLP: Phantom Limb Pain

Tentative evidence that EMDR may play a role in effective treatment of MUS was found in a systematic review of EMDR and MUS literature (van Rood & de Roos, 2009). MUS is a diagnostic category that is arrived upon by exclusion, rather than identification of a pattern of bodily complaints. van Rood and de Roos presented fibromyalgia as a MUS for rheumatologists, suggesting all medical specialties have a diagnosis for symptomology that cannot be medically explained. After reviewing the literature, van Rood and de Roos eliminated from consideration all but those studies applying the TF-EMDR protocol (rather than EMDR related protocols), leaving 16 studies. From these studies, 102 unique patients receiving TF-EMDR for somatic complaints were identified and aggregated to create their sample. van Rood and de Roos found that in most studies, EMDR was used based on an assumption that stressful or traumatic events played a role in the development and maintenance of MUS. In general, the mean number of TF-EMDR treatment sessions was 6.8; most patients remained on medications during participation; dropout rates ranged from 10-32%; and participants seemed to have less comorbid psychiatric disorders than the general MUS population (e.g., only 24% EMDR study participants versus 50% of MUS patients had PTSD). Improvements in comorbid trauma and depression symptoms were observed at 6-month follow-up. EMDR treatment of PLP appeared more efficacious than general treatment of chronic pain, with PLP's clearer link to trauma being cited as one possible reason for this difference.

The efficacy of TF-EMDR in the reduction of chronic pain and identification of the relationship between chronic pain and the intensity of emotion was explored in the dissertation research of Estergard (2008). Thirty-seven participants with chronic pain received six sessions of TF-EMDR. Seventeen participants comprised a control/delayed



treatment group and were matched with an experimental group based on similar ratings of pain. TF-EMDR was found to reduce chronic pain in both the experimental and delayed treatment groups; when these groups were combined a statistically significant decrease in the experience of dysphoria was observed. No follow-up sessions were conducted.

It has been recommended that the TF-EMDR protocol be used to address traumatic memories associated with pain due to its offering of rapid results and a tendency for generalization of trauma gains to overall functioning (de Roos and Veenstra, 2010). In their systematic review, van Rood and de Roos (2009) question the benefit of targeting current physical sensations due to indication “that the use of the current pain sensation as primary target in EMDR is not as effective as the use of a traumatic memory as a primary target” (p. 260). This questioning along with developing evidence supporting use of TF-EMDR for chronic pain (McCann, 1992; Royle, 2008; M. C. Russell, 2008a, 2008c; J. Schneider, 2008; Silver et al., 2008) suggests efforts to investigate the evidence-based TF-EMDR should be prioritized over investigations of modified versions of EMDR.

### **Rationale for this study**

There are two deficits in our understanding of the use of EMDR in the treatment of fibromyalgia. The first deficit is a lack of studies focusing specifically on EMDR and fibromyalgia. Kavakcı et al. (2010) demonstrated psychological and pain improvements in a case study of EMDR treatment of a woman with fibromyalgia. A study of primarily self-administered EMD (Friedberg, 2004) suggested that treatment modality could lead to beneficial effects on fibromyalgia symptoms. Mazzola et al., (2009) used Grant’s (1999) chronic-pain EMDR protocol in a general study of chronic pain, which included a few

participants with fibromyalgia. Decreases in pain were observed, however, the different responses of different pain conditions were not distinguished.

The second deficit can be seen in the lack of Fibromyalgia treatment studies using the evidence-based trauma protocol of EMDR versus the lesser-studied chronic-pain protocols. In 2002, Shapiro noted that the clinical application of EMDR had surpassed research being conducted on it. The concern was that new EMDR approaches that are unevaluated or have not yet demonstrated similar effectiveness as the traditional protocol could result in misapplication or dilution of the clinical effects of EMDR. Clinical application that surpasses research can be seen in Luber's (2010) manual of EMDR protocols for special populations that included three under researched chronic-pain protocols (Pain Control with EMDR, Grant; EMDR Pain Protocol for Current Pain, de Roos, & Veenstra; EMDR and Phantom Limb Pain Research Protocol, Wilson, & Tinker).

The aim of this multiple case study investigating the use of TF-EMDR in the treatment of fibromyalgia was to explore two theories: (a) For individuals who have a history of trauma prior to their diagnosis of fibromyalgia, treatment of psychological symptoms of trauma will lead to a lessening of symptoms of physical pain, and (b) EMDR is a trauma treatment that can decrease symptoms of trauma and subsequently symptoms of pain.

### **Hypotheses**

The primary aim of this multiple case study was to explore two hypotheses related to the treatment of fibromyalgia: (a) Use of the standard TF-EMDR protocol alone, will decrease traumatic stress symptoms, and (b) Hypothesis 2: Direct treatment of traumatic

symptoms associated with past distressing events will lead to a lessening of symptoms of physical pain.

## **Chapter 3: Method**

### **Reasoning for Case Study Design**

A parallel, multiple case study design using literal replication logic was chosen to explore the use of EMDR in the treatment of trauma and pain symptoms associated with fibromyalgia. The case study is an appropriate research design for real life circumstances, phenomena that are difficult to differentiate from confounding variables (Yin, 2003) and when testing theories (rather than generalizing causation to populations; David, 2007). The current study stemmed from the author's clinical work with a patient experiencing fibromyalgia, the etiology and compounding symptom factors of fibromyalgia were unclear, and theory that treatment of trauma underlying fibromyalgia symptoms could create symptom reduction or abatement was targeted for exploration.

Case studies are “an effective method for communicating a complex phenomenon to non-researchers and evaluators” (Lee & Chavis, 2011, p. 7). The ability to examine a complex, real world phenomenon, such as the treatment of fibromyalgia, in a manner that could effectively communicate with health-care providers, patients, families and treatment-funding sources was central to the selection of this research design.

### **Design**

A parallel, multiple case-study design was chosen to allow for in depth exploration of the research question: Can the TF-EMDR protocol, without modification, decrease psychological and physical symptoms of fibromyalgia? Each case study was conducted independently of the others while following the same procedures. An effort was made to verify the propositions of this study by replicating results as seen through comparisons of the three independent case studies. The propositions of this study were (a) TF-EMDR, an

evidence-based treatment of trauma, will decrease symptoms of trauma, and (b) reductions in pain and trauma symptoms will be observed. Therefore, it was hoped that a decrease in trauma and physical pain symptoms following EMDR would be the replicated pattern seen between the independent case studies.

### **Establishing Rigor in this Case study Design.**

Case study design should follow a logical sequence that connects empirical data both to the initial research questions and the resulting conclusions (Yin, 2003). Yin suggested a five step process for achieving this end: (a) a clear research question, (b) research propositions, (c) clearly operationalized units of analysis, (d) identification of the logic that links the data to propositions, and (e) criteria used for interpreting the findings.

This study's guiding *research question* was: Can the standard evidence-based EMDR protocol, without modification, decrease psychological and physical symptoms of fibromyalgia? The following *propositions* of this study build upon each other:

1. Stress and trauma contribute to neuropsychological and physiological symptoms;
2. The client's experience of fibromyalgia is related in part to his or her experience of stress and trauma;
3. EMDR is an evidence-based treatment for PTSD;
4. EMDR could be an effective treatment for fibromyalgia related to the experience of past trauma(s).

Case studies characteristically use multiple sources of evidence in order to establish converging lines of inquiry or triangulation (Yin, 2003). In this study, there were three bounded case studies: three women who had experienced trauma prior to their diagnosis of fibromyalgia. In the exploration of their EMDR treatment experience, several units of

analysis were gathered. Embedded units of analysis included standardized symptom measures of psychological (Trauma Symptom Inventory [TSI], Beck Depression Inventory II [BDI-II], Subjective Units of Disturbance [SUDS], Validity of Cognition [VOC]) and physical distress (Fibromyalgia Impact Questionnaire-Revised [FIQ-R], Short Form McGill Pain Questionnaire 2 [SF-MPQ-2]). These measures are described more fully in the Materials section.

The final step of Yin's logical sequence of case-study design is the establishment of the *criteria used to interpret the findings*. In this study, pattern matching among cases was chosen. This is described in further detail at the end of the Methods section.

**Addressing internal and external validity and reliability.** Attending to concerns of internal and external validity, and reliability during a study's design strengthens the case study's results. To address threats to internal validity in case study research, Yin (2009) recommends using: (a) pattern matching, (b) rival explanations, and (c) convergent evidence (i.e. multiple sources of data for triangulation and use of qualitative and quantitative measures). Pattern matching and convergent evidence were used in data analysis for the current study.

Questions regarding generalizability of single case studies are concerns of external validity. Yin (2009) argues that it is an error to compare case-study research that uses analytic generalization to survey research that uses statistical generalization. In analytic generalization, the researcher seeks to generalize results to a broader theory rather than to a broader population. The results from this research on TF-EMDR and the treatment of fibromyalgia is hoped to generalize to mounting literature supporting the theory that addressing past trauma is important to addressing physical symptoms of pain and that the

unmodified EMDR protocol may be a tool for doing this. To further address issues of external validity, this study uses the replication logic of a multiple case-study design, which allows for a more intense exploration of the same issue over a number of cases. Each case study is considered an independent experiment that will demonstrate similar outcomes when compared for patterns. Yin calls this approach literal replication.

To address reliability in this study, efforts were made (as seen in Procedures) to describe the procedures carefully for replication purposes and to keep procedures consistent among cases (e.g., treatment fidelity; see Table 6). Several units of analysis were chosen to assist in triangulation of the data. Triangulation is the process of using multiple sources of evidence for cross validation of results. In this study, outcome measures (e.g., TSI), process measures (e.g., SUDS), participant reports (collected through interview and questionnaires), and medication logs were used to assess changes in participants' psychological and physical pain symptoms. Reliability was also addressed through careful selection of assessment measures that had a history of use in similar research and strong psychometric attributes. The author, who conducted the TF-EMDR treatment in this study, had previously completed the two-part EMDR training and carried out EMDR treatment of other conditions under supervision.

Table 6

*Outline of Meetings*

Meetings	Meeting activities
Initial Screening (1.5 hours)	<ul style="list-style-type: none"> <li>• Release of Information</li> <li>• Informed Consent</li> <li>• Complete intake questionnaire</li> <li>• Complete FIQ-R, SF-MPQ-2, TSI</li> <li>• Providing information about the study and answering questions</li> </ul>
Session 1 (1 hour)	<ul style="list-style-type: none"> <li>• Assessment and identification of target memories,</li> <li>• Psychoeducation regarding EMDR,</li> <li>• Resource building,</li> </ul>
Session 2 (1 hour)	<ul style="list-style-type: none"> <li>• Additional psychoeducation regarding EMDR,</li> <li>• Additional resource building if needed,</li> <li>• Begin addressing first/primary target memory</li> </ul>
Sessions 3-11 (1 hour)	<ul style="list-style-type: none"> <li>• EMDR trauma protocol</li> <li>• Use of SUDS and VOC measures</li> </ul>
Session 12 (1 hour)	<ul style="list-style-type: none"> <li>• Reassess target memories (SUDS and VOC)</li> <li>• Installation of PCs</li> <li>• Closure work and resource building.</li> </ul>
Final meeting (1.5 hours)	<ul style="list-style-type: none"> <li>• Complete FIQ-R, SF-MPQ-2, TSI, BDI-2</li> <li>• Review Target Memories, SUDS, VOC</li> <li>• Answer any questions</li> <li>• Reflection on participation</li> </ul>
1 month follow-up meeting (1.5 hours)	<ul style="list-style-type: none"> <li>• Complete FIQ-R, SF-MPQ-2, TSI, BDI-2</li> <li>• Review Target Memories, SUDS, VOC</li> <li>• Answer any questions</li> <li>• Reflection on participation</li> </ul>
3 month follow-up meeting (1.5 hours)	<ul style="list-style-type: none"> <li>• Complete FIQ-R, SF-MPQ-2, TSI, BDI-2</li> <li>• Review Target Memories, SUDS, VOC</li> <li>• Answer any questions</li> <li>• Reflection on participation</li> </ul>



### **Deviations From EMDR Framework**

Although efforts were made to maintain fidelity of the execution of the TF-EMDR trauma focused EMDR protocol described by Shapiro (2001), some deviation did occur due to time limitations and clinical need. First, this study was limited to 12, 60-minute treatment sessions with one initial interview and three follow-up meetings. This required termination of treatment when all phases of treatment may not have been fully conducted. Under solely clinical conditions, treatment would be tapered off after full resolution of target memories and current stressors (determined by SUDS and VOC scores) and installation of PC in support of future templates. Time would be extended between treatment sessions to monitor for resurgence of distress based on day-to-day experiences, and then client and therapist would collaboratively determine a termination date. Although positive gains were seen at the end of the 12 sessions and at one and three month follow up sessions, all participants indicated that they would have liked to continue on with EMDR treatment. A description of treatment left unfinished is provided at the end of each case study presentation.

### **Participants**

Participants in this study were purposefully sampled (Creswell, 2003), meaning participants were specifically chosen to help understand how TF-EMDR might impact symptoms of trauma and pain related to fibromyalgia based on predetermined criteria. Inclusion and exclusion criteria were identified prior to solicitation of participants. Solicitation of participants was done through communication with fibromyalgia support groups, health-care providers, fliers in academic institutions, and personal networking. Per

Yin's (2009) recommendations for literal replication logic case studies, 3-4 participants were sought.

**Inclusion and exclusion criteria.** Participants with the following characteristics were invited to participate:

1. Individuals who had been diagnosed with fibromyalgia.
2. Individuals who were not diagnosed with severe psychopathology (such as psychotic conditions, bipolar disorder).
3. Individuals willing to not make significant changes to the treatment of their fibromyalgia during the study.
4. Individuals who were not currently taking benzodiazepines or opiates.

**Screening of fibromyalgia diagnosis.** Measures of physical and psychological distress were also used to select participants, as the experience of both fibromyalgia and trauma were essential to the study. The presence of fibromyalgia was established via documentation of a diagnosis of fibromyalgia from a physician as well as scores indicative of fibromyalgia on the FIQ-R (36.7 - 76.5; Bennett et al., 2009). The continued impact of past trauma was established via elevation of at least one subscale of the TSI near the clinical range (above 55).

Challenges in finding participants led to adaptation of original criteria. Originally, individuals with any previous EMDR experience would have been excluded from participation. Instead, a principle was followed that excluded individuals who were currently or recently involved in EMDR treatment. This practice allowed one participant whom had briefly engaged in EMDR 10 years earlier to participate. Additionally, criteria addressing co-occurrence of on-going medical conditions (e.g., injured knee, herniated disk)

were altered in response to a rapid identification that individuals with diagnoses of fibromyalgia were unlikely to be free from other injuries or medical conditions.

Seven people, two men and five women, inquired by phone about this study but were excluded based on reasons, such as: distance from the study location, scheduling issues, no history of traumas, and an extensive history of EMDR treatment. Two women were excluded from participation following the initial screening session: one woman was about to begin a series of surgeries for an unrelated injury and the other woman did not have scores that met FIQ-R and TSI criteria.

Three women were selected to participate in this study. Rosalin is a 55-year-old Caucasian, lesbian, technical writer. Throughout Rosalin's lifetime, her mother had behaved erratically and violently. When Rosalin was 13 years old, her mother attacked her with the reported intention of killing her. Rosalin was diagnosed with fibromyalgia at the age of 40 years old. Rosalin scored 51.8 on the FIQ-R and had 3 TSI subscales above 55.

Grace was a 29-year-old Caucasian, heterosexual, art therapy student. Grace had experienced inconsistent, and at times, absent parenting. Prior to her diagnosis of fibromyalgia she experienced a series of traumatic events in quick succession and two MVAs. Grace was diagnosed with fibromyalgia shortly after the second MVA at the age of 22 years old. Grace scored 48.5 on the FIQ-R and had one subscale above 55 on the TSI.

Heather was a 43-year-old Caucasian, heterosexual massage therapist. Heather was raped when she was 16 years old. She was diagnosed with fibromyalgia at the age of 31 years old. She scored 42.33 on the FIQ-R and had one subscale above 55 on the TSI. None of these women were taking benzodiazepines or opiates and all were agreeable not to make changes to their treatment of fibromyalgia symptoms during the study. Mental status exams,

conducted during the initial screening interviews, found no presence of severe psychopathology for any of these participants.

**Comparison of participants and assessment of sampling.** When using a sample of convenience, consideration should be given to the characteristics common to participants who would elect to participate in such a study compared to those who may not have volunteered or been aware of the study. In the current study, all three participants volunteered to participate after seeing posters or mailings.

All three participants were Caucasian females who had completed undergraduate degrees. Higher levels of education have been found to improve treatment adherence (Beck, N. et al., 1988; Sayre et al., 2002). Participants had received diagnoses of fibromyalgia 7 to 15 years prior to their participation in this study. Therefore, they all had time to have tried other treatment options as well as time to experience a certain degree of frustration with the limitations of these treatments. Potentially related to having already tried conventional treatments in which a medical provider administers a treatment (e.g., pharmacological), these women voiced a high sense of responsibility for their own health as evidenced by their awareness of how their choices about nutrition, exercise, and life stressors impacted their symptomology.

Longer histories of dealing with fibromyalgia and insights into lifestyle influences on symptom severity contributed to an awareness that fibromyalgia was a condition that was influenced by *the mind body connection*. All three women voiced this awareness during the intake process, as did others who had expressed interest in the study but did not qualify. Instead of seeing fibromyalgia as solely a medical condition, these women were open to considering that psychological factors may also have an influence.

Severity of symptoms in fibromyalgia can be quite varied from person to person as well as at different times in a person's life. Scores between 36.7-76.5 on the FIQ-R are thought to best represent the scores of individuals diagnosed with fibromyalgia. Participants of this study initially scored in the lower half of this range and functionally were able to be employed or attend school full time, although one had accommodations.

An additional similarity between these participants was their high treatment adherence. All participants sought out participation in this EMDR study of their own initiative, attended regularly, and made efforts to reschedule when needed (which was minimal). Participants were highly engaged during treatment sessions, completed all treatment sessions and other meetings, and voluntarily agreed to extend their participation to include a 6 month follow-up meeting not originally contracted for due to their interest in the study.

## **Measures**

A variety of well standardized symptom measures were used to assess changes in participants' physiological and psychological symptoms associated with fibromyalgia. These measures are categorized as process measures and outcome measures.

**Process measures.** The process measures were used during EMDR treatment sessions; not only did they provide assessments of participants' distress before and after treatment, but they also served as indicators of how to proceed through the eight-stage EMDR protocol. The process measures included in this study are the Subjective Units of Disturbance Scale (SUDS; Wolpe, 1958) and the Validity of Cognition scale (VOC; Shapiro, 2001). Use of SUDS and VOC are standard EMDR practice.

***Subjective Units of Disturbance (SUDS).*** The SUDS, originally created by Wolpe (1958), is a subjective system of rating distress on a scale of 0-10, with 10 being the most distressing. During the EMDR assessment stage, participants were asked to consider, simultaneously, a picture of the traumatic memory and a negative belief about themselves. While doing this, participants were asked to identify an emotion they felt and give it a SUDS rating. Reprocessing efforts would proceed (sometimes over many sessions) until their SUDS rating had dropped to a 1 or a 0. An investigation of the psychometric properties of the SUDS by Kim, Hwallip, and Park (2008) found SUDS scores correlated with depression, anxiety, and impact of events at the beginning of EMDR treatment and then correlated with indicators of change at the end of treatment.

***Validity of Cognition (VOC).*** The VOC is an EMDR measure of how believable a new, more adaptive belief has become. In this study and according to the eight-stage EMDR protocol, participants were asked to identify a NC (e.g., I'm not safe) related to a targeted traumatic event (e.g., a rape). The NC described how the participants think about themselves when they recall the traumatic event. The researcher then assisted the participants in identifying new PC (e.g., I am safe) and then asked them to give VOC ratings of how true PCs sound on a scale of 1-7, with 1 being "completely false" and 7 being "completely true" (Shapiro, 2001, p. 61). Shapiro describes "the purpose of identifying a desired positive cognition is to set a direction for treatment, to stimulate the appropriate alternative neural networks, and to offer the therapist and client a baseline (VOC rating) from which to progress" (2001, p. 61).

**Outcome measures.** After consideration of validity and reliability, prevalence in research literature, and the specific needs of this study, the following *outcome measures*

were selected the Fibromyalgia Impact Questionnaire-Revised (Bennett, 2009), Short Form McGill Pain Questionnaire (Dworkin et al., 2009), Trauma Symptom Inventory (Briere, 1995), the Beck Depression Inventory-II (Beck, A., Steer, & Brown, 1996). Documentation of pre- and post-treatment medication consumption was also used.

***The Fibromyalgia Impact Questionnaire-Revised (FIQ-R).*** The FIQ-R, based on the commonly used FIQ (Bennett, 2005), has been cited in over 100 articles and has been translated into eight different languages (Bennett et al., 2009). The FIQ-R was created to simplify scoring, to add concepts that are now considered relevant (e.g., dyscognition, balance, tenderness and environmental sensitivity), and to be more culturally diverse than previous versions. It takes one minute to complete and one minute to score (Bennett et al., 2009). Twenty-one questions are divided into three domains (function, overall, and symptoms) and presented on a 0-10 numeric scale. Based on comparison of total FIQ-R scores, the FIQ-R demonstrated discriminant ability among fibromyalgia ( $56.6 \pm 19.9$ ), Rheumatoid Arthritis/ Systemic Lupus Erythematosus ( $28.6 \pm 21.2$ ) and Major Depressive Disorder ( $17.3 \pm 11.8$ ) and healthy control ( $12.1 \pm 11.6$ ) groups (Bennett et al., 2009). The total FIQ-R correlated with the FIQ ( $r = 0.88, p < 0.001$ ), as did the subscales ( $r = 0.69$  to  $0.88, p = 0.01$ ). This means psychometric information about the FIQ can reasonably be considered in regard to the FIQ-R. The FIQ has been correlated with like measures, such as the Health Assessment Questionnaire, Arthritis Impact Measurement Scales (AIMS), and the SF-36. Test-retest reliability correlations of 0.56 for pain and 0.95 for physical function over six one-week intervals have been reported, which was similar for the AIMS (Burckhardt, Clark & Bennett, 1991).

