Coordination of Care Between Chiropractic and Behavioral Health Practitioners Within the US Department of Veterans Affairs Health Care System: A Report of 3 Patients With Pain and Mental Health Symptoms

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Abstract

Objective: The purpose of this case series is to describe coordination of care between chiropractic and behavioral health practitioners within an integrated hospital-based system.

Clinical Features: Three individuals presented to a US Veterans Affairs Health Care system with musculoskeletal complaints for chiropractic care. Each person demonstrated symptoms of depression or anxiety and in 2 cases indicated passive suicidal ideation.

Intervention and Outcome: The chiropractors referred the patients to a mental health provider for co-management. Different approaches to mental health care were offered to each of these patients to meet their individual preferences and needs as part of an evidence informed approach. One patient underwent individual cognitive behavioral therapy; 1 patient responded well to individual cognitive behavioral therapy before transitioning to group-based pain skills, resiliency, and mindfulness therapy; and 1 patient required additional referral to Primary Care-Mental Health Integration for pharmacologic treatment. The 3 patients responded positively to interdisciplinary care and realized functional improvements and improved patient reported outcomes as assessed with the 11-point Numerical Pain Rating Scale and Neck or Back Bournemouth Questionnaire.

Conclusion: This case series describes the recognition of mental health symptoms, referral to behavioral health providers, and the subsequent treatment approaches. This case series presents the first description of co-managed care for US veterans by a chiropractor and psychologist. (J Chiropr Med 2022;00;1-8)

Key Indexing Terms: *Chiropractic; Depression; Anxiety; Behavioral Health; Cognitive Behavioral Therapy*

Introduction

The presence of some mental health conditions and psychological factors may contribute to the development or maintenance of chronic pain syndromes.[1-4] Nonspecific low back and neck pain are among the most common chronic pain conditions worldwide, and chiropractors offer commonly recommended nonpharmacologic treatments.[5,6] Psychological factors such as fear-avoidance behavior, catastrophizing, and poor coping skills can present obstacles to compliance with recommendations and successful management of musculoskeletal conditions.[7,8] The existence of specific psychological factors has been demonstrated to negatively modify the effect of preventative manual therapy for persistent low back pain.[9] For instance, patients with comorbid mental health disorders, such as posttraumatic stress disorder (PTSD), which is common in veterans,[10,11] might respond less favorably to chiropractic care than those without the diagnosis.[12]

Clinical practice guidelines developed by the chiropractic profession include referral to mental health providers in the presence of psychological factors or mental health concerns.[13-16] A chiropractic care pathway for low back pain in veterans identified several mental health concerns that may necessitate referral including depression, anxiety disorders, PTSD, bipolar disorder, military sexual trauma, substance abuse, and insomnia or sleep difficulty.[17] Despite many guidelines recommending referral to mental health professionals, to our knowledge no reports have described this working relationship.

Therefore, the purpose of this case series is to describe the coordination of care between a chiropractic and

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behavioral health clinic within an integrated hospital-based system. These cases were selected, in particular, because each began with referral from the chiropractic clinic to mental health care and was managed with behavioral health approaches based on individualized goals and treatment preferences.

Case Presentations

This study was approved by the VA Puget Sound Health Care System privacy officer. All 3 patients provided consent for publication, and we followed guidelines of reporting for case reports.[18] These patients all presented to VA Puget Sound Health Care System chiropractic and behavioral health clinics.

Case 1

A 40-year-old Hispanic female US Army veteran presented with a history of chronic pain and complained of 3-month duration worsening neck, upper back, and left periscapular pain, occasional left forearm hypoesthesia, and pain-related anxiety. She noted that skeletal muscle relaxants (methocarbamol) improved her pain, anxiety, and sleep initiation. Furthermore, distracting activities were reported as relieving for pain and anxiety. Pain intensity was rated an average of 6 to 7 out of 10 on the Numeric Pain Rating Scale (NPRS), and function and disability were rated as 40 out of 70 with the Neck Bournemouth Questionnaire. There were no pertinent concerns on review of systems. The patient was divorced, and she reported exercising 30 minutes daily with an elliptical or yoga and drinking small quantities of alcohol on the weekend. She had a documented history of mental health care, but she was not actively engaged in care at the time of presentation to the chiropractic clinic. The results of upper extremity motor, reflex, and sensory examinations were symmetric and within normal limits. Upper limb tension test with median nerve bias and arm squeeze test both reproduced upper extremity paresthesia to the anterior forearm, and cervical compression procedures were provocative for pain in the lower axial cervical spine and left trapezius region. Cervical magnetic resonance imaging from 1 year prior revealed a T3 hemangioma, mild left greater than right C5-6 and C6-7 foraminal narrowing, facet arthrosis, and perineural cysts without significant canal narrowing.

