

# CHRONIC LOW BACK PAIN, PTSD, AND DEPRESSION: A CASE FOR USING THERAPEUTIC NEUROSCIENCE EDUCATION AND MANUAL THERAPY TO SUPPORT ENGAGEMENT IN PSYCHOLOGICAL SERVICE

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## ABSTRACT

**Objectives:** To demonstrate the benefit that a strong patient-provider relationship can have in treating a patient with chronic low back pain and mental health conditions using manual therapy and therapeutic neuroscience education.

**Clinical Presentation:** A 32-year-old male veteran had dull, central low back pain. Clinical testing revealed the back pain was predominantly mechanical; however, an affective component to pain was also identified. His symptoms responded favorably to an end-range loading exam and had a directional preference for lumbar extension. He was also involved in outpatient mental health treatment.

**Intervention and Outcome:** The classification using the McKenzie Method of Diagnosis and Therapy (MDT) was found to be a lumbar posterior derangement. Treatment included spinal manipulative therapy, repetitive end-range loading, and therapeutic exercise for 6 visits over 5 months. Mechanically, the patient experienced complete functional improvement, 3 months of little to no pain, and a decrease on the PROMIS Pain Interference Scale 6B of 8 points (14 to 6). Initially, he believed his suicidal ideations were a result of his pain presentation; however, reduction of his pain did not alleviate the ideation. He voluntarily reported to the emergency department and received appropriate mental health care.

**Conclusion:** There is a strong relationship between depression, PTSD, and low back pain. Therefore, healthcare providers treating low back pain need should be aware of mental health diagnoses that impact pain presentations when making treatment recommendations. (*J Contemporary Chiropr* 2018;1:26-29)

**Key Indexing Terms:** Chiropractic; Depression; Mental Health; Post-Traumatic Stress Disorder

## INTRODUCTION

Post-traumatic stress disorder (PTSD) impacts both civilian and military personnel at different rates. Per the National Center for PTSD, 7-8% of people in the United States will have PTSD at some point in their lifetime with incidence being higher 10% in women than 4% in men; however, further evaluation of military personnel revealed incidence of PTSD in Veterans serving in Operations Iraqi Freedom and Enduring Freedom of 11-20%, in the Gulf War of 12%, and the Vietnam War of 30%. (1) Incidence of PTSD is further elevated in the chronic pain population with authors citing incidence of 51% in the chronic low back pain population and 50% in the post motor vehicle accident population. A case series from a Veteran Healthcare Administration chiropractic clinic reported 68% of the population treated for low back pain presented with comorbid PTSD. (2) PTSD is a common comorbid condition found in patients with spine pain that direct access providers may see.

The latter is especially relevant to primary care providers (PCP) and chiropractors because, of those patients with spine pain, 53% prefer to report to their PCP and 28% to their chiropractor for treatment. (3) In greater than 85% of the population with low back pain, a structural source cannot be identified; healthcare providers continue to seek a specific structural abnormality or specific disease instead of identifying psychological factors. This results in greater expense and burden. (4) Psychosocial factors are much stronger predictors of low back pain presence and poor treatment outcomes. (5,6) Chronic pain, PTSD, and depression generate feelings of helplessness and a loss of control leading to an elevated risk of suicide. (1) Successful treatment of this population is directed toward active coping strategies and helping patients regain a sense of

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control; however, providers can accomplish this only after establishing rapport and acquiring the patient's trust. (7)

Chiropractors are uniquely situated to educate patients with chronic spine pain about the impact mental health conditions such as PTSD and depression can have on their pain presentation. One method of accomplishing this includes implementation of Therapeutic Neuroscience Education (TNE). (8) When told of this concept, patients understand pain as a function of the nervous system, gain knowledge about the difference between hurt and harm, and gain a sense of control by addressing factors that contribute to their pain presentation such as depression and PTSD. The purpose of the following case is to report a case illustrating the impact that implementing TNE into the chiropractic clinic had on a patient's outcome. Ultimately, the patient credits his life to said treatment.

