

A Preliminary Examination of Treatment for Posttraumatic Stress Disorder in Chronic Pain Patients: A Case Study

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Manualized treatments have become popular, despite concern about their use when comorbid diagnoses are present. In this report, the efficacy of manualized posttraumatic stress disorder (PTSD) treatment was examined in the presence of chronic pain. Additionally, the effect of PTSD treatment on chronic pain and additional psychiatric diagnoses was explored. Six female patients with both PTSD and chronic pain following motor vehicle accidents were treated for PTSD using a multiple baseline design. The results indicate that manualized treatment for PTSD was effective in reducing PTSD symptoms in these patients. Although there were no changes in subjective pain, there were pain-related functional improvements and reductions in other psychiatric diagnoses for the majority of patients.

KEY WORDS: posttraumatic stress disorder (PTSD); chronic pain; comorbid conditions; treatment.

Manualized treatments have been recommended by leading organizations (e.g., American Psychological Association) and are supported by health insurance providers. However, this trend is not without debate, emphasizing the need to examine the utility of focused treatments when comorbid diagnoses are present (e.g., posttraumatic stress disorder [PTSD]; Brady, Killeen, Brewerton, & Lucerini, 2000).

Manualized treatment for PTSD has demonstrated generalized improvements in comorbid psychiatric conditions (Blanchard et al., in press). However, the effect of PTSD treatment on comorbid pain complaints has not been systematically examined. This oversight is salient since chronic pain is frequently comorbid with PTSD (e.g., Hickling, Blanchard, Silverman, & Schwartz, 1992). Further, pain can become resistant to treatment when

heightened anxiety is present (e.g., Dworkin et al., 1992; Wallis, Lord, & Bogduk 1997).

There is a substantial body of literature documenting the synergy between pain and PTSD (e.g., Bryant, Marosszeky, Crooks, Baguley, & Gurka, 1999; Geisser, Roth, Bachman, & Eckert, 1996; Kuch, Cox, & Evans, 1996; Sharp & Harvey, 2001). Current interventions for both PTSD and chronic pain favor cognitive behavioral treatment. Because of these factors, we examined PTSD treatment with chronic pain patients, using a multiple-baseline across-subjects design (Hayes, Barlow, & Nelson-Gray, 1999). The sample included six patients with soft-tissue injuries and PTSD following motor vehicle accidents (MVAs). We hypothesized that treatment would be effective in reducing PTSD, other psychiatric diagnoses, and pain-related dysfunction.

Method

Participants

Six female MVA survivors with chronic pain and PTSD related to their MVA completed a pretreatment

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Table 1. Demographic Information

Participant	Age	Ethnicity	Marital status	Time since MVA	Injuries	Medications
Karen	33	African American	Divorced	20 months	Herniated disks Punctured lung Broken ribs Broken pelvis Crushed tailbone Broken hip	Celexa Depakote Imatrex Prevacid Daypro
Ann	47	Caucasian	Divorced	9 months	Whiplash	Lorazepam
Peggy	36	Caucasian	Married	19 months	Herniated disks	Paxil Neurontin
Carrie	47	Caucasian	Separated	20 months	Whiplash Crushed ankle Broken leg Concussion	Prozac Darvocet
Mindy	35	Caucasian	Married	4 months	Whiplash	Motrin
Wilma	35	Caucasian	Married	3 months	Cerebral edema Whiplash Broken ribs	Paxil Motrin

evaluation, baseline, 12-week treatment, and 1-month posttreatment evaluation. Participants were randomly assigned to baseline conditions (2 to 5 weeks including pre-treatment) and needed to be stable (or deteriorating) in their PTSD symptomatology prior to initiating treatment (Hayes et al., 1999).

Patients were recruited from a pain treatment center, and had not responded to standard pain interventions (e.g., surgery, physical therapy) for a minimum of 3 months, thus qualifying for classification as chronic pain (See Table 1; International Association for the Study of Pain, 1986).