The patient's diagnosis was cervicalgia with associated left radicular pain. Treatment was planned for cervical and thoracic spinal manipulation, upper extremity neural mobilization, and repetitive cervical retraction and extension exercise. After her initial visit, she was referred to a rehabilitation psychologist for self-reported anxiety and mood symptoms within the context of chronic pain.

She presented 5 days later for psychological evaluation, at which time, she described pain as triggering stress, anxiety, tension, and frustration, which subsequently affected her mood and outlook regarding her future. She described experiencing negative thought patterns (eg, "It will never get better"), which caused her to feel helpless and occasionally depressed and affected her relationships. Her Patient Health Questionnaire-9 (PHQ-9) depression scale was a 13/27, indicative of moderate depressive symptoms and General Anxiety Disorder-7 (GAD-7) scale was rated 15/21, indicative of moderate to severe anxiety symptoms. She endorsed experiencing passive suicidal ideation but denied suicidal intent or plan. Suicide protective factors included her religious beliefs and feeling of obligation to family. After suicide screening with the Columbia-Suicide Severity Rating Scale (C-SSRS), she was deemed as low acute/chronic risk for self-harm. Her appearance, speech, mood, affect, and thought processes were all within normal limits.

Patient goals were to better manage anxiety and depressive symptoms. She was offered multiple treatment options (ie, cognitive behavioral therapy [CBT], mindfulness, or hypnosis) for managing pain, mood, and anxiety, and it was agreed that CBT for chronic pain would be the most appropriate approach with supplementation of coping and relaxation skills training. After 5 sessions of chiropractic care and 5 rehabilitation psychology visits, she reported average pain of 3 to 4 out of 10, measured on an 11-point NPRS, without pain or paresthesia referral to the upper extremity. Her mood was variable, and she reported participating in goal-oriented activities. For ongoing anxiety symptoms, she was referred to Primary Care-Mental Health Integration (PC-MHI) where she was prescribed 10 mg citalopram. At a psychology follow-up 1 month later, she reported a PHQ-9 of 4/27 (reduced from 13) and a GAD-7 of 5/21 (reduced from 15), both in the mild range, and she continued with daily exercise, social engagements, and the use of relaxation techniques (eg, yoga, float tank, deep breathing). She also endorsed increased feelings of self-confidence and self-worth. She was released from her psychologist's care with instructions to call as needed. At chiropractic follow-up 6 months later, she described her pain symptoms as stable and unchanging, but reported a relapse of anxiety symptoms. She was encouraged to focus on her relaxation exercises and to reinitiate care with a mental health provider.

Case 2

A 67-year old Black male US Air Force veteran presenting for a complaint of chronic low back pain with intermittent referred pain, numbness, and tingling to the right gluteal region and posterior thigh, and depressive and anxiety symptoms. His average pain was reported at 6 to 7 out of 10 on the NPRS; his Back Bournemouth Questionnaire (BBQ) score, assessing functional status, was 45/70. Motor, reflex, and sensory examination was symmetric and

within normal limits. Lumbar range of motion was significantly restricted in flexion and extension with flexion reproducing low back pain. Straight leg raise produced diffuse axial low back pain at 60 degrees bilateral, but it did not reproduce pain referral. Lumbar radiographs taken 5 years prior revealed mild-to-moderate multilevel degenerative changes, most prominent at L5-S1. The diagnosis was mechanical nonspecific lumbar pain secondary to lumbar degeneration. The patient underwent treatment with thoracic and lumbar spinal manipulation, lumbar flexion-distraction manipulation, lumbar paraspinals myofascial release, and spine mobility and core stability exercises.

