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Effects of Myofascial Decompression on Reducing Pain and Muscle Tension in the Lumbar
Region of the Spine and Improving Daily Functional Performance

A Doctoral Experiential Capstone Project Final Report
Presented to the Faculty of Western New England University
In Partial Fulfillment of the Requirements for the
Entry-Level Doctorate
in
Occupational Therapy

by
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A Doctoral Experiential Capstone Project Final Report

By

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July 2023

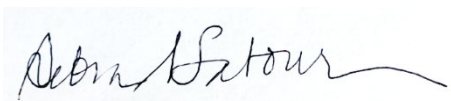
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Abstract

This study investigates the impact of myofascial decompression (MD) on pain, muscle tension in the lumbar region, and daily occupational performance. Utilizing negative pressure to enhance blood circulation and tissue healing, MD was administered to nine Western New England students with low back pain (LBP) twice a week for four weeks. The Wong-Baker Pain Scale and World Health Organization's Quality of Life (QOL) Scale were utilized for data collection and analysis. Findings reveal that MD yields immediate pain reduction, suggesting its potential as a preparatory method for occupational therapy interventions like therapeutic exercises or activities. Further research should explore the combined effects of MD and therapeutic exercises, as well as the standalone effects of MD, to advance understanding in this area.

Keyword: Myofascial Decompression, Low Back Pain, Cupping Therapy

Effects of Myofascial Decompression on Reducing Pain and Muscle Tension in the Lumbar Region of the Spine and Improving Daily Functional Performance

Low back pain (LBP) is a global health concern and the leading cause of disability worldwide (Ferreira et al., 2023). It affects a significant percentage of adults, with an estimated 619 million individuals experiencing LBP in 2020 and projections suggesting a rise to 843 million cases by 2050 (Ferreira et al., 2023). Contributing factors to LBP include postural stress, disc degeneration, spinal stenosis, vertebral fracture, tumor, infection, spondylolisthesis, and arthritis (Cohen et al., 2008; McKenzie, 2005; Radomski & Trombly Latham, 2014). LBP not only causes physical discomfort but also significantly impacts an individual's quality of life and ability to engage in meaningful occupations, compromising their daily activities, work, sleep, and leisure pursuits.

Despite recommendations for education, self-management, and appropriate interventions, the utilization of ineffective treatments remains high, such as imaging, bed rest, opioids, and invasive procedures (Ferreira et al., 2023). Occupational therapists (OTs) play a crucial role in addressing LBP through a holistic, client-centered approach, which includes education on proper body mechanics and alternative techniques for activities, alongside the incorporation of complementary and alternative medicines (CAMs) like myofascial decompression (MD) (McGuire, 1997; Sanders, 2004; Radomski & Trombly Latham, 2014).

MD utilizes negative pressure to enhance blood flow, promote fascial mobility, and improve neuromuscular re-education, addressing the densification and fibrosis within deep fascia (CupTherapy, n.d.; Pavan et al., 2014). By integrating MD into their practice, occupational therapists can align with the Intervention domain of the Occupational Therapy Practice Framework, Fourth Edition (OTPF-4), effectively addressing the needs of individuals with LBP

and improving their overall occupational performance (American Occupational Therapy Association [AOTA], 2020). This approach supports the biopsychosocial perspective of occupational therapy and emphasizes the importance of considering physical, psychological, and social factors in pain management. The integration of MD into treatment plans has the potential to reduce pain, enhance functionality, and improve quality of life for individuals with LBP. A comprehensive literature review can be found in Appendix A.

Doctoral Experiential Project Overview

In order to enhance the awareness of myofascial decompression among occupational therapists, the researcher has taken steps to disseminate their findings through various channels. One significant effort involved submitting a journal article to the *OT Practice* magazine and Massachusetts Association for Occupational Therapy. This article presents the results and findings of the study, which investigated the effectiveness of myofascial decompression in alleviating pain and muscle tension in the lumbar region of the spine, as well as its impact on daily occupational performance. The objective of this submission is to emphasize the additional benefits that myofascial decompression can offer when combined with occupational therapy services, and to underscore the need for further research on this modality. Furthermore, the researcher recognized the importance of educating and training current occupational therapy students on the benefits, precautions, and contraindications of myofascial decompression as a means to enhance occupational performance in daily activities.

Community Experiential Component

Through the literature review (Appendix A), needs assessment (Appendix B), and PRECEDE-PROCEED Model (Appendix C), the community experiential component of this DEx Capstone project aimed to address the profound impact of pain on the quality of life and

academic performance of students. Chronic pain not only takes a toll on students' physical well-being but also heightens their vulnerability to mental health conditions like anxiety and depression, compounding their pain symptoms and impeding their engagement in daily activities beyond their student roles (Alsaadi, 2022). Furthermore, pain disrupts sleep patterns, undermining crucial executive functioning skills required for concentration and focus during classes (Noel et al., 2016). Consequently, chronic pain significantly hampers students' ability to participate in activities of daily living (ADLs), social interactions, and leisure occupations, thereby limiting their involvement in enjoyable extracurricular pursuits. This reduction in engagement can result in missed educational opportunities, academic setbacks, and an inability to realize their full potential.

Saad M. Alsaadi's study (2022) sheds light on the prevalence of neck and back pain among students, emphasizing its profound impact on daily life and sleep quality. Students report challenges in fully engaging in leisure activities and academic tasks due to pain, which contributes to heightened stress, anxiety, and depression, ultimately diminishing their overall quality of life (Alsaadi, 2022). In response to these challenges, the student researchers sought to enhance the accessibility of pain management techniques, such as cupping therapy, for this particular population. Their objective was to improve the students' quality of life and foster greater independence in daily activities. To adequately prepare OT students for their Level II fieldwork and their responsibilities at the Bear Paw Clinic, the researcher developed a competency test (Appendix D), three case studies (Appendix E), informational guide on how to use a home exercise program (Appendix F), and a Microsoft PowerPoint with other student researchers (Appendix G). These assessments and resources were specifically designed to evaluate the OT students' comprehension and application of MD as an effective pain management technique. By

engaging in these evaluations during the two day in-service, the OT students acquired the essential skills and knowledge needed to proficiently employ MD in their practice, ensuring their ability to deliver optimal care to individuals suffering from pain.

Scholarly Component

This scholarly project aims to investigate the effects of myofascial decompression (MD) on pain, muscle tension, and daily occupational performance. Using convenience sampling, a quantitative research study was conducted to explore the effectiveness of MD in reducing pain and muscle tension in Western New England students experiencing pain in the neck, shoulders, back, and arms. The study's objectives include providing pilot data on myofascial decompression and identifying the role of this modality in pain management.

Participants were randomly assigned participant numbers to ensure confidentiality. They were divided into four groups based on the location of their pain: arm/shoulder, cervical, thoracic, and lumbar. Each group received MD on their respective body parts for eight minutes, twice a week for four weeks, with a two-week intermission during summer break.

The inclusion criteria for the study involved WNE students aged 18 to 65 with pain in the specified body regions. Recruitment was done through email, word of mouth, and online posts exclusively for WNE students. Out of the 25 participants recruited, 24 met the inclusion criteria, and 22 completed the study. The exclusion criteria included students under 17 years old, pregnant individuals, those with active cancer, and those with broken, burned, or irritated skin. Data collection involved participants completing an initial intervention survey, a daily pain log, and the World Health Organization's Quality of Life (WHOQOL)-BREF survey to assess the effectiveness of MD.

The initial intervention survey gathered information on participants' pain level, pain location, type of pain, exacerbating daily activities, duration of pain, and prior injuries. The daily pain log recorded participants' pain levels, pain type, exacerbating activities, changes in symptoms, and duration of symptom relief (if any) prior to receiving the intervention. Participants reported an overall decrease in pain, improved symptoms, and immediate relief. Sitting in class was identified as the most exacerbating daily activity. The goal of occupational therapy in pain management is to enable individuals to engage in meaningful occupations, and the use of MD is recommended to reduce pain and enhance performance in daily activities.

The WHOQOL-BREF survey, administered three times over the study's duration, assessed participants' perceptions of pain in the physical health, psychological, social relationships, and environment domains. The results indicate a minimal correlation between receiving MD and improvement in quality of life.

In conclusion, this study aimed to investigate the effects of myofascial decompression (MD) on pain, muscle tension, and daily occupational performance in students experiencing pain in various body regions. The study provided valuable insights into the potential benefits of MD as a pain management modality. Participants reported a decrease in pain, improved symptoms, and immediate relief following the intervention. The use of MD showed promise in reducing pain and enhancing performance in daily occupations. Additionally, while there was a minimal correlation between receiving MD and improvement in quality of life, further research is needed to better understand the relationship between MD and overall well-being. This study contributes to the growing body of knowledge on the effectiveness of MD, highlighting its potential value in occupational therapy practice. By incorporating MD into pain management approaches,

occupational therapists can further support individuals in achieving meaningful engagement in their daily activities and improving their overall quality of life.

Discussion

The findings of this scholarly component (Appendix H) provide valuable insights into the effects of myofascial decompression (MD) on pain, muscle tension, and daily occupational performance in students. The results indicate that MD interventions led to a decrease in pain and improved symptoms among the participants. This aligns with previous research highlighting the effectiveness of MD in relieving pain and enhancing physical function. The immediate relief experienced by the participants suggests that MD may have the potential to provide short-term pain management benefits.

Moreover, the participants reported improved performance in daily occupations following MD interventions. This indicates that MD may have a positive impact on functional abilities and engagement in meaningful activities. Occupational therapists can integrate MD into their treatment plans to address pain and support individuals in achieving their occupational goals. By reducing pain and improving daily occupational performance, MD interventions have the potential to enhance overall quality of life for individuals experiencing pain in various body regions.

Despite these promising findings, it is important to acknowledge some limitations of this study. The sample size was relatively small, and the study focused solely on student participants from a specific university, which may limit the generalizability of the findings. Future research should include larger and more diverse samples to provide a more comprehensive understanding of the effects of MD. Additionally, the study mainly focused on immediate effects, and the long-term outcomes of MD interventions should be explored to determine their sustained benefits over

time. Overall, this scholarly component lays the groundwork for further investigation into the use of MD as an effective modality for pain management and improving occupational performance in a broader population.

Furthermore, it is crucial to recognize that the effects of pain extend beyond physical discomfort and can significantly impact individuals' overall quality of life. Chronic pain, as experienced by the participants in this study, often contributes to increased stress levels, anxiety, and depression, which can further deteriorate quality of life. The findings highlight the potential of MD interventions to alleviate pain and improve functional abilities, thereby addressing some of the barriers that individuals with pain face in their daily lives. Additionally, external factors, such as prior injuries or personal circumstances, can influence pain experiences and, consequently, quality of life. These factors may exacerbate the physical limitations imposed by pain and contribute to emotional distress. Recognizing and addressing these external factors is crucial in developing comprehensive treatment plans that holistically support individuals in managing pain and enhancing their overall well-being.

While the findings demonstrate the immediate benefits of MD on pain and occupational performance, it is essential to acknowledge the limitations of the study. The sample size was small and limited to a specific university population, which may restrict the generalizability of the results. Future research should include larger and more diverse samples to obtain a broader understanding of the effects of MD in different populations. Additionally, investigating the long-term outcomes and sustainability of the benefits observed in this study would provide valuable insights into the lasting impact of MD interventions.

In conclusion, the findings of this scholarly component underscore the potential of MD interventions in addressing pain and improving occupational performance, which can ultimately

enhance individuals' quality of life. However, further research is needed to validate and expand upon these findings. By incorporating MD into comprehensive treatment approaches, occupational therapists can play a significant role in promoting pain management and improving the overall well-being of individuals experiencing pain in various body regions.

Limitations

Despite the valuable insights provided by this study, it is important to acknowledge its limitations. Some of the limitations include:

1. **Small sample size and limited generalizability:** The study's sample size was relatively small, consisting of participants from a specific university. This may limit the generalizability of the findings to a broader population. Future research with larger and more diverse samples would enhance the external validity of the results.
2. **Self-selection bias:** Participants were recruited through email, word of mouth, and online posts. This recruitment method introduces the possibility of self-selection bias, as individuals who chose to participate may have had different motivations or characteristics compared to those who did not participate. This potential bias may impact the representation of the student population experiencing pain.
3. **Short-term focus:** The study primarily focused on immediate effects and short-term outcomes of MD interventions. Long-term effects and sustainability of the observed benefits were not examined. It would be valuable for future research to investigate the durability of the pain relief and functional improvements over an extended period.
4. **Two-week intermission:** There was a two-week intermission of the study due to campus shutdown for summer break, which inadvertently led to some participants either not participate or drop out of the study. This interruption in the study timeline may have

disrupted the continuity of their engagement and commitment, potentially influencing their decision to discontinue their participation. As a result, the dropout of these participants could introduce bias and affect the overall representation of the participants' experiences and outcomes, possibly influencing the study's changes.

5. Lack of control group: The absence of a control group limits the ability to make direct comparisons and draw causal conclusions regarding the effects of MD. Including a control group receiving a different intervention or a placebo would help establish the specific impact of MD on pain reduction and occupational performance.
6. Single-site study: The study was conducted at a single university, which may limit the diversity of participants and the ecological validity of the findings. Replicating the study at multiple sites or in different settings would enhance the generalizability and robustness of the results.
7. Receiving intervention on multiple body parts: May have implications for assessing the specific effectiveness of MD on LBP. Treating multiple body regions simultaneously could potentially confound the evaluation of MD's impact on pain relief in the low back. Consequently, it may be challenging to discern the individual contribution of MD in reducing LBP, thus warranting careful consideration and analysis in future research focusing on this specific subgroup of participants.