Treatment

The 12-week treatment for PTSD was modeled after Blanchard and Hickling's treatment (Blanchard & Hickling, 1997). It included imaginal and in vivo exposure, cognitive restructuring, relaxation techniques, social support, anger management, and pleasant event scheduling. Given that the "existential issues" interventions from the original protocol were not published by the treatment authors, they were not included (see Shipherd, Beck, Hamblen, & Freeman, 2000). The treatment was provided by closely supervised, trained, graduate students. Training included observing experienced therapists administering the protocol and weekly supervision. Discussion of pain-related issues was explicitly avoided in order to examine the effects of PTSD treatment on pain complaints. Seventy-five percent of sessions were watched in their entirety by a licensed psychologist (JGB⁴), with no protocol deviations.

⁴Dr. Beck has a 15-year history of applying manualized cognitive behavioral treatments.

Pre- to Posttreatment Change Measures

Average Severity of PTSD

PTSD diagnoses were from the Clinician Administered PTSD Scale (CAPS; Blake et al. 1990), a widely used tool with good psychometric support (Weathers, Keane, & Davidson, 2001). In cases where a symptom was caused by pain, it was not included in the PTSD diagnosis. This conservative procedure was implemented to insure diagnostic integrity (Shipherd et al., 2000). Posttreatment interviews were conducted by clinicians not involved in treatment and unaware of participants' pretreatment functioning. As part of a larger study ($n = 195$), 29% of interviews (including current sample) were randomly selected for independent reliability evaluation with excellent diagnostic agreement ($k = .89$).

Additional Anxiety and Mood Disorders

The Anxiety Disorders Interview Schedule-IV (ADIS-IV; DiNardo, Brown, & Barlow, 1994) was used to assess Axis I pathology. Interviewers were trained with methods described by DiNardo, Moras, Barlow, Rapee, and Brown (1993). Reliability checks indicated high agreement between raters (kappa coefficients ranged from .93 to 1.0).

Chronic Pain

Three items from the Multidimensional Pain Inventory (Kerns, Turk, & Rudy, 1985) were included: (1) Working status, (2) Average pain intensity (1-week interval; 0–6 scale; 0 = *not at all severe*, 6 = *extremely severe*), and

Table 2. Pretreatment to Posttreatment Change

Participant	Prediagnoses	Postdiagnoses	Work status		Avg. pain (0–6 scale)		Time in bed (0–6 scale)		CAPS (0–136)	
			Pre	Post	Pre	Post	Pre	Post	Pre	Post
Karen	PTSD	None	Unemployment	Full	5	4	6	3	72	28
Ann	PTSD PDA MDD SpcP-small places	PTSD PDA MDD SpcP-small places	Full	Full	4	4	3	1	85	60
Peggy	PTSD MDD	Dysthymia GAD	Disability	Disability	5	4	4	0	85	19
Carrie	PTSD MDD OCD	None	Full	Full	3	2	5	0	97	15
Mindy	SpcP-small places PTSD MDD SpcP-H ₂ O	SpcP-H ₂ O	Disability	Full	3	4	1	1	62	23
Wilma	PTSD MDD	None	Disability	Full	5	3	2	0	84	21

Note. PTSD = Posttraumatic stress disorder, PDA = Panic disorder with agoraphobia, MDD = Major depressive disorder, SpcP = Specific phobia, OCD = Obsessive-compulsive disorder.

(3) Time spent in bed because of pain for past week (0–6 scale; 0 = *never*, 6 = *very often*).

Weekly Monitoring Measures

PTSD Symptoms

The Impact of Event Scale (IES) assesses intrusive (range 0–35) and avoidance (range 0–40) symptoms of PTSD from the previous week (Horowitz, Wilner, & Alvarez, 1979). The scale is sensitive to change, has good internal consistency, and high test-retest reliability (Zilberg, Weiss, & Horowitz, 1982).

Chronic Pain

The Oswestry Disability Index (ODI; Fairbank, Couper, Davies, & O'Brien, 1980) assesses 10 areas of pain-related function (e.g., lifting), with higher scores indicating poorer functioning (range = 0–50). This measure has high test-retest reliability and good internal consistency (Fairbank et al., 1980).

Results

Pre- to Posttreatment Change

Average Severity of PTSD

CAPS scores decreased for all patients, with 5 treatment responders (remission of PTSD). The sixth partic-

ipant's CAPS score decreased but still met threshold for diagnosis (Table 2).

