2023

Effects of reducing pain and muscle tension and improving daily functional performance through myofascial decompression on the muscles within the upper limb

Michaela Gallagher
Western New England University

Effects of Reducing Pain and Muscle Tension and Improving Daily Functional Performance Through Myofascial Decompression on the Muscles Within the Upper Limb

---

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

July 2023

Effects of Reducing Pain and Muscle Tension and Improving Daily Functional Performance Through Myofascial Decompression on the Muscles Within the Upper Limb

A Doctoral Experiential Capstone Project Final Report

By

Michaela Gallagher, OT/s

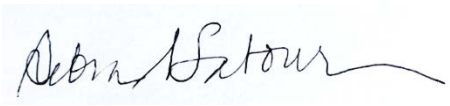
July 2023

APPROVED BY:

7/18/2023

Erin Murray OT, OTD-PP, OTR/L — Date
Faculty Mentor

APPROVED BY:



7/25/2023

Debra Latour, OT, PP-OTD, M.Ed., OTR — Date
Doctoral Experiential Coordinator

Abstract

Many adults in the United States who attend college, experience chronic pain impacting their quality of life (QOL) and ability to fully engage in meaningful daily occupations. The objective of this clinical research trial was to assess the effectiveness of myofascial decompression (cupping therapy) on reducing pain, improving QOL, and improving occupational performance within college students. This study targeted graduate students at Western New England University (WNE) who experienced pain within their upper limb, impacting their ability to fully engage in daily occupations. Eight total participants produced consistent data, including six Doctor of Occupational Therapy (OTD) students, and two Law students. Data was analyzed through a pre and post design of assessments and surveys. Occupational function and QOL were collected through standardized measures including the Quick DASH assessment and the QOL-BREF Questionnaire. Pain level was assessed through daily pain logs that included the Wong Baker Pain Scale. The findings of the study showed that students with chronic pain within the upper limb tended to have less difficulties in participating in recreational activities and activities of daily living after cupping sessions. These findings suggest that chronic pain in students can have an impact on their overall well-being and participation in meaningful daily occupations. Overall, cupping therapy was shown to have a beneficial impact on reducing pain and muscle tension in students with chronic pain in their upper limb. Further studies are needed to explore the relationship between QOL and cupping therapy within this population.

Keywords: myofascial decompression, cupping therapy, students, upper limb, chronic pain, quality of life, occupations, occupational performance, occupational function

Effects of Reducing Pain and Muscle Tension and Improving Daily Functional Performance Through Myofascial Decompression on the Muscles Within the Upper Limb

Chronic pain is a global health issue that can impact participation in meaningful daily activities and occupations (Nielson et al., 2022). Within the United States, approximately 20.4% of adults experience chronic pain, which has led healthcare providers to prescribe pain medications, such as opioids and narcotics, to reduce symptoms. As these medications are being prescribed at a greater rate, the occurrence of addiction and overdose has increased (Zelaya et al., 2020). This has created the need for more awareness and education on non-pharmacological pain management techniques, to help aid in decreasing these occurrences (Cramer et al., 2020).

Also, within the United States, many adults are seeking opportunities for higher education after high school. Approximately 6.6% of adults are currently enrolled as either part-time or full-time students in college (Hanson, 2022). As of Fall 2022, it was reported that 7.2% of college students experienced chronic pain (Elflein, 2023). 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 (QOL). 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 (Alsaadi, 2022).

Recognizing the global health issue of chronic pain and the impact it can have on students, a need for an accessible cost-effective pain management modality, such as myofascial decompression (cupping therapy), was determined (See Appendix A). Cupping therapy is a traditional Chinese medical treatment which has been practiced for thousands of years. Cupping therapy is a therapeutic modality involving the application of suction by creating a vacuum

(World Health Organization, 2007). The suction produced through cupping induces negative pressure inside the cup. Inducing this negative pressure is hypothesized to attract blood to the area of pain, thereby removing blood stasis and increasing blood and lymph circulation locally to relieve tension and pain in the muscle (Chen et al., 2014). These physiological changes can be beneficial in treating pain and/or muscle tension found within the body.