Acknowledging these limitations allows for a more nuanced interpretation of the study's findings and highlights areas for improvement and future research. Addressing these limitations in future studies would contribute to a more comprehensive understanding of the effects of MD on pain management and daily occupational performance.

Learning Outcomes

The learning objectives for the DEx Capstone project were established prior to its commencement, requiring approval from the Site Mentor, Faculty Mentor, and DEx Capstone Coordinator. These objectives underwent regular review and evaluation by the Site and Faculty Mentors throughout the duration of the project. The research team collaborated on two collective learning objectives, which included the submission of an article to a professional journal or event, as well as the facilitation of an in-service on myofascial decompression (MD) for other OT students and faculty members involved with the Bear Paw Clinic. The research team successfully submitted their work to the Massachusetts Association of Occupational Therapy and the OT Practice magazine. Moreover, they organized a comprehensive two-day in-service that featured a Microsoft PowerPoint presentation and a training session.

As for the researcher's individual learning objectives, the first involved the creation of a competency test administered during the two-day in-service to second-year OT students. This aimed to assess their understanding and proficiency in using MD. The second learning objective originally involved developing a home exercise program for five occupational therapy students to alleviate pain and muscle tension in their bodies. However, at midterm, this objective was modified to focus on educating and training OT students in utilizing an online platform for creating future clients' home exercise programs at the Bear Paw Clinic and in preparation for Level II Fieldwork. The researcher also constructed three case studies, each featuring a distinct diagnosis and the implementation of MD. These case studies were presented to the OT students during the in-service, who then analyzed them and presented appropriate therapeutic exercises to improve their hypothetical clients' daily activity performance using the biomechanical frame of reference.

By establishing and pursuing these learning objectives, the research team and the researcher demonstrated their commitment to professional growth, knowledge dissemination, and practical application within the field of occupational therapy. These objectives provided a framework for achieving meaningful outcomes and contributed to the overall success and impact of the DEx Capstone project.

References

- Alsaadi S. M. (2022). Musculoskeletal pain in undergraduate students is significantly associated with psychological distress and poor sleep quality. *International Journal of Environmental Research and Public Health*, 19(21), 13929.
<https://doi.org/10.3390/ijerph192113929>
- American Occupational Therapy Association. (2020). Occupational therapy practice framework: Domain and process (4th ed.). *American Journal of Occupational Therapy*, 74(Suppl. 2), 7412410010. <https://doi.org/10.5014/ajot.2020.74S2001>.
- CupTherapy. (n.d.). *What is MFD?*. <https://www.cuptherapy.com/>
- Ferreria, M. L., de Luca, K., Haile, L. M., Steinmetz, J. D., Cullbreth, G. T., Cross, M., Kopec, J. A., Ferreira, P. H., Blyth, F. M., Buchbinder, R., Hartvigsen, J., Wu, A., Safiri, S., Woolf, A. D., Collins, G. S., Ong, K. L., Vollset, S. E., Smith, A. E., Cruz, J. A., . . . March, L. M. (2023). Global, regional, and national burden of low back pain, 1990-2020, its attributable risk factors, and projections to 2050: a systematic analysis of the Global Burden of Disease Study 2021. *Lancet Rheumatology*, 5, 316-329.
[https://doi.org/10.1016/S2665-9913\(23\)00098-X](https://doi.org/10.1016/S2665-9913(23)00098-X)
- McGuire, M. J. (1997). Documenting progress in home care. *The American Journal of Occupational Therapy*, 51, 436-445.
- McKenzie, R. (2005). *Treat Your Own Back* (7th ed.) New Zealand. Spinal Publication.
- Pavan, P. G., Stecco, A., Stern, R., & Stecco, C. (2014). Painful connections: Densification versus fibrosis of fascia. *Myofascial Pain*. DOI: 10.1007/s11916-014-0441-4
- Radomski, M. V., & Trombly Latham, C. A. (2014). Orthopaedic conditions. In C. Maher (Ed.), *Occupational Therapy for Physical Dysfunction* (7th ed., pp. 1118-1123). Lippincott Williams & Wilkins.

- Sanders, M. J. (2004). Ergonomics of child care. In M. J. Sanders (Ed.), *Ergonomics and the Management of Musculoskeletal Disorders* (2nd ed., pp. 410-417). St Louis: Butterworth & Heinemann.
- Vleeming, A. & Stoeckart, R. (2007). The role of the pelvic girdle in coupling the spine and the legs: a clinical-anatomical perspective on pelvic stability. In A. Vleeming & R. Stoeckart (Eds). *Movement, Stability and Lumbopelvic Pain* (pp. 113–137). Edinburgh: Churchill Livingstone.

Appendix A - Literature Review

Cupping therapy is a traditional Chinese medical treatment which has been practiced for thousands of years. The World Health Organization's definition of cupping is a therapeutic method involving the application of suction by creating a vacuum (World Health Organization, 2007). There are a variety of different techniques and materials that can be used with cupping therapy. Common techniques of cupping therapy include dry cupping, wet cupping, massage cupping and flash cupping. Within these different techniques, cup materials may vary between glass, silicone, plastic, bamboo, rubber, metal, or ceramic. When performing cupping therapy, it is important to know these different materials and techniques along with indications and contraindications for the safety of the client. Indications for cupping therapy include localized conditions that cause pain or muscle tension in the neck, back, shoulder, and knee. Cupping therapy is contraindicated for people with deep vein thrombosis and should not be applied directly on veins, arteries, nerves, skin inflammation, skin lesions, body orifices, eyes, lymph nodes, varicose veins, open wounds, and bone fractures, (Aboushanab & AlSanad, 2018). This is important when assessing a client before performing cupping therapy on them for potential benefits and to prevent any harm.

The suction produced through cupping induces negative pressure inside the cup. Throughout a range of studies, it is hypothesized that inducing this negative pressure attracts blood to the area of pain, thereby removing blood stasis and increasing blood and lymph circulation locally to relieve tension and pain of the muscle (Chen et al., 2014). These physiological changes can be beneficial in treating pain and/or muscle tension found within the body. Furthermore, a literature review has been completed comparing different themes found within areas of the neck and lower back, strengths, and weaknesses.

Effectiveness and Benefits of Cupping Therapy

Researchers have conducted studies on cupping therapy to determine its overall effectiveness on individuals who have experienced pain or muscle tension. After reviewing the literature, multiple studies have proved that cupping therapy can be used as either a potential or effective treatment method to reduce pain or muscle tension (Aboushanab & AlSanad, 2018; Arslan et al., 2015; Lauche et al., 2011; Moura et al., 2018; Saha et al., 2017; Teut et al., 2018; Volpato et al., 2020; Wang et al., 2020). Within these studies, most individuals were experiencing back or neck pain which has impacted these individual's daily life and their occupational performance. After their treatment, their overall quality of life has increased due to decreased pain and muscle tension. A holistic, safe, and alternative treatment option such as cupping therapy can also provide benefits such as promoting the skin's blood flow, reducing inflammation, promoting overall health, preventing pain and muscle tension, providing therapeutic relief, and increasing an individual's overall quality of life (Aboushanab & AlSanad, 2018; Wang et al., 2020).

Common Methods Used to Determine Effectiveness

Comparing similarities among the findings, the most used method of measuring outcomes was the visual analogue scale (VAS). The VAS was consistently used among the references and presented with lower scores after treatment implying that the cupping modality helped with their pain (Akbarzadeh et al., 2014; Lauche et al., 2011; Lauche et al., 2012; Leem, 2014; Markowski et al., 2014; Saha et al., 2017; Singh & Siahpush, 2016; Wang et al., 2017; Wang & Tang, 2020). This instrument is an assessment tool used before and after the intervention for measuring pain to monitor and quantify an increase or decrease in pain. Another common outcome measure is the health related QOL questionnaire. It was used pre- and post-test treatment (Kim et al., 2018;

Lauche et al., 2011; Lauche et al., 2012; Leem, 2014; Saha et al., 2017; Teut et al., 2018). The Quality of Life Questionnaire was also used as an outcome measure on multiple different body parts such as the neck, shoulders, and back pain. Chronic pain and muscle tension can be debilitating and can affect an individual's quality of life. One study found that cupping therapy can have a significant improvement on the quality of life among the pain management population. When reflecting upon the use of cupping therapy on neck pain, it was stated that after completing cupping treatments, there were sustainable effects on both quality of life and physical function for up to two years with patients experiencing chronic neck pain (Leem, 2014). In addition, improvements were found in quality of sleep and aiding one's quality of life using cupping therapy within just one week of starting treatments (Volpato et al., 2020).

Common Needs in Further Research

According to the literature review conducted it was found that cupping was beneficial in reducing pain and increasing QOL, but there is also limited information available on the topic using randomized control trials, which are needed to improve the validity of the evidence (Cramer et al., 2020; Lauche et al., 2012; Leem, 2014; Moura et al., 2018; Saha et al., 2017; Volpato et al., 2020). It was found that cupping massage was effective in increasing quality of life for patients with chronic non-specific neck pain, but more rigorous studies are needed to confirm and extend these results (Saha et al., 2017). When certain studies were conducted, there was no current information about cupping for chronic non-specific neck pain. Therefore, it was found that more studies are needed to back up the findings. These studies were also met with many limitations including several patients dropping out of the study creating a decreased sample size. Overall, it was found across the articles Cramer et al., 2020; Lauche et al., 2012; Leem, 2014; Moura et al., 2018; Saha et al., 2017; and Volpato et al., 2020, that cupping is

useful in decreasing pain and increasing quality of life. However, these studies above also noted that in order to have concrete evidence to back up this claim, more randomized control trials are needed; specifically, randomized control trials with long term follow up and larger sample sizes. If these studies can be conducted more concrete evidence will be able to be formulated for the usefulness of cupping therapy.

Alternative Data to the Effectiveness of Cupping Therapy

Although there are many articles proving that cupping therapy is effective for relieving pain and reducing muscle tension, there are some articles that resulted in no improvements (Lauche et al., 2011; Lauche et al., 2012; Silva et al., 2019; Silva et al., 2021). For example, one study stated that their participants reported their pain intensity on the lower end of their inclusion criteria scale. This means that the participants had zero to minimal pain from the beginning or that they exaggerated their complaints during screening to ensure inclusion into the study which likely limited the possible absolute reduction in pain intensity (Lauche et al., 2012). Another reason that cupping therapy did not show improvement is that individuals reported different pain thresholds (Lauche et al., 2011). Another study compared cupping therapy to placebo cupping and noted that similar improvements in all outcomes was likely a consequence of the placebo effect (Silva et al., 2019; Silva et al., 2021). As a result, future studies with more well-defined inclusion/exclusion criteria for participants in pain are needed to prove that cupping can be used as a beneficial therapeutic modality and to reduce the consequence of the placebo effect.

Conclusion

Even though cupping therapy has been used therapeutically for thousands of years in Eastern medicine, there is still a need to research this therapeutic modality further (Aboushanab & AlSanad, 2018). Most research studies have shown evidence that proves that cupping is an

effective treatment for relieving pain and muscle tension. The research has also shown that there have been significant findings with improvements regarding quality of life after treatment.

However, there is still a need for research, utilizing more randomized controlled trials with larger sample sizes to further prove its effectiveness and reliability as a pain management treatment.

References

- Aboushanab, T. S., & AlSanad, S. (2018). Cupping therapy: An overview from a modern medicine perspective. *Journal of Acupuncture and Meridian Studies*, 11(3), 83–87. <https://doi.org/10.1016/j.jams.2018.02.001>
- Akbarzadeh, M., Ghaemmaghami, M., Yazdanpanahi, Z., Zare, N., Azizi, A., & Mohagheghzadeh, A. (2014). The effect of dry cupping therapy at acupoint BL23 on the intensity of postpartum low back pain in primiparous women based on two types of questionnaires, 2012; A randomized clinical trial. *International Journal of Community Based Nursing and Midwifery*, 2(2), 112–120.
- Arslan, Müzeyyen & Yaman, Gulnur & Ilhan, Esra & Alemdag, Murat & Bahar, Arzu & Dane, Senol. (2015). Moving dry cupping therapy reduces upper shoulder and neck pain in office workers. *Clinical and Investigative Medicine*. 38. E217-E220.
- Chen, B., Li, M.- Y., Liu, P.- D., Guo, Y., & Chen, Z.- L. (2014). Alternative medicine: An update on cupping therapy. *QJM: An International Journal of Medicine*, 108(7), 523–525. <https://doi.org/10.1093/qjmed/hcu227>
- Cramer, H., Klose, P., Teut, M., Rotter, G., Ortiz, M., Anheyer, D., Linde, K., & Brinkhaus, B. (2020). Cupping for patients with chronic pain: A systematic review and meta-analysis. *The Journal of Pain*, 21(9-10), 943-956. <https://doi.org/10.1016/j.jpain.2020.01.002>
- Kim, S., Lee, S. H., Kim, M. R., Kim, E. J., Hwang, D. S., Lee, J., Shin, J. S., Ha, I. H., & Lee, Y. J. (2018). Is cupping therapy effective in patients with neck pain? A systematic review and meta-analysis. *BMJ open*, 8(11), e021070. <https://doi.org/10.1136/bmjopen-2017-021070>

Lauche, R., Cramer, H., Hohmann, C., Choi, K. E., Rampp, T., Saha, F. J., Musial, F., Langhorst, J., & Dobos, G. (2012). The effect of traditional cupping on pain and mechanical thresholds in patients with chronic nonspecific neck pain: A randomised controlled pilot study. *Evidence-Based Complementary and Alternative Medicine*, 2012, 1–10.