## CASE REPORT

A 32-year-old male veteran complained of dull, central low back pain that had been present for 16 years following a fall from a horse when he was a teenager. Additional aggravating incidents included a bale of hay falling on his head several years past and an aggravation following lifting drywall. Spinal manipulative therapy (SMT) and non-steroidal anti-inflammatory medications provided 24-48 hours of benefit in the past. Lumbar lateral bend and lumbar flexion aggravated the pain, and he could not find a comfortable sleeping position. He denied red-flag pathology, any relevant surgical history, and his previous lumbar spine imaging was age appropriate. Comorbid conditions included traumatic brain injury, insomnia, migraine, dyspnea, anxiety, depression, and post-traumatic stress disorder (PTSD). Additionally, he had attempted suicide at age 18. During our initial consultation, he disclosed fleeting thoughts of suicide; however, he had been seeing a psychologist and was convinced that his suicidal ideations were present because of his pain.

His physical and neurological examinations were unremarkable. A lumbar orthopedic evaluation revealed negative lumbar nerve tension findings; however, 3 of the 5 tests in the sacroiliac joint cluster were positive. (9) Fifteen prone press ups abolished his low back pain. Progression of forces to wall extensions (15 reps) and then standing extensions (15 reps) maintained the abolished pain. He was surprised with the results and noted that this was the first time in years that he without pain. Further progression of forces included a side-posture sacroiliac joint manipulation followed by psoas release. Additional treatment was offered in the form of education related to the neuroscience of pain, using card set 1 of the Why I Hurt education system, "Pain Education." (OPTP, Minneapolis, MN)

## Management and Outcome

He returned for a follow-up appointment 1 week later, maintaining no back pain and treatment was repeated except card set 2 of Why I Hurt was used. This set is titled "Sensitive Nerves." He returned 1 month later, maintaining the lack of LBP. However, he had cervical pain without radiation. He had no initiating trauma, but noted that his stress had increased. His cervical physical, orthopedic, and neurological examinations were negative. Cervical retractions alleviated his cervical pain and tension in his trapezius. He did receive a T2-T4 supine extension manipulation, followed by education using the Why I Hurt set 3, "Nerve Sensors."

He returned 1 month later with no low back pain and no cervical pain, but experienced a few aggravations of his cervical pain over the last month. During these flare-ups, cervical retractions offered some relief; however, he reported increased anxiety and/or depression on days of increased pain. Previous treatment was repeated and education related to the impact of anxiety and depression took place, in addition to the Why I Hurt set 4, "Noisy Neighbors."

Visit 5 took place 1 month later, and he reported that he was currently being treated in the inpatient psychology ward. He had checked himself in for suicidal ideations with a plan. He currently had no pain and had continued the home exercises. While the exercises worked and abolished his pain, it continued to recur even though he had not suffered any trauma. He stated the education provided to him helped him realize that his physical pain was not a result of tissue damage but instead a reflection of his nervous system, which was "elevated" because of his PTSD and depression. His goal was to be pain free and return to activity; therefore, he reported needing to obtain inpatient assistance for his depression to assist his pain. Previous treatment was repeated; however, no additional education was provided because he was currently engaged in several group therapies, including cognitive behavioral therapy.

He followed up for 1 more visit a month later and was pain free. The patient's PROMIS Pain Interference 6B improved from 14 to 6, and he obtained sustained pain-free function for more than 1 month. The patient thanked us for helping save his life and obtain his goals.