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. Through these different cupping techniques, cups can remain in place (static technique) on the skin or can be used to glide over the skin (dynamic technique). 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 individual who is receiving this pain management modality. 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). From an occupational therapy (OT) perspective, these contraindications and precautions should be educated to clients since the modality can be self-administered or assisted by a professional. Recognizing these contraindications and precautions can prevent harm for the individual receiving cupping therapy (See Appendix B).

Overview of Research Study

Four third-year Doctor of Occupational Therapy (OTD) students at Western New England University (WNE) collaborated to investigate the effects of cupping therapy on reducing pain and/or muscle tension and improving daily functional performance. This clinical trial research study was conducted in the OT labs at WNE within the Blake Law Center building. The duration of this study occurred over four weeks, with a two-week intermission between the first and last two weeks due to campus closure and summer break. Cupping sessions were held twice weekly, with at least one rest day in between sessions.

Although these researchers collaborated on investigating the effects of the modality, they differed by researching these effects on different parts of the body. These parts of the body include the muscles within the cervical region (neck), muscles within the lumbar region (lower back), and muscles within the thoracic region (upper back). For this individual research project, the effects of this modality were studied on the muscles within the upper limb, including the arm and shoulder.

PRECEDE-PROCEED Model

The PRECEDE-PROCEED Model was used to guide the implementation of this study. The PRECEDE-PROCEED model is based on epidemiology, education, administration, and the social/behavioral sciences. This model is used to guide health promotion strategies, prevent chronic diseases, and improve the quality of life in individuals (Kim et al., 2022). The acronym PRECEDE stands for predisposing, reinforcing, and enabling causes in educational diagnosis and evaluation. The PRECEDE portion of this model provides structure to program planning, including health education and evaluation. There are four phases within the PRECEDE portion of this model. The first phase of this model is to identify the desired result for outcomes. The

second phase is to identify and and set 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: implementation, process evaluation, impact evaluation, and outcome evaluation. The PROCEED portion of the model aims to monitor the program processes and adjust as needed to ensure quality as program implementation continues (Community Tool Box, n.d.) (See Appendix C). This model was chosen because the researchers primarily chose to focus on the overall outcome of cupping therapy interventions.

Biomechanical Frame of Reference

The Biomechanical Frame of Reference (FOR) was also used to guide the implementation of this study. This FOR states that focus and engagement in occupations and therapeutic activities has the potential to remediate underlying impairment, and result in improved occupational performance (Cho, n.d.). Throughout this study, cupping therapy was used as a therapeutic activity to help improve the voluntary motor skills of participants to improve their overall functional performance.

Purpose

The purpose of this study was to investigate the effects that cupping therapy has on reducing pain and improving QOL amongst college students who experience chronic pain. Based

on these effects of the intervention, the goal was to be able to provide students with an accessible and cost-effective modality to help them improve their participation in their meaningful daily activities. Furthermore, this study was implemented to familiarize this as a preparatory modality in the field of OT.

Target Population

The target population for this study was graduate students at WNE who were currently experiencing pain and/or muscle tension in their upper limb that impacted their ability to engage in daily occupations. Inclusion criteria also required participants to be age eighteen or older and willing to sign a consent form to participate in the study. Exclusion criteria for this population included individuals who were pregnant, had cancer, had irritated skin at pain site, had a blood disorder, or were taking blood thinners. Participants who were interested in the study but had a condition that was part of the exclusion criteria were excluded to prevent harm to the individual.

Recruitment of Participants

A recruitment email was sent to all students within the Law and OTD programs at WNE, explaining the outline of the study. Also, a University Post was created and posted on Kodiak to provide the opportunity for undergraduate students to participate. Attached to the email and University Post was a recruitment survey that researchers created as a screening tool to assess if an individual would be eligible to participate in the study according to the inclusion and exclusion criteria. Furthermore, to educate on the expectations throughout the cupping interventions, a video was created and sent to all interested participants (See Appendix F).

Sample Size

At the beginning of the study, thirteen participants received cupping therapy on their upper limb. As the study continued, three participants dropped out of the study due to scheduling conflicts. Furthermore, two of these thirteen participants did not complete the Quick DASH initial survey, so their data was deemed "inconsistent" as it could not be compared to their final Quick DASH survey. At the end of the study, there were eight participants that produced consistent data, including six OTD students and two Law students.

