The Benefits of Reflexology for the Chronic Pain Patient in a Military Pain Clinic

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ABSTRACT

Background: Chronic pain is a major cause of disability across the military, especially for the combat Soldier. More than two-thirds of Americans with chronic pain are now using complementary medicine. **Methods:** Patients with chronic pain opting for reflexology as part of their treatment plan received bilateral therapy. Alternating pressure was applied to the individual patient's reflex points corresponding to their pain sites. Following a single treatment session, patients were asked to complete a short survey. **Discussion:** There is evidence that reflexology is therapeutic for many conditions, to include sleep and anxiety, both of which can be comorbidity in the patient with chronic pain. There is a lack of evidence on the use of reflexology with chronic pain patients receiving multidisciplinary pain care. **Results:** A total of 311 participants completed the survey. Posttreatment pain scored decreased by a median of 2 points (interquartile range [IQR] 1–3) on a 10-point pain scale. This represents a median 43% (IQR 25%–60%) reduction in pain for males and a 41% (IQR 30%–60%) reduction in pain for females. **Conclusion:** Currently research is limited on effects of reflexology in treating chronic pain, yet, like acupuncture, this is an inexpensive, reliable, teachable, and simple noninvasive treatment. Further studies are warranted.

KEYWORDS: *reflexology; pain; chronic pain; complementary treatments; alternative treatments*

Introduction

Chronic pain is a major cause of disability across the military but is most common in the Soldier deployed for combat.[1] The Final Report from the Army Surgeon General's Pain Management Task Force recommended the use of complementary alternative medicine (CAM) but specifically stated the lack of evidence supporting its use.[2] More than two-thirds of Americans with chronic pain are now using complementary and alternative therapies.

The origins of reflexology reach back to ancient Egypt, with hieroglyphic evidence as early as 2330 BC in the tombs of Ankhamor. This evidence demonstrated sophisticated systems of treatment that are comparable to the "foot maps" available today. From Egypt, this modality spread throughout the Roman Empire, helping to popularize it long before allopathic medicine was developed.[3]

In practice of reflexology, it is believed that there are reflex points that correspond to every gland, organ, muscle, tissue, and body system. In addition, through mastery and application of reflexology techniques, it is thought that the blood and lymph circulation to these can be influenced toward homeostasis (Figure 1).[4] According to the Reflexology Association of America, "Reflexology is a non-invasive complementary practice involving the use of alternating pressure applied to reflexes within reflex maps of the body, located on the feet, hands and outer ears."[5]

FIGURE 1 *Foot massage chart.*

Source: https://upload.wikimedia.org/wikipedia/commons/b/bf/Foot-massage-chart.jpg

Recently, some therapists practicing reflexology have integrated related forms of therapy such as yoga/stretching, breathing exercises, and mindfulness with guided imagery. One application of this type of integrative therapy is Integrative Method Reflex Therapy (IMRT), in which reflexology is used in conjunction with a comprehensive medical program in a clinical setting as a therapeutic tool. When practicing IMRT, the reflexologist has the advantage of access to clinical data that is not available in a nonclinical setting.[6]

Reflexology may improve chronic pain by helping to improve sleep.[7,8] A study analyzing the effects of reflexology on alpha brain waves in sleep found that the application of reflexology induced change in the activity of brain waves in correspondence with the appearance of a high degree of sleepiness.[8] In addition, there is evidence that reflexology may impact the

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stress response.[9] A study of cancer patients with anxiety found that "patients experienced a significant decrease in pain intensity and anxiety" compared with the control group.[10,11] Studies like these have helped to build objective evidence supporting the use of reflexology in chronic pain patients. There is a lack of evidence on the use of reflexology with chronic pain patients receiving multidisciplinary pain care. We sought to determine the feasibility of incorporating the use reflexology for US Army Soldiers with chronic pain within in an interdisciplinary pain clinic.

Methods

The Interdisciplinary Pain Management Center (IPMC) at Womack Army Medical Center, Fort Bragg, NC, is a fully integrated clinic offering comprehensive pain management. Patients with chronic pain receiving treatment at IPMC opting for reflexology received 25 minutes of therapy using both feet (unless contraindicated) in addition to their standard of care pain management therapies, which could include acupuncture, chiropractic care, massage, exercise therapy, physical therapy, interventional pain procedures, and prescription medications.

Adhering to the guidelines of the American Reflexology Certification Board, alternating pressure was applied by a board-certified reflexologist correlating to the individual patient's pain sites and other points based on the reflexologist's assessment of the patient's pain complaint and comorbidities. Following a single treatment session, patients were then asked to complete a voluntary survey reporting their sex, age, and pretreatment pain score using the Defense and Veterans Pain Rating Scale (DVPRS).[12] The survey also included the classification of pain (musculoskeletal, nerve, or both), immediate posttreatment pain scores, satisfaction, and self- assessment of treatment benefit.