## DISCUSSION

Here, we describe a patient who had chronic low back pain accompanied with a diagnosis of PTSD and depression. (10) This can be troublesome for both patients and providers, as the concurrence of these conditions may result in an amplification of either's symptoms. In 1 hospital-based study, patients with depression experienced more severe and higher levels of pain, more impairment while at work, and had significantly more health care use than their non-depressed counterparts. (11)

The Mutual Maintenance model described by Gibson, et al suggests that although there is a close relationship between mental health and chronic pain, patients are often not willing, or not prepared, to seek and receive care for both. (4) Rather, some patients will present prepared to combat their mental health conditions, while others will prefer to target their physical pain. Either way, it is important to cater treatments to meet the patient where they're ready to receive treatment. It has been shown that improvements on either health front can lead to improvements on the other. As Gibson has noted:

*"A veteran presenting for mental health treatment may only be ready to accept treatment for chronic pain because it may be too emotionally overwhelming for the patient to even consider engaging in trauma-focused psychotherapy to address PTSD. With some relief of physical pain and a deeper understanding of how PTSD can drive chronic pain, patients can then be better prepared to take the next step in PTSD treatment. The development of trust will naturally occur as we meet our patients, and it can then become possible for them to begin trauma-focused therapy for PTSD. On the other hand, some patients may present with PTSD symptoms that are the primary focus of attention and will say that they can live with their chronic pain. It is not uncommon for a clinician to hear that physical pain is something that the Veterans learned to tolerate during military training so that they would be able to endure sleep deprivation, terrible weather conditions, extreme physical exhaustion to accomplish missions during combat action. They now identify that the physical pain is limiting at times; however, they feel far more distressed by their PTSD symptoms. These patients may be ready to engage in trauma-focused therapy in order to find some emotional relief from disabling combat-related thoughts and images. For these patients, it has been my experience that, with completion of trauma-focused PTSD therapy, their ability to tolerate and live with their chronic pain symptoms also improves to a significant degree." (4)*

This integrated care approach described by Gibson illustrates the importance of treating the whole person and not just the musculoskeletal condition. While it is not within the scope of a manual therapist to manage mental health conditions, it is a part of their role to guide and educate patients about factors contributing to their physical condition. It is also their duty to inform them about treatments offered by other healthcare providers that could be beneficial. The patient can then choose to proceed in a direction that meets his or her needs and values. This is the cornerstone of the patient-centered care approach.

Patient-centered care is a concept that was formalized in 2000 by the Institute of Medicine as an effort toward fundamentally improving the quality of healthcare in the United States. By definition, it is "care that is respectful

of and responsive to individual patient preferences, needs, and values. It also ensures that "patient values guide all clinical decisions." (12) Our case represents an example of patient-centered care. Medically, we acknowledged the impact of depression and PTSD on the patient, but after discussing this with the veteran, he decided he did not want to explore further treatment for his mental health at the time. Instead, he preferred to work on the mechanics of his low back pain. By honoring that preference, trust was built, and he became open to exploring further treatment for PTSD and depression. His initial perception was that his pain was "aggravating his PTSD and causing his depression." Following management of the mechanical pain and education using TNE, it became clear to him that opposite was true. His "pain was aggravated by his PTSD and depression."

Therapeutic neuroscience education has illustrated favorable impacts in the areas of pain disability, catastrophizing, and physical performance. (8) In addition, TNE has illustrated utility in improving function and decreasing disability in chronic low back pain. (8,13,14) While several cases exist demonstrating the utility of TNE in treating low back pain, none exist illustrating the use of TNE as a bridge to mental health treatment. By understanding the neurobiology of pain, the patient concluded that his physical symptoms were not a reflection of physical tissue damage. Further education about nervous system physiology provided him with information related to his nervous system inputs (anxiety, depression, PTSD) that could threaten his system and increase his pain. Ultimately, this treatment over time resulted in him trusting the provider and understanding his condition.