Methods

Throughout this study, multiple assessments were used to help determine the effects of cupping therapy on pain, muscle tension, QOL, and functional performance. Before the interventions began, an occupational profile was conducted on participants to determine their meaningful daily occupations, daily routines, hobbies, and the academic program that they were enrolled in. The Quick DASH assessment was used to measure the physical function of participants and was administered to participants before their first cupping session and before their last cupping session. The QOL BREF Questionnaire was used to assess self-satisfaction and the QOL of participants. This questionnaire was administered to participants before their first cupping session, after the two-week intermission, and before their last cupping session. Furthermore, a pain log that included the Wong Baker Pain Scale was administered to participants before each cupping session to reflect their pain before intervention, how long they felt relief from symptoms, what activities typically exacerbated their pain, what type of pain they were experiencing, and if they felt "better" or "worse" after last session.

Gap in Care and Universal Protocol

According to Chiu et al., “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). Due to there being no defined universal protocol for cupping therapy in healthcare, it can result in future researchers not being able to fully replicate studies to investigate the effects of the modality; can create confusion between healthcare professionals and their clients using the modality, leading to potential misuse of the modality; and can decrease the efficacy of the modality. Determining this issue as a gap in care, a universal protocol was developed regarding a static and dry cupping method and was utilized within this study. In conjunction with this protocol, the “Acuzone Premium Cupping Set” that contained plastic cups, was used on all participants. This protocol included the following eight steps:

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.
4. Apply hypoallergenic lotion to cupping site.
5. Apply cup to site, keeping it static.
6. Manually apply two pumps to create a suction, and let the cup stay static for eight minutes.
7. Release cup after eight minutes.
8. Clean and sanitize all cups used.

With this protocol in mind, researchers continued to use their therapeutic use of selves and assessed the tolerance level of participants. If a participant was in discomfort with two manual

pumps, researchers adjusted the suction to one pump, allowing them to be more comfortable during the intervention. If a participant was in extreme discomfort, the cup was released from the skin immediately to prevent harm.

Aside from the use of the protocol within the study, the purpose of developing this protocol was to allow healthcare professionals and clients to have a better understanding on how to apply the modality, help with compliance from patients to use this as a preventative pain management technique, and target good health literacy so that patients can follow and understand one protocol as compared to reviewing research with multiple protocols (See Appendix D and E).

Throughout the cupping therapy interventions, this cupping protocol was used on muscles within the upper limb, where the target population commonly reported pain. Muscles that were commonly targeted through interventions included Rotator Cuff muscles (Supraspinatus, Infraspinatus, Teres Minor, and Subscapularis), Latissimus Dorsi, Deltoid, Upper Trapezius, Rhomboid Major/ Minor, and the Extensor/ Flexor muscles in the forearm.

Results

After analyzing participant's pain logs, the most common feeling of pain that participants reported having was described as "aching." This pain was commonly exacerbated by participation in recreational activities, driving, and sitting in class. Approximately 50% of participants' responses determined that the typical time they experienced relief from pain after a session ranged from 18 to 48+ hours. Overall, 87% of participants reported feeling better after the interventions. The Quick DASH assessments showed that before the cupping interventions, 12.5% of participants reported having "no difficulty" in their performance in recreation activities. After the interventions, 50% of participants reported no difficulties. Regarding the

rating of QOL through the QOL BREF Questionnaire, 62.5% of participants reported their QOL as “good” before the interventions, after the two-week break, and after the cupping interventions. From the beginning to the end of the implementation of cupping, there was a 20% increase in responses that answered “very much” to the ability to carry out activities of daily living.

Discussion

This study provided students at WNE an opportunity to receive free cupping therapy services and to be educated on the benefits of this alternative pain management modality. Not only did this provide a beneficial opportunity to students, but it provided the researcher the opportunity to engage in interprofessional practice, explore the effects of a modality that is still relatively new in the United States, and to educate faculty and students on a modality that isn’t taught within the curriculum.