***The Short Form McGill Pain Questionnaire 2 (SF-MPQ-2).*** The SF-MPQ-2 builds upon the highly used and regarded McGill Pain Questionnaire (MPQ; Melzack, 1975) and the Short-Form McGill Pain Questionnaire (Dworkin et al., 2009; Melzack, 1987). Increasing awareness about neuropathic pain was the impetus for the SF-MPQ-2. There is continued debate about whether fibromyalgia is (Martinez-Lavin, 2006) or is not a neuropathic pain condition (Rowbotham, 2005). Consideration of fibromyalgia as a Central Sensitivity Syndrome (CSS), a position presented in this research, identifies fibromyalgia, therefore, as potentially neuropathic. As the SF-MPQ-2 can be used with non and neuropathic pain conditions, it was chosen for this study. It is a self-report measure that consists of 22 symptom-words with an associated 0-10 numeric rating scale for intensity, with 10 being the worst possible pain. The SF-MPQ-2 has additional symptoms that are relevant to neuropathic pain and its rating scale is 0-10 (versus 1-3 in the SFMPQ) to provide increased responsiveness and sensitivity. Melzack (1987) notes that the SF-MPQ-2 is similar in validity and reliability to the MPQ and is “sensitive enough to demonstrate differences due to treatment” (p. 191). Internal consistency for the SF-MPQ-2 ranged from  $\alpha = 0.73$  to  $\alpha = 0.95$  on total and subscales (Dworkin, et al., 2009).

***The Trauma Symptom Inventory (TSI).*** The TSI (Briere, 1995) is a 100 question self-report measure that has been psychometrically validated for the assessment of trauma-specific symptomatology in those who have experienced a wide range of traumas across the life span. There are ten clinical scales and three validity scales. Five of the ten clinical scales (Anxious Arousal, Depression, Anger/Irritability, Intrusive Experiences, Defensive Avoidance) measure symptoms that parallel the Diagnostic and statistical manual of mental disorders, 4th edition, text revision (DSM-IV-TR; APA, 2000) diagnosis of PTSD. The



remaining five clinical scales (Dissociation, Sexual Concerns, Dysfunctional Sexual Behavior, Impaired Self-Reference, and Tension-Reduction Behavior) measure other symptoms seen in trauma survivors. This breadth of symptoms made this measure a good fit for this study as participants needed to have experienced trauma and be experiencing distress rather than necessarily having a diagnosis of PTSD. The TSI is able to discriminate between university women who had experienced physical or sexual abuse from those that had not (Runtz, & Roche, 1999). The reliability of the clinical scales ranges from  $\alpha = 0.74 - 0.91$  with a mean of  $\alpha = 0.86$  (Briere, 1995). After comparing the TSI to other traditional measures of trauma, McDevitt-Murphy, Weathers and Adkins (2005) reported good convergent validity, especially on scales associated with PTSD.

***The Beck Depression Inventory-II (BDI-II)***. The BDI-II is a 21 item self-report measure designed to measure depressive symptoms within the last two weeks (Beck, A. et al., 1996). The BDI-II was created to replace its predecessor in an effort to better correspond with the depression framework of the DSM-IV (APA, 1994). Questions address cognitive, affective and somatic factors of depression. Scores from 0-13 indicate normal emotional fluctuations, scores from 14-19 indicate moderate to severe depression, and scores from 29-63 indicate severe depression. Beck, A. and his colleagues reported excellent convergent validity ( $r = .93$  with the BDI-IA, a predecessor of the BDI-II, and  $r = .71$  with the Hamilton Psychiatric Rating Scale for Depression) and internal consistency ( $\alpha = 0.93$  for undergraduate students and  $\alpha = 0.91$  for psychiatric out patients).

As with its predecessors, the BDI-II is commonly used in pain treatment centers (Corbière et al., 2011; Harris & D'Eon, 2008) and is the most popular chronic-pain research tool, with one-third of chronic pain studies using the BDI (Corbière et al., 2011). For

individuals experiencing chronic pain, three BDI-II factors are most significant: Negative Attitude, Performance Difficulty, and Somatic Elements (Harris & D'Eon, 2008). Factor structure is fundamentally similar for men and women; however, women were more likely to report Guilty Feelings, Crying, Tiredness or Fatigue and, the Loss of Interest in Sex, and men were more likely to report Loss of Pleasure and Loss of Interest (Harris & D'Eon, 2008).

There has been some concern specific to chronic pain populations that the somatic experience of chronic pain may be erroneously seen by the BDI-II to be a somatic experience of depression, which may heighten the appearance of depression in chronic-pain populations. To address this, researchers have investigated whether to use all 21 items and the utility of using a two-factor model (cognitive and behavior; Pool, Bramwell, & Murphy, 2006) versus a three-factor model (including the factors: cognitive, affective, and somatic; Harris, & D'Eon, 2008). Corbière et al. (2011) and Harris and D'Eon (2008) recommend all scores be used to calculate the total score rather than removing somatic items. Corbière et al., also recommend the use of follow-up questions to better distinguish reasons for endorsed symptoms (e.g., Is tiredness related to depression or related to the side-effects of a pain medication?). Follow-up questions are recommended if the mean scores for cognitive and affective factors are greater than one or if the somatic score ranges from one to two. Fifty percent of that study's respondents attributed the cause of their BDI-II measured depressive symptoms specifically related to their physical pain or as a combination of physical pain and state of mind rather than state of mind alone.

## **Procedures**

After obtaining approval from Antioch University's Institutional Review Board, participants were solicited as described above to participate in this study. An initial phone call with interested parties was used to answer questions about the study and assess for a history of trauma prior to a diagnosis of fibromyalgia. Individuals who met participation criteria were invited to an in-person screening interview. Individuals who did not meet screening criteria were offered referrals to affordable counseling services and information regarding an EMDR therapist-locator website. In preparation for the screening interview, individuals were emailed an intake questionnaire (Appendix A) and medication log (Appendix B) and were asked to create a time-line of their medical and life events.

**Screening.** At the beginning of the screening interview, informed consent and release of audio and visual information was obtained and any questions about participation were answered. The remainder of the session included (1) completion of the FIQ-R, SF-MPQ-2, TSI, and BDI-II, (2) review of the medication log, history of medical and life events, and intake questionnaire, and (3) a mental status exam. Participants were asked about trauma experienced prior to their diagnosis of fibromyalgia. Their trauma experiences could stem from: (1) larger-scale events, such as a motor vehicle accidents, assaults, or natural disasters, or (2) aggregated smaller-scale events, such as repeated belittling by a caregiver.

Three women met participation requirements and participated in 12 EMDR treatment sessions, a closing interview, and a one-month follow-up interview (See Table 6 for an overview of these meetings). Sessions were scheduled once a week for one hour. On occasion, due to holidays and life circumstances, two weeks would pass between treatment sessions. The EMDR trauma protocol guided treatment sessions and allows for some

adaptation based on participants' needs. Per this protocol, psycho education about the EMDR process, an assessment of target memories, and resource building was done in the first session.

**First session.** The development of internal resources supports participants' ability to regain emotional balance during distressing moments within and between sessions. Participants were asked to think of a place, imagined or real, where they felt safe or comfortable. While thinking of this place, BLS occurred to enhance this sense of safety. Additional resources, such as a time when one felt masterful, and a healing light that moved throughout the body were also established. Participants were then asked to think of a current stressor that was minimally to moderately stressful (perhaps a 4 out of 10 on the SUDS). After noticing their experiences of distress, participants were coached to focus on the resource of their choosing and through BLS reduce their SUDS to 0. Not only did this strengthen internal resources and participants' confidence in their ability to regulate their emotion, but it also provided an opportunity for participants to experience BLS in a pleasant, introductory manner.

**Second through twelfth sessions.** In the second session, any further participant questions were addressed, further resource building occurred if necessary, and reprocessing of target memories began. Remaining sessions were guided by the eight-stage protocol and focused on participants' experience of trauma. In the 12th and final session, the eight-stage protocol was followed with more attention paid to reassessment of target memories and a focus on termination of our work together. These termination efforts included discussion of hopes for the future, installation of PCs to support these future goals, and acknowledgement

of the bravery and effort that each participant had demonstrated over the 12 weeks of treatment.

**Follow-up.** Following the final session, participants were emailed seven questions to prepare for our closing interview (see Appendix C). During this closing interview, participants completed the FIQ-R, SF-MPQ-2, TSI, and BDI-II; reported SUDS and VOC scores for target memories; described their current symptoms; and reflected on their experiences in the study.

One month and three month follow-up meetings also occurred to assess the stability of treatment outcomes. Participants again completed the FIQ-R, SF-MPQ-2, TSI, and BDI-II; reported SUDS and VOC scores for target memories; described their current symptoms; and reflected on their experiences in the study. At the end of the three-month follow-up meeting, participants were given a \$50 gift card.

### **Evaluating the Data**

In regard to individuals who have experienced trauma(s) prior to a diagnosis of fibromyalgia, the propositions of this study are as follows:

- 1) EMDR, an evidence-based treatment of trauma, will decrease symptoms of trauma,
- 2) Reductions in pain and trauma symptoms will be observed.

Replication logic was used to guide data analysis. Specifically, literal replication logic was used, as similar results were predicted in each case study examined. Individual case studies were considered to be independent experiments occurring parallel to each other. Embedded units of analysis (quantitative process and outcomes measures), taken pre-, post- and follow-up to treatment were compared, and detailed session notes, follow-up transcripts, and participant questionnaire responses were reviewed for themes and patterns. Quantitative and

qualitative data, as well as patterns previously noted in the literature, were triangulated and compared to the current study's propositions and hypotheses.

## Chapter 4: Results

The following is a presentation of the use of the standard TF-EMDR protocol with three women diagnosed with fibromyalgia: Rosalin, Grace, and Heather. All three women experienced decreases in their physical symptoms of fibromyalgia and psychological symptoms related to trauma. A discussion of outcomes scores, content themes and EMDR framework themes are provided for each case with a cross-case comparison to follow. Identifying information about participants was altered to protect their confidentiality.

### Rosalin

**Case conceptualization.** Rosalin is a 55 year old Caucasian, lesbian. In the past she has had long-term relationships where she was involved in parenting. She has been with her current partner, Jane, for the last 9 years. Rosalin earned a Bachelor of Arts, and at the time of the study was employed, full-time, as a technology writer and editor. She was diagnosed with fibromyalgia when she was 40 years old.

**Presenting problems.** Rosalin heard about this study through a friend and investigated participating because she was “interested in reworking [her] orientation to anxiety and trauma.” She was experiencing irritability and anger that both she and Jane noted as problematic. Rosalin reported obsessive thinking, anxiety, and problems in their relationship ever since she learned about Jane’s infidelity two years earlier. Rosalin reported awareness that her response to Jane’s infidelity was influenced by two factors: her own past traumatic relationship with her mother and her current coping with menopause. Rosalin was not only experiencing challenges in her primary relationship; she also reported feeling unsafe at work (e.g., fear that a sea plane might come through the large windows in

her office). The following is a presentation of the course of Rosalin's 12 treatment sessions according to the TF-EMDR protocol.

### **Phase 1: Client History**

Rosalin has one younger brother. Her parents were civil rights activists and college literature teachers in the 1960's. Although she experienced satisfaction with being a political activist along with them, she acknowledged the stresses of growing up during those times (i.e., civil rights movements, assassinations of President Kennedy and Martin Luther King Jr., threats of Vietnam war draft on her brother). When she was 18 years old, she came out as a lesbian. She attended college for seven years and then worked as a playwright and journalist. Rosalin continued to be an activist for various causes.

**Medical history.** Rosalin was born in 1956 and in childhood dealt with digestive and ocular problems. In adulthood, Rosalin dealt with several medical issues. When she was 21 years old, she chipped a vertebra in her back; at 33 years old, she had carpal tunnel surgery on both of her hands. After "emotionally falling apart" following a break-up with her partner of 5 years, she was diagnosed with hypothyroidism and fibromyalgia (40 years old). Following this diagnosis, Rosalin was in a MVA in which both her knees were injured, one requiring arthroscopic surgery. Recently, she had laparoscopic surgery for colon issues.

**Fibromyalgia.** Rosalin was diagnosed with fibromyalgia at the age of 40 years old after a painful break up with a long-term partner. At that time, she experienced body pain, fatigue, interrupted sleep, and Irritable Bowel Syndrome (IBS). Triggers for symptom flare-ups were attributed to food intake, changes in weather, lack of exercise, and trips to the dentist. Rosalin noted surprises (i.e., loud, sudden noises or bumping into something) could also cause a flare in fibromyalgia symptoms as well as leading to feelings of rage. At intake,



Rosalin's symptoms included pain, tenderness to the touch, low energy, some depression, and anxiety. She indicated these symptoms could negatively impact her functional ability to make a meal, clean floors, change bed sheets, sit in a chair longer than 45 minutes, and go grocery shopping. Situations that required a lot of standing were particularly challenging (e.g., going to a party, museum, or street fair), and she noted these symptoms could limit her ability to go outside or exercise. Her physical pain was clearly documented with a total FIQ-R score of 51.8, placing her in the fibromyalgia range, and a total SF-MPQ-2 baseline score of 3.77 (see Table 7 for all scores).

*Fibromyalgia treatment.* Following her diagnosis of fibromyalgia, Rosalin engaged in an intense effort to address her symptoms. She began a detox diet that identified foods she needed to reduce (i.e., wheat, sugar, and caffeine) or eliminate (i.e., high fructose corn syrup, yeast, and sulfites/nitrates), and she began taking nutritional supplements (see below). Rosalin identified her need to exercise regularly (i.e., cardio or yoga) and learned to use self-directed guided meditation and biofeedback to improve her sleep. In 2006, she began the Guaifenesin protocol (This protocol entails taking guaifenesin and avoiding salicylates, as well as eating a low-carbohydrate diet). She became involved in meditation and shamanic healing traditions. For general self-care, Rosalin made an effort to get away from people and into nature, commune with her pets, journal, and sit on the ground. She stated, "I spent a long time figuring out what works and doesn't and have come to a pretty good place but would love it if I didn't have to "manage" [fibromyalgia] all the time."

**Medication use.** Throughout participation in this study, Rosalin took levothyroxine (75 mcg), liothyronine (5 mcg) for her thyroid (has been taking for 17 years), and guaifenesin (400 mg) for fibromyalgia (has been taking for 6 years). She also took the

following nutritional supplements: fish oil, calcium, and vitamins D and E. She took 500 mg of naproxen as needed when engaging in strenuous activity; when experiencing fibromyalgia flare-ups, she would take 1000mg for at least 3 days.

**Mental health history.**

*Trauma history.* As noted above, Rosalin's parents involved her in political activism and peace protests. Rosalin reported struggling with the dissonance of her parents publicly being viewed as respectable and peaceful Quakers but at privately being verbally and physically violent. Rosalin stated, "knives, screaming, and broken glass were a recurring theme." Her mother was the most violent, for example, attacking Rosalin's father with a knife. Rosalin reported dissociating as a child as evidenced by forgetting interactions between her parents, of which her father years later would remind her.

One violent evening, when Rosalin was 13 years old, her mother acted on a belief that she should kill her family, starting with Rosalin. She became terrified of her mother, and from that point was not able to sleep well. Her parents divorced, and Rosalin and her brother relocated to another state with their mother. At that time, Rosalin described her mother becoming "increasingly crazy" and unpredictable: for example, waking Rosalin in the middle of the night for "various rantings." Rosalin reported her mother was later suspected as having "borderline schizophrenia" and alcohol addiction.

In her early twenties, Rosalin decided to fight back when her mother hit her. During the fight, Rosalin fell and chipped a vertebra. This incident prompted Rosalin to cut-off all contact with her mother until thirteen years later when her mother showed up unannounced to Rosalin's place of work. Rosalin reported having a "breakdown" which led her to return

to therapy. Nine years later, her mother died of lung cancer, and Rosalin reported feeling safer than she had in decades.

Problems related to fidelity in two romantic relationships were also reported as traumatic events for Rosalin. When Rosalin was 39 years old, her partner of 5 years, Marie, discovered an email that suggested Rosalin's emotional involvement with another woman. This discovery abruptly ended the relationship and led Rosalin to have an "emotional breakdown". When Rosalin was 53 years old, she discovered that her partner of 9 years, Jane, had a sexual affair with another woman. Rosalin and Jane chose to stay in the relationship. Since that time, Rosalin has struggled with anxiety, depression, irritability, and ruminating thoughts.

***Previous mental health treatment.*** Starting when she was 18 years old, Rosalin periodically participated in counseling for various issues. Overall, she found counseling to be very helpful. Over 10 years ago she participated in EMDR for three sessions, but reported remembering little of it. During her participation in the current study, she began non-violent communication training with her partner.

***Mental status exam.*** During the initial mental status exam, Rosalin was well-groomed and did not appear to have any challenges of gait or other physical movement. She was engaged, her speech spontaneous, and her thought process reality based and congruent to topics at hand. Her short-term and long-term memory, judgment, insight, concentration, abstractive capacity, and orientation were all within normal limits.

Rosalin denied hallucinations, delusions, or episodes of mania. She denied thought or impulse towards harming herself or others. She reported obsessive thinking about her partner's dishonesty related to an affair two years prior but denied any compulsions. Her

affect was congruent to topic. She reported struggling with anger and irritability daily, describing it as “a circle I can’t get out of,” resulting in explosive behavior once a week. Rosalin reported feeling better after expressing her anger but was cognizant that this was upsetting for her partner and would lead to her partner’s avoidance of addressing issues. Rosalin’s irritability with her partner was most distressing to her, but she also described awareness of its impact on her interactions at work and a reluctance to be around large groups of people.

Rosalin reported a history of anxiety, including daily panic attacks for about a year following a surprise appearance of her mother at work after a long period of no contact. For the last two years, she reported experiencing symptoms of anxiety, including restlessness, irritability, fatigue, muscle tension, concentration problems, and trouble sleeping. During this time, she reported experiencing loss of weight (25 pounds), crying spells, and a withdrawal from others. These symptoms usually lasted for three days and would then lift. In the past, she acknowledges a thought of suicide without any plan or intent. In the distant past, her brother took steps towards a suicide attempt but did not follow through.

She also described a stress response to trauma including, distressing recollections, difficulty concentrating, distressing dreams, difficulty sleeping, physical reactivity, a sense of reliving, avoidance of thoughts and places, low interest, hypervigilance, and hyperstartle. When remembering thoughts about her mother, she reported using a mantra “never again, a long time ago.”

***BDI-II and TSI scores.*** Rosalin engaged willingly during each testing procedure and demonstrated consistent validity scores on the TSI; therefore, results were determined to be an accurate demonstration of Rosalin’s experience. A minimal experience of depression

was identified by the BDI-II (Total Score = 9), whereas her TSI scores evidenced more notable symptoms of psychological distress. Scores in the clinical range ( $\pm 65$ ) included anxious arousal (69), anger/irritability (83), intrusive experiences (81), and defensive avoidance (77). Scores higher than the mean score ( $>50$ ) included depression (56), dissociation (54), sexual concerns (57), impaired self-reference (61), and tension reduction behavior (62).

### **Diagnostic formulation.**

Axis I: Post Traumatic Stress Disorder, Generalized Anxiety Disorder

Axis II: No diagnosis

Axis III: Colonic adenoma, elevated cholesterol, fibromyalgia, hyperthyroid, IBS

Axis IV: relationship stressors, dealing with: death of her dog, failing health of her father and partner's surgery.

Axis V: 55

### **Phase 2: Preparation**

During the first session, Rosalin was provided with a description of what to expect during an EMDR session and how to care for herself between sessions (e.g., journaling, setting aside personal time after each session). It was decided that use of hand buzzers for BLS was most appropriate due to Rosalin's history of ocular problems. Rosalin was introduced to BLS and engaged in exercises using BLS for resource building. Rosalin developed two personal resources: safe place (i.e., a favorite place in nature) and connecting to a time when she felt masterful (i.e., in meetings). She was able to identify a moderately stressful event in her life and then use connection with her safe place to decrease her

experience of distress (measured via SUDS). Rosalin expressed satisfaction both with her ability to decrease her distress as well as a comfort with BLS.

Following this session, Rosalin emailed and indicated that although she had not felt emotional upon leaving the session, she had experienced a pain flare-up. In preparation, we had discussed that emotions and thoughts could continue to arise after sessions, which Rosalin reported helped her to see this flare-up as a sign that the work had already begun making changes within her. She would later reflect that this experience increased her commitment and trust in the EMDR process, especially when it became challenging.

### **Phase 3: Assessment**

Rosalin easily identified several her target memories. The first two targets occurred before the diagnosis of fibromyalgia. Feeling unsafe in relationships was a common tie among all targeted memories.

**First target memory.** When Rosalin was 13 years old, her mother physically attacked her. Her father intervened, and Rosalin was able to lock herself in a bathroom until the threat subsided. Shortly after, she discovered that her mother had been acting on a delusional belief that she needed to kill her family, starting with Rosalin. Seeing her mother “fly through the door” was the visual image that captured the most distressing moment of this target memory. Rosalin took away from this experience a NC that “I’m not safe” and hoped that with EMDR treatment she could work towards a PC of “I am safe” (VOC 3/7). Rosalin reported feeling panic and desperation (SUDS 10/10) in her stomach when thinking about this image and NC.