<https://doi.org/10.1155/2012/429718>

Lauche, R., Cramer, H., Choi, K. E., Rampp, T., Saha, F. J., Dobos, G. J., & Musial, F. (2011). The influence of a series of five dry cupping treatments on pain and mechanical thresholds in patients with chronic non-specific neck pain-a randomised controlled pilot study. *BMC Complementary and Alternative Medicine*, 11, 63.

<https://doi.org/10.1186/1472-6882-11-63>

Leem, J. (2014). Long-term effect of cupping for chronic neck pain. *Integrative Medicine Research*, 3(4), 217–219. <https://doi.org/10.1016/j.imr.2014.10.001>

Markowski, A., Sanford, S., Pikowski, J., Fauvell, D., Cimino, D., & Caplan, S. (2014). A pilot study analyzing the effects of Chinese cupping as an adjunct treatment for patients with subacute low back pain on relieving pain, improving range of motion, and improving function. *Journal of Alternative and Complementary Medicine* 20(2), 113–117.

<https://doi.org/10.1089/acm.2012.0769>

Moura, C. C., Chaves, É., Cardoso, A., Nogueira, D. A., Corrêa, H. P., & Chianca, T. (2018). Cupping therapy and chronic back pain: Systematic review and meta-analysis. *Revista Latino-Americana De Enfermagem*, 26, e3094. [https://doi.org/10.1590/1518-](https://doi.org/10.1590/1518-8345.2888.3094)

[8345.2888.3094](https://doi.org/10.1590/1518-8345.2888.3094)

Saha, F. J., Schumann, S., Cramer, H., Hohmann, C., Choi, K. E., Rolke, R., Langhorst, J., Rampp, T., Dobos, G., & Lauche, R. (2017). The effects of cupping massage in patients

- with chronic neck pain - A randomised controlled trial. *Complementary Medicine Research*, 24(1), 26–32. <https://doi.org/10.1159/000454872>
- Silva, H. J. A., Barbosa, G. M., Silva, R. S., Saragiotto, B. T., Oliviera, J. M. P., Pinheiro, Y. T., Lins, C. A. A., & de Souza, M. C. (2021). Dry cupping therapy is not superior to sham cupping to improve clinical outcomes in people with non-specific chronic low back pain: A randomised trial. *Journal of Physiotherapy*, 67(2), 132-139. <https://doi.org/10.1016/j.jphys.2021.02.013>
- Silva, H., Saragiotto, B. T., Silva, R. S., Lins, C., & de Souza, M. C. (2019). Dry cupping in the treatment of individuals with non-specific chronic low back pain: a protocol for a placebo-controlled, randomised, double-blind study. *BMJ Open*, 9(12), e032416. <https://doi.org/10.1136/bmjopen-2019-032416>
- Singh, G. K., & Siahpush, M. (2016). Inequalities in US life expectancy by area unemployment level, 1990–2010. *Scientifica*, 2016, 1–12. <https://doi.org/10.1155/2016/8290435>
- Teut, M., Ullmann, A., Ortiz, M., Rotter, G., Binting, S., Cree, M., Lotz, F., Roll, S., & Brinkhaus, B. (2018). Pulsatile dry cupping in chronic low back pain - a randomized three-armed controlled clinical trial. *BMC Complementary and Alternative Medicine*, 18(1), 115. <https://doi.org/10.1186/s12906-018-2187-8>
- Volpato, M. P., Breda, I., de Carvalho, R. C., de Castro Moura, C., Ferreira, L. L., Silva, M. L., & Silva, J. (2020). Single cupping therapy session improves pain, sleep, and disability in patients with nonspecific chronic low back pain. *Journal of Acupuncture and Meridian Studies*, 13(2), 48–52. <https://doi.org/10.1016/j.jams.2019.11.004>
- Wang, J., Wang, D., Zhao, W., Wang, Y., Pei, H., Shang, Y., Chea, V. B., & Wang, Y. (2020). Effects of cupping therapy in the treatment of low back pain among nurses in China.

Journal of Alternative Complementary & Integrative Medicine.

<https://doi:10.24966/ACIM-7562/100092>

Wang, Y., Qu, Y., & Tang, F. Y. (2017). The effect of cupping therapy for low back pain: A meta-analysis on existing randomized controlled trials. *Journal of Back and*

Musculoskeletal Rehabilitation, 30(Suppl 2), 1-9. <https://doi.org/10.3233/BMR-169736>

World Health Organization. (2007). *WHO International Standard Terminologies on Traditional Medicine in the Western Pacific Region.*

https://apps.who.int/iris/bitstream/handle/10665/206952/9789290612487_eng.pdf?sequence=1&isAllowed=y

Appendix B - Needs Assessment

Problem and Unmet Need

The over prescription of opioids and narcotics for individuals with chronic pain is a problem within the United States. Chronic pain is a type of pain that is ongoing and usually lasts longer than six months. Chronic pain can highly impact an individual's life by limiting performance and function with activities of daily living (ADLs) and instrumental activities of daily living (IADLs). Based upon 2019 research, it was reported that 20.4% of adults experience chronic pain in the United States (Center of Disease Control and Prevention [CDC], 2020). Healthcare providers have prescribed pain medication such as opioids and narcotics at greater rates which increases the occurrence of addiction, overdose, and other health complications. These healthcare providers need more holistic pain-reducing treatments to reduce the possible risks associated with pain medications. Recently, there has been a growing interest in non-pharmacological pain treatment options such as myofascial decompression (Cramer et al., 2020).

Myofascial decompression, which is also known as cupping therapy, is a relatively new modality in the United States. Cupping therapy is a form of alternative therapy which involves placing specific cups on the skin to create suction. It has potential benefits of increasing blood circulation, relieving muscle tension, improving overall blood flow, and reducing chronic pain (Healthline, 2019). There is a need for the adoption of cupping therapy throughout different professions in healthcare including occupational therapy (OT), for these services to become more accessible to different communities, and to provide more holistic services in areas of poverty. It is important that OTs adopt this modality into their pain management treatment because of their holistic approach and focus on independence in ADLs and IADLs.

Pain and Quality of Life Within College Students

Pain can have a significant impact on a student's quality of life and academic performance. Students who experience chronic pain have a higher risk of developing mental health conditions such as anxiety and depression which impact their quality of life (Alsaadi, 2022). These mental health conditions can further exacerbate their pain symptoms and impact their ability to engage in their daily occupations outside of their role as a student. In addition, pain can interfere with a student's sleep patterns such as quality, duration, and efficiency which impacts their executive functioning skills that affect their concentration and focus during class (Noel et al., 2016). Chronic pain can also have a significant impact on a student's quality of life, as it can interfere with their activities of daily living, social, and leisure occupations. Students with chronic pain may experience physical limitations such as difficulty with functional mobility which can make it challenging for them to participate in extracurricular activities that they enjoy. As a result, students with chronic pain may miss out on important educational opportunities, experience academic decline, and struggle to achieve their full potential.

Target Population

The target population for this study includes students at Western New England University (WNE) whose pain and/or muscle tension impact their ability to independently engage in their daily activities. Throughout this capstone, the researchers will be focusing on students who experience pain and/or muscle tension in their arms (triceps, biceps, forearm), shoulder, cervical region of the spine(neck), thoracic region of back (upper back), and lumbar region of back (lower back).

Based on a study conducted by Saad M. Alsaadi (2022), the most common sites of musculoskeletal pain in students include the neck and back. Approximately 41.9% to 54.6% of

students experienced pain within their neck and 48.2% to 49.4% experienced it within the back. Students reported that their pain had impacted their daily life and quality of sleep (Alsaadi, 2022). When students' pain begins to impact their daily activities, they are unable to fully participate in leisure activities and school related activities. The inability to be independent in these daily activities correlates with difficulties in mental health regarding stress, anxiety, and depression impacting their quality of life (Alsaadi, 2022). This target population was selected to make a pain management technique such as cupping therapy more accessible to these students to prevent these difficulties in quality of life and limited independence.

According to WNE student statistics, the student population consists of students that are from 38 different states and 22 different countries (Western New England University, n.d.). As a high majority of these students are from different states and countries, they may be aware that their local and available pain management resources may be in Springfield, Massachusetts. Along with the limited resources these students may have financial worries which have impacted their decision to seek out pain management options. College students have a high rate of stress regarding concerns with paying back loans, cost of tuition, academic supplies, and cost of living due to their inability to work full-time while they are in school, which impacts their quality of life (Moore et al., 2021). The target population of WNE students were chosen specifically to assess their needs for pain management and given resources for cost-effective pain management options such as cupping therapy. In addition, this population is targeted because there is a need for nonpharmacological treatment for pain management. This population would greatly benefit from cupping therapy as a holistic approach to pain management and increase their quality of life. At WNE, there are currently no cupping therapy services which is a gap in care and subsequently leaves a need for students to have access to this therapy.

Literature Review

Cupping therapy is a traditional Chinese medical treatment which has been practiced for thousands of years. The World Health Organization's (WHO) definition of cupping is a therapeutic method involving the application of suction by creating a vacuum (WHO Library Cataloguing in Publication Data, 2007). There are a variety of different techniques and materials that can be used with cupping therapy. Common techniques of cupping therapy include dry cupping, wet cupping, massage cupping and flash cupping. Within these different techniques, cup materials may vary between glass, silicone, plastic, bamboo, rubber, metal, or ceramic. When performing cupping therapy, it is important to know these different materials and techniques along with indications and contraindications for the safety of the client. Indications for cupping therapy include localized conditions that cause pain or muscle tension in the neck, back, shoulder, and knee.

The suction produced through cupping induces negative pressure inside the cup. Throughout a range of studies, it is hypothesized that inducing this negative pressure attracts blood to the area of pain, thereby removing blood stasis and increasing blood and lymph circulation locally to relieve tension and pain of the muscle (Chen et al., 2014). These physiological changes can be beneficial in treating pain and/or muscle tension found within the body. Furthermore, a literature review has been completed comparing different themes found within areas of the neck and lower back, strengths, and weaknesses.

Effectiveness and Benefits of Cupping Therapy

Researchers have conducted studies on cupping therapy to determine its overall effectiveness on individuals who have experienced pain or muscle tension. After reviewing the literature, multiple studies have proved that cupping therapy can be used as either a potential or

effective treatment method to reduce pain or muscle tension (Aboushanab & AlSanad, 2018; Arsan et al., 2015; Lauche et al., 2011; Moura et al., 2018; Saha et al., 2017; Teut et al., 2018; Volpato et al., 2020; Wang et al., 2020). Within these studies, most individuals were experiencing back or neck pain which has impacted these individual's daily life and their occupational performance. After their treatment, their overall quality of life has increased due to decreased pain and muscle tension. A holistic, safe, and alternative treatment option such as cupping therapy can also provide benefits such as promoting the skin's blood flow, reducing inflammation, promoting overall health, preventing pain and muscle tension, providing therapeutic relief, and increasing an individual's overall quality of life (Aboushanab & AlSanad, 2018; Wang et al., 2020).

Common Methods Used to Determine Effectiveness

Comparing similarities among the findings, the most used method of measuring outcomes was the visual analogue scale (VAS). The VAS was consistently used among the references and presented with lower scores after treatment implying that the cupping modality helped with their pain (Akbarzadeh et al., 2014; Lauche et al., 2011; Lauche et al., 2012; Leem, 2014; Markowski et al., 2014; Saha et al., 2017; Singh & Siahpush, 2016; Wang et al., 2017; Wang & Tang, 2020). This instrument is an assessment tool used before and after the intervention for measuring pain to monitor and quantify an increase or decrease in pain. Another common outcome measure is the health related QOL questionnaire. It was used pre- and post-test treatment (Kim et al., 2018; Lauche et al., 2011; Lauche et al., 2012; Leem, 2014; Saha et al., 2017; Teut et al., 2018). The Quality of Life Questionnaire was also used as an outcome measure on multiple different body parts such as the neck, shoulders, and back pain. Chronic pain and muscle tension can be debilitating and can affect an individual's quality of life. One study found that cupping therapy

can have a significant improvement on the quality of life among the pain management population. When reflecting upon the use of cupping therapy on neck pain, it was stated that after completing cupping treatments, there were sustainable effects on both quality of life and physical function for up to two years with patients experiencing chronic neck pain (Leem, 2014). In addition, improvements were found in quality of sleep and aiding one's quality of life using cupping therapy within just one week of starting treatments (Volpato et al., 2020).

Common Needs in Further Research

According to the literature review conducted it was found that cupping was beneficial in reducing pain and increasing QOL, but there is also limited information available on the topic using randomized control trials, which are needed to improve the validity of the evidence (Cramer et al., 2020; Lauche et al., 2012; Leem, 2014; Moura et al., 2018; Saha et al., 2017; Volpato et al., 2020). It was found that cupping massage was effective in increasing quality of life for patients with chronic non-specific neck pain, but more rigorous studies are needed to confirm and extend these results (Saha et al., 2017). When certain studies were conducted, there was no current information about cupping for chronic non-specific neck pain. Therefore, it was found that more studies are needed to back up the findings. These studies were also met with many limitations including several patients dropping out of the study creating a decreased sample size. Overall, it was found across the articles Cramer et al., 2020; Lauche et al., 2012; Leem, 2014; Moura et al., 2018; Saha et al., 2017; and Volpato et al., 2020, that cupping is useful in decreasing pain and increasing quality of life. However these studies above also noted that in order to have concrete evidence to back up this claim, more randomized control trials are needed; specifically, randomized control trials with long term follow up and larger sample sizes.

If these studies can be conducted more concrete evidence will be able to be formulated for the usefulness of cupping therapy.