Cupping therapy can be a beneficial alternative pain management modality for students who are experiencing pain in their upper limb. This study has indicated that cupping therapy can be beneficial for decreasing pain and increasing participation in recreational activities and activities of daily living. Although this modality is beneficial and allows students to feel better after application, their relief from pain and muscle tension was temporary and only lasted up to approximately 48 hours after each cupping session.

Although students throughout the study reported the modality being beneficial regarding pain, muscle tension, and occupational performance, students reported no changes in their ratings of their QOL. As a result of this study, it can be determined that cupping therapy did not have a direct correlation with QOL.

Of the participants who participated in this study, two of them were enrolled in the Law program. By incorporating participants who are in different programs other than OT, it allowed the researcher to learn about values and interests that these participants had, the goals they had within their profession, and how they plan to manage their pain when engaging in occupations going forth after the study. This provided the researcher the opportunity to educate these other professionals on self-administration of the modality and how to incorporate other therapeutic methods throughout their day to limit their pain and allow for optimal participation in activities.

After completion of the research study, all researchers collaborated in creating an in-service presentation for all OTD students and faculty that explains the indications for the modality. Along with the presentation, researchers created a “working lab” which allowed students to be guided in a hands-on experience. This experience allowed students the opportunity to assess each other for precautions and contraindications, then use the modality on each other on parts of the body where they experienced pain. Since this modality is not accumulated into the curriculum through the WNE OTD program, the goal of the in-service was to provide an educational platform to faculty to be included in their courses. Furthermore, this in-service was created so that WNE OTD students can incorporate this modality into the Bear Paw Center, for sustainability of having this modality accessible to the population (See Appendix G).

Cupping therapy has shown its benefits amongst a population who has a higher risk of experiencing chronic pain. This population also typically experiences financial stress due to student loans and cost of living which correlated to poor mental health outcomes (Moore et al., 2021). As mentioned before, mental health conditions can further exacerbate pain and impact occupational performance. Furthermore, many students attending college come from different states or towns and are not familiar with the healthcare resources that are provided locally around

their college. With knowledge of this, cupping therapy is beneficial to implement into the college atmosphere to provide students with a cost-effective and accessible pain management modality that can be self-administered. Cupping therapy being accessible to students at WNE, allowed students to be able to reduce their pain and have better participation in their meaningful daily activities and occupations. Creating more awareness and education of this modality throughout different colleges can further target the problem of college students experiencing chronic pain.

Limitations

One limitation is that the timing of this Doctoral Experiential was taken place from April-July 2023. During this period, it was difficult to recruit participants because of campus summer break and students not being available. This gave the researchers limited options for students to participate in the study. This also resulted in the researchers needing to implement a two-week intermission into the study, as some OTD students were home for their shortened summer break and not available to participate. Another limitation of the study was that the region of the shoulder that was being cupped overlapped with some regions of the upper back, which was studied by a different researcher. This was a limitation because it was difficult to differentiate some participants into body parts of which they got cupped. Another limitation to the study was that some participants had scheduling differences that interfered with their ability to come in and receive services on some days. Researchers originally expected two rest days in between sessions, but because of these scheduling differences, the standards were changed to have at least one rest day in between sessions.

Recommendations

For future research on the effects of cupping therapy on reducing pain and muscle tension, improving QOL, and improving occupational function, one recommendation would be to use different QOL rating scales to further interpret the relationship between QOL and the intervention. Another recommendation would be to designate participants to one part of the body being cupped at a time, so that it reduces the risk of overlap of data.

Implications to OT

With knowledge of the temporary relief that cupping therapy provided to students experiencing pain and muscle tension within their upper limb, it can be determined that it can be used as a preparatory method before OT interventions. As OT interventions consist of individuals participating in occupations to improve their independence, cupping therapy can help reduce pain or improve range of motion so that these individuals can have optimal performance in the interventions. With reducing barriers that limit an individual's performance in occupational performance, it can improve the motivation of individuals to participate, increase their independence, and provide individuals with hope and desire to return to their prior level of function. Another way OT's can incorporate this modality into practice is to educate their clients on the cost-effectiveness and accessibility of this pain management technique. OT's can educate and guide client's search in purchasing a cupping set, guide client or caregiver learning on administration of the modality.