**Second target memory.** When Rosalin was 40 years old, her partner of 5 years Marie discovered an email Rosalin had written that indicated her interest in another woman.

This email was interpreted as a betrayal of Marie's trust, and the relationship painfully ended. The look on Marie's face when she learned of the email was the visual marker of the most distressing moment of this target memory. From this experience, Rosalin developed the NC: "I'm not trustworthy" which she hoped to change to a PC of "I am trustworthy" (VOC 5/7). Rosalin felt shame and fear (SUDS, 8/10) in the core of her body.

**Third target memory.** Two years ago, Rosalin discovered that her current partner, Jane, had an affair. The image that marked the most distressing moment of this target memory was trying to sit at the dinner table "like normal" after learning of the affair. Rosalin adopted an NC of "I'm not safe with others" and hoped to work towards a PC "I am safe with others" (VOC, 0/7); however, she strongly voiced that she thought this PC to be impossible since people look out for themselves. When holding both the image of sitting at the dinner table and her NC in mind, she reported feeling fear, fury, and confusion (SUDS, 10/10) in the front of her torso.

**Current triggers.** Rosalin reported her current triggers as being startled, experiencing noxious stimuli, lying in bed before falling asleep, and having sex with her partner.

**Future template.** Rosalin hoped to be able to decrease her irritability and anxiety when interacting with others (i.e., her partner, people at work) and be able to calmly interact with her ex-partner rather than wanting to avoid her.

#### **Phase 4-7: Desensitization, Installation, Body Scan, and Closure**

Sessions 2 through 6 addressed Target 1, a memory in which Rosalin's mother physically attacked her. BLS led to changes in her perception of the memory, including realizing that what had happened would not have actually killed her and that her father had

been more active in protecting her than she originally remembered. Rosalin developed an increasing awareness that it was easier for her to take care of others than herself and began forgiving family members. Rosalin calmed with an increasing sense that despite her family's problems "we all did the best that we could."

Fear of and desire to be like her mother was the focus of the 3rd session. Rosalin saw how this ambivalence was replayed in her adult relationships. BLS allowed for a shifting between anger towards her mother's violent behavior and compassion towards her mental illness. Rosalin observed physical sensations of "drifting away" when emotions grew strong but was able to come back with breaks and the use of internal resources. With guidance, Rosalin was able to use internal parts of herself (influenced by Internal Family Systems [IFS] theory; Twombly & Schwartz, 2008), such as an internal grandmother part, to provide support to her current adult self and her "younger self." Time was taken during BLS to tell Rosalin's younger self that her adult self and a wise "grandmother" part were there to support her. Rosalin took these internal parts to her safe place, which she reported as self-soothing and containing. Use of internal resources allowed for continued processing of emotionally evocative memories and a satisfying closure.

In the 4th session, Rosalin reported that during the previous two sessions she had begun to experience her memory more as an adult than from the perspective of the 13 year old girl. She had an increased understanding of the event; her memory had become more visual than emotional, and she was more comfortable talking about these events. Rosalin's SUDS began at age seven, and she focused on the experience of being responsible for her brother's well-being. BLS was used to bring her SUDS down to 0 at which time Rosalin noted yawning and feeling bored with talking about the event. A body scan with healing



light imagery was used to address remaining muscle tension in her neck and led to insight into similarities between her mother and current partner.

Current life experiences became a dominant and revealing factor in the 5th session. Rosalin's dog had become very ill. Rosalin felt overwhelmed by not being able to heal her dog, partner, or mother. Rosalin cried and felt shame and anger about "crying like a little girl." Noticing these feelings during BLS created an opportunity for Rosalin to validate her "younger self" that it was OK to cry. Internal resources were used to create a positive closing experience of self-soothing and containment.

Focus on her dog's health and subsequent feelings of rage and helplessness (SUDS, 10/10) continued into the 6th session. Rosalin recognized the terror she felt that "bad things come out of the blue" and the origin of this fear; the unpredictable nature of her mother's outbursts. Rage related to "blubbing like a little girl" rather than being in control arose and were alleviated during BLS leaving Rosalin with a new PC that when an event or crisis occurs "[she] can roll with it". Due to the spontaneous arising of this PC and reassessed SUDS of 0/10, installation of this PC closed the session.

Sessions 7 and 8 addressed Rosalin's 2nd target memory. Rosalin entered session 7 th enthusiastically describing how helpful "I can roll with it," had been over the week. To her amazement, she had gone snowboarding, fallen hard, and experienced no fibromyalgia flare-up. Reassessment of Target 1 indicated a sustained SUDS of 0/10, allowing for work on Target 2 to begin. Rosalin focused on the most intense image, her NC: "I'm not trustworthy" (VOC, 5/7) and feeling shame and fear (SUDS 8/10). Rosalin reported an increased ability with BLS to "just walk around" in the scene without becoming emotionally overwhelmed. Rosalin's sense of detachment increased, she remembered positive things

about the relationship, and she developed a sense that Marie could forgive her. Rosalin reported a softening of her image of the event and SUDS of 0/10. “I can make a mistake” was installed; one mistake did not define who she was.

Session 8, Rosalin reported no fibromyalgia flare-ups despite a trip to the dentist (previously a reliable trigger) and going sledding. Reassessment of Targets 1 (SUDS 1/10) and 2 (SUDS 1/10) occurred with discussion as to whether there was anything preventing her distress from dissipating completely. Rosalin indicated that a little distress would allow her to remember her lessons learned. Target 2 was reassessed for any remaining material to be reprocessed. Rosalin reported an increased sense of compassion for herself and requested installation of “I can roll with it.” A body scan indicated no tension; therefore, time was taken to apply her PC to a future template of being able to run into Marie in the future and feel calm.

Remaining sessions were dedicated to addressing Target 3, an event in which Rosalin felt distrust in both her partner and herself. Seeing evidence of the affair was Rosalin’s most intense memory image. She felt fear, anger, and shock (SUDS 9/10). Rather than artificially refocusing on her NC, we focused on current, intense, physical sensations. Rapid cycling through images led Rosalin to awareness of nausea. While focusing on her sensation, Rosalin came to understand the degree to which she cared for Jane rather than herself. Anger related to being the caretaker for her mother and Jane arose and fell from awareness several times. At times of high emotional intensity, Rosalin felt “distracted”; therefore, breaks between BLS were used for distancing and relaxation. Physical sensations were used to reconnect to her anger. By the end of this session, Rosalin reported a greater

understanding and compassion for how her relationship with Jane had come to infidelity. This change in perspective provided Rosalin with hope for the utility of couples counseling.

Although session 9 had been challenging, Rosalin came to our 10th session with continued dedication to TF-EMDR. In the past week, her dog had died and her father had been hospitalized. Rosalin had experienced no fibromyalgia flare-ups in response. Instead of feeling responsible for taking care of everyone, she had allowed her brother to step in and take care of their father's needs, allowing her to attend to her own needs. Rosalin observed an increase in emotional intimacy with Jane and reported being able to go to bed without obsessing over Jane's affair.

The 10th session was dominated by Rosalin's deepening understanding that it was ok for her to take care of herself. Parallels between Jane and her own mother were further elucidated and Rosalin became increasingly aware of how seeking "mother love" from Jane limited their relationship. Rosalin had not been able to get this kind of love from her own mother and deeply wanted to hold onto the possibility of getting it from Jane. Rosalin vacillated between grief and anger over the shattering of her "mother love" arrangement with Jane.

In the 11th session, Rosalin felt more irritable during the week; however, her Target 3 SUDS had dropped to 4/10. Chest restriction was observed during BLS and led to another spontaneous PC: "I can aspire to live with an open heart." Believing she was not safe in relationships had decreased her openness to human connection leaving her anxious. Now Rosalin acknowledged that if something painful did happen "[she could] roll with it" and could live her life "with an open heart." Installation of the latter PC occurred until Rosalin endorsed a VOC of 7.

Rosalin reported leaving the 11th session with a sense of satisfaction that extended throughout her week. When Jane brought up her affair, rather than feeling overwhelmed with dread, fear, or shock, Rosalin used humor. When encountering “verbal trauma,” Rosalin noticed her body flare coming, observed it, and let it subside. Reassessment of Target 3 indicated a SUDS of 4/10.

Reprocessing led to increased acceptance of Jane’s affair. Rosalin now saw the affair as a catalyst to learn to better stand on their own two feet, rather than relying so much on the other. Defending against ever being hurt again was not realistic; therefore, it was necessary to be willing to take care of herself. Rosalin acknowledged at times this might mean prioritizing her needs over Jane’s. Rosalin imagined engaging in self-care, such as moving her body, drinking water, and taking time with her cat while a PC was installed. To end our work together, Rosalin scanned over her body, noticing places of tension and allowing a radiating light to move to any cells that felt depleted.

### **Treatment Status at Completion of 12 Sessions.**

Rosalin was able to address all past traumas targeted as evidenced by a SUDS 0-2 on all targets by the 12th session and stable post-treatment SUDS and VOC scores. Current stressors were addressed (e.g., illness and death of Rosalin’s dog); however, there were not enough sessions remaining to isolate triggers identified at intake (e.g., being startled, noxious stimuli, time laying in bed before falling asleep, and sex with her partner). Follow-up meetings indicated that improvements had been made to all current triggers without specific targeting. Future template was not addressed with Targets 1 and 3 as the primary person involved had died and treatment ended (respectively). Time was taken to install PC related to Target 2 in order to support Rosalin’s future template to calmly interact with her

ex-partner rather than wanting to avoid her. Addressing present and future self-care needs began spontaneously in the 12th session during installation of a PC. Additional time to continue that work would have benefited Rosalin.

### **Outcome measures**

**Post-test.** Following EMDR treatment, Rosalin participated in a closing interview that included completing previously used outcome measures. At that time, notable improvements were seen both on measures of physical and psychological pain (see Table 7). A post-test score of 14.67 on the FIQ-R dropped Rosalin below the range considered typical for a fibromyalgia population (36.7-76.5). This decrease was also seen in a drop of her SF-MPQ-2 total pain score to 1.18. Both measures of psychological distress, the BDI-II and TSI, demonstrated notable improvements. Rosalin's total BDI-II score dropped to 1. All clinically significant scores on the TSI dropped below one standard deviation from the mean, and scores that had been within one standard deviation of the mean all dropped below the mean score (<50).

**One-month follow-up.** In general, all improvements made were maintained at the one month follow-up meeting. Minor increases were observed, but no scores returned to pre-treatment levels. Minimal improvements were seen on the SF-MPQ-2 and BDI-II (see Table 7).

**Three-month follow-up.** All improvements were maintained or improved at a three month follow-up. Rosalin's FIQ-R total score before EMDR treatment was 51.80 and dropped to 11.67 (see Table 7), and her total SF-MPQ-2 score began at 3.77 and dropped to 0.64. Rosalin's psychological distress had also decreased. Her total BDI-II score had begun

at 9 and dropped to 0. All of Rosalin's TSI scores dropped further below her one-month follow-up scores.

Table 7  
*Rosalin's Outcome and Process Measures*

	Pre-	Post-	1 mo.	3 mo.
FIQ-R				
Functional	19.30	2.76	6.33	1.70
Overall	10.00	0.00	2.00	0.00
Symptoms	32.50	12.00	11.00	10.00
Total	51.80	14.67	19.33	11.67
SF-MPQ-2				
Continuous	7.17	2.67	2.88	1.67
Intermittent	1.00	0.50	0.00	0.00
Neuropathic	3.17	0.33	0.50	0.33
Affective	3.17	1.25	0.75	0.50
Total	3.77	1.18	1.05	0.64
BDI-II	9	1	0	0
TSI				
Anxious Arousal	69	53	55	48
Anger/Irritability	83	61	66	51
Intrusive Experiences	81	56	58	53
Defensive Avoidance	77	56	58	52
First target memory				
SUDs	10/10	2/10	0/10	2/10
VOC	3/7	6/7	7/7	7/7

**Change in medication use.** Near the end of her research participation, Rosalin began taking Chinese herbs for memory. Reported changes to her fibromyalgia symptoms appeared to have begun prior to taking these herbs. There were no other changes to the nutritional supplements she had been taking at intake. No changes were made to Rosalin's use of her thyroid medications (e.g., levothyroxine and liothyronine).

At the three-month follow-up, Rosalin indicated she had remained on the Guaifenesin protocol, which included 400mg of Guaifenesin a day. At the one-month follow-up meeting, Rosalin enthusiastically reported not having her usual fibromyalgia flare-ups related to physical activity nearing the end of EMDR treatment or one month after.

Subsequently, she was not using her naproxen. At the three-month follow-up, Rosalin further explained that in the past she had used naproxen to help her to manage her fibromyalgia pain. She would take it consistently for three or more days in a row. Following EMDR treatment, Rosalin was using single doses of naproxen (500mg) for pain related specifically to strenuous activity (e.g., following lifting during a community work project) or injury (e.g., MVA); this type of use occurred approximately one time a month.

In regard to self-medication with alcohol, Rosalin described a change in both frequency of use and the reasons for use. Rosalin described that prior to EMDR she would feel flooded with an emotion (e.g., irritation) and thus “not able to think straight,” which led her to drink alcohol (red wine, 3 times a week; tequila 2 times a month; see Table 8). Following EMDR, Rosalin wanted to “be more in the present” and was aware that consuming alcohol was numbing her out to what she was experiencing in the present. She described an increased awareness that having emotions was normal; there was no need to numb them out with alcohol (or her own internal dissociation). Rosalin described that she could now actively choose to have a glass of red wine or shot of tequila as a way of celebrating with friends. Not only was her use of alcohol for different reasons but she indicated her frequency of use was lower (red wine, 3 times a month; tequila, 1 time every 3 months).

Table 8  
*Rosalin's Changes in Medication Use Before and After TF-EMDR Treatment*

Medication	Prior to treatment	Three-month follow-up
Guaiifenesin	400 mg a day	400 mg a day
naproxen	as needed, 1000 mg, 2-3 days in a row	no longer for fibromyalgia pain, now only 500 mg per strenuous activity*
Alcohol		
Red wine	3x/ week (to relax)	3x/month (recreational)*
Tequila	2x/ month (to relax)	1x/every 3 months (recreational)*

Note: \* indicates a change

## Grace

**Case conceptualization.** At the time of this study, Grace was a 29-year-old, Caucasian, heterosexual female. She was in a committed relationship and had no children. She had a Bachelor of Arts in psychology and was a full time student in a Master's level Creative Arts Therapy program. Grace had a history of inconsistent and unavailable parenting, leaving her with a belief that she was unimportant and that there was no one on whom she could rely. She was diagnosed with fibromyalgia when she was 19 years old.

**Presenting problems.** Grace heard about this study through a flier posted in an academic institution she was attending. Grace had struggled with fibromyalgia symptoms for many years and was seeking an adjunctive treatment to the pharmacological, bodywork, and exercise approaches she was already using. At the beginning of this study, Grace reported moderate symptoms, such as sensitivity to noxious stimuli, difficulty with memory, low energy, itching, tenderness (especially her neck), and aching pain. She noted her symptoms impacted her ability to turn in assignments on time, transport herself to social events, and vacuum or scrub floors.

Grace presented with an awareness that several stressful events had occurred in swift succession prior to her fibromyalgia diagnosis, and she suspected these may have



contributed to its onset. She was aware that numerous times throughout her life she had not felt others had met her needs. Living with fibromyalgia required the support of others, and she was aware that disappointments related to this need for support had impacted her current and past romantic relationships. The following is a presentation of the course of Grace's 12 treatment sessions, according to the TF-EMDR protocol.

### **Phase 1: Client history**

Grace has one younger brother, her parents are married, and she remains in close contact with her family. She divorced and is currently in a long-term, heterosexual relationship. She is a visual artist and a musician.

**Medical history.** When Grace was 13 years old, a vacuum fell down on her head and neck while she was cleaning some stairs. Not only did she experience pain but she also indicated that “no one really took my pain seriously.” When she was 17 years old, she was in a MVA in which the car she was a passenger in was rear-ended. Although she reported being physically uninjured, she described herself following the accident as being “in a constant state of panic.” After a series of stressful events, including an unhappy wedding, death of her grandmother, a move out of state, and September 11th, she began having pain throughout her body and was diagnosed with fibromyalgia when she was 19 years old. A year later she experienced a remission of her symptoms; she indicated this has been the only time in her life she was able to hold a full time job. Grace was in another MVA when she was 22 years old. A few days following this accident, her fibromyalgia symptoms returned, and she began having chronic migraines.

At 23 years of age, she was injured when she slipped at work. She was so worried that no one would believe she had been hurt that she left the job. One year later, Grace

required surgery due to an ovarian cyst. Most significant to this medical event was her anticipatory fear and the realization of this fear that there would be no one to take care of her after the surgery: specifically her mother and husband. When Grace was 27 years old, she broke her foot stepping off of a bus. She described feeling “very unimportant” as she tried to phone people to come to help her.

***Fibromyalgia.*** Grace was diagnosed with fibromyalgia when she was 19 years old. Since that time, with the exception of the year indicated above, Grace has experienced pain and fatigue that impacted her ability to work, study, and socialize. At intake, Grace’s fibromyalgia symptoms included moderate levels of anxiety, some difficulty with memory, moderate sensitivity to noxious stimuli, and moderate trouble sleeping. She described her pain as “aching, tenderness, and itching.” She has disability services at school related to her fibromyalgia; specifically, she has difficulty completing assignments on time and is excused from morning classes due to her struggle to wake-up and get moving in the morning. Grace’s experience of physical pain was documented with a total FIQ-R score of 48.5, placing her in the fibromyalgia range (36.7-76.5), and a total SF-MPQ-2 score of 3.41 (this score is only used for comparison following treatment).

***Fibromyalgia treatment.*** Grace’s non-pharmacological self care included walking every day, having a massage twice a month, having acupuncture once a month, taking herbal supplements and vitamins every day as well as Epsom salt baths occasionally, and minimizing her dairy intake.

**Medication use.** Prior to and during her participation in this study, Grace used prescription medications to manage her pain and depression symptoms (see Table 8 for dosages of medications related to fibromyalgia). Grace was taking Flexeril (10 mg/day) and

Soma (125 mg/day) as muscle relaxants; trazadone (50 mg every night) for sleep; Bupropion (150 mg/twice a day), and 5-HTP (100 mg/day) for mood symptoms. Grace was taking medications for other conditions: Armour Thyroid; metformin to control blood sugar; microgestin for hormone regulation; and azelastine for allergies. Grace was also taking a multiple vitamin, iron, and vitamin D.

**Mental health history.**

*Trauma history.* Grace's father was a pastor. Frequently, when her parents would feel called upon by God, the family would move. Prior to graduating from high school, Grace had moved 13 times. In the middle year of her senior year of high school, her parents decided to move. Grace received many offers from families to stay with them so she could graduate from her high school; however, Grace chose to go with her parents due to a sense of guilt. Grace's depressive symptoms began after this move. She changed from social and happy to withdrawn and melancholic. She gained 15 pounds and lost interest in school.

Due to mental illness, Grace's mother was unavailable throughout her childhood. Grace felt many of her mother's responsibilities were placed upon her and that most decisions within the family were made based on her mother's quickly changing moods. Grace's frustrations were compounded by an absence of trust and freedom that she thought would come along with her added responsibilities. Instead, Grace had little choice regarding what she would wear, what her room would look like, or whom she would date. Grace felt considerable pressure to be sexually pure.

Grace had wanted to get married since she was four years old and thought of it as freedom from the responsibilities of her family of origin. When Grace was 19 years old, she had her chance. She perceived her bachelorette party as being disastrous, and, despite her

better judgment, she had agreed to give her mother some responsibilities for the service. Her mother did not complete these tasks, leading to a series of disappointments.

Growing-up, Grace described having one person who really took the time to get to know her, a family friend named Grandma May. At the wedding, Grandma May had been disturbingly absent. Grace had not been told the truth until after the wedding that Grandma May had been hospitalized. En route to her honeymoon, Grace went to see her. She knew she would not see Grandma May again, she did not want to celebrate her wedding, and she did not want to begin the adult life her wedding had signaled. Grandma May died and the events of September 11th both shook Grace's sense of safety and impacted her ability to get to the funeral.

Shortly thereafter, Grace was diagnosed with fibromyalgia. She found herself unable to keep up with tasks and began to feel overwhelmed by a belief that the man she had married did not know how to take care of her. After another MVA (he was the driver) and feeling uncared for after a surgery, Grace felt "unable to trust him." After 9 months of couples counseling, Grace left the marriage. She was 24 years old.

Grace began a relationship with Jason, her current partner. Two years ago, Grace ended the relationship in large part due to not feeling important in his life. Grace's depression and anxiety escalated, and they agreed to resume their relationship.

***Previous mental health treatment.*** Prior to participation in this study, Grace had participated in both couples and individual counseling. Difficulties in her marriage had prompted counseling, and she continued with her own personal counseling after her marriage ended. Grace had a positive association with counseling. Her last counseling experience was with this researcher a year prior to her participation in the current study.

Two years earlier, we had begun EMDR to address an unrelated matter, but her needs and preferences at the time were for a traditional talk therapy. Grace independently heard about this research and requested an opportunity to participate.

***Mental status exam.*** During the initial mental status exam, Grace was well groomed and did not appear to have any physical impairment. She was friendly and engaged, her speech spontaneous, and her thought process congruent to topics at hand. Her short-term and long-term memory, judgment, insight, concentration, abstractive capacity, orientation, behavior, and affect were all within normal limits.