Alternative Data to the Effectiveness of Cupping Therapy

Although there are many articles proving that cupping therapy is effective for relieving pain and reducing muscle tension, there are some articles that resulted in no improvements (Lauche et al., 2011; Lauche et al., 2012; Silva et al., 2019; Silva et al., 2021). For example, one study stated that their participants reported their pain intensity on the lower end of their inclusion criteria scale. This means that the participants had zero to minimal pain from the beginning or that they exaggerated their complaints during screening to ensure inclusion into the study which likely limited the possible absolute reduction in pain intensity (Lauche et al., 2012). Another reason that cupping therapy did not show improvement is that individuals reported different pain thresholds (Lauche et al., 2011). Another study compared cupping therapy to placebo cupping and noted that similar improvements in all outcomes was likely a consequence of the placebo effect (Silva et al., 2019; Silva et al., 2021). As a result, future studies with more well-defined inclusion/exclusion criteria for participants in pain are needed to prove that cupping can be used as a beneficial therapeutic modality and to reduce the consequence of the placebo effect.

Conclusion

Even though cupping therapy has been used therapeutically for thousands of years in Eastern medicine, there is still a need to research this therapeutic modality further (Aboushanab & AlSanad, 2018). Most research studies have shown evidence that proves that cupping is an effective treatment for relieving pain and muscle tension. The research has also shown that there have been significant findings with improvements regarding quality of life after treatment.

However, there is still a need for research, utilizing more randomized controlled trials with larger sample sizes to further prove its effectiveness and reliability as a pain management treatment.

Resource Availability

Cupping sets can be found on online retailers such as Amazon or Walmart making it widely available for consumers to purchase. The difference between self-treatment compared treatment at outpatient clinics including physical therapy, massage therapy, or Western New England University's athletic training (WNE AT) facility is that there is minimal to no education provided on the implications, contraindications, or procedures when purchasing a cupping kit online. A skilled clinician has the knowledge of anatomy and an understanding of kinesiology to apply cups safely and properly without putting a client in danger. A clinician with a medical background will have higher health literacy and require less extensive formal training as compared to an individual without a healthcare background. For example, a client at home may be placing cups on areas that have pain without fully understanding precautions ensuring their safety when using this modality. Similarly, a client at home may not be educated on the contraindications to cupping therapy which may exclude them from being a candidate for this modality. Clients at home have the opportunity to educate themselves through research, however, they may have lower health literacy to understand the research they find and how to implement it into their practice the way healthcare professionals can. Some precautions and contraindications that at-home users need to take into consideration when applying cupping therapy include no cupping on open wounds, rashes, sensitive skin, fractures, or individuals who experience different skin conditions, chronic illnesses, hematologic disease, on blood thinners, or have congestive heart failure (Aboushanab & AlSanad, 2018).

However, clinical education on cupping is often costly whether that is taking paid online courses such as Certified ACE Massage Cupping or by reading articles such as this article titled Cupping for Treating Pain: A Systematic Review (Kim et al., 2018). There are also limitations to going to outside clinicians and programs such as WNE AT's program for regular services due to limited accessibility as it is currently only offered to the college's athletes. The therapist may make exceptions to this rule, but there may be other limits in accessibility due to co-pays or lack of transportation if needed.

The WNE's athletic training program is a limited resource as myofascial decompression is only available to student-athletes. Recently the University has developed the Bear Paw Center which is available to WNE students and members of the Springfield community which serves as a *pro bono* clinic run by WNE OTD students who can treat a variety of conditions, including chronic pain.

The researchers' goals are to educate and provide an in-service to the OTD students and faculty about what myofascial decompression is, its protocols, contraindications, precautions, and how to properly perform cupping therapy on individuals experiencing pain. Those who participate in the Bear Paw Clinic will have this education and be able to implement it into practice with clients who experience chronic pain and/or muscle tension. This clinic will serve as a resource for the WNE students to continue to receive cupping therapy treatment at no additional cost to them.

Barriers

Cupping therapy is a new and unfamiliar modality that has recently made its way to the United States as a client-centered technique that can support pain management. With that being said, the United States has recently adopted this practice and is still very unknown to many people

seeking treatment for pain management, especially with the target population. Because of this recent adoption into medicine, there are some barriers that individuals might be faced with when seeking out use of this modality. One major barrier would involve the lack of knowledge regarding the use of cupping therapy (Markowski et al., 2014). Due to the recent adoption in the US many people are uneducated and lack knowledge on this modality and its many benefits in regard to pain and muscle tension relief. Especially in younger clinicians, there may be a gap of knowledge in treating pain nontraditionally. This can result in a major barrier to receiving this type of treatment.

Another barrier for this population would be access to this modality on campus. When attending college, many students travel far from home and do not have primary care doctors established around their college campus. Therefore, they rely on health services for most of their treatment unless they are an athlete as they have access to cupping through the athletic trainers during their training season. When they are not in season it becomes more difficult to get cupping from athletic trainers as they prioritize in season athletes for treatment. This then poses the same barrier as it does for non-athletic college students, there is nowhere on campus to get this treatment. Due to health services not offering pain management through cupping, many students in this target population will be missing out on this modality to assist with their pain.

Barriers within the WNE community may also include financial burdens of being a college student, living far from home, and not having access to their primary healthcare physicians. These barriers can affect the ability to access healthcare, pain management services, or cupping therapy (Bodenheimer, 2005). Financial burdens can prevent access to transportation, education of services, and insurance for pain management services. There has been a reported increase in out-of-pocket payments for people with chronic conditions which in turn leads to

discouraging people to get health care and participate in programs to manage their illness (Paez et al., 2009). This can be seen in this young population as well, due to the financial burden healthcare can cause as well as the lack of access to a person's primary healthcare, especially in chronic cases, as people are discouraged from getting the help they need. Also, because there is a high demand for medical care within the communities, this creates difficulties in receiving healthcare appointments or referrals, especially following the COVID-19 pandemic.

References

- Aboushanab, T. S., & AlSanad, S. (2018). Cupping therapy: An overview from a modern medicine perspective. *Journal of Acupuncture and Meridian Studies*, 11(3), 83–87.
<https://doi.org/10.1016/j.jams.2018.02.001>
- Akbarzadeh, M., Ghaemmaghami, M., Yazdanpanahi, Z., Zare, N., Azizi, A., & Mohagheghzadeh, A. (2014). The effect dry cupping therapy at acupoint BL23 on the intensity of postpartum low back pain in primiparous women based on two types of questionnaires, 2012; A randomized clinical trial. *International Journal of Community Based Nursing and Midwifery*, 2(2), 112–120.
- Alsaadi S. M. (2022). Musculoskeletal pain in undergraduate students is significantly associated with psychological distress and poor sleep quality. *International Journal of Environmental Research and Public Health*, 19(21), 13929.
<https://doi.org/10.3390/ijerph192113929>
- American Addiction Center. (2021, July 8). *Economics of MA and addiction*.
<https://adcare.com/massachusetts/addiction-economics/>
- Arslan, Müzeyyen & Yaman, Gulnur & Ilhan, Esra & Alemdag, Murat & Bahar, Arzu & Dane, Senol. (2015). Moving dry cupping therapy reduces upper shoulder and neck pain in office workers. *Clinical and Investigative Medicine*. 38. E217-E220.
- Baystate Health. (n.d.). Pain management center. <https://www.baystatehealth.org/services/pain-management-center>
- Bodenheimer, T. (2005). High and rising health care costs. part 1: Seeking an explanation. *Annals of Internal Medicine*, 142(10), 847. <https://doi.org/10.7326/0003-4819-142-10-200505170-00010>

Center of Disease Control and Prevention. (2020, November). *Chronic pain and high-impact chronic pain among U.S adults, 2019*.

<https://www.cdc.gov/nchs/products/databriefs/db390.htm>

Chen, B., Li, M.- Y., Liu, P.- D., Guo, Y., & Chen, Z.- L. (2014). Alternative medicine: An update on cupping therapy. *QJM: An International Journal of Medicine*, 108(7), 523–525. <https://doi.org/10.1093/qjmed/hcu227>

Cramer, H., Klose, P., Teut, M., Rotter, G., Ortiz, M., Anheyer, D., Linde, K., & Brinkhaus, B. (2020). Cupping for patients with chronic pain: A systematic review and meta-analysis. *The Journal of Pain*, 21(9-10), 943-956. <https://doi.org/10.1016/j.jpain.2020.01.002>

Healthline. (2019, January 3). *What is cupping therapy?*

<https://www.healthline.com/health/cupping-therapy>

Kim, J.-I., Lee, M. S., Lee, D.-H., Boddy, K., & Ernst, E. (2011). Cupping for treating pain: A systematic review. *Evidence-Based Complementary and Alternative Medicine*, 2011, 1–7. <https://doi.org/10.1093/ecam/nep035>

Kim, S., Lee, S. H., Kim, M. R., Kim, E. J., Hwang, D. S., Lee, J., Shin, J. S., Ha, I. H., & Lee, Y. J. (2018). Is cupping therapy effective in patients with neck pain? A systematic review and meta-analysis. *BMJ open*, 8(11), e021070. <https://doi.org/10.1136/bmjopen-2017-021070>

Lauche, R., Cramer, H., Hohmann, C., Choi, K. E., Rampp, T., Saha, F. J., Musial, F., Langhorst, J., & Dobos, G. (2012). The effect of traditional cupping on pain and mechanical thresholds in patients with chronic nonspecific neck pain: A randomised controlled pilot study. *Evidence-Based Complementary and Alternative Medicine*, 2012, 1–10. <https://doi.org/10.1155/2012/429718>

Lauche, R., Cramer, H., Choi, K. E., Rampp, T., Saha, F. J., Dobos, G. J., & Musial, F. (2011).

The influence of a series of five dry cupping treatments on pain and mechanical thresholds in patients with chronic non-specific neck pain--a randomised controlled pilot study. *BMC complementary and alternative medicine*, 11, 63.

<https://doi.org/10.1186/1472-6882-11-63>

Leem, J. (2014). Long-term effect of cupping for chronic neck pain. *Integrative Medicine Research*, 3(4), 217–219. <https://doi.org/10.1016/j.imr.2014.10.001>

Markowski, A., Sanford, S., Pikowski, J., Fauvell, D., Cimino, D., & Caplan, S. (2014). A pilot study analyzing the effects of Chinese cupping as an adjunct treatment for patients with subacute low back pain on relieving pain, improving range of motion, and improving function. *Journal of Alternative and Complementary Medicine (New York, N.Y.)*, 20(2), 113–117. <https://doi.org/10.1089/acm.2012.0769>

Moore, A., Nguyen, A., Rivas, S., Bany-Mohammed, A., Majeika, J., & Martinez, L. (2021). A qualitative examination of the impacts of financial stress on college students' well-being: Insights from a large, private institution. *SAGE Open Medicine*, 9, 20503121211018122. <https://doi.org/10.1177/20503121211018122>

Moura, C. C., Chaves, É., Cardoso, A., Nogueira, D. A., Corrêa, H. P., & Chianca, T. (2018). Cupping therapy and chronic back pain: Systematic review and meta-analysis. *Revista Latino-Americana De Enfermagem*, 26, e3094. <https://doi.org/10.1590/1518-8345.2888.3094>

Murray, K. (2021). Springfield Archives. *Addiction Center*.

<https://www.addictioncenter.com/rehabs/massachusetts/springfield-ma/>

Noel, M., Groenewald, C. B., Beals-Erickson, S. E., Gebert, J. T., & Palermo, T. M. (2016).

Chronic pain in adolescence and internalizing mental health disorders: a nationally representative study. *Pain*, 157(6), 1333–1338.

<https://doi.org/10.1097/j.pain.0000000000000522>

Paez, K. A., Zhao, L., & Hwang, W. (2009). Rising out-of-pocket spending for chronic conditions: A ten-year trend. *Health Affairs*, 28(1), 15–25.

<https://doi.org/10.1377/hlthaff.28.1.15>

Saha, F. J., Schumann, S., Cramer, H., Hohmann, C., Choi, K. E., Rolke, R., Langhorst, J.,

Rampp, T., Dobos, G., & Lauche, R. (2017). The effects of cupping massage in patients with chronic neck pain - A randomised controlled trial. *Complementary Medicine Research*, 24(1), 26–32. <https://doi.org/10.1159/000454872>

Silva, H. J. A., Barbosa, G. M., Silva, R. S., Saragiotto, B. T., Oliveira, J. M. P., Pinheiro, Y. T.,

Lins, C. A. A., & de Souza, M. C. (2021). Dry cupping therapy is not superior to sham cupping to improve clinical outcomes in people with non-specific chronic low back pain: A randomised trial. *Journal of Physiotherapy*, 67(2), 132-139.

<https://doi.org/10.1016/j.jphys.2021.02.013>

Silva, H., Saragiotto, B. T., Silva, R. S., Lins, C., & de Souza, M. C. (2019). Dry cupping in the treatment of individuals with non-specific chronic low back pain: a protocol for a placebo-controlled, randomised, double-blind study. *BMJ Open*, 9(12), e032416.

<https://doi.org/10.1136/bmjopen-2019-032416>

Singh, G. K., & Siahpush, M. (2016). Inequalities in US life expectancy by area unemployment level, 1990–2010. *Scientifica*, 2016, 1–12. <https://doi.org/10.1155/2016/8290435>

Teut, M., Ullmann, A., Ortiz, M., Rotter, G., Binting, S., Cree, M., Lotz, F., Roll, S., &

Brinkhaus, B. (2018). Pulsatile dry cupping in chronic low back pain - a randomized three-armed controlled clinical trial. *BMC Complementary and Alternative Medicine*, 18(1), 115. <https://doi.org/10.1186/s12906-018-2187-8>

United States Census Bureau. (2020). U.S. Census Bureau quickfacts: Springfield City, Massachusetts; United States. United States Census bureau.

<https://www.census.gov/quickfacts/fact/table/springfieldcitymassachusetts,US/PST045219>.

