

# Mind Body Medicine in the Care of a U.S. Marine With Chronic Pain: A Case Report

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**ABSTRACT** Many service members suffer from chronic pain that can be difficult to adequately treat. Frustration has led to more openness among service members to complementary and alternative medicine modalities. This report follows JK, a Marine with chronic pain related to an injury while on combat deployment through participation in a 6-week self-care-based Mind Body Medicine program and for 7 months after completion of the program. JK developed and sustained a regular meditation practice throughout the follow-up period. JK showed a noticeable reduction in perceived disability and improvements in psychological health, sleep latency/duration and quality of life. This report supports further study into the efficacy and feasibility of self-care-based mind body medicine in the treatment of chronic pain in the military medical setting.

## INTRODUCTION

After almost 12 years of war, large numbers of service members are suffering from chronic pain. Estimated prevalence of chronic pain among veterans seeking care within the Veteran Affairs (VA) system range from 48% to 82%.<sup>1,2</sup> Treatment for chronic pain can be problematic and often leads to opiate abuse.<sup>3</sup> Recovery rates from chronic pain remain very low.<sup>4</sup> Chronic pain carries a high economic burden of disability and many years of lost productivity<sup>5</sup> that is especially pronounced for younger military veterans. Frustration over lack of improvement can increase depression and eventually lead to suicide.<sup>6</sup> With frustration over the lack of success from conventional treatments, veterans with chronic pain are increasingly willing to try complementary and alternative medicine (CAM) modalities to manage their pain. One survey of participants in a randomized controlled trial of a collaborative intervention for chronic pain in the VA showed 82% of the participants reported prior use of a CAM modality and nearly everyone was willing to try CAM to treat their pain.<sup>7</sup>

A growing CAM concept is self-care-based mind body medicine (MBM). MBM focuses on the inseparable connection between the mind and the body and incorporates

- Regular elicitation of the relaxation response through various meditative modalities
- Resiliency building through guided imagery, cognitive restructuring, and positive psychology
- Healthy living through physical activity, nutrition, and recuperative sleep
- Fostering social connections

Evidence is increasing for the efficacy of an MBM approach in the treatment of chronic pain.<sup>8</sup> This case report follows one

Marine's use of a self-care-based MBM program from his entry into the program through 7 months of follow up.

## CASE REPORT

### *Pre-MBM Intervention*

JK is a 30-year-old married, male Marine with over 6 years of chronic pain in his left foot. In late 2007, while on patrol in Iraq, JK fell down a 25-foot cliff sustaining a concussion and other apparent minor injuries. He was briefly evacuated to the nearest Combat Support Hospital and relatively quickly returned to full duty. Although, he had some pain in his left foot and other areas of his body, he resumed daily patrols and completed his combat deployment with his unit a few months later. The left foot pain continued over the next few years requiring numerous light duty chits and eventual dependence on crutches for ambulation in 2009. A magnetic resonance imaging in 2010 revealed multiple bone spurs and hemangiomas in the left foot. The hemangiomas were surgically removed in early 2011 but led to a considerable increase in his level of chronic pain. After surgery, JK underwent intensive physical therapy, received multiple nerve blocks, other localized pain control techniques, and trials of pregabalin, tramadol, tizanidine, and chronic treatment with various opioid analgesics without any significant improvement in pain or overall functioning. Between 2011 and 2013, JK underwent two calcaneal-cuboid fusion operations on the left foot. Both operations left JK in considerably more pain than he had been in before the operations.

At the time of his referral to the MBM for Pain program at Naval Medical Center in spring, 2013, JK reported constant frustration and anger over his "lost ability to perform" his occupational, family and other responsibilities. His frustration would manifest itself in "lashing out" at his wife and children. He was constantly worried and reported inability to focus on his studies. He felt inadequate and "useless." Another major source of frustration was his feeling of "a complete loss of

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control” over his situation. He was “at the mercy of doctors” and ready to give up.

### **MBM for Pain Program Description and Data Collection Methods**

The MBM for Pain Program that JK participated in was a 6-week manualized intervention based on the Relaxation Response Resiliency Program developed by the Benson-Henry Institute for Mind Body Medicine at Massachusetts General Hospital.<sup>9,10</sup> At Naval Medical Center San Diego (NMCS), the program was modified to incorporate time for a demonstration of yoga and qigong. Participants met for 2-hour group sessions weekly for six sessions with the course leaders.