Four weeks later, at his third treatment session, he endorsed feelings of sadness owing to his pain, feeling that he was losing interest in social interactions and withdrawing from family. He described a prior episode of depression a few years earlier secondary to spousal bereavement. He expressed reluctant interest in speaking with a counselor, and a referral was made to a rehabilitation psychologist. The patient did not respond to initial telephone outreach for psychological evaluation. His ongoing psychological symptoms were discussed over several chiropractic sessions, and he was encouraged to complete the consultation.

He presented for psychological evaluation 4 months after initial referral with complaints of adjustment and mood problems related to pain and grief. His PHQ-9 score was 15/27, indicative of moderate depressive symptoms, and his GAD-7 score was 16/21, indicative of severe anxiety symptoms. He had trialed amitriptyline, paroxetine, and mirtazapine in the past, and he had a history of sparse mental health care over the past 17 years with a diagnosis of depression and treatment for depression, anxiety, and anger 7 years prior. He expressed reluctance to meet with a psychologist because of poor experiences in the past where he felt pressured to take psychotropic medications. Several treatment options were discussed for chronic pain and depression, and the patient expressed interest in a CBT and mindfulness-based stress reduction (MBSR) approach. The veteran also expressed interest in participating in a chronic pain skills group and the MOVE! Weight Management Program.[19]

Approximately 1 year after initial presentation to chiropractic clinic, following participation in a chronic pain skills program focused on meditation (6 visits), and individual CBT sessions (13 visits), he reported a GAD-7 score of 8/21 (reduced from 16) and PHQ-9 score of 10/27 (reduced from 15), both indicative of mild symptoms. He described improvements in general mood and attributed this to engagement in exercise, leisure activity, and enjoying activities despite pain limitations. The patient continued to be an active participant in available programs and resources including group-based pain counseling (6 visits), support group (5 visits), and group-based MBSR (6 visits). At 3-year follow-up, his most recent BBQ score was 31/70 (reduced from 45) and NPRS score was 6/10 (reduced from 7). He continued to be actively engaged with the MBSR group and followed up with individual psychology or chiropractic services as needed.

Case 3

A 30-year-old White female US Navy veteran complaining of chronic low back pain with intermittent shooting pain from the left lower lumbar region to the left ankle, and she indicated depressive and anxiety symptoms on her intake form. During the patient interview, she described her sleep quality as poor and expressed interest in meeting with a mental health provider. Her average pain was rated 9/10 on NPRS, and BBQ score, assessing functional status, was 60/70. Fibromyalgia was indicated by her Widespread Pain Index score of 14/19 and Symptom Severity Scale score of 11/12. The results of a review of systems were remarkable for chronic neck pain and occasional migraine with dizziness, and shortness of breath related to anxiety. Motor and reflex testing was within normal limits, except for 4+/5 right ankle inversion strength, and sensory testing revealed paresthesia in the left L4 dermatome. Lumbar range of motion was restricted, and her low back complaint was reproduced with flexion and extension. Facet loading was provocative for reproducing the lower back pain. Slump test reproduced left lower extremity pain to the ankle. Lumbar radiographs revealed mild L5-S1 disc height loss.

The diagnosis was chronic pain syndrome and left lumbar radicular pain. The patient underwent treatment with 5 sessions of lumbar flexion-distraction, high-velocity, low-amplitude manipulation to the thoracic and lumbar spine, and lumbar paraspinal myofascial release. After the initial visit, she was referred initial visit to the rehabilitation psychologist for assessment and development of coping strategies in the context of adjustment difficulty related to her chronic pain.

She presented 3 weeks later for behavioral health evaluation, at which time she reported chronic pain and physical limitations (eg, outdoor activities) affecting her mood, causing her to feel tense and irritable. She endorsed significant mood symptoms including anhedonia, depressed mood, feelings of guilt, worthlessness, sleep difficulty, fatigue, appetite change, and psychomotor changes (eg, restlessness). She endorsed passive suicidal ideation, but she denied suicidal plan or intent. She described a history of panic attacks that met DSM-V criteria. Her PHQ-9 score was 24/27, indicative of severe depressive symptoms, and her GAD-7 score was 21/21, indicative of severe anxiety symptoms. There was no history of nonpharmacologic mental health counseling. She trialed sertraline and buspirone earlier in the year for depression and anxiety, but discontinued sertraline because of negative adverse effects (eg, skin rash) and buspirone because of a lack of noticeable improvement in addition to development of new-onset

headaches. Records indicated she was taking hydroxyzine as a sleep aid at the time of presentation. Following standardized suicide assessment, her risk level was deemed "low" due to several strong protective factors including a sense of obligation to her spouse. Her mood was euthymic, but her appearance, speech, affect, and thought processes were all within normal limits.