Grace denied hallucinations or delusions. At times, she has felt angry but reports that no one would ever be able to tell. She reported having panic attacks two years ago related to an MVA that included the following: palpitations, sweating, shortness of breath, chest pain, nausea, light-headedness, fear of losing control, fear of dying, and hot flashes. These panic attacks ended after she divorced her husband, thereby never being the passenger in his car again. Grace also endorsed symptoms of anxiety that have occurred for longer than six months: restlessness, easily fatigued, lack of concentration, irritability, muscle tension, and sleep disturbance. She noted her experience of anxiety increases when she is feeling “trapped with too much to do”; and that it can decrease her social interactions with others.

Grace reported a prior diagnosis of “depression” and endorsed symptoms that had lasted for longer than two weeks: frequent feelings of depression, an increase in weight, problems with sleep, fatigue, slowed psychomotor, difficulties concentrating, anhedonia, a change in appetite, and a tendency to withdraw. When asked how severe these symptoms are, she indicated that at this time (with her medication) they are “mild.” Grace indicated

there was a time in 2007 during which she was not able to sleep, was talkative, spent a lot of money, and was somewhat distracted. She denied any thoughts or impulses towards harming herself or others and denied any history of suicide attempt.

In relation to a MVA, Grace endorsed distressing recollections, dreams, a sense of reliving and physiological reactivity, difficulty sleeping, and difficulty concentrating.

***BDI-II and TSI scores.*** Grace engaged fully in all testing procedures and demonstrated consistent validity scores on the TSI. Results were determined to be an accurate demonstration of her experience. Grace's score on the BDI-II (12) placed her in the minimal range. On the TSI, Grace had no scores above the clinical range ( $\pm 65$ ). Scores that fell higher than the mean ( $>50$ ) included Anxious Arousal (58), Sexual Concerns (59), and Dissociation (53). These scores were consistent with Grace's own report.

**Diagnostic formulation.**

Axis I: Major Depressive Disorder, mild; Generalized Anxiety Disorder

Axis II: No diagnosis

Axis III: Fibromyalgia, polycystic ovaries

Axis IV: living on student loans

Axis V: 55

**Phase 2: Preparation**

In this meeting, Grace was provided with a description of what to expect during an EMDR session and how to care for herself between sessions (e.g., journaling, setting aside personal time after each session). She was introduced to BLS with eye movement and vibrating hand paddles, and she preferred to use the latter. The remainder of the session was used for internal resource building. Grace developed two personal resources with the use of

BLS: a safe place and a green light to soothe physical discomfort. She was able to identify a moderately stressful event in her life (SUDS 5/10) and then use connection with her safe place during BLS to decrease her experience of distress (SUDS 0/5). Grace was pleased with how relaxed she was able to become through this process. She became more comfortable with BLS and discovered her ability in the EMDR process to ask for more BLS when she needed it. This preparation served to improve the therapeutic alliance, Grace's sense of her own ability to ask for what she needs, and her agency within the EMDR process.

### **Phase 3: Assessment**

At intake and during the second session, Grace identified three traumatic events in her life that she wanted to address. Grace described several events in her life that were distressing, making it more challenging to collaboratively identify what the target memories would be. This was in contrast to the other cases described in this study; however, use of the 8 phase protocol helped prioritize and categorize these memories. All targeted memories occurred before her diagnosis of fibromyalgia.

**First target memory.** The first target and most upsetting memory for Grace was the death of Grandma May, the person whom Grace felt was the most reliable person in her life and whom understood her the most. The most intense image representing this memory was that of her leaving Grandma May's hospital room, waiting for the elevator to arrive, and realizing she would never see Grandma May again. From this experience, Grace took away two NC about herself: "it's not fair" and "I'm out of control." She hoped to work towards the PC: "I'm in control" (VOC 3/7). When thinking about the above image and her NC, Grace felt sadness for her loss, guilt that she had been preoccupied with her wedding, and

anger that no one had told her how ill Grandma May really was (SUDS 7/10). She experienced this distress in her throat, chest, forehead, and right hip.

**Second target memory.** The second event Grace chose to address was a time when she was 10 years old. She had told a cousin that her parents still spanked her, and this revelation had been made aware to her own father. The most intense visual memory for Grace was when her father confronted her. Grace's NC was "It's my fault" and she hoped to be able to move towards a PC of "I'm ok" (VOC 2/7). She reported feeling a sense of guilt (SUDS 7/10) and commented that it was hard for her to feel her emotions but easy to feel tingling in her arms and a feeling of fatigue all over her body.

**Third target memory.** The third event also occurred when Grace was 10 years old and related to Grace's mother being frequently unavailable due to illness. Grace visualized her mother being inaccessible behind the door of her bedroom. Grace identified several NC that she took away from this experience, the most significant being "I'm all alone" and "I'm unimportant." PCs Grace wanted to work towards were "I'm loved" (VOC 1/7) and "I'm important" (VOC 3/7). Grace felt anger and sadness when reflecting on this memory (SUDS 5/10) and observed feeling tingling in her hands and a wave of fatigue through her shoulders.

**Current triggers.** Grace reported her current triggers as being fibromyalgia flares when her partner has not seemed attentive to her, incidents in which she must choose to ask for what she needs, and high workload demands at school.

**Future template.** Grace hoped in the future to communicate more openly about her needs, most notably with her partner, and she hoped to feel more confident when facing challenges (e.g., balancing academic and personal health needs).



**Phase 4-7: Desensitization, Installation, Body Scan, and Closure**

Sessions 4 through 8 addressed Grace's first target memory. In all of these sessions, Grace used resource imagery (e.g., healing green light) to sooth her physical pain and associated emotional distress at the end of sessions.

In the 4th session, Grace moved through a neural network related to shame. She felt shame for celebrating her wedding when Grandma May was dying, having had a possible miscarriage shortly after her wedding that she felt somewhat relieved by; and getting fibromyalgia. Regarding the latter, Grace tearfully recalled her doctor saying, "you're not likely going to get better." This placed her in a shameful predicament as not getting better would make her appear, in the eyes of her congregation, as if her faith in God's healing powers wasn't strong enough. Grace feared being told that it was her own fault she was sick.

Sessions 5 through 7 targeted the memory of Grandma May dying and Grace's perception of having no one to else to really know and support her. This perception would expand to other experiences of not feeling supported or taken care of adequately by others. As this awareness increased, Grace increasingly made reference to her own ability to meet her needs or tell others what she needed. During these sessions, it became clear that the NC that was impacting Grace was a belief she was unimportant.

During Session 6, Grace reflected on her recent trip home to her parents. Returning to Target 1 brought up feeling unimportant to her mother. She recalled fears that Grandma May and her father would die, leaving her in the sole care of her mother. Grace's distress rose to a level so intolerable she interrupted BLS. Verbal debriefing was used to allow for emotional distancing and to draw attention to physical pain in her left hand.

Grace was confused by the pain in her left hand; it was out of the ordinary for her, but she felt more willing to observe it rather than her emotional experience. Grace became aware during BLS of being “shut out” and longing to connect with her mother. A surprising memory arose; Grace described a time as a child when her mother had walked in on her masturbating and had shamed her. Grace realized the hand she had been using to “bring comfort” to herself was the hand that had been so painful during BLS. Grace experienced compassion for herself as a young girl, sadness for the shame she had carried, and increased understanding of her struggle for self-sufficiency.

In Session 7, Grace felt sadness and anger (SUDS 4/10) for her younger self who felt fear about who would take care of her and the weight of having “too much responsibility.” Grace noted feeling weakness in her arms and a resignation that “I cannot do anything about it.” BLS began with an emotionally potent dream that shed light on: 1) how her mother’s history of physical and sexual abuse had impacted Grace, as well as 2) how reversed care taking roles continued to effect the present. Physical sensations, such as dizziness, pressure behind her eyes, and a feeling of “depletion” resulted, and Grace was encouraged to use her healing light resource. Grace became tearful. She did not feel well enough to go to class, leading to self-judgment regarding perceived inadequacy. Alternation between focus on physical sensations and her healing light resource led to a greater sense of self-acceptance.

In Session 8, Grace stated that EMDR was hard to do but she was noticing the benefit. When recalling Target, 1 Grace felt sad (SUDS 2/10) and indicated that she did not expect this would decrease as this sadness honored how important Grandma May had been to her. Further reprocessing of the memory focused on ways in which her ex-husband had not been able to meet Grace’s needs. Insights arose that neither of them really knew what it

was that Grace needed. This insight gave way to an increasing sense of forgiveness towards her ex-husband.

Grace began yawning and experiencing “a dark clump” moving throughout her body. Several sets of BLS focused on this sensation, and Grace was able to observe it beginning to break into pieces as it dropped down through her body. Grace wept, and she was able to laugh at the idea of letting go of “old stuff” with each tissue tossed into the garbage. Grace spontaneously began doing shoulder rolls and neck stretches during BLS, describing feeling proud of herself and stating, “I do not need this weight on me.”

A PC of “I’m free” was installed, and Grace reported an increased sense of motility and energy. Grace described an upcoming interaction in which she wanted to express relationship and sexual needs to her current partner. Grace was encouraged to give dual attention to this interaction and the PC of “I’m free.” During reassessment of the target memory, Grace reported feeling “secure” and with an increased sense of independence and a shift in her perception of marriage. Grace described an increased sense that she and her ex-husband were separate partners that did not need to be “fused.” Grace requested visualization related to stepping calmly into the future for closure.

Session 9 marked a shift in Grace’s behavior outside of sessions and a collaborative choice to change Grace’s course of treatment. Grace happily reported having confidently presented a need to her partner and receiving what she wanted. She also reported a change in her thinking: a decrease in her “obsession with what perfect love would be” and revision of her belief that one person (Grandma May, her mother, her current partner) could meet all of her needs. She described awareness that this was “way too much pressure on one person.” Reassessment of Target 1 indicated a strong new PC “I’m free” (VOC 7/7) and no emotional

disturbance (SUDS 0/10). Grace expressed a desire to return to a memory that had arisen earlier: her mother catching her masturbating as a girl. Shapiro (2001) calls this arising of a significant new memory a *progression*. Based on the physical and emotional intensity of this memory and the pertinence to Grace's current relationship, it was determined that this was an appropriate modification in the course of treatment.

The image of her mother walking through her bedroom door was the most intense moment of the memory, a NC of "I'm bad" and a PC of "I'm beautiful" or "My sexuality is beautiful" (VOC 3/7). BLS led to reflections of several childhood instances of anger and awareness of pain from clenching the muscles in her arms in the present and in the past. Grace was encouraged to focus on the pain sensation and her restricted breathing. BLS led to a decrease in tension and an increase in her sense of "openness" in her arms and back. Further BLS connected her to current issues related to her sexuality and a spontaneous installation of her PC "I'm beautiful." With each additional set of BLS, a new image of female strength and sexuality arose, leaving Grace with an adapted PC of "I'm beautiful and I have power." Throughout this installation phase, Grace smiled softly and began to look more relaxed.

Session 10 began with Grace's reporting increased, open communication and intimacy between herself and her partner and a decrease in her emotionality when talking about Target 1 memories. After reassessing the memory addressed in the previous session (SUDS 0/10, VOC "I'm beautiful and powerful" 7/7), Grace again indicated she did not want to work on Targets 2 and 3, preferring to address an incident discussed in the intake but rejected by her at that time for not having enough significance. The same NC "I'm not important" of this memory gave reason to pursue it. As described by Shapiro (2001), this

retargeting represented a natural *clustering* of memories related to Target 1 and the “I’m not important” neural network. This new memory was worked on during sessions 10-12.

Near her 13th birthday, Grace had been vacuuming the stairs. The vacuum fell, striking her on the back of the head and neck. Grace felt that no one took her pain seriously. Additionally, Grace’s birthday plans were cancelled due to her mother feeling unwell. Grace felt neither her physical pain nor the celebration of her birth was seen as important; again, she perceived her mother’s needs were more important than her own. Seeing her father on the phone and realizing “this is how it is going to be forever” was the most intense part of this memory. “I’m unimportant” was her NC, and she hoped to work towards a PC of “I’m special” (VOC, 3/7). She felt disappointment, dread, and anger (SUDS, 5/10) in her stomach, head, and arms (anger was again in her arms).

Reprocessing took Grace through feeling betrayed and insignificant. She smiled and cried as realization of being important to her brother arose. Healing light was used to close the session by decreasing her physical arousal and offering herself self-care.

In the 11th session, Grace reported feeling “more emotionally stable,” a decrease in her pain, an increase in her ability to engage in activities, and improvement in her sleep (e.g., feeling more rested in the morning). Grace described how much stress she had been under and her surprise that she had not had a fibromyalgia flare up. Reprocessing focused on the expression of anger regarding parentification during childhood. Grace began focusing on a spontaneous PC of “I belong to myself” and images of strength. This generalized to current challenges. Physical sensations continued to be a guide with an observation of aching in her right foot that led Grace to awareness that she was ready to take the first step

in belonging to herself. Closure focused on Grace, reminding her younger self of how important and special she was despite outside opinions.

In the 12th and final session, Grace experienced a powerful release of chronic neck pain. Following reassessment, reprocessing began with left hand pain which led to feeling the burden of managing her mother's needs, the burden of managing her own neck pain, and the sense that her pain was not taken seriously. During BLS, Grace experienced a "cracking" sensation in her neck, related to her injury with the vacuum cleaner. Grace noticed her grief and the physical sensation of her tears rolling down her neck "like holy water" as she spontaneously began gently rolling her neck and shoulders. Again, several images came to Grace, leading her to focus on the phrase: "my inner world does matter, it's important" that was installed. Grace broadly smiled, her pain had gone completely. A body scan addressed remnant sensation, and the future template of improved communication was addressed for closure.

### **Treatment Status at Completion of 12 Sessions**

Target 1 was resolved; Targets 2 and 3 were not formally addressed due to the emergence of a progression memory and awareness of a significantly clustered memory identified during history taking. Despite this change to targeted memories, it was observed post-treatment that improvements made in the treatment of Target 1 had generalized to the original Targets 2 and 3.

Grace's current triggers of perceived inattentiveness of her partner and incidents in which she must choose to ask for what she needs arose spontaneously during installation of PC. High workload demands at school were not formally addressed; during follow-up meetings Grace reported improvements to a level in which her functionality had improved.

Subsequent to installation of PC related to the value of Grace's needs, opportunity arose to pair her PC with a visualization of Grace being able to communicate openly about her needs with her partner. This installation led to behavioral changes outside of session and generalization to interactions with friends. Grace would have benefited from additional sessions dedicated to communicating her needs to family members.

### **Outcome Measures**

**Post-test.** During a closing interview, Grace completed post-treatment outcome measures. Notable improvements seen on measures of both physical and psychological pain were consistent with reports of change she made regarding her presenting issues (see Table 9 for all scores). A score of 24.0 on the FIQ-R dropped Grace below the range considered typical for the fibromyalgia population (36.7-76.5). This decrease in physical pain was also seen in her total SF-MPQ-2 score drop to 1.44 from 3.41. Grace's BDI-II score dropped from 12 to 3. Her TSI scores had begun within a standard deviation of the mean but were noted to drop to the mean or below at post-test.

Target memories had changed during Grace's 12 EMDR session; Target 1, her most distressing memory remained. When recalling this memory of the death of Grandma May, Grace reported having no distressing emotions (SUDS, 0/0) and a strong PC ("I'm important"; VOC, 7/7).

**One-month follow-up.** All improvements were maintained at the one-month follow-up with the exception of the total SF-MPQ-2 score which had a minor increase (1.44 at post-test to 1.86 at 1 month follow up). FIQ-R, BDI-II and TSI scores all dropped below post-test levels. When reviewing Target 1, Grace reported sadness (SUDS 1/10) that she described as honoring the significance of Grandma May in her life and a feeling of gratitude

that she had been able to know her. Grace's VOC rating remained at 7/7 for her PC: "I'm important."

Although a part of the cluster of Target 1, I checked in with Grace about her memory related to her 13<sup>th</sup> birthday and the vacuum falling on her due to its significant role in addressing her neck pain. Grace reported no distressing emotion (SUDS, 0/0) but a minor sensation in her neck which she described as a 0.5 out of 10. She indicated a strong belief that "I'm important" (VOC 7/7).

Even though we had not done EMDR directly with Grace's original Targets 2 and 3, I asked her to reflect upon these to assess for generalization of therapeutic gains to other memories. It was observed that Grace had begun to see these memories as occurring simultaneously. She reported no emotional distress when thinking about them (SUDS, 0/10). She reflected on how she had believed these experiences were "her fault" (NC) and that now she believed "It's not about fault, it's about a broken system" (VOC, 7/7.) She described that on a recent trip home she had been able to talk openly with her father, having a sense that "he loves me no matter what" and did not take her mother's unavailability (this time due to work) personally or become emotionally distressed.

**Three month follow-up.** Overall, Grace's improvements were maintained or improved at a three-month follow-up. Her FIQ-R total score before EMDR treatment was 48.50 and dropped to 21.00 (see Table 9), and her total SF-MPQ-2 score, which began at 3.41 dropped to 1.50. Her total BDI-II score had begun at 12 and dropped down to 1. Regarding Grace's TSI scores, all of these scores at intake had been higher than the mean but within one standard deviation; at three-month follow-up they were all below the mean. After completing the outcome measures at the three-month follow-up meeting, Grace



indicated that she expected her anxiety scores to have increased due to a challenging quarter of school, which was true. She indicated that despite this increase in anxiety, she had been able to sustain her workload and not had a significant fibromyalgia flare-up. This treatment gain was encouraging to Grace as the impact of her anxiety and fibromyalgia symptoms on her productivity had been an issue of concern for her at intake.

Table 9  
*Grace's Outcome and Process Measures*

Measures	Pre-	Post-	1 month	3 month
<b>FIQ-R</b>				
Functional	14.00	6.00	7.30	4.00
Overall	5.00	2.00	3.00	2.00
Symptoms	29.50	16.00	12.50	15.00
Total	48.50	24.00	22.80	21.00
<b>SF-MPQ-2</b>				
Continuous	4.17	1.33	3.83	2.50
Intermittent	1.83	0.83	2.33	1.00
Neuropathic	4.0	2.33	1.75	1.67
Affective	3.75	1.0	1.75	1.50
Total	3.41	1.44	1.86	1.50
<b>BDI-II</b>	12	3	2	1
<b>TSI</b>				
Anxious Arousal	58	47	37	45
Sexual Concerns	59	50	48	44
Dissociation	53	50	48	43
<b>First target memory</b>				
SUDs	7/10	0/10	1/10	1/10
VOC	3/7	7/7	7/7	7/7

**Changes of medication use.** Before and during participation in this study, Grace used prescription medications to manage her physical pain and psychological symptoms (See Table 10). Approximately one month into her participation, she discontinued taking Soma in favor of a Flexeril. One month after treatment ended, Grace reported having decreased her sleep medication, (trazadone) from 50 mg to 25 mg per night. She expressed satisfaction regarding this decrease and reported improvement in her sleep despite this decrease. All other medications remained the same.

Table 10  
*Changes in Medication Use Before and After TF-EMDR Treatment.*

Medication	Prior to treatment	One-month follow-up
Flexeril	10 mg 1x/day	10 mg 1x/day
Soma	125mg 1x/day	discontinued*
trazadone	50 mg as needed	25 mg as needed*
buPropion SR	150 mg 2x/day	150 mg 2x/day
5-HTP	100 mg 1x/day	100 mg 1x/day
metformin	500 mg 2x/day	500 mg 2x/day

Note. \* indicates a change

### Heather

**Case conceptualization.** At the time of this study, Heather was a 43-year-old, Caucasian, heterosexual female. She was in a committed relationship and had no children. She had a Bachelor of Arts in psychology and art history and worked as a Licensed Massage Therapist. Heather was happily in a long-term relationship, however; she reported a long history of sexual encounters involving alcohol and unhealthy relationships. She was diagnosed with fibromyalgia when she was 31 years old.

**Presenting Problems.** Heather heard about this study through a continuing education announcement associated with the massage profession. She described wanting to try a new approach to her fibromyalgia management as she was experiencing persistent symptoms. At the beginning this study, Heather's symptoms included being tired upon waking, being tender to the touch, feeling stiff, and being extremely sensitive to sensation. She noted her symptoms made it difficult for her to sit for long periods of time and prevented her from accomplishing her goals.

During our initial meetings, Heather tearfully described a history of sexual infidelity and overly flirtatious behavior. She reported this behavior occurring when she wanted to end a relationship or was afraid that her partner would leave. Recently she had been

unfaithful in her relationship and was frustrated with her inability to break this longstanding pattern of behavior despite understanding how self destructive it was. Heather was insightful about how these acts of infidelity would decrease both her emotional and physical pain for a time. She was also aware that although very happy in her current relationship, her fibromyalgia pain had “started up again” right around the time when she began to assess that this relationship had good long-term potential.

The following is a presentation of the course of Heather’s 12 treatment sessions according to the TF-EMDR protocol.

### **Phase 1: Client History**

Heather was the youngest of five children and was 5 years younger than her closest sibling in age. She has been active in the lives of her mother, siblings, and nieces and nephews. Heather did well in school but had some challenges getting along with female classmates during junior high and high school. She completed an undergraduate degree in psychology and went on to become a licensed massage therapist.

**Medical history.** Heather was born in 1967 and reported experiencing a notable amount of illness, infection, and injury between the ages of four and nine. At four years doctors identified that Heather was missing a disk. She reported that as she got older, her back got stronger and that currently she only has problems when her activity level drops or she gains weight. Heather reported heavy use of alcohol in her college years and after the death of her father. Heather’s grandmother died of illness related to alcoholism, and her sister underwent chemical dependency treatment for alcohol and marijuana.