Learning Outcomes

One outcome that was learned throughout this Doctoral Experiential Project was to always consider the health literacy of the target population when educating them about healthcare methods. As some participants in this study did not have healthcare backgrounds, it

was important that the educational material presented and explained to them was presented in a way that allowed for full comprehension. Considering the health literacy of the population also allows the individuals in the population to be more likely to comply with the modality, utilize the modality properly, and continue to use it as a pain prevention method in the future. This outcome was assessed through reviewing literature and developing a universal protocol for cupping therapy that can be dispersed to multiple populations.

Another outcome that was learned throughout this Doctoral Experiential Project was how to further enhance professionalism within the field of OT. Working with participants that lacked knowledge of cupping therapy as a modality, allowed the opportunity to practice clinical professionalism by listening to the individual's needs and values, and educating them on how to use the modality to gain independence in their occupations. This outcome was assessed by providing students with a post-intervention survey reflecting the researcher's professionalism throughout the study.

Another outcome that was learned throughout this Doctoral Experiential Project was how to incorporate doctoral level work into national conferences and magazines. With knowledge gathered from this study, a poster proposal was submitted to the Massachusetts Association of Occupational Therapy (MAOT) "Bringing Home the Best of Occupational Therapy" conference in November 2023, and to the American Occupational Therapy Association (AOTA) "Inspire" Conference in March 2024. Furthermore, an article was submitted to *OT Practice* Magazine, reflecting a story about cupping therapy and its impact on students. With these submissions, it provides the opportunity to expand a network within OT and share the study with other professionals (See Appendix H, I, and J).

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

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

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

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. https://doi.org/10.1371/journal.pone.0242371

Cho, M. (n.d.) Biomechanical frame of reference. OT Theory. https://ottheory.com/therapy-model/biomechanical-frame-reference

Community Tool Box. (n.d.). *Section 2. PRECEDE/PROCEED*. https://ctb.ku.edu/en/table-contents/overview/other-models-promoting-community-health-and-development/preceder-proceder/main

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

Elflein, J. (2023, April 18). *Percentage of college students in the U.S who had ever been diagnosed with select conditions, as of fall 2022.* Statista. https://www.statista.com/statistics/1126483/us-college-student-conditions/#statisticContainer

Hanson, M. (2022, July 26). *College enrollment & student demographic statistics*. Education Data Initiative. https://educationdata.org/college-enrollment-statistics#:~:text=As%20many%20as%206.6%25%20of,enrolled%20students%20were%20foreign%2Dborn.

Kim, J., Jang, J., Kim, B., & Lee, K. H. (2022) Effect of the PRECEDE-PROCEED model on health programs: a systematic review and meta-analysis. *Systematic Reviews*, *11*(213), 1-12. https://doi.org/10.1186/s13643-022-02092-2

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,* 1-8. https://doi.org/10.1177/20503121211018122

Nielsen, S. S., Skou, S. T., Larsen, A. E., Bricca, A., Søndergaard, J., & Christensen, J. R. (2022). The effect of occupational engagement on lifestyle in adults living with chronic pain: A systematic review and meta-analysis. *Occupational Therapy International*, *2022*, 7082159. https://doi.org/10.1155/2022/7082159

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.

Zelaya, C. E., Dahlhamer, J, M., Lucas, J. W., & Connor, E. M. (2020, November). *Chronic pain and high-impact chronic pain among U.S adults, 2019.* Center for Disease Control and Prevention. https://www.cdc.gov/nchs/products/databriefs/db390.htm

Appendix A- Needs Assessment

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

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 (Zelaya et al., 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

Introduction

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; 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 which was used as 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 to 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 taking a paid online course such as Certified ACE Massage Cupping or by reading articles such as the article “Cupping for Treating Pain: A Systematic Review” (Kim et al., 2018). There are also limitations with community 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 regarding 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 poses the same barrier as it does for non-athletic college students, in that 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 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 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.

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*(4), 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

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), 1-11. 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

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*, 1-8. 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*, 1-15. 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. *The Journal of the International Association for the Study of 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., Saragiotta, 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), 1-9. 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*. 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.org/10.3233/BMR-169736

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

World Organization of Health. (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.