With shared decision making, it was agreed that CBT for chronic pain would be the best approach, and she was encouraged to present to the PC-MHI same-day access clinic to discuss her interest in trialing a new psychotropic medication for mood. The PC-MHI clinic prescribed duloxetine progressing from 20 mg to 40 mg once per day. At 4-month follow-up, she reported tapering to discontinuation of the medication because her mood was overall improved, and she felt equipped to use CBT techniques to stabilize her mood. She had completed 9 in-person CBT sessions and 1 video session. Repeat patient reported outcome measures were not performed because of a disruption in care secondary to the COVID-19 pandemic. At her most recent chiropractic clinic telephone follow-up, 6 months after initial presentation, she described short-term pain relief with manual treatments and reduced lower extremity pain.

Discussion

This case series presents the first description of co-managed care for US military veterans by a chiropractor and psychologist. The 3 US military veterans appeared to benefit from this interdisciplinary collaboration.

Depending on the condition severity and patient preferences, there are nonpharmacologic (Table 1) and pharmacologic approaches available to address psychological factors and mental health conditions. For pain, CBT[36-38] (Fig 1), mindfulness,[20,39] and hypnosis[21,23] are staples of nonpharmacologic evidence-based approaches incorporated into care planning by rehabilitation psychologists. Each of these veterans elected to pursue an individualized treatment path to address their goals through shared decision making. In these cases, CBT was a central component in their management, and each realized functional improvements.

Screening for mental health comorbidities by a chiropractor does not need to be complicated or require extensive knowledge of psychological condition management or specific mental health patient reported outcome measures (eg, PHQ-9, GAD-7, C-SSRS). In this chiropractic clinic, mental health screening for the 3 patients began with intake paperwork before the initial patient interview. In that paperwork, several review of systems questions were asked, including one that specifically queries the presence of depression, anxiety, and posttraumatic stress disorder symptoms. When one of these items was circled (Case 3) or when the patient volunteered symptoms of these conditions during the interview (Cases 1 and 2), the treating chiropractor responded by questioning the status of ongoing mental health care for the complaint. When active care was not being pursued, the patient was then offered a behavioral health referral and provided a list of mental health resources, including contact information for a Veterans Crisis Line, same-day access mental health care clinic, Vet Center (community-based counseling center),[24] and chaplain services. Similar to Case 2, patients may be hesitant to pursue mental health care, and when encountered, this individual was reassured it was his decision whether to seek care. He was also encouraged to consider the various options and then encouraged over subsequent chiropractic visits to seek assistance as they built trust and rapport.

Psychologist evaluation included thorough patient interview and mental health assessment with patient reported outcome measures including the PHQ-9 depression scale and GAD-7 anxiety scale. These outcome measures are standard, valid, and reliable instruments to aid psychological clinical decision making.[25,26] Other outcome measures (eg, C-SSRS) can be incorporated depending on the patient presentation and responses to initial questioning.[40] The treating chiropractor in these cases did not use these mental health measures; however, some patients may elect to use them depending on their facility requirements, provider comfort level, or available time. Using more outcome measures does increase burden on the patient and provider, but there is potential that it could help to identify more patients in psychological distress.

When addressing mental health concerns, there are several types of health professionals that are appropriate for chiropractic providers to seek collaboration (Table 2). The treating chiropractor and psychologist in these cases were both employed in the same Veterans Affairs hospital system, and an initial rehabilitation psychology consultation request was made through a shared electronic health records system. The treating psychologist then contacted each patient to initiate care. The two providers discussed the cases before and after initial evaluation to discuss treatment plan, and through subsequent face-to-face or video interprofessional communications that were conducted as needed for case management.