Additional Anxiety and Mood Disorders

The average number of pretreatment psychiatric diagnoses was 2.67 ($SD = 1.2$). By posttreatment, number of diagnoses was 0.4 ($SD = 0.6$) in the treatment responders ($n = 5$).

Working Status

At pretreatment, 4 of 6 participants were not working because of pain. By posttreatment, 3 of these individuals had returned to work full-time.

Average Pain Intensity

At pretreatment, average pain intensity was 4.2 ($SD = 0.98$) and by posttreatment had decreased to 3.5 ($SD = 0.84$). Four participants reported decreases in pain of one point or more.

Time Spent in Bed Because of Pain

Pretreatment scores averaged 3.5 ($SD = 1.9$) and by posttreatment had decreased to 0.83 ($SD = 1.2$). Time spent in bed decreased by at least one point for 5 of the 6 participants.

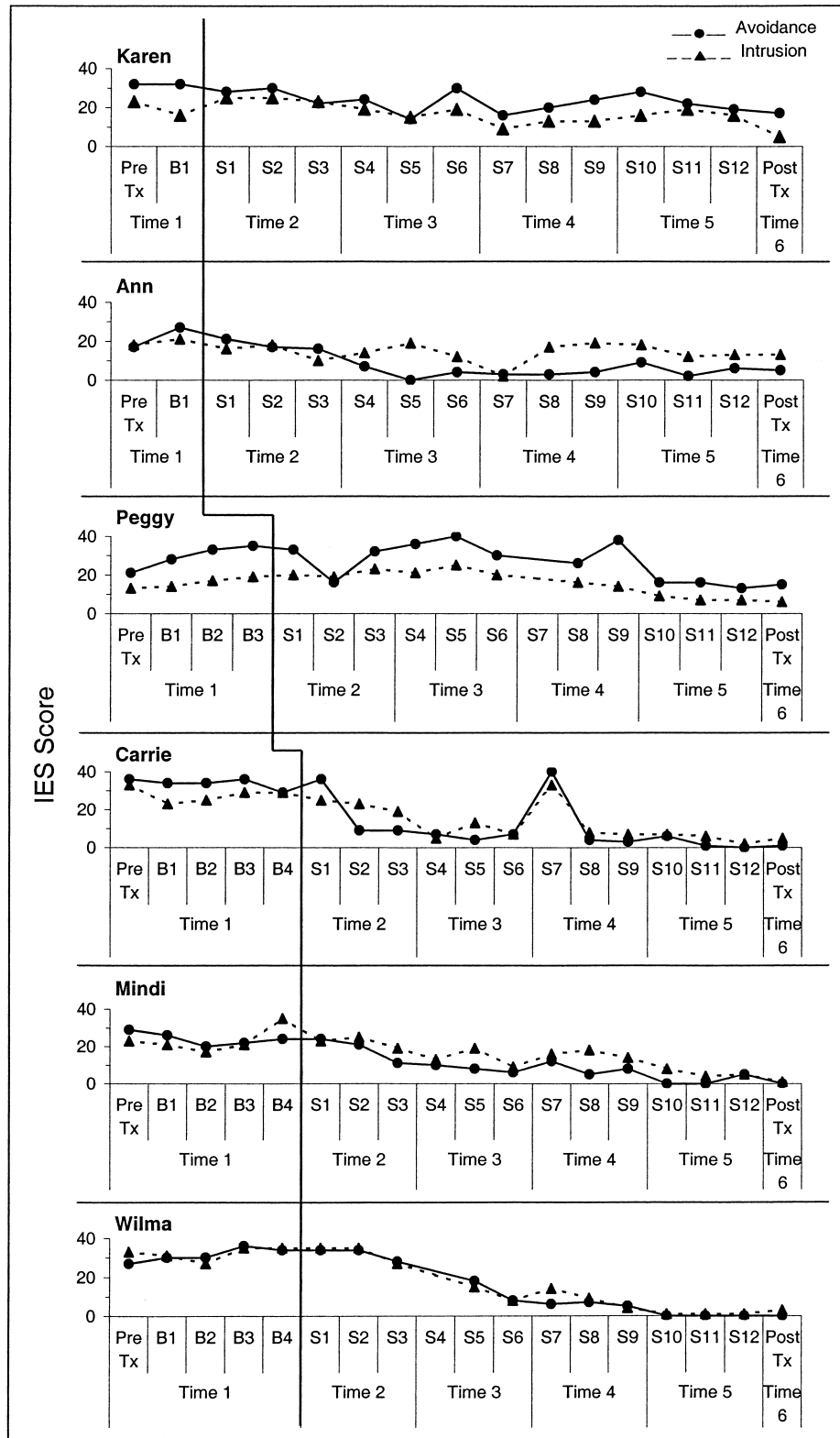


Fig. 1. Change across time on the Intrusion and Avoidance subscales of the Impact of Event Scale. Pretreatment, baseline (B), treatment sessions 1–12 (S), and posttreatment are included.