The program content began with a foundation in the physiology and science behind the stress response and the relaxation response to increase acceptance for MBM as part of the overall medical model of treatment. The participants were exposed to multiple meditative modalities throughout the program with the goal of each participant finding the modalities that they were most comfortable with so they felt empowered to continue practice beyond the program. The participants learned various resiliency building skills such as journaling, cognitive restructuring, recuperative sleep, and maintaining social connection during times of stress. In between sessions, participants were expected to practice an MBM modality daily and complete other exercises related to the material taught that week. To help increase adherence, a volunteer served as a health coach providing daily e-mail encouragement to continue regular practice. Participants in the course were provided a CD of guided audio meditations and a Web site with links to other resources including regularly offered experiential groups in various mind body modalities at NMCS. The course ended with a final over-

view of all of the materials and encouragement to continue practicing the skills taught in the course into the future.

JK completed an initial assessment questionnaire that included medical history, demographics, and current use of MBM practices. Validated self-report scales collected included

- Brief Pain Inventory (BPI): measures current levels of pain and perceived functional impairment from pain<sup>11</sup>
- Sheehan Disability Scale (SDS): measures current perceived disability<sup>12</sup>
- Pittsburgh Sleep Quality Index (PSQI): measures sleep quality<sup>13</sup>
- Patient Health Questionnaire-8 (PHQ8): measures depression severity<sup>14</sup>
- Generalized Anxiety Disorder-7 (GAD7): measures anxiety severity<sup>15</sup>
- World Health Organization Quality of Life (WHO-QOL): measures perceived quality of life in four broad domains: physical, psychological, social/relationships, and environment<sup>16</sup>

Assessments were repeated at the conclusion of the intervention, 4 months post-intervention, and 7 months post-intervention.

### **Initial MBM Consultation**

On initial consultation to the MBM course (see Table I), he was averaging pain of 7/10 with severe perceived impairment from his injury (BPI 67, SDS 30), poor sleep quality (PSQI 18), sleep latency of 150 minutes, moderate to severe depression (PHQ8 18), and moderate to severe anxiety (GAD7 13). He had no prior exposure to the concepts of MBM or prior experience with any meditation techniques. JK was initially “very skeptical” of MBM and its potential to help him but

**TABLE I.** Longitudinal Presentation of Various Outcome Measures

	Pre-Intervention	Post-Intervention	4-Month Follow-Up	7-Month Follow-Up <sup>a</sup>
<b>Meditation Frequency</b>	None	5–6 Days/Week	5–6 Days/Week	7 Days/Week
<b>Pain On Average (From BPI)</b>	7	8.5	7.5	3.5
<b>BPI (Impairment From Pain)</b>	67	60.5	51	51
<b>SDS (Disability)</b>	30	28.5	20	16
<b>Time to Sleep Onset (Minute) (From PSQI)</b>	150	80	25	45
<b>Average Duration of Sleep (Hours) (From PSQI)</b>	3.5	2.5	6	6
<b>PSQI (Sleep Quality)<sup>b</sup></b>	18	20	10	13
<b>PHQ8 (Depression)</b>	18	17	4	5
<b>GAD7 (Anxiety)</b>	13	13	5	7
<b>WHO-QOL<sup>c</sup>: Physical</b>	8	14.5	17	23
Physical Health Quality of Life				
<b>WHO-QOL<sup>c</sup>: Psychological</b>	14	17	23	24
Psychological Quality of Life				
<b>WHO-QOL<sup>c</sup>: Social/Relationships</b>	4	7	8	9
Social Quality of Life				
<b>WHO-QOL<sup>c</sup>: Environment</b>	27	26	32	35
Environmental Quality of Life				

<sup>a</sup>Neurostimulator implanted in between the 4-month and 7-month follow up. <sup>b</sup>Sleep quality is considered higher as score decreases. <sup>c</sup>World Health Organization-Quality of Life.

made the choice to actively participate in the sessions and conscientiously complete the homework and program practice in between sessions.