Volpato, M. P., Breda, I., de Carvalho, R. C., de Castro Moura, C., Ferreira, L. L., Silva, M. L., & Silva, J. (2020). Single cupping therapy session improves pain, sleep, and disability in patients with nonspecific chronic low back pain. *Journal of Acupuncture and Meridian Studies*, 13(2), 48–52. <https://doi.org/10.1016/j.jams.2019.11.004>

Wang, J., Wang, D., Zhao, W., Wang, Y., Pei, H., Shang, Y., Chea, V. B., & Wang, Y. (2020). Effects of cupping therapy in the treatment of low back pain among nurses in China. *Journal of Alternative Complementary & Integrative Medicine*. <https://doi:10.24966/ACIM-7562/100092>

Wang, Y., Qu, Y., & Tang, F. Y. (2017). The effect of cupping therapy for low back pain: A meta-analysis on existing randomized controlled trials. *Journal of Back and Musculoskeletal Rehabilitation*, 30(Suppl 2), 1-9. <https://DOI:10.3233/BMR-169736>

Western New England University. (n.d). Facts and stats. <https://www1.wne.edu/about/facts-and-figures.cfm>

WHO Library Cataloguing in Publication Data. (2007). WHO International Standard Terminologies on Traditional Medicine in the Western Pacific Region. World Health

Organization. Retrieved from

https://apps.who.int/iris/bitstream/handle/10665/206952/9789290612487_eng.pdf?sequence=1&isAllowed=y

Appendix C – PRECEDE-PROCEED Model

The PRECEDE-PROCEED model was created based on epidemiology, education, administration, and the social/behavioral sciences. The acronym PRECEDE stands for predisposing, reinforcing, and enabling causes in educational diagnosis and evaluation. The PRECEDE portion of this model provides structure and organization to health education program planning and evaluation. There are four phases within the PRECEDE portion of this model, with the first phase identifying the ultimate desired result. The second phase includes identifying and setting priorities among health or community issues and their behavioral and environmental determinants that stand in the way of achieving that result. The third phase includes identifying the predisposing, enabling, and reinforcing factors that can affect the behaviors, attitudes, and environmental factors given priority in the second phase. The last phase includes identifying the administrative and policy factors that influence what can be implemented.

The acronym PROCEED stands for policy, regulatory, and organizational constructs in educational and environmental data. There are also four phases which include implementation, process evaluation, impact evaluation, and outcome evaluation. The goal of the PROCEED portion of the model is to monitor the program processes in order to adjust as needed to ensure quality as program implementation continues.

The researchers chose this model for the Doctoral Experiential (DEx) project because we are starting with the outcome, which is to reduce pain and muscle tension and improve daily functional performance using myofascial decompression (cupping therapy) as the intervention. Utilizing this model will guide our thinking on how to implement such changes within our target population and further educate stakeholders about myofascial decompression as a holistic pain management approach instead of relying on opioids to treat chronic pain.

Application to DEx Capstone

Chronic pain can be debilitating to an individual which can further result in emotional pain. Lingering symptoms of pain are associated with psychological distress disorders which lead to occupational dysfunction (Radomski & Trombly Latham, 2014). In the community, these individuals with chronic pain may not have the knowledge and education about available holistic treatments for their pain. Due to this lack of knowledge and education, it has led to addiction and fatal abuse of opioids for chronic pain symptoms.

To apply the PRECEDE portion of the PRECEDE-PROCEED model to our DEx, we started with the social diagnosis of the first phase which is to reduce pain and improve daily functional performance using myofascial decompression instead of relying on the usage of opioids. Next, we identified the behavioral and environmental determinants that stand in the way of achieving our result which includes reliance on passive coping strategies, poor diet/exercise, lack of motivation and self-efficacy to change, availability to fitness centers, inaccessibility of current research related to pain science, decreased access to healthcare providers, and over prescribed opioids by medical providers. The third phase includes the educational and organizational diagnosis where we identify the predisposing, enabling, and reinforcing factors that act as supports or barriers to changing the behaviors and environmental factors in the second phase. Within this phase there is a common theme which is the lack of education and resources for stakeholders. For example, there is a lack of education on holistic services and long-term effects of opioid usage. This is problematic because medical providers are much quicker to prescribe opioids which could lead to their patients developing an addiction. The last phase of the PRECEDE model is to identify the internal administrative issues and internal and external policy issues that can affect the successful conduct of the intervention. With this in mind, we

need to discuss our intervention with the Bear Paw Clinic in order to acquire information regarding the safety of their business and clients.

The PROCEED portion of the PRECEDE-PROCEED model includes implementation, process evaluation, impact evaluation, and outcome evaluation. We will implement the cupping therapy intervention Western New England University in Springfield. We will also administer multiple assessments such as the Disabilities of the Shoulder and Hand, quality of life scale, and a daily pain log to monitor the process evaluation of the client's perspective on their pain. Afterwards, we will interpret the results from the assessments to evaluate whether cupping therapy is having the intended impact on the behavioral and environmental factors. Thus, the information gathered from the assessments will provide the researchers with information that cupping therapy does or does not provide the outcome that we envisioned in the first phase of the PRECEDE portion of the model.

Program Development Guidance in Literature

Cupping therapy is a traditional medical treatment that has been used for thousands of years. We aim to use this modality to improve quality of life by decreasing pain and muscle tension. Researchers have conducted studies on cupping therapy to determine its overall effectiveness on being able to reduce pain and/or muscle tensions and it was found throughout the literature that cupping therapy can be used as an effective treatment method. Within the studies considered, most individuals were experiencing back or neck pain which impacted their quality of life and occupational performance. After treatment, their overall quality of life was shown to increase due to the decreased pain and muscle tension. Cupping therapy is shown to be a holistic and safe alternative treatment option that promotes the skin's blood flow, reduces inflammation, promotes overall health, and increases an individual's overall quality of life.

(Aboushanab & AlSanad, 2018). Throughout the literature, The Quality of Life Questionnaire was commonly used as an outcome measure on multiple body parts such as the neck, shoulders, and back. This supports our use of The Quality of Life Questionnaire as an effective outcome measure for our project. This measure is useful because chronic pain and muscle tension can be debilitating and can affect an individual's quality of life. By using this measure, the researchers are able to gather information on how the cupping therapy has affected their perceived quality of life to show how effective the cupping therapy was (Leem, 2014).

Though most research found that cupping therapy was useful and effective, there was also limited information available on the topic. It was found that cupping therapy was effective in increasing quality of life for patients with chronic non-specific neck pain, but more rigorous studies are needed to confirm and extend these results (Saha et al., 2017). The studies within the literature were also met with limitations including several patients being lost during the studies course making the sample sizes less generalizable (Leem, 2014). Overall, it was found that cupping therapy is useful but there is a need for more studies to solidify this evidence (Azizkhani et al., 2017; Cramer et al., 2020; Lauche et al., 2012; Leem, 2014; Moura et al., 2018; Saha et al., 2018; Volpato et al., 2020). There is a need for more research and concrete evidence of its effectiveness. By conducting this study using similar outcome measures and procedures as other studies have used, we are able to help back up the claim of cupping therapy being effective for chronic pain and muscle tension. Our study aims to show the effectiveness of cupping therapy and the literature shows a drastic need for a study like ours to be conducted.

Needs Assessment

In Springfield, Massachusetts, there is a high rate of poverty (United States Census Bureau, 2020). With having a high rate of poverty comes potential for individuals to have an

increased risk of addiction, lack of education about healthcare services available, lack of transportation to healthcare services, lack of expenses for medical needs, or lack of health insurance (American Addiction Center, 2021). Within this community, there is a lack of education and cupping therapy services for people who are experiencing chronic pain. These barriers and environmental factors have created the need for holistic and accessible pain management services that can eliminate the use of opioids and narcotics. This needs assessment supports the aim of our project of the application of cupping therapy to individuals experiencing chronic pain because we can introduce this accessible, affordable, and holistic modality into the community. Furthermore, we can educate these individuals on how this modality can help improve their quality of life and occupational performance.

Application to National Prevention Strategy (NPS)

Within the National Prevention Strategy, a strategic direction that aligns with the aims of our project is eliminating health disparities. In the United States, health disparities can correlate with social, economic, and environmental disadvantages. The main goal of this strategic direction is that by eliminating health disparities, it will improve the quality of life for all Americans. (National Prevention Council, 2011). This goal aligns with our project for cupping therapy within the Springfield community. Throughout our project planning, we have considered the health disparities that people in Springfield may face and how these can lead to addiction, lack of healthcare, or lack of knowledge on health care options. By providing education into the community and access to an affordable and holistic service, it can help eliminate the health disparities that people may face in this community while improving care. Furthermore, by eliminating health disparities through our cupping therapy program, it can help improve the quality of life of individuals with chronic pain in this community.

Application to Occupational Therapy Practice Framework IV (OTPF4)

The Occupational Therapy Practice Framework 4 (OTPF4) encompasses the overarching goal of achieving health, well-being, and participation in life through engagement in occupation (American Occupational Therapy Association [AOTA], 2020). Throughout this framework, there are two main components necessary to achieve that goal, known as the domain and process. Process is broken down into three categories including evaluation, intervention, and outcomes. To assess and utilize these three elements, the domain is required and further broken down into five parts. These five parts include occupations, contexts, performance patterns, performance skills, and client factors, which are determining factors in a client's occupational performance. Our project aligns with the foundation of this framework by embarking on the principles centered on improving quality of life and occupational performance. The aim of our project focuses on utilizing cupping therapy by decreasing pain and muscle tension to increase occupational performance and quality of life.

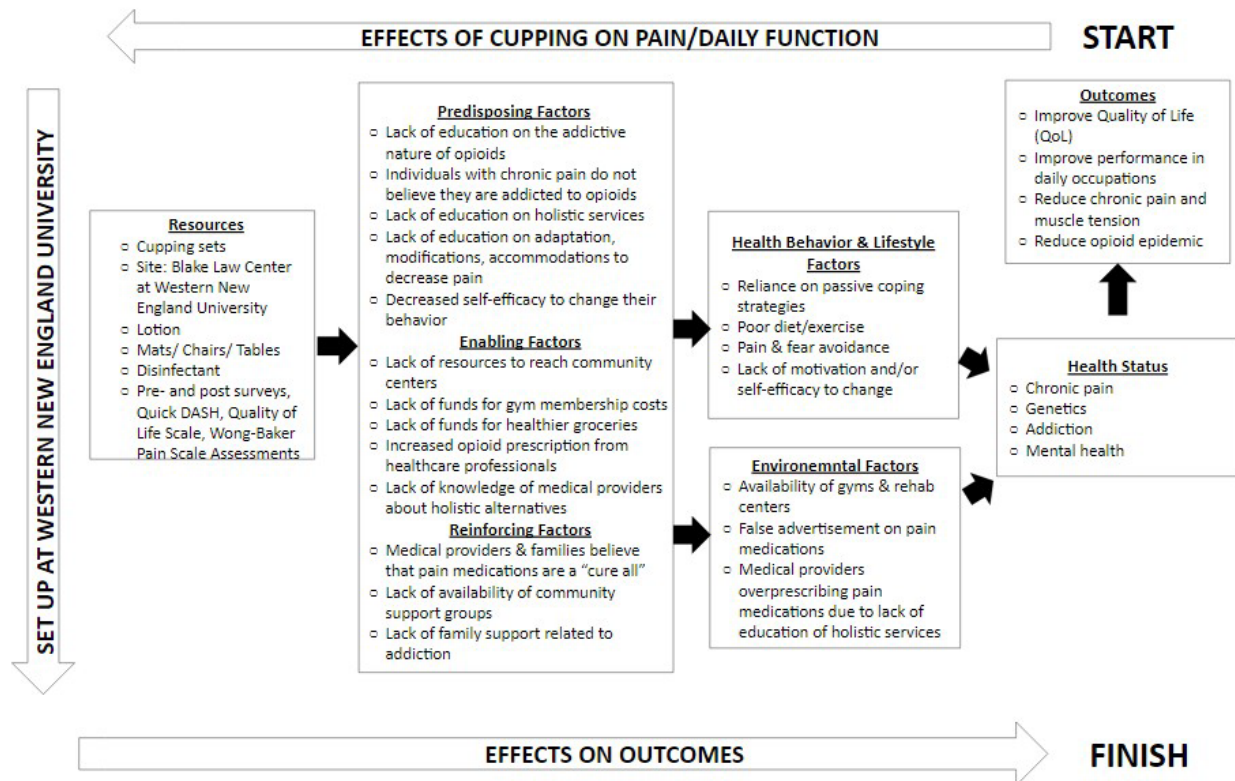
The researcher's goal is to target and reduce pain therefore an individual can improve their daily occupational performances. By decreasing pain and muscle tension, this allows our clients to have enhanced performances of their client factors and performance skills such as functional mobility, rest, participation, ADLS/IADLS, roles, and routines. We will also focus on the improvement of symptom and condition management, physical activity, job performance and maintenance, and health management, as all these aspects are pertinent in one's life. Specific client factors that will be addressed include body functions compiled of mental functions, sensory functions, neuromusculoskeletal, and muscle functions. While decreasing pain we can increase performance patterns and skills needed for daily occupations for tasks such as attending a job or being a full-time student focusing on motor skills. Improving motor skills can benefit the

client in hopes to enhance their work productivity and performance pain-free. Various motor skills align with the goal of our project consisting of positioning, bends, reaches, moves, and walks. All these skills are crucial during everyday occupations and can improve when pain is reduced.