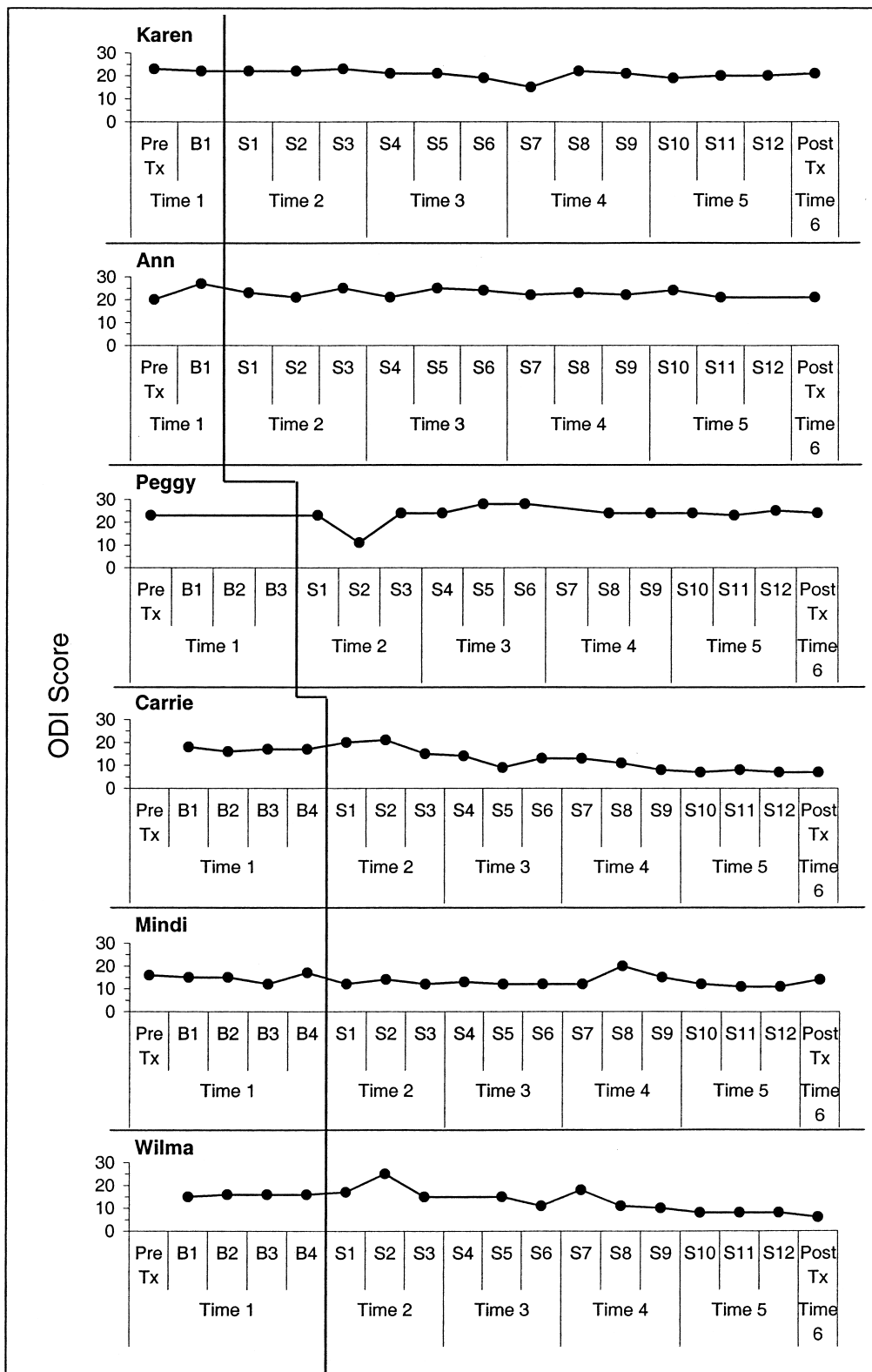


Fig. 2. Change across time on the Oswestry Disability Index. Pretreatment, baseline (B), treatment sessions 1–12 (S), and posttreatment are included.

Weekly Monitoring Measures

Intraindividual changes during treatment were evaluated using ipsative *Z* scores (Mueser, Yarnold, & Foy, 1991). Using each individual's mean and standard deviation, six time-points were compared against a critical difference score, with significant differences noted at $\alpha = .05$ (Time 1 = baseline, Time 2 = treatment sessions 1–3, Time 3 = sessions 4–6, Time 4 = sessions 7–9, Time 5 = sessions 10–12, Time 6 = posttreatment).

PTSD Symptoms

On the IES avoidance subscale, all patients improved from Time 1 to Time 6, with the exception of Peggy (Fig. 1). Peggy's Time 6 score was significantly improved from her peak level of avoidance (Time 3), but was not different from Time 1. Improvement was noted earlier in Ann (Time 3), whereas Carrie,⁵ Mindi, and Wilma improved by Time 5.

On the IES intrusion subscale, all patients improved significantly from Time 1 to Time 6, with earlier improvement in Carrie and Wilma (Time 3), and Peggy, Mindi and Wilma by Time 5.

Chronic Pain

On the ODI, all patients improved from Time 1 to Time 6, with the exception of Peggy. Mindi improved the fastest (Time 2). Karen, Carrie, and Wilma improved by Time 3, and Ann improved by Time 4 (Fig. 2).

Discussion

In the first direct examination of chronic pain patients, cautious interpretation of the results indicates that manualized treatment for PTSD may be effective. All patients reported a decline in PTSD symptoms during treatment and by posttreatment, five patients were free from a PTSD diagnosis. Additionally, functional improvements were noted without pain-related issues being discussed in treatment. Three of four patients on disability at pre-treatment were working full-time at posttreatment, and all patients were spending less time in bed. It is possible that alleviation of general distress or depression may account for these functional improvements. Consistent with other examinations of similar treatments (e.g., Blanchard et al., in press), there also was a reduction in the number of

other psychiatric diagnoses at posttreatment. In a preliminary way, it appears that the beneficial effects of PTSD treatment may generalize to other problems, without direct intervention.

There are several study limitations. The sample was entirely female, and individuals with current substance use disorders were excluded, limiting the conclusions. Additionally, this is an uncontrolled case report. Thus, these findings can be viewed as preliminary evidence of the utility of focused treatment for PTSD in pain patients. Controlled outcome research that monitors pain, function, and the use of pain medications would further examine the issue of generalizability.