Zelaya, C. E., Dahlhamer, J, M., Lucas, J. W., & Connor, E. M. (2020, November). *Chronic pain and high-impact chronic pain among U.S adults, 2019.* Center for Disease Control and Prevention. https://www.cdc.gov/nchs/products/databriefs/db390.htm

Appendix B- Literature Review

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

Introduction

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), 1-11. 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/10.1590/1518-8345.2888.3094

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., Saragiotta, 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: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 C- Health and Wellness Behavior Change Theory Assignment

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

The PRECEDE-PROCEED model is 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: implementation, process evaluation, impact evaluation, and outcome evaluation. The PROCEED portion of the model aims to monitor the program processes and make adjustments as needed to ensure quality as program implementation continues.

We 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 implementing 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

Chronic pain can be debilitating to an individual, resulting in emotional pain. Lingering pain symptoms are associated with psychological distress disorders, leading to occupational dysfunction (Radomski & Trombly, 2014). There has been a significant increase in using opioids to treat pain over the past 20 years, which has also been associated with opioid-related abuse and overdose. (Kaye, et. al., 2017) There is a need for chronic pain treatments that both allow for pain relief while also minimizing the risk of opioid abuse. (Kaye, et. al., 2017) Cupping therapy offers an opportunity to provide holistic pain relief while steering away from using opioids to treat chronic pain.

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 include 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 and narcotics by medical providers. In the second phase, we identified the predisposing, enabling, and reinforcing factors that support or hinder changing behaviors and environmental factors. The third phase includes the educational and organizational diagnosis.

Within this phase, a common theme is the lack of education and resources for stakeholders. For example, there is a lack of education on holistic services and the long-term effects of opioid and narcotic usage. This example 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 plan to discuss our intervention as a preparatory method with the Western New England University Occupational Therapy Department to present education and training for OTD students. This education and training for OTD students can be utilized at the Bear Paw Center under the supervision of registered occupational therapists. This provides a chance for sustainability within the program while providing access to a cost-effective pain management technique.

The PROCEED portion of the PRECEDE-PROCEED model includes implementation, process evaluation, impact evaluation, and outcome evaluation. We will implement the cupping therapy intervention in the occupational therapy department of Western New England University (WNE) in Springfield. We will also administer multiple assessments such as the Quick Disabilities of the Shoulder and Hand (Quick DASH), the World Health Organization QOL-BREF scale, and a daily pain log to monitor the process evaluation of the client's perspective on their pain. In addition to these assessments, we will use a pre-intervention survey to assess their pain as well as a post-intervention survey at the end of the study, which will allow participants to reflect on how cupping impacted their pain as well as how well they felt the study was conducted in terms of professionalism and education. Afterward, 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 us with information that cupping therapy does or does not provide the outcome we envisioned in the first phase of the PRECEDE portion of the model.

Program Development Guidance in Literature

Cupping therapy is a traditional Chinese medical treatment used for thousands of years (Aboushanab & AlSanad, 2018). 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 effectiveness in reducing pain and/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). It was found throughout these studies that cupping therapy is an effective treatment method. Within the studies, most individuals were experiencing back or neck pain, impacting their quality of life and occupational performance. After treatment, their overall quality of life increased due to decreased pain and muscle tension. Cupping therapy is 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 measure is helpful because chronic pain and muscle tension can be debilitating and affect an individual's quality of life which supports using The Quality-of-Life Questionnaire as an effective outcome measure for our project. Using this measure, we can gather information on how the cupping therapy has affected their perceived quality of life to show how effective it was (Leem, 2014).

Though most research found that cupping therapy was valuable and practical, limited information was available. It was found that cupping therapy was effective in increasing the quality of life for patients with chronic non-specific neck pain. Still, 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 needing help during the studies course making the sample sizes less generalizable (Leem, 2014). Overall, it was found that cupping therapy is beneficial 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). We have found that cupping therapy needs more intervention and concrete evidence of effectiveness. By conducting our study using similar outcome measures and procedures as other studies have, we can help back up the claim that cupping therapy is 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

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

Within this community, there is a lack of education and cupping therapy services for people 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 to support our project's aim of applying 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.