PRECEDE-PROCEED Model

Myofascial Decompression (Cupping Therapy)

Michaela Gallagher, OT/s; Morgan Lukasik, OT/s; Justin Murata, OT/s; Kaeli Serafino, OT/s



References

- Aboushanab, T. S., & AlSanad, S. (2018). Cupping therapy: An overview from a modern medicine perspective. *Journal of Acupuncture and Meridian Studies*, 11(3), 83–87.
<https://doi.org/10.1016/j.jams.2018.02.001>
- American Addiction Center. (2021, July 8). *Economics of MA and addiction*.
<https://adcare.com/massachusetts/addiction-economics/>
- American Occupational Therapy Association. (2020). Occupational therapy practice framework: Domain and process (4th ed.). *American Journal of Occupational Therapy*, 74(Suppl. 2), 7412410010. <https://doi.org/10.5014/ajot.2020.74S2001>.
- Azizkhani, M., Ghorat, F., Soroushzadeh, S. M. A., Karimi, M., & Yekaninejad, S. (2017). The effect of cupping therapy on non-specific neck pain: A systematic review and meta-analysis. *Iranian Red Crescent Medical Journal*, 20(7).
<https://doi.org/10.5812/ircmj.55039>
- Cramer, H., Klose, P., Teut, M., Rotter, G., Ortiz, M., Anheyer, D., Linde, K., & Brinkhaus, B. (2020). Cupping for patients with chronic pain: A systematic review and meta-analysis. *The Journal of Pain*, 21(9-10), 943-956. <https://doi.org/10.1016/j.jpain.2020.01.002>
- Lauche, R., Cramer, H., Hohmann, C., Choi, K. E., Rampp, T., Saha, F. J., Musial, F., Langhorst, J., & Dobos, G. (2012). The effect of traditional cupping on pain and mechanical thresholds in patients with chronic nonspecific neck pain: A randomised controlled pilot study. *Evidence-Based Complementary and Alternative Medicine*, 2012, 1–10.
<https://doi.org/10.1155/2012/429718>
- Leem, J. (2014). Long-term effect of cupping for chronic neck pain. *Integrative Medicine Research*, 3(4), 217–219. <https://doi.org/10.1016/j.imr.2014.10.001>

Moura, C. C., Chaves, É., Cardoso, A., Nogueira, D. A., Corrêa, H. P., & Chianca, T. (2018).

Cupping therapy and chronic back pain: Systematic review and meta-analysis. *Revista Latino-Americana De Enfermagem*, 26, e3094. <https://doi.org/10.1590/1518-8345.2888.3094>

National Prevention Council. (2011). National Prevention Strategy. Washington, DC: U.S.

Department of Health and Human Services, Office of the Surgeon General.

<http://www.surgeongeneral.gov/initiatives/prevention/strategy/report.pdf>

Saha, F. J., Schumann, S., Cramer, H., Hohmann, C., Choi, K. E., Rolke, R., Langhorst, J.,

Rampp, T., Dobos, G., & Lauche, R. (2017). The effects of cupping massage in patients with chronic neck pain - A randomised controlled trial. *Complementary Medicine Research*, 24(1), 26–32. <https://doi.org/10.1159/000454872>

United States Census Bureau. (2020). *U.S. Census Bureau quickfacts: Springfield City,*

Massachusetts; United States. United States Census bureau.

<https://www.census.gov/quickfacts/fact/table/springfieldcitymassachusetts,US/PST045219>.

Volpato, M. P., Breda, I., de Carvalho, R. C., de Castro Moura, C., Ferreira, L. L., Silva, M. L.,

& Silva, J. (2020). Single cupping therapy session improves pain, sleep, and disability in patients with nonspecific chronic low back pain. *Journal of Acupuncture and Meridian Studies*, 13(2), 48–52. <https://doi.org/10.1016/j.jams.2019.11.004>

Appendix D – Competency Test

Instructions: Please answer the following questions to test your knowledge of myofascial decompression. Choose the most appropriate option for each question.

1. Your client, Mary, is a 46 year old female with chronic pain and limited functional mobility from a previous injury in her lower back when she was in a MVA. You introduce her to cupping therapy and its benefits. Which is one of the benefits you do not provide to her?
 - a) Improved tissue regeneration and collagen synthesis
 - b) Enhanced proprioception and neuromuscular control
 - c) Decreasing hypertrophic scarring
2. John is a 40 year old client who spends the majority of his time working on a video game project on his computer. You have been treating him for the past four weeks post carpal tunnel release and have observed muscle tightness in the volar side of his forearm. As his occupational therapist, why did you decide to use cupping?
 - a) To increase release of endorphins and pain modulation
 - b) To improve range of motion and joint mobility
 - c) To promote scar tissue remodeling and wound healing
3. Your client is an 18 year old female with a complicated medical history and is interested in cupping therapy to improve her range of motion in her shoulder so she can compete in swimming again. Which of the following is a contraindication that you became aware of when completing her occupational profile?
 - a) Her family history of type 1 diabetes mellitus

- b) Her personal history of sickle cell disease
 - c) Her recent injury of her shoulder subluxation
4. Mark is a 55 year old client who is seeking occupational therapy for his lower back pain following a fall. As his occupational therapist, you educated him how cupping therapy can be utilized as a preparatory method to improve performance and tolerance during therapeutic exercises. Which of the following is not the education you have provided?
- a) Postural alignment and body mechanics
 - b) Soft-tissue mobilization and trigger point release
 - c) Edema management and lymphatic draining
5. Laura, a 45 year old female, is receiving myofascial decompression therapy for chronic neck and shoulder pain. After applying myofascial decompression cups, she reported that it hurts, you should first:
- a) Apply the cups perpendicular to the muscle fibers for optimal tissue stretch
 - b) Stop the intervention completely if the pressure if it becomes overwhelming
 - c) Adjust the negative pressure of the cups based on her tolerance
6. James, a 30 year old client, recently had myofascial decompression and noticed some unexpected side effects. Which of the following is the most common side effect that he reported?
- a) Ecchymosis or petechiae at the cupping sites
 - b) Modulation of autonomic nervous system function
 - c) Transient hypotension or dizziness during and after treatment

7. Anna is a 50 year old client who is seeking myofascial decompression therapy for her chronic elbow pain from competitive bowling. Her occupational therapist wants to ensure her safety during treatment as she reported being out at the beach yesterday during her occupational therapy evaluation. Which of the following is a precaution you determine to be most appropriate?
- a) Impaired immune function
 - b) Decreased tissue elasticity
 - c) Her peripheral neuropathy secondary to diabetes mellitus
8. Michael is a 35 year old client who has been unable to work in construction due to the pain in his dominant wrist. As his occupational therapist, you provide him with education on how myofascial decompression can relieve his pain and promote tissue healing. Which of the following is the least appropriate education that you provided?
- a) Facilitating release of myofascial adhesions and restoring tissue mobility
 - b) Modulating the autonomic nervous system and increasing parasympathetic tone
 - c) Activation of mechanoreceptors and inhibitory neural pathways
9. Myofascial decompression is recommended for clients who are:
- a) Undergoing chemotherapy or radiation treatment
 - b) Suspected with a deep vein thrombosis
 - c) Addressing musculoskeletal pathologies

10. Robert, an occupational therapist, is incorporating myofascial decompression into his practice and wants to ensure proper implementation. How should he not do this?

- a) Conducting patient history and evaluation before treatment
- b) Applying anecdotal evidence and reviewing current research
- c) Using this as the only intervention

Appendix E – Case Studies

Low Back

The client is an 18-year-old female senior in high school who recently sustained a compression fracture in her L5-S1 vertebrae while attempting a new stunt during her gymnastics floor routine. The injury had a significant impact on her physical abilities, as well as her mental and emotional well-being. Before the injury, she had achieved the prestigious status of a Level 10 gymnast and had been recruited to attend the University of Arizona on a scholarship. However, due to her injury, her scholarship was revoked, resulting in a challenging transition period marked by depression. She has difficulty with ADLs such as choosing an outfit out of her closet and tying her shoes due to the pain in her lower back and is scared of falling with shower tub transfers. She also has been experiencing decreased sleep and increased stress because of her injury and the time she missed at school and gymnastics. Furthermore, she has difficulty sustaining attention in class, leading to her missing critical information and overall decreased academic performance.

You are seeing this patient in an inpatient clinic 3x a week and have started cupping therapy on her lower back to reduce her muscle tension. Please provide her with a home exercise program (HEP) printout with 3-5 exercises, including strengthening and stretching exercises. Also, educate why you chose these exercises for your client.

- 1.
- 2.
- 3.
- 4.
- 5.

Arm

The client is a 28-year-old female third-year law student at Western New England University. In addition to being a full-time student, she dedicates her time to working as a law clerk at a local attorney's office. When she is not studying rigorously for the BAR exam, she enjoys hanging out with friends, going to the gym, and taking her dog on walks. This client was eager to participate in our study due to muscle soreness and tingling exacerbated while weightlifting and completing computer work in her R wrist.

Objective measurements**MMT:**

Wrist flexion (L/R): 5/4-

Wrist extension (L/R): 4+/4-

Grip strength (L/R): 60.2lbs / 55.8lbs

Sensory: Decreased sensation present in Digits II-IV

ROM: WFL bilaterally

You are seeing this patient in an outpatient clinic 2x a week and have started cupping therapy on her forearm. Please provide your client with a home exercise program (HEP) printout with 3-5 exercises, including strengthening and stretching exercises. Also, educate why you chose these exercises for your client.

- 1.
- 2.
- 3.
- 4.
- 5.

Shoulder

The client is a third-year student at Western New England University. She has a history of being involved in a car accident years ago, being one degree off from having scoliosis, and having scapular winging with both her scapulas. The participant has pain within the scapular region of her body that impacts her performance in daily life. She describes this pain as an “aching.” Her daily routine typically includes working out, implementing her doctoral research, and sitting in class. She reported activities such as typing data for her doctoral research, continuously sitting in class, driving, and recreational activities. Before cupping therapy interventions, this participant typically ranged from having 2/10 to 5/10 pain on the Wong-Baker Pain Scale. The participant reported moderate difficulties participating in recreational activities due to the pain in her scapular region.

Objective measurements from the evaluation:

MMT:

Shoulder flexion (L/R): 5/5 / Shoulder extension (L/R): 4+/4+

Shoulder adduction/ abduction (L/R): 5/5

Shoulder ER (L/R): 4/4 Shoulder IR (L/R): 4+/4+

Grip strength (L/R): 65.2lbs / 75.8lbs

Sensory: WFL

ROM: WFL bilaterally

You are seeing this patient in an outpatient clinic 2x a week and have started cupping therapy on her forearm. Please provide your client with a home exercise program (HEP) printout with 3-5 exercises, including strengthening and stretching exercises. Also, educate why you chose these exercises for your client.

- 1.
- 2.
- 3.
- 4.
- 5.

Appendix F – HEP2GO

1. Go to www.hep2go.com and press ENTER.
2. Click “I agree” and then ENTER.
3. Click on Sign up and complete the necessary processes.
4. Click on either “Exercises” at the top of the page or GET Started at the bottom.
5. Click on a category that you determine appropriate for your client’s deficits or barriers to their occupational performance.
6. Choose the therapeutic exercise(s) and enter the number of repetitions, how long to hold the contraction, how many sets the client is to complete, and how many times per day to perform the exercise. Click on Add to HEP once the following information has been updated.
7. The exercises will be in a taskbar at the bottom of your screen for you to review.
8. Click on the checkmark when your HEP is completed with all of your client’s exercises.
9. Review the HEP and then either print, email, or text the completed HEP to your client.

Appendix G – Overview of Myofascial Decompression

Myofascial Decompression (Cupping Therapy)

Western New England University
Doctor of Occupational Therapy
OTD 780-07: Doctoral Experiential 4:
Implementation/Capstone

Dr. Erin Murray
Michaela Gallagher, Morgan Lukasik, Justin
Murata, and Kaeli Serafino



Learning Objectives

By the end of this in-service, OTD students will be able to ...

01

Verbalize understanding of the different cupping therapy methods

02

Identify three benefits of cupping therapy.

03

Able to identify three precautions and contraindications to cupping therapy.

04

Demonstrate understanding of the developed protocol for cupping therapy.

05

Incorporate the use of cupping therapy into the Bear Paw Center with their clients.

06

Perform this modality safely with an understanding of emergency protocols.



History of Cupping Therapy

What is Myofascial Decompression?

Myofascial decompression, commonly known as cupping therapy (CT), is an alternative therapy modality to promote blood flow to the area being treated. This process requires placing cups on the skin and creating a negative pressure using suction or heat. (Aboushanab et. al., 2018)

WHAT IS CUPPING THERAPY



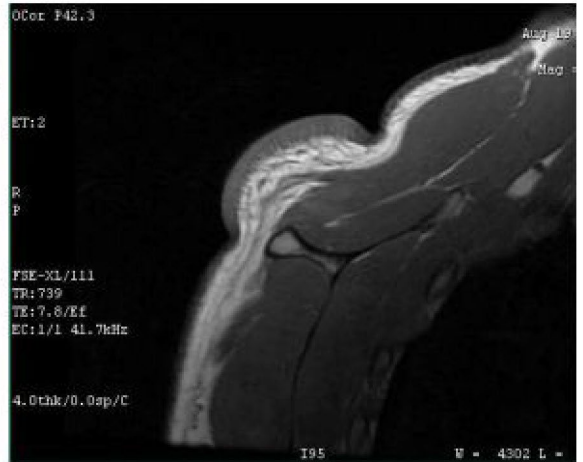
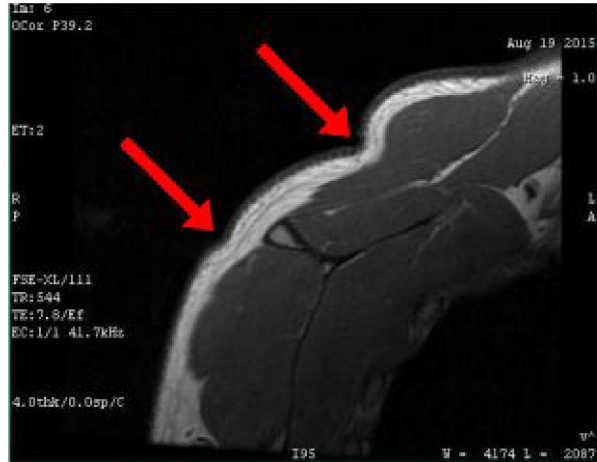


FIGURE 1. T1, sagittal view of the scapula and upper shoulder, showing the upper trapezius, supraspinatus, and spine of the scapula with the apparatus set, before vacuum pressure is applied. FIGURE 2. negative pressure force maximized inside the vessel. FIGURE 3. Tissue effect after all pressure has been released, and the shoulder coil still on the patient.