Summary statistics are reported as median and IQR for continuous variables. Categorical variables are reported as percentages. Patients' change in pain was computed using self-reported assessments of pretreatment and posttreatment pain. Kruskal–Wallis tests were used to assess the relationship between categorical variables and age, pretreatment pain, posttreatment pain, as well as change in pain. Linear regression analysis was used to examine the relationship between posttreatment pain reduction, age, and pain type. All statistical tests were performed by using a $P < .05$ level of significance. Data analyses were conducted using SPSS v23 (IBM, Armonk, NY).

Results

A total of 311 participants completed the survey. Among the 295 who indicated their sex, 67.5% (n = 199) reported being male and 32.5% (n = 96) reported being female. The median age of the participants was 36 years (IQR 28–44). Females were significantly older than males, with a median age of 42 years (IQR 30–46) compared with a median age of 35 years (IRQ 38–43) for males ($P < .01$).

Sex differences were observed in self-reported pain before treatment. For pretreatment pain, females reported less pain than males ($P = .02$). Posttreatment pain did not differ by sex ($P > .05$). Females reported a median pretreatment pain of 5 (IQR 3.5–6.5), while males reported a median pretreatment pain of 6 (IQR 3.5–7.5). There were no differences by sex in

the efficacy of the treatment ($P = .78$). Posttreatment, both males and females reported a decrease on the pain scale. For males, the self-reported median posttreatment pain score was 3 (IQR 1.5–4.5) and the median posttreatment pain score for females was 3 (IQR 2–4). This represents a 43% (IQR 25%–60%) reduction in pain for males and a 41% (IQR 30%–60%) reduction in pain for females (Figure 2).

FIGURE 2 *Pain reduction of 43% (IQR 25%–60%) for males and of 41% (IQR 30%–60%) for females.*
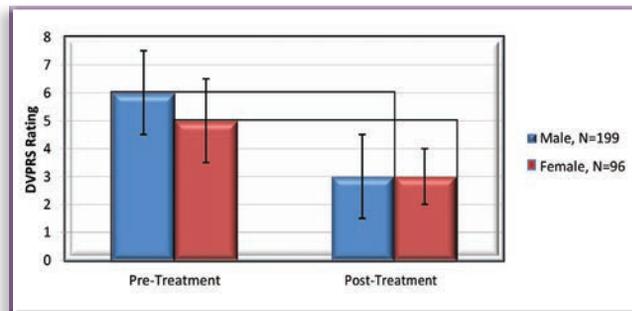
No differences were observed in self-reported pain type (musculoskeletal, nerve, or both) based on sex ($P = .55$). Overall, 53 patients (19.9%) reported musculoskeletal pain, 26 (9.7%) reported nerve pain, and 188 (70.4%) reported experiencing both musculoskeletal and nerve pain. Posttreatment change in pain was not related to age ($P = .45$) or type of pain ($P = .30$).

When asked about perceived benefit, 96.4% (n = 296) of patients reported that the treatment helped with their pain; 0.3% (n = 1) reported that the treatment did not help; and 2.9% (n = 9) of patients reported "Not sure." Similar responses were observed when asked about repeating the treatment. Ninety-nine percent (n = 302) of patients reported that they would be interested in further treatment, while 1% (n = 4) responded that they were not sure.

Discussion

This prospective, nonrandomized, observational study demonstrated pain reduction with a high degree of tolerability when reflexology was added to treatments offered in a military multidisciplinary pain management clinic. These data support expansion of reflexology services in a military multidisciplinary pain management clinic and support further academic expansion on the role of reflexology in the management of chronic pain. Previous studies have shown reflexology to be beneficial in treating sleep disturbances and stress. Future studies should seek to integrate outcomes measures considering stress, sleep quality, and chronic pain using multiple treatments over time. In addition, future studies on training healthcare providers and the benefits that may provide could prove beneficial.

Conclusion

Reflexology, when used as part of a multidisciplinary treatment plan, has been shown to have high patient tolerability with pain reduction. Further studies are warranted.

Disclosure

Department of the Army, Department of Defense, or the US government. All authors approved the final version.

Author Contributions

CK is a board-certified reflexologist who had an interest in conducting a research study on the effectiveness of reflexology. She provided the therapy and contributed in writing the manuscript; AM with CK developed the questionnaire and plan for the project and initiated the manuscript, TB analyzed the data and wrote the Results section; and MB reviewed and edited the final version of the manuscript.

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