**Fibromyalgia.** When Heather was 31 years old, she began having pain in her left shoulder. She was in massage school and would receive treatments from her peers, took

herbal supplements, and tried energy work to relieve her pain. She noticed that when she broke-up with her boyfriend, her “first true love,” her symptoms improved, but they would return when he would visit. When she was 33 years old, she was diagnosed with fibromyalgia. At intake, Heather’s symptoms included the following: being tired upon waking, being tender to the touch, feeling stiff, and being extremely sensitive to sensation. Her experience of physical pain was clearly documented with a total FIQ-R score of 42.33, placing her in the fibromyalgia range, and a total baseline SF-MPQ-2 score of 5.18 (this score is only used for comparison following treatment).

*Fibromyalgia treatment.* Prior to her official diagnosis of fibromyalgia, Heather tried using massage, melatonin, kava kava, valerian root, and energy work to manage her pain. In 2009, she participated in study of Transcranial Magnetic Stimulation, which she reported numbed her symptoms for approximately one year. She currently uses moderate exercise and makes efforts towards a low stress lifestyle, a gluten free diet, and avoidance of inflammatory foods, such as sugars.

**Medication use.** Heather did not rely on prescription medications before or during her participation in this study. She did report using ibuprofen up to three times a month, but preferred not to take it. She also reported using one glass of wine or a shot of tequila when her pain was worse, four times a month, as a muscle relaxant. Heather used marijuana four times a month for pain management when wine or tequila was not helping.

**Mental health history.**

*Trauma history.* When Heather was 4 years old, her grandmother, who lived with her family, died of conditions associated with alcoholism. When Heather was 10 years old, one of her sisters went into chemical dependency (CD) treatment, and it was questioned

whether her father needed to go as well. Her family began going to therapy. Heather found counseling upsetting, feeling like she needed to come up with things to confess in these meetings. When Heather was between the ages of 10 and 11, her parents separated but reunited after about one year.

When she was 10 years old, a man flashed her when she was walking to school. Circumstances led to her needing to describe what had happened to her male principal and two male police officers, which she found distressing. At this age, she also recalled how upsetting it was that boys at school were grabbing her breasts. When she was thirteen, the same man flashed Heather again. This time she got his license plate number, and others reported instances of him flashing as well. The man was arrested, and Heather became afraid of testifying against him. The man never appeared in court, however. Heather was left feeling like there had been no justice.

When Heather was 15 years old, she went to a cabin with a friend to spend the weekend with the friend's aunt, uncle, and 30-year-old male cousin. The girls were served alcohol. This was the first time Heather drank alcohol, and she felt shame about it due to the past experience in her family with CD problems. Heather reported talking with the cousin about her future goals, one of them being finding someone to love. She reported she became intoxicated, was raped by the cousin, and then was told by him that she had "asked for it." Heather, who had been a virgin, felt ashamed that she had been drinking, was naked, and had sex. She told two friends but no adults, and she did not see a doctor. Years later in college she dated someone who commented to her that girls who got drunk and raped had only themselves to blame.

After completing her Bachelor of Arts, Heather began working for a psychologist. She found this work intellectually stimulating and reported that he became “almost like a father” to her. After allegations of child molestation, the psychologist shot himself in the head, and Heather was left to shut down his practice. A short time prior she lost her brother-in-law, the father of her niece and nephew, to a brain tumor. She was 24 years old.

Heather’s father was diagnosed with cancer when she was 36 years old. There had been a good deal of hope that he would benefit from treatments; the cancer returned, and he died of secondary complications. Heather broke up with her boyfriend, reported crying every day for a year, and began drinking very heavily.

In the year prior to her participation in this study, a neighbor began leaving her pornography and notes about sexual acts he wanted to do to her. Heather felt unsafe, contacted the police, and obtained an anti-harassment order against him, which to date has ended the harassment.

***Previous mental health treatment.*** Heather’s initial experience with family therapy, when she was 10 years old, was not experienced as positive. As an adult, she participated in talk therapy that she described as helpful in increasing her understanding of how her rape had led to self-destructive behaviors but stated “I think [the insight] made me feel worse because I couldn’t change it.” She had never experienced EMDR treatment.

***Mental status exam.*** During the initial mental status exam, Heather was well groomed and did not appear to have any physical impairment. She was friendly and engaged, her speech spontaneous and her thought process congruent to topics at hand. Her short-term and long-term memory, judgment, insight, concentration, abstractive capacity, and orientation were all within normal limits. Heather reported having dyslexia, which has

never been formally diagnosed. Although reporting a steady affect, Heather was quick to become tearful when talking about difficult past and current events.

Heather denied hallucinations, delusions, or episodes of mania. She denied thought or impulse towards harming herself or others. Heather denied feeling anxious or depressed; however, she endorsed feeling restless, tiring easily, having muscle tension, experiencing irritability associated with her pain, having difficulty concentrating, and experiencing low self-esteem. She endorsed having crying spells but attributed these to pain. Heather reported an ongoing phobia of turtles stemming back to being chased with them repeatedly by boys. Heather described herself as someone who needs six to eight hours of sleep but only getting five. When able to sleep, she described herself as a light sleeper who would awaken due to pain. Many of these symptoms are indicators of anxiety, dysthymia and fibromyalgia.

During the initial intake, Heather described avoidance of particular thoughts and places and difficulties concentrating related to her father's death. She denied this was an issue regarding the rape she experienced. As EMDR treatment progressed, Heather recognized her need to present as being unfazed by this trauma, and she began recognizing her fear of going to bed, a need for her pit-bull to be in bed with her, tendency towards distressing dreams about being chased, avoidance of older men with physical traits similar to her attacker, and avoidance of her class reunion for fear of seeing the friend, whom she had gone out to the cabin.

As noted in previous sections, Heather was distressed by her history of making herself sexually vulnerable (e.g., drinking to excess and going home with men from the bar) and use of sexual infidelity as a way of ending a relationship or managing fear about a

relationship that was going well. She was able to describe an awareness of how this behavior was connected to the rape she experienced but expressed deep frustration that she seemed unable to stop this pattern of behavior. She was particularly distressed as she was currently in a relationship that she wanted to protect and maintain.

***BDI-II and TSI scores.*** Heather engaged fully in all testing procedures and demonstrated consistent validity scores on the TSI; results were determined to be an accurate demonstration of her experience. No experience of depression was identified by the BDI-II (0). On the TSI, Heather had only one score above the clinical range ( $\pm 65$ ): Dysfunctional Sexual Behavior (77). Scores that fell higher than the mean ( $>50$ ) included Tension Reduction Behavior (54), Anxious Arousal (53), and Dissociation (53).

Two things noted regarding the psychological outcome measures of the BDI-II and TSI. First, as noted in the previous histories, as treatment progressed, Heather became more and more aware of her tendency to tell herself and others that she was “fine” as a part of her coping. It is thought that this tendency may have led to an under reporting of her BDI-II scores. Second, the TSI’s focus on Dysfunctional Sexual Behavior was congruent with what Heather verbally reported as her presenting behavioral problem at intake.

### **Diagnostic Formulation.**

Axis I: Post Traumatic Stress Disorder

Axis II: No diagnosis

Axis III: Fibromyalgia

Axis IV: placed an anti-harassment order against a neighbor

Axis V: 55

### **Phase 2: Preparation**



A description of what to expect during an EMDR session and how to care for herself between sessions occurred during the second session. Heather was introduced to BLS and chose to work with the hand buzzers. She engaged in exercises using BLS to develop three personal resources: safe place (a patio in Kona, HI), white and blue light to soothe physical discomfort, and connection to a sense of mastery (work and candle making). She was able to identify a moderately stressful event in her life and then use connection with her safe place to decrease her experience of distress (measured via SUDS). Heather expressed satisfaction with her ability to decrease her distress as well as a comfort with BLS.

### **Phase 3: Assessment**

At intake, Heather identified two traumatic events in her life that she wanted to address: a rape she had experienced and the death of her father.

**First target memory.** At the age of 16 years old, Heather was raped; this would be her first target memory. Heather reported that the image that described the most intense part of this first targeted trauma was when she could see and feel her assailant on top of her. She spoke of a broken sense of trust that people (his parents) older than she would protect her. This perception left her with a NC of “I’m not safe in the world.” She hoped to work towards a PC of “I am safe” (VOC 3/7). Heather felt sadness for herself as a 16-year-old, shame regarding her nakedness, and fear (SUDS 9/10). She noticed a burning sensation on her sternum and pain between her trapezoid muscles.

**Second target memory.** The memory of the death of her father related to the first event in regard to Heather’s fears that no other man would ever love her. As treatment progressed, Heather became conscious of her assumption that her father would likely feel as awful about her as she did about herself if he were to ever found out about her rape. During

assessment, Heather identified an image of walking into her father's hospital room as the most intense image from this target memory. The negative cognition that she described taking away from this experience was "He's the only male that will love me." She hoped that we could work towards a new positive cognition "It is ok if I let someone else in" (VOC 2/7). When asked to hold both the image of the hospital room and associated negative cognition in mind and notice any emotions that arose, Heather observed feeling fear, anxiety, and sadness (SUDS 9/10), leaving her feeling "numb and buzzy all over."

**Current triggers.** Heather reported her current triggers as being awareness that her present relationship was going well, thus leading to compulsions to be sexually unfaithful and interactions with men, automatically leading to overly flirtatious behavior or sexual advances.

**Future template.** Heather hoped to have better communication with her boyfriend and maintain monogamous behavior.

#### **Phase 4-7: Desensitization, Installation, Body Scan, and Closure**

Physical sensation was highly prominent in treatment during early sessions. Heather reported increased back and shoulder pain immediately following our 1<sup>st</sup> treatment session, due to "stirring something up." When asked specifically what emotions Heather noticed, she frequently reported physical sensations instead. Heather reported a past tendency to "numb out of her body" and in session would frequently report noticing "nothing" during BLS. To address this experience of feeling "nothing," a body scan from the top of her head to her toes would be suggested. In these instances, Heather could always identify a physical sensation, and BLS would proceed. Physical sensation proved to be a reliable method of reconnecting with memory. During one session, Heather experienced a physical urge to run

out of the office, which she related to feelings of wanting to run away from her assailant and her current partner. She also endorsed tension in her jaw that was related to discomfort with disclosing about herself. During these early sessions when sensation became intense, focusing on a healing light source was used to bring physical discomfort down to manageable levels that allowed her to proceed with TF-EMDR and in preparation for closure.

After only two sessions, Heather reported increases in her dreaming, improved sleep, and an ability to talk with a friend about her rape without “being as emotional.” She reported experiencing fibromyalgia flare-ups that felt “different” from usual, which included more difficulty concentrating rather pain sensations.

By Session 3, Heather demonstrated a greater ease in observing memories and emotions as evidenced in a decreasing primary focus on physical sensation. Between sessions, Heather reported feeling angry. She remarked that feeling any emotion was unusual for her and suspected she had been “numbing out” in the past. BLS brought up Heather’s anger and frustration with the adults present on the day of her rape. She was angry they had both served her too much alcohol and not protected her from their son who raped her. She became aware of her perception that these adults (nor current partner in regards to current events), wanted to help her.

Improved pain and sleep hallmarked weeks three to five. Heather enthusiastically reported falling asleep when she felt tired (instead of fighting to stay awake) and increased dreaming which was startling only in its newness. These improvements encouraged Heather to continue with TF-EMDR. However, there was an increase in her internal defenses against working with painful memories. She felt dread prior to sessions, came late to

sessions, and increased her numbing during sessions. IFS resource building (Twombly & Schwartz, 2008) was implemented based on clinical need complimentary to the TF-EMDR protocol.

As a way of establishing a treatment alliance with the internal parts of Heather, related to Target 1, time was taken to calm with safe place resources. With guidance, Heather identified three internal parts involved in the memory of her rape: 1) a 16 year old “younger part,” 2) “I’m fine, Heather,” a part that downplayed her rape and told her to carry on, and 3) a “validating part,” her adult self who could handle the memory. Honor was given to the roles that all of these parts had played in allowing Heather to survive and become a successful adult. During BLS, Heather asked “I’m fine, Heather” to step back to allow her adult self to participate in TF-EMDR. She gave assurance to her “younger part” that they were currently safe and able to access the skills and wisdom she had as a 43 year old. Three sessions were all that were needed to introduce this idea, establish trust, and become adept in applying this internal parts concept to our TF-EMDR work. Desensitization and reprocessing continued, and the numbing and dissociative experiences had ended by Session 7.

Heather continued to address her anger that adults had not protected her. She came to a realization that it was likely that the adults had not known what had happened as they were asleep when the rape occurred. This new realization challenged her NC that she was so worthless that she did not deserve to be protected.

Session 6 marked a significant turning point. Heather reported increased fibromyalgia pain, difficulty concentrating, and her first flashback in many years. She was able to interpret these experiences as endorsements that her trauma memories were impacted

by our work. During the session, Heather reported an ability to experience her memories as “old stuff” distinct from the present. This distinction led to an improved ability to remember the memory “more accurately” and a decreased need to focus on physical sensation, allowing for longer periods of desensitization. These changes led Heather to a clearer understanding of what had happened, validation that she really had been traumatized, and decreased self-blame.

Heather increased her understanding of how her rape was still impacting her present in two regards. First, Heather realized she was addressing her fear of being in bed and sleeping by always having her pit bull with her and by fighting falling asleep. In the past she would tire at 10:00 PM but would busy herself in order not to fall asleep until 2:00 AM. Second, Heather began to see how she was reliving her rape experience by drinking heavily in bars and then putting herself in situations in which she could be exploited sexually, further endorsing her maladaptive belief that she was ruined and worthless.

As of the 7<sup>th</sup> session, Heather had no further flashbacks (she would not experience them again), she felt less fibromyalgia pain, and she had an increased feeling of weepiness. She was pleased with the latter as previously she would not allow herself to feel sad. She recognized her tears were about forgiving herself for reliving her trauma again and again.

When it came time to readdress her target memory, Heather again felt “numb.” Observation of the sensation of numbness led Heather to recollect an interaction with an older man earlier in the week. During this interaction, Heather felt she could not speak up for herself as she could not trust that she knew what was best for her. Through BLS, Heather connected her loss of trust in herself during her rape and this recent interaction. Heather realized that when her rapist told her “she asked for it,” this statement was “ridiculous.” She

realized he could trust in her own assessment; she had not asked to be raped. When this older man had recently criticized her business practice, she realized this, too, was “ridiculous.” She could trust herself that she knew what was best for her business. Installation of this new PC, “I can trust myself” followed.

During Sessions 8 and 9, Heather was ready to process the most disturbing part of her target memory: when her rapist was physically on top of her. Heather tolerated the memory, associated emotions, and physical sensations “as if it was a movie on the inside of her mind”. Although she experienced physical sensation, it no longer dominated treatment. Heather saw how she had begun to see herself as “ruined” and developed increased compassion for herself, including a new PC: “I can be tender hearted towards myself.”

This compassion generalized from Heather’s traumatic target memory to her experience of fibromyalgia. She was now able to be tenderhearted towards her experience of the rape, but she struggled to be tenderhearted towards herself when feeling physical pain. She tearfully stated, “nobody wants to hear [I’m in pain] all the time. I don’t want to hear it!” Further installation of her new PC occurred and allowed for the containment she needed to end the session.

In Sessions 10 and 11, further work was done with an experience of “not wanting to be me” that Heather had been having since her rape. Associations during BLS led Heather to insights as to how feeling ruined disqualified her from “finding love” or being lovable. These beliefs left her solely responsible for all problems in her relationships. Heather observed doubt and distrust in herself was related to physical pain in her shoulders. When reassessing her target memory, a small amount of fear remained when thinking about her rapist. Heather recognized she was angry with him, acknowledged she would never get an

apology, and let her “younger self” know it was ok to feel sad rather than needing to be “fine.” Heather reported physically feeling “lighter.” BLS focused on this sense of lightness, which subsequently increased a sense of openness in her shoulders. Heather felt happiness and excitement filling her shoulders, and she enthusiastically reported, “I don’t have to focus on pain!” While smiling broadly, Heather described how she had first experienced fibromyalgia in her shoulders and how she now believed it was that very pain that had lifted.

Future templates related to Heather’s ability to trust herself and believe in her own worth were installed following desensitization in Sessions 10 and 11. Heather focused on her PC “I can trust myself” as she visualized talking with different men in the process of selling her car. She also considered trusting her own assessment that she was worthy of receiving a raise. She visualized asking for a raise while holding onto the belief that she could trust in herself and confidently ask for what she needed.

In our final treatment session, Heather reported feeling flu-like symptoms that she associated with fibromyalgia but denied having pain, problems concentrating, or feeling a need to react to the flu-like sensations. Over the week she had experienced increased feelings of grief regarding the death of her father. When reassessing her first target, Heather noticed sadness over the “loss of some good years.” She had denied herself some joys (e.g., going to her high school reunion) and experienced hardship (e.g., sexually reliving her trauma). She realized that she may have held back in her relationship with her father due to fears that if he knew about her rape, he, too, would think she was ruined and unworthy (her relationship with her father had been at issue in Target 2 which was not dealt with directly due to a lack of time). BLS was used to address her grief over lost opportunities. During

BLS, Heather took a moment to reassure the “younger part” of herself that it was ok to experience this grief and that the adult that she now was could handle it.

### **Treatment Status at Completion of 12 Sessions**

During the allotted 12 sessions there was only time to formally address Heather’s first target memory. Follow-up interviews, indicated that treatment of Target 1 had generalized to Target 2 to a degree that her SUDS dropped from 9/10 to 2/10 with a current VOC of 7/7. The 2/10 was attributed to a belief that her remaining sadness was connected to her honoring her father and typical of missing someone who has died. Heather also identified that much of her past grief related to her father was due to a belief that upon his death he would come to know about her rape and be disappointed in her. Reprocessing of the memory of her rape freed her to see that her father would have still loved and believed in her.

Following installation of PCs, there was a natural progression towards addressing current triggers and future templates. During follow-up meetings, Heather reported real life improvements to current stressors (e.g., elimination of compulsion to be unfaithful to her partner when a problem arose or when things were “too good”) and successes related to future templates. These templates expanded beyond those originally identified at assessment related to in her new PCs (e.g., increased sense of self-worth led her asking for a raise and confidence in negotiating sale of her car with men).

### **Outcomes**

**Post-test.** In a closing interview, Heather completed all outcome measures once again. Notable improvements seen on measures of both physical and psychological pain were consistent with reports of change she had made regarding her presenting issues (see



Table 9 for all scores). A post-test score of 8.0 on the FIQ-R dropped Heather below the range considered typical for a fibromyalgia population (36.7-76.5). The decrease in physical pain was also seen in the drop of her SF-MPQ-2 score to 2.91. Heather's BDI-II score remained at 0. Notably, Heather's sole TSI score in the clinical range, Dysfunctional Sexual Behavior, fell from 77 down to 44 (the lowest score possible). Decreases in scores that had been within one standard deviation of the mean dropped below the mean of 50 (Tension Reduction Behavior, 42; Anxious Arousal, 41; and Dissociation, 45).

**One-month follow-up.** All improvements were maintained at the one-month follow-up, with the exception of one subscale of the FIQ-R (Her "overall" score began at 11 dropped to 2 and slightly increased to 3 at the one-month follow-up). Most scores dropped even further from post-test levels (see Tables 11, 13-18).

**Three-month follow-up.** Overall, Heather's improvements on standardized outcomes measures were maintained or improved at a three month follow-up. Heather's FIQ-R total score before EMDR treatment was 42.33; three months post-treatment her score was 17.33, dropping her below the range indicative of fibromyalgia. Improvements in physical health were also seen in Heather's SF-MPQ-2 score improvements. At intake Heather's SF-MPQ-2 total score was 5.18 and at three month follow-up had dropped to 0.64. Heather's psychological distress had also decreased. Her BDI-II score remained at zero throughout the study; however, improvements were seen in her TSI scores (see Tables 15 & 16 respectively). Particularly noteworthy were improvements in Dysfunctional Sexual Behavior. This was Heather's highest score and at intake was in the clinical range (77); by 3 month follow-up, this score had dropped below the mean score (44). This drop was a

notable change not only due to the large change in score but also due to the significance

Heather herself placed on the behavior it represented.

Table 11  
*Heather's Outcome and Process Measures*

	Pre-	Post-	1 month	3 months
<b>FIQ-R</b>				
Functional	6.33	8.00	7.00	1.33
Overall	11.00	2.00	3.00	1.00
Symptoms	25.00	19.00	14.50	15.00
Total	42.33	29.00	24.50	17.33
<b>SF-MPQ-2</b>				
Continuous	6.67	5.00	2.50	1.50
Intermittent	4.50	2.83	0.50	0.00
Neuropathic	5.00	1.67	1.67	0.33
Affective	4.25	1.75	0.75	0.75
Total	5.18	2.91	1.41	0.64
<b>BDI-II</b>	0.00	0.00	0.00	0.00
<b>TSI</b>				
DSB	77	44	44	44
TRB	54	42	42	42
Anxious Arousal	53	39	37	35
Dissociation	53	45	41	39
<b>First target memory</b>				
SUDs	9/10	1/10*	1/10*	1/10*
VOC	3/7	6/7*	6/7*	7/7

Note. \* Heather noted that scores of 0/10 or 7/7 were not realistic because there are real dangers in the world. She felt comfortable with her SUDs of 1/10 and VOC of 6/7.

DSB- Dysfunctional Sexual Behavior; TRB- Tension Reduction Behavior;

**Medications.** Before and during participation in this study, Heather used over-the-counter medications, alcohol, and marijuana to manage her pain symptoms. One month after treatment ended, Heather reported having stopped using ibuprofen and marijuana for pain relief and decreasing her use of alcohol (see Table 12).