Integrated teams practicing the biopsychosocial (BPS) model could improve patient-centered outcomes in patients with chronic pain.[47] In team-based settings, such as with these cases, it is important that the doctor of chiropractic realize their role in managing each patient and aim to reinforce the behaviors and lessons conveyed by their mental health professionals and team.[48] To date, limited efforts in chiropractic interprofessional education with behavioral and mental health professionals have been documented.[49-51]

A recent report depicted the use of the BPS model as part of a long-term chiropractic case management strategy for patients with chronic pain.[52] Several chiropractic

Table 1. *Nonpharmacologic Approaches to Mental and Behavioral Health Care*

Treatment Approach	Description
Cognitive behavioral therapy (CBT)[22,37,38]	CBT focuses on modification of unhelpful thoughts and behaviors in order to meet goals, improve mood, and reduce pain-related avoidance. CBT typically includes components such as cognitive restructuring of maladaptive pain-related thoughts, coping skills training, problem solving, and goal setting.
Mindfulness-based stress reduction (MBSR)[20,32,39]	MBSR promotes improving awareness and acceptance of moment-to-moment experiences, including pain, physical discomfort, and difficult emotions. The practice of MBSR consists of exercises that serve to increase awareness of sensations, emotions, and thoughts, to provide self-regulation strategies and to promote healthy and adaptive responses to stress.
Hypnosis[21,23,27]	Hypnosis for chronic pain is an evidence-based treatment that uses relaxation training and provides adaptive suggestions about one's pain experience. The goals are generally to reduce the brain's response to pain input and to more readily access a state of relaxation and reduced muscle tension.
Acceptance and commitment therapy (ACT)[28,29]	ACT focuses on applying mindfulness and acceptance processes, as well as commitment and behavior change processes (eg, value-driven behavior) with the overarching goal of creating increased psychological flexibility.
Dialectical behavioral therapy (DBT)[30]	DBT involves applying problem-oriented change strategies (eg, behavioral analyses, exposure to emotional cues, contingency management, and cognitive modification, irreverent communication strategies, and consultation-to the-patient strategies), as well as acceptance strategies (ie, validation strategies, reciprocal communication strategies, and environmental interventions).
Motivational interviewing (MI)[31]	MI is a counseling method that assists patients to explore ambivalent feelings and insecurities about health behavior in favor of change. MI encourages people to say why and how they might change relating to a set of skills to facilitate the process.
Resilience[32]	Resilience training focuses on the developing recovery, sustainability, and growth. Recovery is the ability to maintain equilibrium following an upsetting event, sustainability refers to perseverance of desirable actions and goals, and growth refers to the realization of greater understanding of one's capacities and new learning.
Pain neuroscience education[33]	Education aims to explain the biologic and physiologic processes involved in a pain experience and defocus issues associated with anatomic structures. It is demonstrated to reduce pain, disability, pain catastrophizing, and limited physical movement.
Health coaching[34]	Health coaching involves a comprehensive approach to behavioral change through goal setting, self-discovery, and active learning processes, while supporting activities that improve health outcomes.
Peer support groups[35]	Groups are often led by therapists, coaches, or volunteers that consist of informal sessions offering advice, troubleshooting questions or problems, promoting camaraderie, and providing motivation and encouragement.

Program Content
Session 1: Interview and assessment
Session 2: Treatment orientation
Session 3: Assessment feedback and goal setting
Session 4: Exercise and pacing
Session 5: Relaxation training
Session 6: Pleasant activities 1
Session 7: Pleasant activities 2
Session 8: Cognitive coping 1
Session 9: Cognitive coping 2
Session 10: Sleep
Session 11: Discharge planning
Session 12: Booster session

*Typically delivered on a once a week or twice a week basis for 1-hour sessions with assigned homework between sessions.