The History of Myofascial Decompression

- Cupping therapy has long been a part of healing medicine. This healing technique has been found in Chinese, Unani, traditional Korean, Tibetan, and Oriental medicine.
- This technique is also found in ancient Greece being used to treat the spread of pain.
- During the renaissance Italian physicians commonly used cupping to treat gout and arthritis.



Different Methods of Cupping

Vacuum Cupping	Fire Cupping	Wet Cupping	Dynamic Cupping
<ul style="list-style-type: none">- Vacuum cupping is noninvasive with no bloodletting like wet cupping entails.- Vacuum cupping uses an air pump to remove air out of the cup to create a suction drawing the skin up into the cup. (Dalton, et. al., 2017)	<ul style="list-style-type: none">- In the fire method, a glass cup is rinsed with methylated spirits before being lit and then placed over the appropriate anatomical site on the skin. (Furhad, et. al., 2023)	<ul style="list-style-type: none">- Also known as <i>hijama</i> is when there is a puncture in the skin to release blood into the cup.- Traditional wet cupping is a two-step technique: superficial skin scarification followed by cupping. Al-hijamah is a three-step wet cupping technique: cupping, superficial scarification, cupping. (Furhad, et. al., 2023)	<ul style="list-style-type: none">- Massage oil may be applied to create a better seal as well as allow the cups to glide over muscle groups in an act called “moving cupping”.- Dynamic cupping includes creating the suction in the cups and then dragging the cups across the skin. (Dalton, et. al., 2017)

Example of Fire Cupping





Benefits of Cupping Therapy

Benefits



Decrease Pain & Muscle Tension



Increase Blood Flow



Enhance Lymphatic Drainage



Reduce Inflammation



Increase Joint Mobility



Improves Immunity, Drains Excess Fluid, & Toxins

Results from our study

- Majority of students reported pain was exacerbated when:
 - Sitting in class
 - Driving
 - Sleep
- Law students experienced high stress from studying for the BAR exam which exacerbated their pain
- Possible correlation between posture while doing work and prolonged sitting and increased pain and muscle tension
- Overall pain decreased for most participants per verbal report
- Most participants reported immediate relief after session



Precautions & Contraindications

Precautions to be Aware of Before Cupping

1. Pregnancy
2. Frail/ fragile skin
3. Cancer (refer to doctor for approval)
4. Any systemic medical condition where there are concerns with circulation/ microvascular safety
5. Breast feeding



If you have any of these conditions, please ask your doctor or a medical professional if cupping therapy may a good option for you!

Contraindications to be Aware of Before Cupping

1. Acute infection
2. Congestive heart failure
3. Kidney or liver disease/
dysfunction
4. Wounds/ severe systemic
edema
5. Acute fractures
6. Bleeding disorders
7. Skin conditions/ diseases
8. Taking blood thinners



Please do not engage in cupping therapy if any of these conditions apply to you.

Skin Inspections: BEFORE Intervention

Inspect the skin before intervention to look for:

- Skin trauma such sunburns or bruising
- Open wounds
- Inflammation and / or infection

If you see signs of any of these on the skin, DO NOT cup those areas.



Skin Inspections: DURING Intervention

Inspect the skin during intervention to look for:

- Proper suction to ensure cups will not fall off
- Light pink skin color directly after putting cups on showing increased blood flow.
- Inflammation and / or infection
- Inspect skin around rim of cup to note any pulling that could cause pinching or discomfort

If you notice the cup is pinching, or there is too much / to little suction remove cups and apply again properly.



Skin Inspections: IMMEDIATELY AFTER Intervention

After cups are removed, inspect the skin in the areas the cups were on. It is normal for the skin to look like this:



Pink with rings around the outside



Dark red / purple marks

Skin Inspections: DAYS AFTER Intervention

In the days after cupping it is normal to see marks that look like:



Dark purple marks



Light brown marks



Light faded brown marks

Cupping Marks Explained



Cupping marks come from broken blood vessels beneath the skin. The color and pattern of these marks reflect the level of stagnation in that area. Stagnation refers to when the blood within the body fails to flow properly.





Universal Protocol

Universal Protocol for Dry Cupping Therapy



1. Wash hands
2. Assess skin area for open wounds, skin sensitivity, and other contraindications (rule out all contraindications and be aware of precautions)
3. Prepare skin with alcohol wipe/ skin barrier wipe (as seen in video)
4. Apply hypoallergenic lotion to cupping site (as seen in video)
5. Apply cup to site, keeping it static
6. Manually apply 2 pumps to create a suction, and let the cup stay static for 8 minutes
7. Release cup after 8 minutes
8. Clean and sanitize all cups used

If client is experiencing pain or extreme discomfort while the cups are on, take them off immediately!

Universal Protocol For Dry Cupping Therapy



https://youtu.be/jxpnyCm_ID4

Gap In Care With Cupping Therapy in Healthcare



“One of the most commonly criticized issues is that cupping therapy is performed using traditional methods, and the dose of cupping, included number of cups, negative pressure value, and duration and frequency of cupping cannot be quantified” (Chiu et al., 2020, p. 2).

- Lack of universal protocol can result in future researchers not being able to fully replicate studies to investigate the effects of cupping therapy
- Lack of universal protocol can create confusion between healthcare professionals and their clients using the modality. This could lead to potential misuse of the modality.
- Lack of universal protocol can decrease the efficacy of the modality

Literature Supporting Protocol

- The use of lotion applied to the painful area before the stationary cup is placed is beneficial to create a better seal between the skin the the cup (Mignano, 2017).
- Most researchers who have studied cupping therapy have recommended that cups should remain suctioned onto skin between five and fifteen minutes (Furhad & Bokhari, 2023)
 - Eight minutes was chosen due to many participants within the study being unfamiliar to the modality. Eight minutes allows enough time for benefits to be be noticed and for participants to remain comfortable during interventions.
 - Two manual pumps to create a suction allows for good contact with skin sustaining the length of the intervention
- According to research, benefits of cupping therapy are typically apparent after patients receive the modality and when they continue to receive it for a total of five to ten sessions (Chirali, 2014).

Benefits of Protocol

1. Allows healthcare professionals and patients that use the modality to have a better understanding on how to apply it to themselves and others.
2. Creating one universal protocol for the use of the modality may help with compliance from patients to use this as a preventative pain management technique.
3. Creating one universal protocol targets good health literacy so patients can follow and understand one protocol as compared to reviewing research with multiple protocols.

Emergency Protocol

If the pain is worse than normal **AFTER** the intervention:

1. Instruct the client to apply ice at home to the area for 15 minutes 3X per day to reduce swelling and decrease blood flow in the area
2. Monitor pain and bruising for 2-3 days, DO NOT cup on painful areas until pain subsides
3. Instruct client to the contact their primary care provider if pain has not started to subside after 3 days

Bear Paw Center



Bear Paw Center

How can cupping be incorporated into the Bear Paw Center?

1. What diagnoses would benefit from cupping that you have seen so far?
2. What activities would you use cupping therapy as a preliminary intervention for?
3. Which occupations do you think would improve for these clients with the use of cupping therapy?

Myofascial Decompression: Competency Test

Your client, Mary, is a 46 year old female with chronic pain and limited functional mobility from a previous injury in her lower back when she was in a MVA. You introduce her to cupping therapy and its benefits. Which is one of the benefits you do not provide to her?

- a) Improved tissue regeneration and collagen synthesis
- b) Enhanced proprioception and neuromuscular control
- c) Decreasing hypertrophic scarring

Myofascial Decompression: Competency Test

John is a 40 year old client who spends the majority of his time working on a video game project on his computer. You have been treating him for the past four weeks post carpal tunnel release and have observed muscle tightness in the volar side of his forearm. As his occupational therapist, why did you decide to use cupping?

- a) To increase release of endorphins and pain modulation
- b) To improve range of motion and joint mobility
- c) To promote scar tissue remodeling and wound healing

Myofascial Decompression: Competency Test

Your client is an 18 year old female with a complicated medical history and is interested in cupping therapy to improve her range of motion in her shoulder so she can compete in swimming again. Which of the following is a contraindication that you became aware of when completing her occupational profile?

- a) Her family history of type 1 diabetes mellitus
- b) Her personal history of sickle cell disease
- c) Her recent injury of her shoulder subluxation

Myofascial Decompression: Competency Test

Mark is a 55 year old client who is seeking occupational therapy for his lower back pain following a fall. As his occupational therapist, you educated him how cupping therapy can be utilized as a preparatory method to improve performance and tolerance during therapeutic exercises. Which of the following is not the education you have provided?

- a) Postural alignment and body mechanics
- b) Soft-tissue mobilization and trigger point release
- c) Edema management and lymphatic draining

Myofascial Decompression: Competency Test

Laura, a 45 year old female, is receiving myofascial decompression therapy for chronic neck and shoulder pain. After applying myofascial decompression cups, she reported that it hurts, you should first:

- a) Apply the cups perpendicular to the muscle fibers for optimal tissue stretch
- b) Stop the intervention completely if the pressure if it becomes overwhelming
- c) Adjust the negative pressure of the cups based on her tolerance

Myofascial Decompression: Competency Test

James, a 30 year old client, recently had myofascial decompression and noticed some unexpected side effects. Which of the following is the most common side effect that he reported?

- a) Ecchymosis or petechiae at the cupping sites
- b) Modulation of autonomic nervous system function
- c) Transient hypotension or dizziness during and after treatment

Myofascial Decompression: Competency Test

Anna is a 50 year old client who is seeking myofascial decompression therapy for her chronic elbow pain from competitive bowling. Her occupational therapist wants to ensure her safety during treatment as she reported being out at the beach yesterday during her occupational therapy evaluation. Which of the following is a precaution you determine to be most appropriate?

- a) Impaired immune function
- b) Decreased tissue elasticity
- c) Her peripheral neuropathy secondary to diabetes mellitus

Myofascial Decompression: Competency Test

Michael is a 35 year old client who has been unable to work in construction due to the pain in his dominant wrist. As his occupational therapist, you provide him with education on how myofascial decompression can relieve his pain and promote tissue healing. Which of the following is the least appropriate education that you provided?

- a) Facilitating release of myofascial adhesions and restoring tissue mobility
- b) Modulating the autonomic nervous system and increasing parasympathetic tone
- c) Activation of mechanoreceptors and inhibitory neural pathways

Myofascial Decompression: Competency Test

Myofascial decompression is recommended for clients who are:

- a) Undergoing chemotherapy or radiation treatment
- b) Suspected with a deep vein thrombosis
- c) Addressing musculoskeletal pathologies

Myofascial Decompression: Competency Test

Robert, an occupational therapist, is incorporating myofascial decompression into his practice and wants to ensure proper implementation. How should he not do this?

- a) Conducting patient history and evaluation before treatment
- b) Applying anecdotal evidence and reviewing current research
- c) Using this as the only intervention

References

- Aboushanab, T. S., & AlSanad, S. (2018). Cupping therapy: An overview from a modern medicine perspective. *Journal of Acupuncture and Meridian Studies*, 11(3), 83–87. <https://doi.org/10.1016/j.jams.2018.02.001>
- Central Nebraska Rehab Services. (n.d.). *Benefits of cupping therapy*. <https://www.cnrehab.com/news/learn-about-cupping-therapy.html>
- Chirali, I. Z. (2014). Benefits of cupping therapy. *Traditional Chinese Medicine Cupping Therapy* (3rd ed., pp. 47-64). Churchill Livingstone.
- Chiu, Y. C., Manousakas, I., Kuo, S. M., Shiao, J. W., & Chen, C. L. (2020). Influence of quantified dry cupping on soft tissue compliance in athletes with myofascial pain syndrome. *PloS one*, 15(11), e0242371.
- Dalton, E. L., & Velasquez, B. J. (2017). Cupping therapy: An alternative method of treating pain. *Public Health – Open Journal*, 2(2), 59–63. <https://doi.org/10.17140/phoj-2-122>
- DaPrato, C. (n.d.) Effects of soft tissue mobilization with negative pressure device on the shoulder, using MR imaging [Infographic]. CupTherapy.com. https://www.cuptherapy.com/_files/ugd/12c814_558b4c9db9d544f88479a277f3b32e1c.pdf
- Foothills Sports Medicine Physical Therapy. (2022, March 14). *What is cupping therapy? Types, benefits, and treatment* [Video]. Youtube. <https://www.youtube.com/watch?v=Xvd9B7CMJpU&t=57s>
- Furhad, S., & Bokhari, A. A. (2023). Cupping Therapy. In *StatPearls*. StatPearls Publishing.
- Kate Moore Myoskeletal Therapy. (2018, January 8). *Cupping marks explained* [Video]. Youtube. <https://www.youtube.com/watch?v=N8CPwVXApoM>
- Mignano, M. (2017, June 20). *Cupping therapy*. Body First. <https://bodyfirst.com/cupping-therapy/>
- Sports Medicine and Rehabilitation. (2019, July 10). *Fire cupping at Barrie Sports Medicine* [Video]. Youtube. https://www.youtube.com/watch?v=-Z3GUd_zfNg

Appendix H

Effects of Myofascial Decompression on Reducing Pain and Muscle Tension in the Lumbar
Region of the Spine and Improving Daily Functional Performance

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OTD 760-07: Doctoral Experiential IV – Implementation/Capstone

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Effects of Myofascial Decompression on Reducing Pain and Muscle Tension in the Lumbar Region of the Spine and Improving Daily Functional Performance

Problem Statement

The impact of pain, particularly chronic pain, on the quality of life and academic performance of students, with the researcher's specific focus on chronic pain in the low back. Chronic pain is a prevalent and significant global health concern, affecting a substantial number of individuals worldwide (Ferreria et al., 2023). It not only leads to physical discomfort but also poses substantial challenges to mental health, contributing to conditions such as anxiety and depression. These mental health implications can further exacerbate pain symptoms and hinder students' engagement in daily occupations outside of their academic roles.