Table 12  
*Heather's Changes in Medication Use Before and After TF-EMDR Treatment*

Medication	Prior to treatment	One-month follow-up
Ibuprofen	0-3 times per month	no use*
Alcohol	4 times per month	two times per month
Marijuana	4 times per month	no use*

Note. \* change

### Cross-Case Comparisons

The cases of Rosalin, Grace, and Heather were compared based on outcomes and process scores obtained four times: prior to treatment, post treatment, and at one and three months post treatment. Each measure (FIQ-R, SF-MPQ-2, BDI-II, TSI, and SUDS and VOC) was examined for patterns among participants, and then a review was made of all measures across the three participants.

#### Outcomes scores.

**Fibromyalgia symptoms.** FIQ-R scores for all three participants decreased from pre-test to three-month follow-up (see Figure 3). Prior to EMDR treatment, all participants' FIQ-R scores fell within a range characteristic to individuals with a fibromyalgia diagnosis (36.7-76.5). At the 3-month follow up meeting, none of these participants' FIQ-R scores fell within that range.

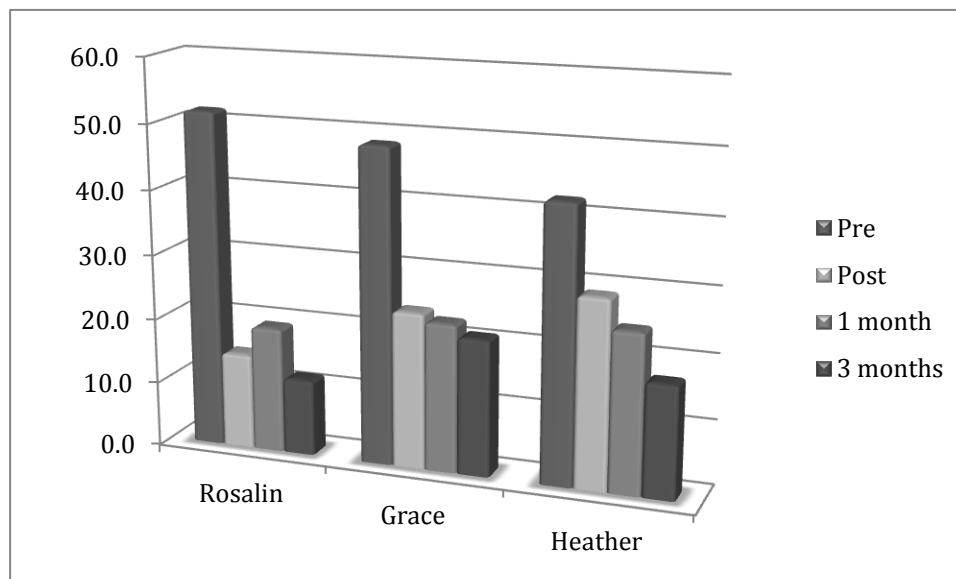


Figure 3. Overall fibromyalgia Symptom Scores

**Pain symptoms.** The SF-MPQ-2 is intended to measure individuals' pain experiences over time rather than providing scores to indicate levels of pain or presence of condition. With that understanding, it was observed that there was a pattern of lowered SF-MPQ-2 scores for all participants from the initial pre-test to three months following treatment (see Figure 4).

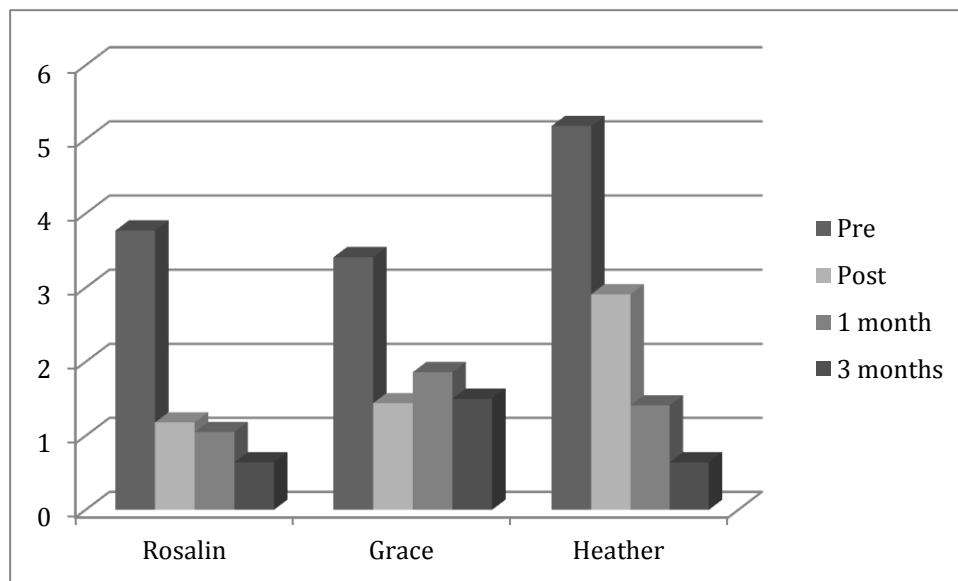


Figure 4. Overall SF-MPQ-2 Scores

**Depression Symptoms.** Measures of depression via the BDI-II indicated improvement from pre-test to three month follow-up for Rosalin and Grace (see Figure 5). Rosalin's BDI-II score began at 9 (within the mild range) and dropped to one at three-month follow-up. Grace's BDI-II score began at 12 (the top end of the mild range) and dropped to one at three-month follow-up. Throughout her participation Heather denied experiencing depression, maintaining a score of 0 at each administration of the BDI-II.

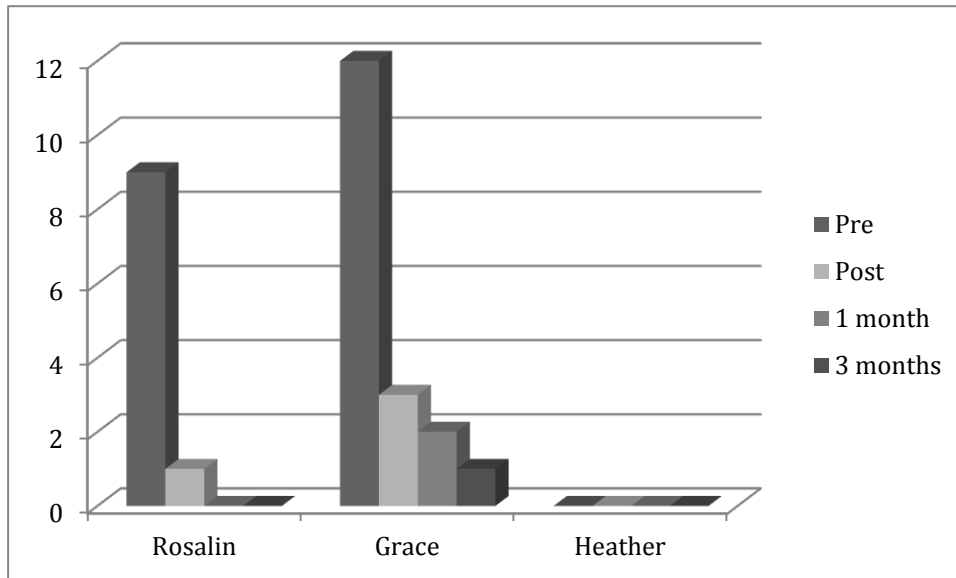


Figure 5. Overall BDI-II Scores

**Post-traumatic stress symptoms.** Improvements in TSI scores were observed in all three participants. Scores that initially began in the clinical range (above 65) dropped below the clinical range, and scores that initially began above the mean but below the clinical range (50-64) all dropped below the mean (see Table 16). This trend toward diminishing symptoms was also endorsed by participant feedback during follow-up meetings.

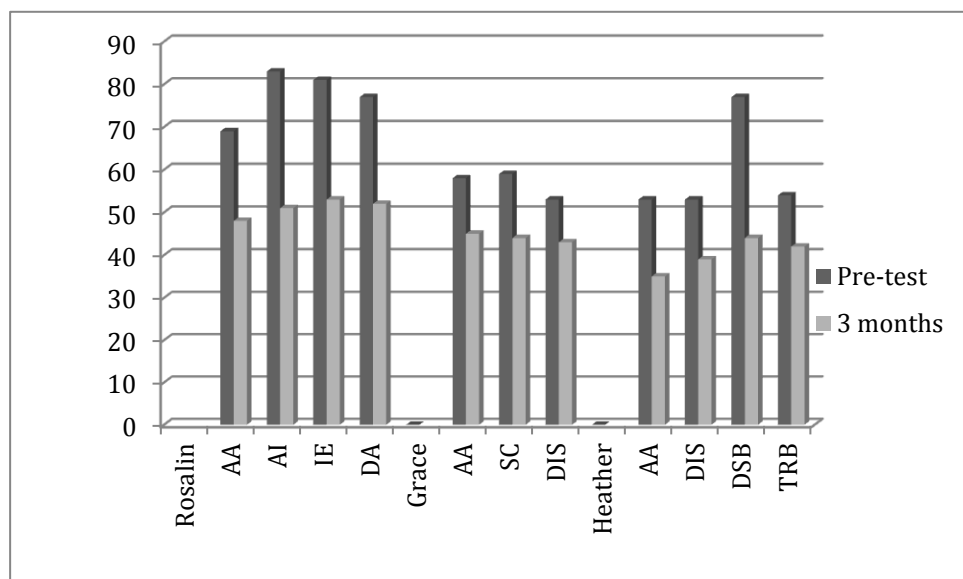


Figure 6. Overall TSI Scores at Pre-test and 3 Month Follow-up. Note. AA- Anxious Arousal; AI- Anger/Irritability; IE- Intrusive Experiences; DA- Defensive Avoidance; SC- Sexual Concerns; DIS- Dissociation; DSB- Dysfunctional Sexual Behavior; TRB- Tension Reduction Behavior.

**Process Measures.** Process measures were used to guide treatment and to assess changes achieved. Process measures included SUDS scores, which measured the experience of distress when remembering the target memory, and VOC scores, which measured how true a new PC seemed to the participant. A pattern was evident in these process measures; as treatment progressed, participants' distress when recalling the target memory (SUDS) decreased while conversely the belief in the more adaptive PC increased (VOC).

**Experience of distress.** SUDS scores decreased for all participants during treatment and they remained at low levels (1 or 2/10, see Figures 7 & 8) at three-month follow-up. According to Shapiro (2001), it is not necessary for SUDS scores to drop to 0/10 if a slight elevation is appropriate to the situation. For example, Rosalin indicated that due to her introspective nature and desire to remember and learn from her mistakes, it would not make sense for her to let go of all distress related to her Target 1.

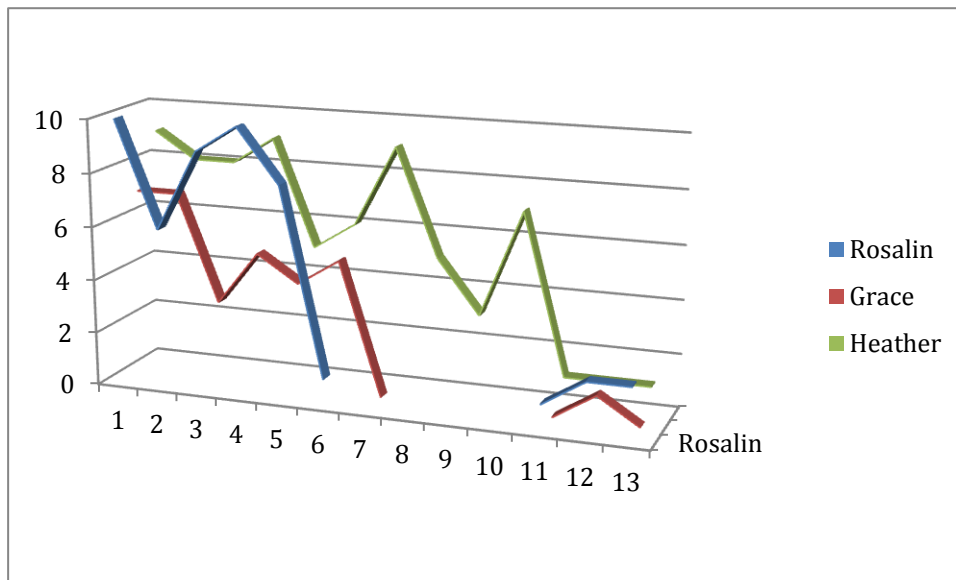


Figure 7. Target 1 SUDS Scores for All Participants. Note. Rosalin and Grace's SUDS scores are absent for a portion of time when we moved on to dealing with other Targets. Heather on the other hand needed all of her 12 to address Target 1.

***Belief in new, adaptive cognitions.*** VOC scores increased for all participants during treatment (see Figure 8) and remained at 7/7 at three-month follow-up.

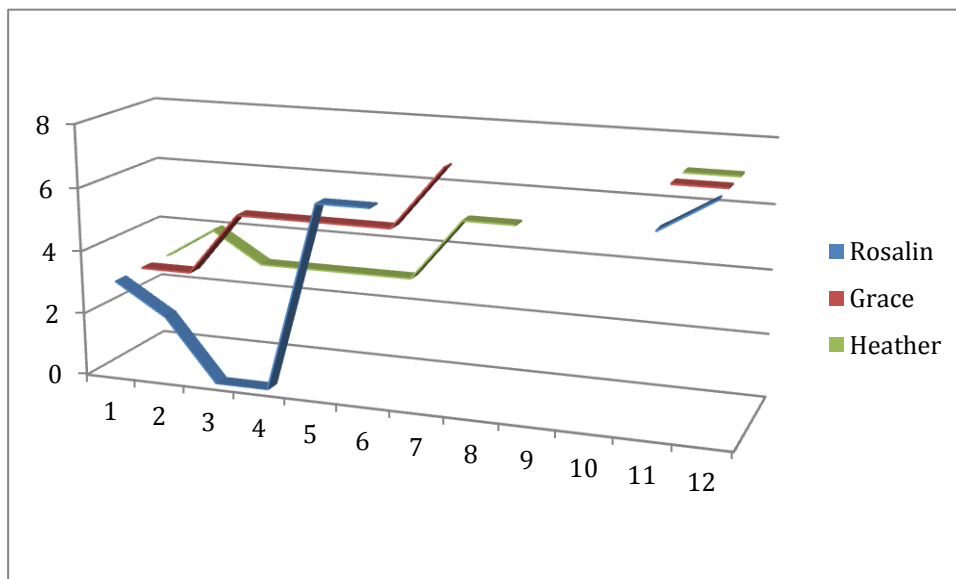


Figure 8. Target 1 VOC Scores for All Participants.

Overall, it was observed that following EMDR treatment, improvements were seen in both measures of physical distress (FIQ-R and SF-MPQ-2) and psychological distress (BDI-II, TSI, SUDS, and VOC) for all three participants. It also appeared that as more

adaptive belief systems were adopted (increases in VOC scores), physical and psychological distress decreased.

**Participant observation of changes in symptoms and functioning.** Cases were also compared to assess reported changes in physical symptoms of fibromyalgia and day-to-day functioning. Improvements in overall pain, pain in specific body parts, and sleep were observed across cases. Additionally, improvements in ability to communicate with loved ones and sexual functioning was observed.

***Decreased experiences of pain.*** All participants described a decrease in the pain that they attributed to fibromyalgia and a decrease in their own reactivity to their pain. All participants described a decrease in frequency of fibromyalgia flare-ups. These flare-ups could include, but were not limited to experiencing the following: exhaustion, body aches and pain, flu like symptoms, or concentration difficulties. Not only were flare-ups less likely to occur after TF-EMDR treatment but participants reported that flare-ups did not last as long when they did. Participants also reported a decrease in “tenderness to the touch.” This decrease was described as pain experienced simply from light pressure on the body. Participants reported continuing to feel aches and pains; however, it was less intense, and they described these as the normal aches and pains that anyone in the same age group or profession would feel.

All participants described a decrease in their worry or reaction to having pain. Rosalin described an incident where she banged her leg, began to feel the pain associated with the injury, and began to notice the beginnings of a fibromyalgia symptom flare-up. She described realizing that it was just a banged up leg; it hurt, but she knew that the pain would not last very long. Rosalin described this as a notable difference from her reaction to



physical distress prior to TF-EMDR treatment. Just as these participants had learned to identify and then observe their emotions without trying to avoid the emotions or change them, so it appears participants were able to observe the experience of physical pain without needing to strongly defend against it or react with worry to it.

***Improvements in specific body parts.*** Two out of three participants began their participation in this study by identifying a specific area of the body that experienced intense or continuous pain. Grace reported pain in her neck that had begun 17 years earlier after a vacuum had fallen down on her, and Heather reported a pain in her shoulder that she attributed to the initial onset of her fibromyalgia symptoms. During BLS, both Grace and Heather experienced similar emotional crescendos and diminuendos related to their pain (neck and shoulder), which resulted in identifiable moments of abatement of their longstanding pain. At three month follow-up, Grace's neck pain and Heather's shoulder pain had not returned.

***Improved sleep.*** All participants in this study reported a remarkable difference in sleep quality and duration following TF-EMDR. These improvements were observable even within the first three sessions of EMDR for Heather and seemed to steadily improve as treatment continued. Overall, participants reported an improved ability to fall asleep, increased duration of sleep, increased sensation of feeling rested upon waking, and an increased awareness of dreaming. During EMDR, Heather came to the realization of how anxious she had been about going to sleep, keeping herself awake until her body could not stay awake any longer, and wanting to have her pit bull in bed with her while she slept. Rosalin also reported anxious rumination regarding details surrounding her partner's affair.

Directly addressing life events related to these anxieties allowed both participants to fall asleep with greater ease.

Being able to fall asleep earlier and an ability to stay asleep longer contributed to an increased duration of sleep, leaving participants feeling more rested upon waking. Prior to EMDR treatment, Grace had required a few hours of resting on the couch in the morning before she was able to begin her day; post TF-EMDR treatment, she reported being able to begin her day with relative ease. Although both Grace and Heather brought dream content to sessions, Heather referred to them the most. On several occasions she described being almost startled by her dreams not due to upsetting content but merely due to her ability to remember them. This was an improvement that she would frequently note as significant to her; she now felt she was sleeping well and dreaming just like she assessed other people did.

***Improvement in communication with loved one.*** Improvements in communication were evidenced in the lives of all participants and led to increased senses of satisfaction within significant relationships. Communication improvements were seen in relationships addressed directly in treatment sessions (e.g., Grace being able to communicate her needs to her partner) and in peripheral relationships (e.g., Grace was better able to express her feelings with a close friend never mentioned in sessions). Improvements in communication seemed to be related to participants' increased ability to identify their needs and then be willing to express them. This improvement was influenced also by an increased awareness of participants' need to care for themselves instead of automatically prioritizing others. Decreases in overwhelming emotions during conversations allowed participants to stay present in challenging conversations longer and be less likely to take the comments or actions of others personally.

***Improved sexual functioning.*** An unexpected improvement across all participants was sexual functioning. Prior to treatment, Rosalin became emotionally triggered and subsequently engaged in obsessive thinking about her partner's affair when sexually intimate with Jane. Rosalin reported an increased sense of intimacy and a decrease in obsessive thinking following TF-EMDR. Due to a memory that emerged through the sustained attention on a physical sensation during BLS, Grace was able to identify generational (e.g., her mother's history of sexual abuse) and religious influences that connected anxiety and shame to the experience of her sexuality. Reprocessing these memories and beliefs led Grace to greater acceptance of her sexuality and a sense of personal/sexual power. Subsequently, she was able to initiate a conversation with her partner that led them to be in an open relationship and experience a greater sense of intimacy with each other. Desensitizing and reprocessing the memory of Heather's rape dramatically shifted her valuing of herself allowing her to stop reenacting being sexually vulnerable or using infidelity as a way of proving she was not worthy of a partner's trust or affection. Following TF-EMDR treatment, Heather reported greater satisfaction in her relationships and decreased compulsion to engage other men sexually.

## Chapter 5: Discussion

This parallel multiple case study sought to explore TF-EMDR treatment of individuals with fibromyalgia and a history of trauma. Convenience sampling narrowed this exploration to an investigation of women diagnosed with fibromyalgia and having a history of trauma. Two hypotheses regarding TF-EMDR treatment were investigated as follows: Hypothesis 1: Use of the standard TF-EMDR protocol alone will decrease traumatic stress symptoms.

Results supported this hypothesis. Improvements in TSI, BDI-II, and SUDS scores demonstrated a decrease in traumatic stress and related psychological symptoms for all participants. These score patterns were further endorsed by participant self-reports in follow-up interviews. Participants reported a decrease in feeling overwhelmed by emotions and an increased ability to observe, describe, and not be reactive to their emotions. Participants increased their ability to describe their emotions rather than expressing their discomfort as a physical sensation. Replication of this pattern of improvement in trauma, depression, and pain symptoms has been observed in past EMDR and phantom limb pain research (de Roos et al., 2010; M. C. Russell, 2008a; Wilensky, 2006).

Hypothesis 2: Direct treatment of traumatic symptoms associated with past distressing events will lead to a lessening of symptoms of physical pain.

Results supported this hypothesis as evidenced by decreases in post-treatment scores of the FIQ-R and SF-MPQ-2. These scores demonstrated a decreased experience of physical pain for all three participants. By the end of 12 weeks of TF-EMDR treatment, all three participants reported treatment gains in fibromyalgia symptoms with scores falling below threshold criteria for diagnosis. Participant observations appeared to mirror results seen on

standardized measures of physical and psychological symptoms, including improvements in general and location specific experiences of physical pain, improved sleep, improved communication with loved ones, and improved sexual functioning. Similar trends in the improvement of physical pain have been reported in other studies of chronic pain, utilizing the standard TF-EMDR protocol (e.g., Estergard, 1999; M. C. Russell, 2008a; J. Schneider et al., 2008).