References

- Blake, D. D., Weathers, F. W., Nagy, L. M., Kaloupek, D. G., Gusman, F. D., Charney, D. S., et al. (1990). A clinician rating scale for assessing current and lifetime PTSD: The CAPS-1. *Behaviour Research and Therapy*, *13*, 187–188.
- Blanchard, E. B., & Hickling, E. J. (1997). *After the crash: Assessment and treatment of motor vehicle accident survivors*. Washington, DC: American Psychological Association.
- Blanchard, E. B., Hickling, E. J., Devineni, T., Veazey, C. H., Galovski, T. E., Mundy, E., Malta, L. S., & Buckley, T. C. (2003). A controlled evaluation of cognitive behavioral therapy for posttraumatic stress in motor vehicle accident survivors. *Behaviour Research and Therapy*, *41*, 79–96.
- Brady, K. T., Killeen, T. K., Brewerton, T., & Lucerini, S. (2000). Comorbidity of psychiatric disorders and Posttraumatic Stress Disorder. *Journal of Clinical Psychiatry*, *61*(Suppl. 7), 22–32.
- Bryant, R. A., Marosszeky, J. E., Crooks, J., Baguley, I. J., & Gurka, J. A. (1999). Interaction of posttraumatic stress disorder and chronic pain following traumatic brain injury. *Journal of Head Trauma Rehabilitation*, *14*, 588–594.
- DiNardo, P., Brown, T., & Barlow, D. (1994). *Anxiety disorders interview schedule for DSM-IV*. Albany, NY: Greywind.
- DiNardo, P., Moras, K., Barlow, D., Rapee, R., & Brown, T. (1993). Reliability of DSM-III-R anxiety disorder category. *Archives of General Psychiatry*, *50*, 251–256.
- Dworkin, R. H., Hartstein, G., Rosner, H. L., Walther, R. R., Sweeney, E. W., & Brand, L. (1992). A high-risk method for studying psychosocial antecedents of chronic pain: The prospective investigation of herpes zoster. *Journal of Abnormal Psychology*, *101*, 200–205.
- Fairbank, J. C. T., Couper, J., Davies, J., & O'Brien, J. (1980). The Oswestry Low Back Pain Disability Questionnaire. *Physiotherapy*, *66*, 271–273.
- Geisser, M. E., Roth, R. S., Bachman, J. E., & Eckert, T. A. (1996). The relationship between symptoms of post-traumatic stress disorder and pain, affective disturbance and disability among patients with accident and non-accident related pain. *Pain*, *66*, 207–214.
- Hayes, S. C., Barlow, D. H., & Nelson-Gray, R. O. (1999). *The scientist practitioner: Research and accountability in clinical and educational settings*. Needham Heights, MA: Allyn and Bacon.
- Hickling, E. J., Blanchard, E. B., Silverman, D. J., & Schwartz, P. (1992). Motor vehicle accidents, headaches and post-traumatic stress disorder: Assessment findings in a consecutive series. *Headache*, *32*, 147–151.
- Horowitz, M., Wilner, N., & Alvarez, W. (1979). Impact of Event Scale: A measure of subjective stress. *Psychosomatic Medicine*, *41*, 209–218.
- International Association for the Study of Pain. (1986). Classification of chronic pain. *Pain* (suppl. 3), S1–S226.

⁵Prior to session 7, Carrie was assaulted by her ex-husband, resulting in mild physical injury, but her overall progress in treatment was not impeded by this new trauma.

- Kerns, R. D., Turk, D. C., & Rudy, T. E. (1985). The West Haven Yale Multidimensional Pain Inventory (WHYMPI). *Pain, 23*, 345–356.
- Kuch, K., Cox, B. J., & Evans, R. J. (1996). Posttraumatic stress disorder and motor vehicle accidents: A multidisciplinary overview. *Canadian Journal of Psychiatry, 41*, 429–434.
- Mueser, K. T., Yarnold, P. R., & Foy, D. W. (1991). Statistical analysis for single-case designs: Evaluating outcome of imaginal exposure treatment of chronic PTSD. *Behavior Modification, 15*, 134–155.
- Sharp, T. J., & Harvey, A. G. (2001). Chronic pain and posttraumatic stress disorder: Mutual maintenance? *Clinical Psychology Review, 21*, 857–877.
- Shipherd, J. C., Beck, J. G., Hamblen, J. L., & Freeman, J. B. (2000). Assessment and treatment of PTSD in motor vehicle accident survivors. In L. VandeCreek & T. L. Jackson (Eds.), *Innovations in clinical practice: A source book* (Vol. 18, pp. 135–152). Sarasota, FL: Professional Resource Press.
- Wallis, B. J., Lord, S. M., & Bogduk, N. (1997). Resolution of psychological distress of whiplash patients following treatment by radiofrequency neurotomy: A randomized, double-blind, placebo-controlled trial. *Pain, 73*, 15–22.
- Weathers, F. W., Keane, T. M., & Davidson, J. R. T. (2001). Clinician-administered PTSD scale: A review of the first ten years of research. *Depression and Anxiety, 13*, 132–156.
- Zilberg, N. J., Weiss, D. S., & Horowitz, M. J. (1982). Impact of event scale: A cross-validation study and some empirical evidence supporting a conceptual model of stress response syndromes. *Journal of Consulting and Clinical Psychology, 50*, 407–414.