Chronic pain can disrupt sleep patterns, affecting executive functioning skills necessary for concentration and focus during class (Alsaadi, 2022). Additionally, chronic pain interferes with daily activities, social interactions, and leisure occupations, limiting students' participation in extracurricular activities they enjoy. This limitation in engagement may lead to missed educational opportunities, academic decline, and hindered achievement of their full potential.

There is a need to explore effective interventions for pain management and improved occupational performance among students experiencing chronic pain. It indicates a gap in the current knowledge regarding the potential benefits of MD as a modality for pain relief and its impact on daily occupational performance in this specific population.

Overall, this problem highlights the significance of addressing chronic pain among students and the potential role of MD in alleviating pain and enhancing functional abilities. By clearly defining the problem and its scope, this research study aims to contribute valuable insights into

the understanding and management of chronic pain, with implications for improving the quality of life and academic performance of affected individuals.

Purpose/hypothesis

The hypothesis of this research study of this research study is that myofascial decompression will have a positive impact on pain reduction and muscle tension in students experiencing chronic pain in their low back. The researcher posits that MD interventions will result in a decrease in pain levels and improved symptoms among the participants. Additionally, it is hypothesized that MD will lead to enhanced daily occupational performance, as participants experience relief from pain and muscle tension, allowing them to engage more effectively in meaningful activities.

Furthermore, this research study may also explore the hypothesis that MD can be an effective alternative or complementary modality to opioids in pain management for students. This study aims to investigate whether MD interventions can provide significant pain relief while potentially reducing the reliance on opioids, given the current opioid crisis and the associated risks with long-term opioid use.

Research question

What are the effects of MD on pain, muscle tension, and daily occupational performance in students experiencing chronic LBP?

Methodology

This study was conducted using convenience sampling, and the participants were recruited from Western New England University. Ethical considerations were addressed, and approval was obtained from the Site Mentor, Faculty Mentor, and DEx Capstone Coordinator before the

research started. The participants were randomly assigned a participant number to maintain confidentiality. They were separated into four groups based on the location of their pain: arm/shoulder pain, cervical pain, thoracic pain, and lumbar pain. A total of nine students with LBP received MD twice per week for four weeks, with a two-week intermission due to campus shutdown for summer break. Data were collected through initial intervention surveys, daily pain logs, and the World Health Organization's Quality of Life (WHOQOL)-BREF survey, which was administered every two weeks throughout the study.

Results

In this study, a total of 22 participants were included, but only nine participants reported experiencing low back pain. Among these nine participants, seven also received cupping on other areas of their body, while two solely received myofascial decompression (MD) for their low back pain. The focus of the findings will be on the data received from these nine participants who received MD to understand its effects on pain, muscle tension, and daily occupational performance.

The results revealed that eight out of the nine participants demonstrated an average decrease in pain after receiving the MD intervention, indicating a potential positive impact on pain relief. However, it is worth noting that one participant did not experience a change in their pain level following the intervention. These findings suggest that MD may be effective in reducing pain for the majority of participants, but individual responses may vary, leading to different outcomes in pain management.

To gain a comprehensive understanding of the effects of MD on pain and muscle tension, the data from the nine participants with low back pain were analyzed in detail. By focusing on this subgroup, the study aims to provide valuable insights into the potential benefits and

limitations of MD as a pain management modality for individuals experiencing low back pain. The results will contribute to the broader understanding of MD's efficacy and inform future research on its application as an intervention for pain relief and enhanced daily occupational performance.

Table 1

Raw Pain Data Before v. After Intervention after Eight Sessions using Wong-Baker Pain Scale

Participants with Low Back Pain				
Participant 1	Session	Initial	Final	Difference in scores
	1	2	0	-2
	2	4	2	-2
	3	0	1	+1
	4	3	4	+1
	5	2	3	+1
	6	5	4	-1
	7	2	4	+2
	8	3	3	0
Participant 8	Session	Initial	Final	Difference in scores
	1	6	4	-2
	2	4	2	-2
	3	5	2	-3
	4	3	1	-2
	5	3	1	-2
	6	3	1	-2
	7	4	1	-3
	8	3	1	-2
Participant 10	Session	Initial	Final	Difference in scores
	1	4	1	-3

	2	6	4	-2
	3	0	1	+1
	4	3	0	-3
	5	5	3	-2
	6	3	1	-2
	7	7	2	-5
	8	0	0	0
Participant 19	Session	Initial	Final	Difference in scores
	1	2	1	-1
	2	2	0	-2
	3	2	1	-1
	4	2	1	-1
	5	3	0	-3
	6	3	0	-3
	7	4	2	-2
	8	3	0	-3
Participant 20	Session	Initial	Final	Difference in scores
	1	4	2	-2
	2	2	0	-2
	3	2	0	-2
	4	1	0	-1
	5	3	1	-2
	6	1	0	-1
	7	4	2	-2
	8	4	2	-2
Participant 23	Session	Initial	Final	Difference in scores
	1	6	0	-6
	2	2	0	-2
	3	4	2	-2
	4	4	4	0

	5	5	3	-2
	6	4	2	-2
	7	4	2	-2
	8	3	2	-1
Participant 25	Session	Initial	Final	Difference in scores
	1	7	6	-1
	2	6	5	-1
	3	7	3	-4
	4	7	2	-5
	5	7	3	-4
	6	7	3	-4
	7	8	3	-5
	8	7	2	-5
Participant 29	Session	Initial	Final	Difference in scores
	1	3	2	-1
	2	4	2	-2
	3	4	2	-2
	4	6	2	-4
	5	4	1	-3
	6	3	1	-2
	7	2	1	-1
	8	4	1	-3
Participant 35	Session	Initial	Final	Difference in scores
	1	6	4	-2
	2	3	2	-1
	3	3	2	-1
	4	2	1	-1
	5	3	2	-1
	6	2	0	-2
	7	4	1	-3

8 4 1 -4

Table 1 represents the raw data from the initial intervention survey and daily pain logs that were completed by the participants with LBP. The raw scores indicate most participants experienced a decrease in pain after receiving the intervention. However, some participants experienced an increase in pain.

Table 2

Comparison of Mean Pain Before v. After Intervention LBP

Participant	Before	After	Difference in scores (%)
1	2.63	2.63	0 (0%)
8	3.88	1.63	-2.25 (-42%)
10	3.50	1.50	-2.00 (-43%)
19	2.63	0.63	-2.00 (-24%)
20	2.63	0.88	-1.75 (-33%)
23	4.00	1.88	-2.13 (-47%)
25	7.00	3.38	-3.63 (-48%)
29	3.75	1.50	-2.25 (-40%)
35	3.38	1.63	-1.75 (-48%)
Mean of Scores	3.75	1.74	-2.01 (-47%)

Note. The Wong-Baker Pain Scale score ranges from zero to 10

Table 2 represents the average pain levels reported by each participant before and after receiving the myofascial decompression (MD) intervention during the research study. The results demonstrate a significant reduction in pain for all participants, with an overall decrease of 47% in pain levels following the intervention.

Table 3

Raw Data Responses for Type of Pain

Type	Week 1	Week 2	Week 3	Week 4
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Tingling	2	0	1	2
Sharp	5	3	4	1
Throbbing	7	3	6	8
Shooting	2	1	2	2
Burning	2	0	2	2
Aching	14	15	13	15
Dull	4	7	4	7
Numbing	4	4	4	4
None	0	2	0	0

Table 3 presents the distribution of pain types reported by the participants. The majority of participants, accounting for 79.17% of the sample, described their pain as "aching." Additionally, 33.33% of participants reported experiencing "throbbing" pain, while 30.56% of the participants described their pain as "dull." These findings provide insights into the various pain characteristics experienced by the participants, offering valuable information for understanding the nature of pain among individuals in the study population.

Table 4

Raw Data Responses for Which type of Activity Exacerbates Pain

Activity	Week 1	Week 2	Week 3	Week 4
Sitting in class	17	17	17	18
Driving	13	10	11	13
HH chores	8	9	9	8
Work	6	5	10	4
Rec. Activities	10	12	13	12
Sleep	12	7	6	5

Note. Household and recreational is abbreviated to HH and rec.

In Table 4, the data illustrates the daily activities that exacerbate pain among the participants. The most prominent activity that worsened pain was "sitting in class," with a substantial 96% of the sample identifying it as a significant exacerbating factor. Other areas of occupation that contributed to pain exacerbation included instrumental activities of daily living (IADLs), such as driving and household chores, which were reported by 65% and 47% of participants, respectively. Furthermore, participation in recreational activities, including physical activities, was also identified as a source of increased pain for 65% of the participants. Work-related activities were reported as exacerbating pain for 35% of the sample, and sleep was identified as a contributing factor for 42% of participants.

Table 5

Raw Data Responses for Duration of Pain Relief

Time (hours)	Week 1	Week 2	Week 3	Week 4
0-1	0	0	2	0
1-3	2	5	3	4
3-6	0	1	0	0
6-9	0	0	0	4
9-12	1	1	2	1
12-18	1	2	2	2
18-24	1	2	0	0
24-36	1	2	3	0
36-48	1	2	2	4
48 +	1	2	1	2
None	1	1	3	1

In Table 5, the data displays the duration of pain relief symptoms experienced by the participants after receiving the intervention. Among the participants, 22% reported feeling a

decrease in pain within one to three hours following the intervention. Additionally, 14% of participants indicated experiencing pain relief 36-48 hours after the intervention. Another 11% of participants reported experiencing lesser pain for a duration of 12-18 hours. Furthermore, 10% of participants reported varying durations of pain relief. Some participants indicated either no decrease in pain after the intervention, while others reported experiencing pain relief for 24-36 hours or more than 48 hours.

Table 6

Raw Data Responses for “Do you feel better or worse after receiving the intervention?”

Response	Week 1	Week 2	Week 3	Week 4
Better	8	17	13	17
Worse	1	1	3	1
N/A	0	0	2	0

During the research study, the researcher explored the participants' perceptions of their pain following the myofascial decompression (MD) intervention. The data revealed that a significant majority of participants, accounting for 87% of the sample, reported feeling better after receiving the intervention. Conversely, 10% of participants reported feeling worse after the intervention. Additionally, 3% of participants reported neither feeling better nor worse after the intervention.

Discussion

The data from Tables 3, 4, and 5 present important insights into the effects of myofascial decompression (MD) on pain relief and daily occupational performance in students. The findings suggest that MD interventions have a notable impact on reducing pain and improving participants' daily activities. However, it is worth noting that despite the positive effects on pain management, the data indicate minimal correlation between MD and improvements in overall quality of life.

Table 3 reveals that a significant proportion of participants reported experiencing "aching" pain (79.17%), followed by "throbbing" pain (33.33%), and "dull" pain (30.56%). These findings suggest that MD interventions were effective in addressing various types of pain sensations experienced by the participants. The diversity of pain types that MD successfully targeted indicates its potential versatility in pain management.

Table 4 provides valuable insights into the daily activities that exacerbated pain among the participants. "Sitting in class" was reported by an overwhelming 96% of participants as a pain-aggravating activity. This finding highlights the profound impact of pain on academic life and reinforces the importance of effective pain management strategies in supporting students' educational experience. Additionally, instrumental activities of daily living (IADLs) like driving and household chores, and participation in recreational activities were also reported as significant contributors to pain exacerbation. Understanding these pain-aggravating activities is crucial for tailoring interventions and empowering students to engage in daily occupations.

Table 5 sheds light on the duration of pain relief experienced after MD interventions. Approximately 22% of participants reported feeling a decrease in pain within one to three hours after the intervention, indicating immediate pain relief. Another 14% reported experiencing pain relief between 36 to 48 hours after the intervention, indicating sustained benefits for some participants. However, 10% of participants showed either no decrease in pain or experienced relief lasting more than 48 hours. This variability in pain relief duration underscores the individualized nature of MD's impact and the need for personalized pain management approaches.

While the data demonstrate MD's efficacy in pain management, it is important to address the minimal correlation between MD and overall quality of life improvement. Despite experiencing pain relief and enhanced daily occupational performance, participants did not report substantial changes in their perception of quality of life. This finding suggests that MD may have significant effects on pain management but may not directly translate to profound changes in other aspects of participants' lives.

In conclusion, the data from the tables provide compelling evidence of MD's effectiveness in reducing pain and enhancing daily occupational performance among students. However, the limited impact on overall quality of life calls for further investigation into the holistic implications of MD interventions. Occupational therapists should consider integrating complementary approaches alongside MD to address the broader aspects of students' well-being. Understanding the multidimensional impact of pain and implementing comprehensive care plans may lead to more comprehensive and impactful interventions for students with chronic pain.

References