Fig. 1. *Cognitive behavioral treatment for chronic pain protocol.*[38]

Table 2. *Sample of Counseling, Mental, and Behavioral Health Specialties and Professions*

Specialty	Required Degrees	Specialty Focus
Clinical psychologist	PhD, PsyD	Psychological specialty that provides continuing and comprehensive mental and behavioral health care for individuals and families. The scope of clinical psychology encompasses all ages, multiple diversities, and varied systems.
Health psychologist[41]	PhD, PsyD	Clinical psychology subspecialty that investigates and implements clinical services across diverse populations and settings to promote health and well-being and to prevent, treat and manage illness and disability.
Pain psychologist[42]	PhD, PsyD	Pain psychologists typically have a PhD in clinical psychology and have completed an American Psychological Association−accredited postdoctoral fellowship that specializes in chronic pain. Pain psychologists may have a private practice. More commonly, a pain psychologist works as part of a multidisciplinary pain treatment team within an academic pain clinic, private pain clinic, in a hospital rehabilitation setting, or in an outpatient chronic pain functional restoration program.
Rehabilitation psychologist[43]	PhD, PsyD	Clinical psychology subspecialty that focuses on the study and application of psychological knowledge and skills on behalf of individuals with disabilities and chronic health conditions in order to maximize health and welfare, independence and choice, functional abilities, and social role participation, across the lifespan.
Psychiatrist[44]	MD, DO	Physician who specializes in mental health, including substance disorders, and are qualified to assess both mental and physical aspects of psychological problems. Psychiatrist use a variety of treatments including psychotherapy, medications, psychosocial interventions, and other treatments (eg, electroconvulsive therapy).
Social worker[45]	MSW, LCSW	Social workers help people to solve and cope with problems in their everyday lives, organize support, and make recommendations or referrals to other services as appropriate. They can work in many different settings, including mental health clinics and hospitals (inpatient and outpatient).
Behavioral health counselor	Varies	Health care professional in the discipline of psychology who uses therapy to help patients to change behaviors. This can include clinical psychologist, psychiatrists, social workers, and life coaches.
Chaplain[46]	Varies	Chaplains can provide confidential counseling for family relationships, bereavement, religion or spirituality, and other general needs.

DO, doctor of osteopathy; *MD*, medical doctor; *MS*, master of science; *MSW*, master of social work; *PhD*, doctor of philosophy; *PsyD*, doctor of psychology.

recommendations have been made for implementation of the BPS model,[53] and the Global Spine Care Initiative proposed an evidence-based model of care for spine-related disorders that also includes the BPS model as a core principle.[54] Addressing BPS factors has been suggested to empower patients to be more engaged in care and help them to determine when to seek care and when not to seek care for spine-related disorders, and it indicates that comprehensive care approaches involve the integration many professionals working together.[54] We note that building relationships with mental health providers requires considerable effort to coordinate care, and there is potentially greater stigma associated with mental health referrals in nonintegrated settings.

Limitations

These cases were selected as exemplars to demonstrate various psychological treatment approaches following chiropractic referral. Therefore, the outcomes might not necessarily be generalizable to other patients. Patients described in Cases 1 and 3 did not have long-term follow-up, and it is unknown whether they continued to benefit from the interventions provided. The description of care may be limited to the setting, in that many chiropractic providers are not employed in hospital-based environments.

Conclusion

This case series describes the recognition of mental health symptoms, referral to behavioral health providers, and the subsequent treatment approaches. This case series presents the first description of co-managed care for US military veterans by a chiropractor and psychologist.

Funding Sources and Potential Conflicts of Interest

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Contributorship Information

Concept development (provided idea for the research): C. J.D., D.R.A., Z.A.C.
Design (planned the methods to generate the results): C. J.D., Z.A.C.
Supervision (provided oversight, responsible for organization and implementation, writing of the manuscript): C.J.D.
Data collection/processing (responsible for experiments, patient management, organization, or reporting data): C. J.D., D.R.A.
Analysis/interpretation (responsible for statistical analysis, evaluation, and presentation of the results): C.J.D., D.R.A., Z.A.C.
Literature search (performed the literature search): C.J.D., D.R.A., Z.A.C.
Writing (responsible for writing a substantive part of the manuscript): C.J.D.
Critical review (revised manuscript for intellectual content, this does not relate to spelling and grammar checking): C. J.D., D.R.A., Z.A.C.

Practical Applications

- Psychological comorbidities play a role in mediating pain complaints and are suicide risk factors.
- Practical examples of a chiropractic clinic referring to behavioral health services are absent in the literature.
- Co-management of psychological conditions with a behavioral health clinician may be beneficial in promoting healthy coping strategies, self-efficacy, and engagement in self-care strategies for psychologic symptoms and spine pain.

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