### **Limitations of This Study**

Although appropriate for research directly applied to participants, theory exploration, and initial investigations, results from case study design cannot speak to the cause of improvement. Patterns within the current cross-case comparison suggest possible support for the *theory* that TF-EMDR may decrease physical and emotional symptoms of fibromyalgia by targeting experiential contributors (e.g., traumatic memories). Generalizability is also at issue. This parallel multiple case study was able to elucidate the experience of three women with a long history of fibromyalgia treatment and awareness of the mind-body connection; results cannot be generalized to the fibromyalgia population at large.

TF-EMDR may not be well-received or appropriate for all patients with fibromyalgia. It is possible that individuals who have been recently diagnosed with fibromyalgia may initially want to try medical or pharmaceutical treatments and are not yet prepared to consider medical alternatives, such as psychotherapy. This consideration is supported by a report of patient underutilization of psychological treatment for chronic pain (Bennett et al., 2007), with only 8% of patients participating in psychotherapeutic treatment. Additionally, EMDR may not be an appropriate treatment for all individuals experiencing

fibromyalgia, specifically for those who do not readily identify as having a history of traumatic events. There may be several etiological paths to the manifestation of fibromyalgia; it is possible that TF-EMDR may be most effective for those that arrive at a diagnosis via an identifiable traumatic stress pathway.

Most importantly, the findings from this small multiple case study did not involve random sampling, use of control groups, or random assignment that would permit inferences on efficacy of EMDR as a treatment of FM. Moreover, there was no comparison of how participants fared with the standard TF-EMDR protocol to any of the available modifications. Therefore, the only conclusive statement that can be gleaned from this case study is that more rigorous controlled research is necessary and that investigators may want to consider utilizing the evidence-based TF-EMDR protocol with specialized treatment populations, such as chronic pain conditions.

Other significant limitations to this study include the small sample, inclusion of only White middle-aged females, sampling bias and demand characteristics, the overreliance on self-report, and absence of physiological and/or collateral measures (e.g., physician ratings), the lack of independent raters, and insufficient follow-up data to assess possible long-term treatment gains or relapse rates.

### **Possible Explanation of Results in Light of the AIP model**

Results observed in the current study appear consistent with propositions of the Adaptive Information Processing (AIP) model (Shapiro, 2001). The AIP model assumes that most of an individual's dysfunction is derived from previous experience that has set in motion patterns of affect, behavior, thinking, and ultimately identity (Shapiro, 2001). Following a traumatic event, insufficient processing of information leads to a pathological

structuring of neurological networks. Distressing emotions experienced at the time of the traumatic event remain static. Months and years later, lack of assimilation of thoughts, emotions, and behaviors related to the traumatic event may leave individuals vulnerable to disturbing or even benign stimulation. The AIP model posits that pathology can be addressed by targeting dysfunctionally stored information in the nervous system.

Fibromyalgia has a 46% rate of comorbidity with PTSD (Sareen et al., 2007). Both conditions may have similarities in their sensitization of the central nervous system.

Fibromyalgia is considered a Central Sensitivity Syndrome (CSS), and it is suspected that PTSD is as well (Yanus, 2007). Central Sensitivity (CS) “is manifested by abnormal and intense enhancement of pain by central nervous system mechanisms” (Yanus, 2007a, p. 340). Yanus (2007a) described fibromyalgia as a hypersensitivity to pain and PTSD as a sensitization due to a single event or accumulation of emotional stress over several events. Yanus (2007a) suggested that CS is the cause of CSS just as Shapiro (2001), and her AIP model suggested psychological dysfunction is caused by disruption of information processing mechanisms and neural networks. It is possible that both premorbid traumatic events and the traumas associated with subsequent chronic pain are stored within the same neural channel (Ray & Zbic, 2001), making TF-EMDR suitable to address both psychological and physical expressions of the trauma simultaneously.

This study was originally inspired by one woman’s description of a diagnosis of fibromyalgia after a series of events that she found to be traumatic. In considering her experience and Shapiro (2001) and Yanus’ (2007a) assertions regarding similar mechanisms of action in maladaptive responses to trauma and fibromyalgia, the current study was designed to explore if TF-EMDR would be effective in the treatment of fibromyalgia. It

was thought that sufficiently processing dysfunctionally stored emotions, beliefs, and behavioral responses would address psychological symptoms of trauma and physical symptoms of fibromyalgia. Just as the TF-EMDR protocol could stimulate the brain's natural mechanisms for processing information to treat psychological distress, so could EMDR treat physical expressions of distress (e.g., pain, fatigue, sleep disturbance). Improvements in psychological and physical distress across these three case studies appear to lend support to propositions of the AIP model and therefore the use of TF-EMDR in the treatment of fibromyalgia.

### **Use of Standard TF-EMDR versus Modified EMDR Protocols**

The standard TF-EMDR protocol was chosen for this study based on the premise that treatment of experiential contributors (e.g., traumatic events) believed to underlie the etiology and/or maintenance of fibromyalgia may improve outcomes. The overall decreases across standardized measures of varied psychological symptoms (TSI, BDI-II, and SUDS) and physical distress (FIQ-R and SF-MPQ-2) observed in this study, suggest that the TF-EMDR protocol alone might be effective by directly targeting small “t” and big “T” traumatic events often associated with fibromyalgia. This improvement was evident with all three participants reporting fibromyalgia symptoms below diagnostic threshold. When distress or trauma associated with having fibromyalgia arose naturally during the reprocessing phases, it was addressed per the TF-EMDR protocol, and attention was then returned to each participant's trauma targets. Variation or modifications to the TF-EMDR protocol, including the use of homework, was not needed to see improvements in participants' emotional and physical well-being immediately following treatment and at three month follow-up.



**Caution regarding proliferation of modified EMDR protocols.** Shapiro (2002) encouraged adaptation of the TF-EMDR protocol based on clinicians' specialized knowledge as seen in the chronic pain work of Grant (1999), and Tinker and Wilson (2005). Shapiro (2002), cautioned against the dilution of EMDR's status as a well researched and widely recognized evidence-based therapy when clinical adaptation and application outpaces research. Use of EMDR in the treatment of chronic pain is one of these areas in which clinical adaptation is out-pacing research. This imbalance can lead to problems for both clinicians and researchers.

For instance, a clinician seeking out treatment options for chronic pain conditions may erroneously generalize TF-EMDR's evidence-based status for the treatment of trauma to its exploratory treatment of other conditions, such as chronic pain. It is necessary to clearly distinguish TF-EMDR from yet to be proven modified protocols. Statements drawing readers' awareness to the experimental nature of new EMDR protocols, such as those made by Grant (2010) and de Roos et al. (2010), are required and may help to make this distinction.

Additionally, proliferation of untested modified EMDR protocols can inadvertently dilute the body of literature that supports TF-EMDR's evidence-based status, fueling an ongoing controversy and resistance toward EMDR. It can be argued that in the past the EMDR controversy has propelled TF-EMDR researchers towards designing studies that address these criticisms and strengthen our understanding of TF-EMDR; it can also be argued that proliferation of various alternative protocols may actually intensify resistance to EMDR and slow down scientific progress and broader acceptance of EMDR as evidence-based practice.

The preliminary findings from this multiple case study might serve as a “cautionary notice” to future researchers, to first consider using the standard TF-EMDR protocol, which is the only evidence-based protocol, prior to modifying treatment protocols. Future researchers may want to compare the efficacy and effectiveness of the standard TF EMDR protocol with any deviations, before publishing a “new” specialty protocol.

***Chronic pain modifications: Adjunctive support for TF-EMDR.*** There is no argument that the needs of patients with fibromyalgia and a history of trauma may vary from those of patients solely dealing with trauma. It is reasonable for clinicians to use adjunctive supports to address that which the TF-EMDR 8-phase protocol does not. Shapiro (2001) has established a precedent for adjunctive support with the concept of cognitive interweaves.

The cognitive interweave was introduced to deal with complex and challenging needs that a straightforward application of TF-EMDR has, for a time, been unable to address (Shapiro, 2001). Typically, all direction for change is patient-centered; at times of therapeutic impasse the therapist may be called to influence the direction by offering a cognitive interweave, such as therapeutic statements or education. Shapiro (2001) indicates “The cognitive interweave should be used when spontaneous processing is insufficient for achievement of therapeutic goals” (p. 250). It is argued that this is exactly when chronic pain variations would be added to the TF-EMDR protocol. When progress has halted, chronic pain variations could be implemented in a manner that supports a return to the principle TF-EMDR treatment. For example, Grant’s antidote imagery (2009a), de Roos and Veenstra’s positive closure (2010), or the focus on current pain unrelated to trauma could all support a return to TF-EMDR. Regarding current pain, it should be noted that a

focus on physical sensation historically has been central to TF-EMDR (Shapiro, 2001) and was observed in the current multiple case study presentation.

Shapiro (2001) is clear “the clinician should intervene only when needed and then as briefly as possible” (p. 251). When patients are allowed to direct the course of therapy, their internalization of insights and treatment adherence is increased. Shapiro provided the following guidelines for the use of the cognitive interweave, which are easily generalized to the use of chronic pain variations. For the purposes of this discussion, Shapiro’s recommendations regarding cognitive interweaves will be applied directly to chronic pain variations.

In assessing whether to use a chronic pain interweave, Shapiro (2001) guides the clinician to assess whether the lack of treatment progress is due to an insufficiency of something previous in treatment. This insufficiency could include inadequate preparation or the clinician overlooking patient’s secondary gains related to chronic pain. Chronic pain variations could be implemented to support primary TF-EMDR if the clinician becomes aware of looping (high level of disturbance despite several sets of BLS and alterations to type of BLS); insufficient information (if the patient’s life experience or education is insufficient the clinician provides education); lack of generalization (from primary target to ancillary targets); or time pressures (if distress remains high in the last third of the session or if a target is multifaceted). Grant (2009a) recommends providing education about pain and having pain patients leave treatment sessions feeling better. There is room in TF-EMDR for these recommendations as well via cognitive interweaves. EMDR related protocols and chronic pain variations may offer additional offerings to patients with chronic pain; their use would be best understood as an adjunctive support of the TF-EMDR protocol.

### **Therapeutic Lessons Learned: Themes From Treatment**

Several recurrent themes emerged during the course of this study that will be commented upon briefly. A review of transcripts, session notes, and interviews with participants provided the author with an opportunity to consider a possible framework for understanding the body and physical sensation in the use of TF-EMDR for patients with fibromyalgia. Having an understanding of the role of the body made it easier to provide education or reframing of participants' physical experience in a way that honored their bodies and their pain. Providing education to patients who are at an impasse is a part of the TF-EMDR use of cognitive interweaves. The author observed that during the treatment of past trauma participants' physical expression of discomfort would often arise and could be considered as carrying out four different functions: *Reconnecting*, *Expressing*, *Distracting*, and *Containing* (RED-C).

**Honor the purpose of physical pain.** At the onset of treatment, all participants expressed a belief that a mind-body connection was likely involved in their experience of fibromyalgia. Despite this understanding, participants still expressed anger and frustration with themselves and their pain. This frustration is a common experience of patients with fibromyalgia (Sherbourne et al., 1992). Participants were able to learn to observe rather than react aversively to uncomfortable physical sensation during their TF-EMDR treatment. Between sets of BLS, brief and gentle reframing by the author drew attention to how physical sensation was serving the participants and to the option of being gentle with themselves and their pain.

A clear example of learning to honor pain and understand the purpose of pain was seen in the case of Heather. During TF-EMDR, Heather was able to see the "I'm fine,

Heather” part of herself as tenaciously telling her she really had not been hurt by her rape; she should keep living and move forward. At the time, this self-belief helped Heather survive but prevented her from obtaining the support she needed; arguably this began her suppression of feelings that would be stored in her body rather than being expressed. As Heather learned to see and honor this challenging part of herself, she began to observe and honor physical sensations in her body. Heather became aware of tension in her jaw that indicated she was not saying something that needed to be said. She also began to connect sensations of nausea during sessions with sadness and anger regarding her rape that had not yet been acknowledged. BLS during TF-EMDR provided the supportive framework that allowed Heather to observe, honor, and then make use of uncomfortable physical sensations.

Rosalin came to realize that her physical pain anchored her when her emotional pain became so intense that she would begin to dissociate. In learning to observe rather than impulsively react to her emotion during TF-EMDR, Rosalin reported an increased awareness of the normalcy and purpose of emotional pain and a decrease in her physical expression of pain when under stress. A shift towards seeing physical discomfort as a supportive defender relaxed participants and seemed to transform their physical discomfort into a resource (e.g., a signal that an emotional pain needed to be addressed) for both the participants and the author. Opportunities to develop this appreciation and honor for the body occurred during times of *Reconnecting*, *Expressing*, *Distracting*, and *Containing* (RED-C).

**Reconnecting.** It is standard practice in TF-EMDR to assist patients with reconnecting to that which needs restimulation or reprocessing via awareness of physical sensation. This practice was frequently necessary for participants of this study. Either

during times of highly evoking content or when trying to begin a session, physical sensation seemed to allow participants to reconnect to their memories. When restimulation of a traumatic memory rose to a level that required Grace to halt BLS, time was taken to calm down through debriefing of what Grace had experienced. Grace was asked what she was noticing, and all that remained aware to her was pain in her left hand. This pain made no logical sense to her, yet she felt notable pain. Grace had begun to trust in the process of observing emotions and her physical sensations (through several sessions of practice); she was agreeable to “just notice” the pain in her hand as BLS resumed. This new ability allowed Grace to connect with a memory related to earlier content that had been too evocative to come to consciousness at that time (as seen by Grace ending BLS). Focusing on the pain in her hand, reconnected Grace with this memory which led to a profound insight that seemed to precipitate a healthy shift in Grace’s communication with others and an honoring of her own needs and body.

**Expressing.** Physical discomfort was also seen to take on an expressing function during TF-EMDR. Physical pain or discomfort would come to consciousness prior to participants’ awareness of a thought or emotion. Communication through physical sensation was seen on a few occasions, when Heather became aware of tension in her jaw.

Encouragement to simply notice the jaw tension during BLS led to Heather’s awareness and subsequent expression of thoughts and opinions that she previously felt she was unable to validate or say. Another example of physical sensation expressing an internal experience occurred when Rosalin began to notice her own tendency to yawn prior to her assessment that a neural pathway had been sufficiently reprocessed. In this case it can be seen how the

body can express neutral or positive internal experiences, rather than just overwhelming or painful ones, prior to their arising in consciousness.

**Distracting.** Physical sensation was also observed to take on a distracting function for participants during BLS and between sessions. Physical distraction seemed possible with either pleasant or unpleasant sensation. During the three-month follow-up meeting, the author shared the observation that Rosalin would rarely name an emotion when asked what her emotions were; she would state how her body felt. In response, Rosalin indicated that focusing on her body had been her method of not numbing out (mild dissociation) in the past. Instead of experiencing painful emotions, Rosalin would intentionally distract by focusing on uncomfortable body sensations. Distracting in this way allowed Rosalin to block out her emotions without completely disconnecting from her awareness. Distraction with pleasant healing sensation was also actively used in sessions with all participants. When feeling overwhelmed emotionally, an internal healing light resource would be used to distract and self sooth, until the participant felt ready to return to the emotional or physical discomfort being addressed.

**Containing.** The idea of the body as container of painful emotions or those believed to be unable to be expressed is not new (Bion, 1962; Pollack, 2009; Sidoli, 2000). The body as container was seen in the experiences of Rosalin, Grace, and Heather. Grace's body throughout her lifetime had become a container for overwhelming emotions that she felt unable to express (due to fear of being shamed or a belief that expressing herself would not make a difference even if it was spoken). Examples of her body holding unexpressed emotions included the following: pain in her hand related to feelings of shame about masturbation and her sexuality; tingling in her arms related to clenching of her muscles to

contain her anger; and pain in her neck related to sadness over not feeling that she or her experiences were important to her parents. Understanding the body as a container could allow clinicians to better educate clients as to the adaptability of this function. In this study when this education was provided, it facilitated an honoring of the body for its efforts to support the individual. Honoring seemed to allow for relaxation and a greater ability to feel sensations that could lead to restimulation and reprocessing of traumatic memory.

### **Possible Disadvantages or Negative Side Effects of EMDR**

There were minimal reports of unpleasant side effects of TF-EMDR during this study. Feeling tired and having difficulty concentrating occurred primarily in the hours directly following treatment session. Following one night's sleep, these side effects were resolved. Early in treatment, fibromyalgia flare-ups occurred. These seemed related to discussion of traumatic events and early desensitization of targets. Additionally, one participant experienced a flashback for the first time in several years. Although she was able to see this as a sign that TF-EMDR was creating internal shifts, it was a disturbing experience resulting from treatment.

Coluzzi and Berti (2011) recommended physicians clearly communicate side effects to patients, as side effects were the primary reason for non-adherence. The side effects observed in this study were discussed and normalized in the preparation stage of TF-EMDR. Participants reported advanced warning being helpful, with two participants enthusiastically reporting flare-ups as self-determined signs of early progress. Participants described becoming accustomed to fatigue and foggy thinking as treatment progressed, with some describing these side effects as giving them permission to take more time for themselves after session than they would normally.



Although all participants in this study benefited from TF-EMDR treatment, current uncertainties as to which fibromyalgia patients might benefit from psychotherapy and then which psychotherapy (EMDR, CBT, or BT) leave clinicians unable to discern the most efficacious approach for individual patients. Uncertainties about best practices put patients at risk of wasting their time and resources on treatments that can only offer the possibility of helping. Additionally, patients are placed at risk to adverse reactions noted above, such as fibromyalgia flare-ups, without solid treatment reasoning.

Thorough medical histories should be taken prior to treatment to assess EMDR's impact on current medical issues. Comorbidities of fibromyalgia and anxiety have been documented (Schmechle & Edwards, 2011) and may result in fibromyalgia patients' use of anti-anxiety medications, such as benzodiazepines, which have been known to reduce EMDR treatment efficacy (Shapiro, 2001). Collaborative planning for patients' abstaining from use of these as-needed-basis medications in the hours prior to EMDR treatment can address this treatment challenge. Caution should be taken in providing EMDR treatment to patients with a history of seizure, as there have been reports of EMDR both triggering a seizure (G. Schneider, Nabavi, & Heuft, 2005) and extinguishing their occurrence (Kelly & Benbadis, 2007).

### **Potential Benefits of TF-EMDR in the Treatment Fibromyalgia**

There are several potential advantages of using the standard TF-EMDR in the treatment of chronic pain disorders, such as fibromyalgia. The following benefits were reported in participant interviews and demonstrated in outcome measures.

**Clear focus of treatment.** All participants reported appreciation for the structured and focused nature of the TF-EMDR protocol. All three participants had engaged in

traditional forms of talk therapy before participation and specifically noted that the EMDR approach gave them a sense that “we were getting down to business.” Regarding previous talk therapies, both Rosalin and Heather reported the emotional strain of retelling their traumas and the frustration with development of personal insights that had not resulted in notable changes in their behavior or symptoms. Rosalin and Heather felt frustrated that they were just “stirring it up,” without any result.

Although some time was needed initially for participants to get used to the different format of EMDR compared to traditional talk therapies, familiarity occurred within a few sessions. After becoming familiar with the format, participants learned that although there was time for discussion (especially to moderate speed of processing), targets collaboratively identified at the beginning of treatment were always given primary focus. TF-EMDR was “stirring it up” but the reasoning for doing so was clear and the format predictable. Participants indicated this provided a measure of assurance during challenging times.

A sense of purpose or focus was also achieved with identification of target memories and regular measurement of SUDS and VOC. Each week there was a general understanding of what would be worked with and an opportunity to measure our progress. It is thought that the focus provided by TF-EMDR’s structure and the collaboratively constructed targets may have led to an increased sense of alliance with the author/EMDR therapist and therefore a stronger treatment adherence.

**Efficient.** Notable improvement in psychological and physical symptoms related to trauma and fibromyalgia were observed in 12 sessions. Participant reports indicated awareness of improvement in their functioning mid-way through treatment (although formal measurement was not done until after the 12<sup>th</sup> session). In their systematic review of EMDR

treatment of MUS, van Rood and de Roos (2009) noted pain symptom improvement in 6.8 sessions. This efficiency could make TF-EMDR appealing to patients (especially those that are underinsured), insurance companies, and providers dealing with high case loads. EMDR may be more efficient in achieving changes in pain intensity than alternative psychotherapies. Thieme and Gracely (2009) found that long-term change in pain intensity was related to a greater number of CBT treatment hours (24 hours on average). Treatment with CBT under 20 hours duration was found to have only short-term changes in pain intensity.

Costs of treating chronic pain and opportunity costs related to lost productivity weigh heavily on patients and society (Robinson et al., 2003). Due to the long duration of their experience of pain, patients are likely to feel some degree of hopelessness and/or exhaustion. Distress related to illness and pain is especially common for patients with fibromyalgia who may also be dealing with the negative stigma of their illness (Lempp, Hatch, Carville, & Choy, 2009). Therapy that efficiently delivers positive effects is needed. The DVA and DoD (2010) indicate EMDR is effective in the treatment of PTSD in part due to its rapid therapeutic gains in comparison to traditional talk therapies. de Roos and Vennstra (2010) echo praise for rapid treatment gains seen with EMDR and indicate that for patients with chronic pain EMDR is also able to generalize trauma improvements to overall functioning.