### **Immediate Post MBM Intervention**

At the completion of the MBM program, JK reported mild, overall improvement in his sense of well-being. He reported a new ability to “stop and take a breath before a response” to stressful situations and to better describe his emotions and feelings. Per the post-program assessment (see Table I), JK was meditating in some manner 5 to 6 days per week with the intention to continue his practice. His average pain was 8.5/10. He had a 10% reduction in perceived impairment from pain (BPI 60.5), 5% reduction in overall perceived disability (SDS 28.5), a reduction in sleep latency to 80 minutes, minimal improvement in depression, and stable anxiety. Physical health quality of life improved by 81%, psychological quality of life improved by 21%, and relationship quality of life improved by 75%.

### **Four-Month Post MBM Intervention Follow-Up**

Four months after the completion of the MBM program, JK reported significant improvement in his overall sense of well-being, hope for the future and ability to maintain meaningful relationships in the face of stress. He reported “thinking clearer” with notable improvement in focus, retention, and memory. Per the 4-month assessment (see Table I), JK was continuing a 5 to 6 day per week meditation practice. His average pain was 7.5/10. Compared to his post-intervention assessment, he had a 14% reduction in perceived impairment from pain (BPI 51) and 43% reduction in overall perceived disability (SDS 20). His sleep quality improved by 50% (PSQI 10), sleep latency improved to 25 minutes, and his overall duration of sleep increased 140%. His depression decreased by 77% (PHQ8 4) and anxiety decreased by 62% (GAD7 5). Physical health quality of life improved by 17%, psychological quality of life improved by 35%, relationship quality of life improved by 14%, and environmental quality of life improved by 23%.

### **Seven-Month Post MBM Intervention Follow-Up**

A month before his 7-month follow-up, JK had a neurostimulator surgically implanted to control his continuing high levels of pain. This procedure led to an immediate, dramatic reduction in pain. Compared to his 4-month follow-up (see Table I), JK’s average pain was reduced by 53% to 3.5/10. He was now meditating 7 days a week. His perceived impairment from pain remained stable and his overall perceived disability decreased an additional 20% (SDS 16). Sleep quality was mildly reduced (PSQI 13). Sleep latency was mildly increased to 45 minutes and sleep duration was stable at 6 hours per night. Depression and anxiety levels remained relatively steady. Physical health quality of life improved by

35%. Psychological and relationship quality of life mildly improved. Environmental quality of life improved by 9%.

## **DISCUSSION**

When JK was referred to the MBM for Pain program, he felt angry about his lack of clinical improvement, hopeless about his future productivity, and had a low sense of self-efficacy. He had no prior experience with MBM concepts and was openly skeptical about the program. At the conclusion of the six-session program, he had a regular meditative practice, planned to continue the practice and mild improvements in self-efficacy, psychological health and quality of life. These early gains appear to have increased JK’s motivation to continue a practice as he was continuing a regular meditation practice and use of the other concepts taught in the program 7 months after the conclusion of the program. At the 4-month follow-up, his overall functioning, psychological health, and quality of life had significant improvement. It is notable that these improvements in functioning, outlook, and efficacy occurred despite no discernible improvement in pain severity. Pain severity was finally reduced after surgical implantation of a neurostimulator. A month later at his 7-month follow-up, his gains on various outcome measures was essentially maintained with the most significant improvement being seen in physical quality of life. Of note, most of his functional improvement occurred before neurostimulator implantation and the subsequent reduction in average pain. Also, his meditation practice was successfully maintained as of 7 months after the MBM intervention.

Although this is only a single case report, this study highlights the tremendous potential of an MBM program to change a patient’s relationship with chronic pain. JK’s regular practice of MBM concepts likely contributed to his regaining functioning and psychological health in the face of persistent pain although further controlled trials are necessary to confirm that conclusion. This report also provides support for the specific use of a self-care model to deliver MBM to chronic pain patients. A self-care model has the advantage of potentially creating significant impact with minimal direct care cost. The biggest question regarding the efficacy of such a model is whether habits will be sustained in program participants. The case of JK shows that this is possible.

The MBM program at NMCS D has continued to expand to other patient populations. Randomized controlled trials and robust observational studies are necessary to confirm that potential benefit and value illustrated in the case of JK. Self-care MBM may represent a model to emulate throughout DoD/VA medicine.

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