Patient-provider trust is often an overlooked variable when it comes to interactions with patients. While many providers want to engage in the practice of patient-centered care by building a rapport with their patient's; providers are often pressed for time and lack the relevant training to do so. (12) However, building this rapport with patients is crucial for improving outcomes. As seen in this case report, patient-provider trust was necessary to educate the patient about his mental health conditions that he thought were a non-issue and unrelated to his pain. Fifty-four percent of patients prefer to initially consult their medical doctor about their neck and low back pain and 29% prefer to see their chiropractor first. (3) Considering this, it is imperative that portal of entry musculoskeletal care providers- such as primary care providers, chiropractors, and physiotherapists- receive training in how they can improve this relationship while maintaining patient values. Creating a strong patient-provider relationship opens the door to superior patient education (TNE), which has been shown to be effective in reassuring patients with acute and sub-acute low back pain. (13)

## CONCLUSION

Over the course of 5 months, a veteran with chronic low back pain and comorbid mental health conditions was treated within a VA chiropractic clinic. Throughout treatment, he was educated on the role that PTSD and depression may play in the expression of chronic pain. Following sustainable resolution of his, low back pain he decided to seek treatment for his emergent mental health condition and suicidal ideations. This case demonstrates the intimate relationship between physical and mental health and displays the importance of interdisciplinary co-management while maintaining the patient's values in addressing either condition. Further research should examine the role that patient-performed exercise for low back pain may have on improving overall self-efficacy.

## REFERENCES

1. U.S. Department of Veteran Affairs. PTSD: National Center for PTSD. <https://www.ptsd.va.gov/public/ptsd-overview/basics/how-common-is-ptsd.asp>. Published 2016
2. Lisi AJ. Management of Operation Iraqi Freedom and Operation Enduring Freedom veterans in a Veterans Health Administration chiropractic clinic: a case series. *J Rehabil Res Dev* 2010;47(1):1-6
3. Gallup. 2015 Gallup-Palmer College of Chiropractic Inaugural Report: America's perception of chiropractic (08/15); 2015
4. Gibson C-A. Review of posttraumatic stress disorder and chronic pain: the path to integrated care. *J Rehabil Res Dev* 2012;49(5):753-776
5. Bener A, Verjee M, Dafeeah EE, et al. Psychological factors: anxiety, depression, and somatization symptoms in low back pain patients. *J Pain Res* 2013;6:95-101. doi:10.2147/JPR.S40740
6. Chou R, Qaseem A, Snow V, et al. Diagnosis and treatment of low back pain: a joint clinical practice guideline from the American College of Physicians and the American Pain Society. *Ann Intern Med* 2007;147(7):478-491
7. DeCarvalho LT. PTSD: National Center for PTSD. 7/5/2007
8. Louw A, Diener I, Butler DS, Puentedura EJ. The effect of neuroscience education on pain, disability, anxiety, and stress in chronic musculoskeletal pain. *Arch Phys Med Rehabil* 2011;92(12):2041-2056. doi:10.1016/j.apmr.2011.07.198
9. Laslett M, Aprill CN, McDonald B, Young SB. Diagnosis of sacroiliac joint pain: validity of individual provocation tests and composites of tests. *Man Ther* 2005;10(3):207-218 doi:10.1016/j.math.2005.01.003
10. Villano CL, Rosenblum A, Magura S, Fong C, Cleland C, Betzler TF. Prevalence and correlates of posttraumatic stress disorder and chronic severe pain in psychiatric outpatients. *J Rehabil Res Dev* 2007;44(2):167-178
11. Gross AR, Aker PD, Goldsmith CH, Peloso P. Patient education for mechanical neck disorders. *Cochrane database Syst Rev* 2000;(2):CD000962. doi:10.1002/14651858.CD000962
12. Dang BN, Westbrook RA, Njue SM, Giordano TP. Building trust and rapport early in the new doctor-patient relationship: a longitudinal qualitative study. *BMC Med Educ* 2017;17(1):32 doi:10.1186/s12909-017-0868-5
13. Clarke CL, Ryan CG, Martin DJ. Pain neurophysiology education for the management of individuals with chronic low back pain: systematic review and meta-analysis. *Man Ther* 2011;16(6):544-549. doi:10.1016/j.math.2011.05.003
14. Moseley L. Combined physiotherapy and education is efficacious for chronic low back pain. *Aust J Physiother* 2002;48(4):297-302