TF-EMDR efficiency is also demonstrated in the treatment of chronic pain, including fibromyalgia, in its flexibility of use in a variety of different treatment environments with very low technological demands. M. C. Russell, Lipke, and Figley (2011) drew attention to the desirability of this in treatment of combat stress. Integration of TF-EMDR into medical

centers or pain clinics would require little physical adaptation to treatment facilities or significant increases in operating costs. In the current study “Thera-tappers,” compact and portable hand buzzers were used for BLS; traditional BLS through eye movements would require no equipment at all. Whether physicians provided outside referral or offered on-site opportunities for treatment, TF-EMDR could be an efficient vehicle for the delivery of pain management treatment for fibromyalgia patients.

**Treatment adherence.** High treatment adherence was observed in the current study. All three participants fully engaged in and completed all treatment and follow-up sessions (16 meetings). Rescheduling or missed appointments were negligible. Participants’ self-motivated interest from the beginning of participation is likely a factor in their consistent participation; there are several components of the TF-EMDR experience that are thought to have positively impacted treatment adherence.

**Patient centered.** Early beliefs that fibromyalgia was an exaggeration or fictitious illness (van Wilgen et al., 2008) and frustration with lack of responsiveness to treatment contributed to strained relationships between patients and treatment providers. Good communication and relationship between fibromyalgia patients and treatment providers can improve treatment outcomes (Dobkin et al., 2009; Koudriavtseva et al., 2011). Elements of TF-EMDR specifically address the development of a strong treatment alliance and collaborative working relationship that focuses on patients’ wisdom regarding themselves. Continuous assessment of SUDS creates numerous opportunities for alignment between clinician and patient. This alignment is crucial as differences in the clinician’s and patient’s perception of the patient’s health or emotional well-being negatively impact treatment alliance (Dobkin et al., 2006; Sewitch et al., 2004). Ray and Zbic (2001) point out EMDR’s

collaborative identification of targets, use of patients' own internal resources, and patients identification of their own new PC allows for establishment of greater treatment alliance and investment in treatment. In the current study, it was observed that all three participants made unsolicited reference to feeling supported, listened to, and cared about by the treatment provider.

***Increased experience of self-efficacy.*** Self-efficacy is an essential factor in general adherence to medical interventions (Griva et al., 2000) and fibromyalgia (Lynch, 2004). Patients' active involvement in the development of new, more adaptive PCs is a central component of the EMDR process. These PC contribute to an increased sense of self-efficacy. In the current study, it was observed that the development of PC directly related to traumatic events generalized to improvements in overall experiences of self efficacy. For example, Rosalin developed a PC "I can aspire to live with an open heart," related to dealing with the wound of her partner's infidelity. In subsequent sessions, Rosalin began to spontaneously apply this openness of heart to herself, and she became aware of her own need to take care of herself both in her relationships and in light of her fibromyalgia. She began to visualize a future in which she could validate slowing down and effectively attend to her own needs.

***Directly addresses symptoms of depression and trauma.*** Depression (Clauw & Williams, 2002) and trauma (Raphael et al., 2004) have been observed to be comorbid with diagnoses of fibromyalgia. Treatment adherence for general medical conditions is negatively impacted by patients' experiences of depression (Bautista et al., 2012; Tarrants et al., 2011) and trauma (Zen et al., 2012). In a study of myocardial infarction, trauma was linked more closely to non-adherence than depression (Shemesh et al., 2011). As an

evidence-based treatment of trauma, TF-EMDR has the potential to address comorbid psychiatric factors that may negatively impact treatment adherence in addition to decreasing physical symptoms of fibromyalgia as seen in this study.

*Treatment adherence factors related to other psychological treatments of chronic pain.* TF-EMDR may address limitations of other recommended psychological treatments for chronic pain or fibromyalgia. In the current study, it appeared that EMDR did not require the use of homework and provided a structure that made treatment tolerable. Both factors likely contributed to treatment adherence.

In the current study, no homework was assigned. Participants were encouraged to make a note of dreams/nightmares or thoughts/emotions if they thought it helpful for containment or as a reminder to discuss in the next session. During follow-up meetings, participants were asked what they would have thought about having homework and responses were mixed. Rosalin indicated she would not have wanted to do homework as: “some sessions were so big that I didn’t want more.” However, Grace, indicated that she liked journaling and would have been open to that type of homework. Grace could see TF-EMDR “was working” and reported being willing to try other recommendations, such as homework. Based on improvements seen in the current study without the assignment of homework, it is speculated that homework is not necessary for improvement but could be suggested on a case-by-case basis to further enhance therapy for those patients who identify as being interested in an added treatment component.

All three participants in this study described times at which they considered dropping out of the study or missing a session. Despite this, all participants remained engaged in treatment, and all experienced improvements in their psychological and physical symptoms.

Rosalin, who reported dreading coming to sessions halfway through her participation, indicated the following as helpful to maintaining her adherence: (a) the education as to why EMDR was increasing her distress and how to pace the speed of processing; (b) her own observation that for the first two sessions addressing a target memory was challenging but subsequently get easier; (c) awareness that EMDR also offered pleasant experiences (e.g., safe place resource); and, perhaps, most importantly; (d) she could see her progress through consistent measurement of SUDS, and she knew her short-term discomfort was worth it in the long-term.

### **Implications of the Study**

A multiple case study design was chosen due to its applicability to the real life circumstances and treatment needs of study participants. In this spirit, clinical recommendations for TF-EMDR treatment of patients having fibromyalgia for a number of years who have a history of trauma are provided, followed by recommendations for future research.

**Recommendations for practitioners.** Several recommendations for practitioners emerged during this study including utilizing the TF-EMDR protocol, building and maintaining a strong treatment alliance, building internal resources and psychoeducation, attending to emotions, and attending to the physical body.

***Utilizing the standard TF-EMDR protocol.*** Results of this study suggest the TF-EMDR protocol may be effective in addressing the needs of patients with a history of trauma (whether these traumas are a one time event or a series of events). It is recommended that when working with patients with fibromyalgia or other CSS or chronic pain conditions, clinicians thoroughly assess for a history or symptoms of trauma via clinical

interview and/or psychological testing. When a history of trauma is present, the TF-EMDR protocol should be considered, given its status as a recognized evidence-based treatment of trauma (e.g., APA, 2004).

de Roos et al. (2010), and Wilson and Tinker (2010) similarly recommend use of the TF-EMDR protocol to treat trauma memories and trauma related to having pain with patients experiencing PLP. Both groups of authors advise use of specialized chronic pain EMDR protocols to treat current pain only once past trauma has been processed with the standard TF-EMDR protocol.

EMDR clinicians are also advised to avoid redirecting patients to trauma memories when pain sensation or memories related to having pain arise as this might interfere with the patient's own adaptive neural reprocessing. If pain sensations arise during BLS, standard therapist response to "just notice that" should be given, along with other free associations. In the current study, when a participant was unable to remain focused on a target memory of trauma due to her frustration with having chronic pain or symptom exacerbations, encouragement to "just notice" provided insights into targeted trauma memories as well as relaxation and symptom abatement.

Clinicians should wait to provide treatment for comorbid psychiatric conditions (e.g., CBT or psychopharmacology) until completion of TF-EMDR as these conditions may be simultaneously treated (van Rood & de Roos, 2009). For example, decreases in depression scores in the current study were reported coinciding with traumatic stress and pain symptom relief. If replicated, TF-EMDR treatment could decrease time and cost of treatment.

***Building and maintaining a strong treatment alliance.*** Psychological distress impacts treatment adherence (Sherbourne et al., 1992); it is essential that therapists prioritize



the establishment of a healthy treatment alliance. This strong alliance is even more important with patients having a diagnosis of PTSD (Keller, Zoellner, & Feeny, 2010) and those who originally sought treatment from a medical facility (van Rood & de Roos, 2009). A systematic review of EMDR and MUS reported an initial dropout rate of 10-32% (van Rood & de Roos, 2009; CBT treatment has been noted to have a drop-out rate of 26%; Thorn et al., 2011; Whetherell et al., 2011). Authors speculated that this drop-out rate might be due to dissonance between patients' perceived etiology of illness or pain and the perceptions of the health care providers. In the current study, during follow-up meetings, all three participants indicated that trust and comfort with the EMDR therapist played an important role in keeping them engaged in treatment and final assessments on the value and meaning of the EMDR work.

Incongruence between patients and health care providers in regard to patients' experience of pain has been found to negatively impact treatment alliance (Sewitch et al., 2004). During EMDR, the frequent use of reassessment of SUDS and VOC scores creates frequent opportunities for alignment between EMDR therapists and patients, allowing therapists to more fully understand their patients' pain experiences and allowing patients to feel more understood by therapists.

At the beginning of each session assessment of physical symptoms of fibromyalgia and experiences during the week provide an opportunity for normalization of distressing secondary effects of TF-EMDR treatment outside of the session (e.g., flashback, increased intensity of dreaming, pain flare-ups, apprehension about coming to session) as well as time for reflection and celebration of improvements. In the current study, participants began to spontaneously initiate reflections on changes and improvements they observed as treatment

progressed and they noted their own awareness of change reinforced their commitment to the TF-EMDR process even when they knew treatment was uncomfortable at times.

Creating a regular time for brief discussion of discomforts, challenges, and improvements seemed to help strengthen the treatment alliance.

***Building internal resources and psychoeducation.*** Therapists should ensure adequate time for development of internal resources and psychoeducation regarding what to expect from the TF-EMDR treatment process. These elements are recommended by Shapiro (2001) for the treatment of trauma and appear to be important in the treatment of fibromyalgia, based on the results of this study. As noted in the current case studies and cross-case comparisons, all three participants made frequent use of internal resources established in the preparation phase and commented upon how these internal resources were important in helping them weather challenging episodes in treatment.

Participants reported that psychoeducation as to what to expect during EMDR helped them tolerate discomfort in session and temporary crescendos of symptoms part way through treatment sessions (e.g., Rosalin experienced an increase in irritation and anger; Grace experienced a surge of emotions when engaging in a conversation about Grandma May during a family visit; Heather experienced a flashback). Information describing temporary increases in symptoms, more active dreaming, and the need to set aside personal time following sessions were reported to be helpful by all participants. Reframing of increases in physical or psychological symptoms was seen to increase participants' commitment to treatment as they perceived these increases as evidence of change.

Psychoeducation that provided an alternative perspective on participants' physical pain was helpful in keeping participants engaged in the treatment process in the face of

internal defensive slowdowns or physical symptom flares. Discussion occurred as to how adaptive it was for the body to be able to take responsibility for holding tension and pain that participants felt unable to emotionally tolerate. Physical pain could be the result of the body taking on this additional responsibility. Since participants seemed to be more comfortable tolerating physical sensation than emotions, this pain could be seen as the body's effort to support and cope rather than a betrayal or weakness.

Heather's experience was a successful example of the supportive efforts of her body. By the 5th session, Heather had begun to come late to treatment sessions and reported increased anxiety beginning a few hours before our sessions. When her tardiness and anxiety was reframed as part of defenses intending to protect her, it was possible to honor her defenses, allowing them to subside. Efforts were made to make it unnecessary for Heather to dropout of treatment entirely in order for her internal defenses to achieve their goal of protecting her.

***Attending to emotions.*** Participants in this study had difficulty initially identifying emotions versus physical sensation. This could be interpreted as alexithymia, a difficulty with putting words to emotions. Alexithymia has been associated with fibromyalgia (Huber, et al., 2009; Sayar et al., 2004; Steinweg et al., 2011). Based on these case studies, it is recommended that clinicians remain cognizant of and actively address potential alexithymia. Strategies may include the following:

1. Psychoeducation defining alexithymia and the purpose of emotions. The TF-EMDR practitioner would be encouraged to consider supporting the patient's observation, identification, and description of emotions.

2. Practice identifying emotions associated with physical sensations. This effort can be done during assessment and reassessment phases. Asking patients to identify where in his or her body each identified emotion is provides him or her with practice identifying emotions without significant adjustment to the TF-EMDR protocol. Additionally, practice identifying emotions can be provided by soliciting a SUDS rating for each individual emotion instead of one overall rating of distress.

Addressing alexithymia may improve patients' ability to engage in TF-EMDR treatment. If so, it is speculated that improvements in interactions with other health care professionals may benefit. Steinweg et al. (2011) described the challenge for medical professionals to fully assess and address patients' concerns when patients are not able to articulate multiple and complex interactions of symptoms.

3. Observation of emotions and sensations without any effort to change them. This observation can occur during standard use of BLS. At the beginning of BLS, gentle reminders to "just notice that (emotion) without trying to change it or make it go away" can be offered. In this study, this practice provided the support and structure participants needed to learn to observe emotion rather than impulsively react to it.

4. Development of self-care plans for challenging emotional times. In the current study, development of self-care plans naturally arose near the end of the 12 weeks as participants' comfort experiencing emotions and compassion towards themselves increased. Acknowledgement of patients' skillfulness in providing self care for their bodies and physical pain can be used to support emotional self-care plans as well.

It should be noted this study did not investigate the experience of alexithymia directly; it emerged as a theme during analysis of session transcriptions. These recommendations require further study.

***Attending to the physical body.*** When working with a patient with fibromyalgia, it stands to reason that the clinician would attend to the patient's physical experience. When working with such a patient who also has a history of trauma, it is recommended that the pain in the body not be the focus of treatment, but past experiences of trauma should be addressed. Pain that arises in and out of session can be honored as serving a purpose rather than vilified as a terrible burden. Clinicians can consider the role of the physical body by reflecting on its roles in reconnecting, expressing, distracting, and containing (RED-C).

**Recommendations for future research.** Additional case study research by an independent researcher replicating the methods used in this study could be done to build upon the replication logic established in this study (Riedl, 2007). Mounting case study research, including the current study, also indicates a need for RCT investigating the use of EMDR in the treatment of chronic pain. These RCT are necessary to compare the standard TF-EMDR protocol with other accepted and recommended treatments (e.g., CBT) and modified EMDR pain protocols.

If there is reason for use of modified pain protocols, research investigation of the order of treatment targets (e.g., (a) trauma memories, (b) pain-related memories, and (c) current pain [de Roos & Veenstra, 2010]) is needed as there are currently no definitive guidelines. Research identifying patients for whom EMDR is contraindicated or ineffectual are also needed. For instance, exploration of how patients' perceptions of events related to

onset of their chronic pain would help to identify chronic pain patients who may not benefit from TF-EMDR.

Ever increasing proliferation of modified EMDR protocols requires RCT to investigate the causes of change offered by different approaches. RCTs could address questions, such as: (a) under what conditions should TF-EMDR be used in the treatment of chronic pain, (b) what if any modifications to the TF-EMDR protocols for chronic pain offer additive benefit, and (c) does combining EMDR with other traditional psychotherapies (e.g., CBT) improve treatment outcomes?

Research arising from clinical practice can directly benefit patients/participants and is essential to development of more effective treatment options. As noted previously, caution must be taken in balancing clinical adaptations with research that supports the use of those adaptations. Practitioner-researchers are recommended to incorporate as much structure and use of standardized measures of change as possible into their research, with awareness of measures (e.g. BDI-II) already represented in the literature. Based on themes and changes observed across cases in the current study, it is recommended that future research consider how TF-EMDR may impact the decrease of catastrophizing and anger and the increase of self-efficacy, forgiveness, and sleep. These factors have all been related to the experience of fibromyalgia (Campbell & Edwards, 2009; Lynch, 2004; Rosenzweig & Thomas, 2009; Toussaint et al., 2010; van Middendorp et al., 2010).

## Chapter 6: Conclusions

Fibromyalgia, a syndrome characterized by chronic pain and fatigue, negatively impacts the lives of patients, their families, and society at large. Its unknown etiology places strain on patients and providers as effective treatments are wanting. The grouping of fibromyalgia as a CSS (Yanus, 2007a) acknowledges the likelihood of biopsychosocial origins, including psychosocial trauma. The standard TF-EMDR protocol (Shapiro, 2001), is an evidence-based treatment of trauma (e.g., APA, 2004) and was considered as a viable treatment option for individuals experiencing fibromyalgia with a history of exposure to traumatic events that may contribute to the cause, maintenance, or exacerbation of their medical conditions. Until this study, there has been no research on the TF-EMDR protocol specific to the treatment of fibromyalgia. Research investigating the use of EMDR in the treatment of chronic pain conditions is growing and divides along the lines of use of the traditional TF-EMDR protocol and EMDR chronic pain variations (Grant, 2010) and modified EMDR protocols (Ray & Page, 2002). The current study chose to investigate the most evidence-based protocol TF-EMDR.

The primary aim of this multiple case study was to explore two hypotheses related to the treatment of fibromyalgia: 1) Use of the standard TF-EMDR protocol alone, will decrease traumatic stress symptoms, and 2) Direct treatment of traumatic events or psychophysical symptoms associated with past distressing events will lead to a lessening of symptoms of physical pain. Cross case comparison indicated similar patterns of symptom improvement among all three participants. Following EMDR treatment, improvements in physical and psychological symptoms improved to an extent that none of the participants' FIQ-R scores placed them in a range indicative of Fibromyalgia, and measures of

psychological distress had meaningfully dropped. Current study results are illustrative of TF-EMDR treatment of women with a history of trauma, farther along in their experience and understanding of fibromyalgia and traditional treatments, who are open to conceptualizing their experience through a mind-body connection, and are adherent to treatment.

Pain protocols that diverge from the TF-EMDR protocol (de Roos & Veenstra, 2010; Grant, 2010), make an effort to adapt the TF-EMDR protocol for more efficacious treatment of patients, including current pain not associated with trauma. As of this time, solid evidence for the use of the evidence-based TF-EMDR protocol has not yet been established in the treatment of chronic pain; it is premature to develop new variations. Modified EMDR protocols should be considered as experimental and need to be rigorously tested in comparison to standard TF EMDR protocol and other evidence-based interventions. Until such time, use of modified EMDR protocols may better be considered as adjuncts to the TF-EMDR protocol, similar to a cognitive interweave.



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## APPENDIX A

## Intake Questionnaire

Pseudonym : \_\_\_\_\_

**Intake Questions for EMDR and Fibromyalgia study**Fibromyalgia

1) Do you have a current diagnosis of Fibromyalgia?       yes                       no

2) In what year did you initially receive this diagnosis?

\_\_\_\_\_

3) Can you provide documentation of your Fibromyalgia diagnosis?

E.g. a chart note from your physician.                       yes                       no

4) Do you have any other medical conditions or injuries that are causing you pain?

(e.g. ruptured disk)     yes                       no

If yes, please describe:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5) Besides medications, what other things do you do (and how often) to find relief from your Fibromyalgia symptoms?

\_\_\_\_\_

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Mental Health

6) Please list: Current mental health diagnoses:

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Past mental health diagnoses (if different than above):

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7) Has anyone in your family been diagnosed with a mental health diagnosis? If so please describe:

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8) Has anyone in your family ever attempted suicide?       yes       no

If yes please explain:

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## 9) Have any of these ever happened to you?

Yes    No

       Suicidal thoughts:     current     Past: Date: \_\_\_\_\_

       Attempted suicide    Dates: \_\_\_\_\_

       DUI    Date: \_\_\_\_\_

       Psychiatric Hospitalization    Dates: \_\_\_\_\_

Reason for admission: \_\_\_\_\_

       Motor Vehicle Accident    Date(s):

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       Childhood Abuse:     Physical     Sexual     Verbal

       Childhood neglect (e.g., not enough to eat, was frequently left alone)

       Childhood witnessing of domestic violence

       Divorce of parents when you were a child

       Experienced abuse or trauma but did not feel your parent protected you or believed you

       Experienced frequent teasing or bullying as a child

       Experienced significant illness of a parent as a child

       Adulthood Abuse:     Physical     Sexual     Verbal

       Natural Disaster

       Traumatic death of a loved one

       Witness or victim of a terrorist act

       Experienced war as a civilian

- Experienced war as a member of the military
- Your own divorce
- Loss of a limb
- Life threatening surgery

10) Have you ever done any of these things to feel better or relieve stress?

- cutting     burning     hitting     other self harm:
- laxatives     throw up     reckless driving     playing with weapons

11) Have you ever gone to counseling?     yes     no

If currently in counseling, please indicate:

Name of counselor:

---

Phone number:

---

Condition or issue being treated:

---

12) Have you ever participated in EMDR treatment before?     yes     no

Substance Use

13) If you consume alcohol, please indicate the number of drinks you have:

per day \_\_\_\_\_ OR per week \_\_\_\_\_

14) Please check all that you have used in the last year:

- Marijuana
- Meth, speed, crank, crystal, cocaine, crack
- LSD, mushrooms, PCP, hallucinogens
- Vicodin, Oxycontin, Percocet, Codeine, ect.
- Heroin, Morphine
- Body building supplements, steroids, diet pills
- Relaxers: benzos, Xanax, barbs, other pills
- Ecstasy, club drugs, GHB, inhalants, sprays
- Other: \_\_\_\_\_

16) Has anyone ever said you have a problem with alcohol or drugs?  yes  no

### Support System

17) Who are the important people you can turn to in a time of need?

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18) What do you do to take care of yourself when you aren't feeling at your best?

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19) Do you have a spiritual practice that supports you? If so, please describe.

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20) Is there anything else about you that you would like us to know?

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Thank you for taking the time to complete this questionnaire.





## APPENDIX C

## Closing Questions

- 1) How have you changed since beginning this EMDR study?  
Consider: pain levels, thoughts, behaviors and feelings.
- 2) What was most surprising to you about your experience?
- 3) What did you like about this experience? What was helpful?
- 4) What did you not like about this experience? What was not helpful?
- 5) How has this compared to other treatments you have tried for your Fibromyalgia?
- 6) Would you recommend this type of treatment to someone else? Why?
- 7) What else would you like to say about your experience?