The target population of WNE students was selected to assess their needs for pain management and given resources for cost-effective pain management options such as cupping therapy. This population would benefit from cupping therapy as a holistic approach to pain management and increase quality of life. At WNE, there are no cupping therapy services, leaving a gap in care and leaving a need for students to access this therapy.

Based on a study 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 sleep quality (Alsaadi, 2022). When students' pain begins to impact their daily activities, they cannot fully participate in leisure 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.

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. This strategic direction's main goal is that eliminating health disparities will improve the quality of life for all Americans. (National Prevention Council, 2011). This goal aligns with our project for cupping therapy within the WNE population. Throughout our project planning, we have considered the health disparities that the students of WNE may face and how these can lead to addiction, lack of healthcare, or lack of knowledge of healthcare options. Providing education in the community and access to an affordable and holistic service can help eliminate the health disparities that people may face in this community while improving care. Furthermore, eliminating health disparities through our cupping therapy program 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) aims to achieve health, well-being, and participation in life through engagement in occupation **(**Occupational Therapy Practice Framework, 2020). Throughout this framework, two primary components are necessary to achieve that goal: the domain and process. The process is divided into three categories: evaluation, intervention, and outcomes. The domain must assess and utilize these three elements and is further broken into five parts. These five parts include occupations, contexts, performance patterns, performance skills, and client factors, which determine 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. Our project focuses on utilizing cupping therapy by decreasing pain and muscle tension to increase occupational performance and quality of life.

We aim to target and reduce pain so individuals can improve their daily occupational performances. Decreasing pain and muscle tension allows our clients to have enhanced performance of their client factors and performance skills such as sustaining performance of activities of daily living (ADLs) and instrumental activities of daily living (IADLs), daily routines, attention, sleep, pain, and emotional regulation.

We will also focus on improving symptom and condition management, physical activity, job performance and maintenance, and health management, as all these aspects are pertinent to one's life. Specific client factors that will be addressed include body functions comprising mental functions, sensory functions, neuromusculoskeletal, and muscle functions. While decreasing pain we can increase performance patterns and skills needed for daily occupations such as attending a job or being a full-time student focusing on motor skills. Improving motor skills can benefit clients by enhancing work productivity and pain-free performance. 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.

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/

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), 1-10. https://doi.org/10.5812/ircmj.55039

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*(4), E217-E220.

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

Kaye, A. D., Jones, M. R., Kaye, A. M., Ripoll, J. G., Galan, V., Beakley, B. D., Calixto, F., Bolden, J. L., Urman, R. D., & Manchikanti, L. (2017). Prescription opioid abuse in chronic pain: An updated review of opioid abuse predictors and strategies to curb opioid abuse: Part 1. *Pain Physician, 20*(2S), S93–S109.

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

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

Occupational Therapy Practice Framework: Domain and Process—Fourth Edition. (2020). *American Journal Occupational Therapy*. 74(Supplement_2), 7412410010p1–7412410010p87. https://doi.org/10.5014/ajot.2020.74S2001

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

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*. 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

Appendix D- Universal Protocol for Cupping Therapy Handout

Universal Protocol for Dry Cupping Therapy

Michaela Gallagher, OT/s

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
4. Apply hypoallergenic lotion to cupping site
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!

Overall Benefits of Cupping Therapy

- Drain excess fluids and toxins
- Increase blood flow to skin and muscles
- Enhance lymphatic drainage
- Decrease fascial adhesion
  - Fascia consists of connective tissue that is found beneath the skin
- Increase joint mobility
- Decrease muscle tension
- Decrease pain

Precautions

1. Pregnancy
2. Frail/ fragile skin
3. Cancer
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 be a good option for you!

Contraindications

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

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

To access the correlating PowerPoint with references regarding more information about the Universal Protocol, please scan QR Code to the right!

Appendix E- Universal Protocol for Dry Cupping Method

Appendix F- Cupping Therapy: What to Expect Throughout the Intervention Video

https://youtu.be/TpgahE5RxHY

Appendix G- In-Service Presentation on Myofascial Decompression

Appendix H- AOTA Poster Proposal Submission

This document is a sample template and is NOT intended for proposal submission. You must complete the online submission process in order for your proposal to enter the review process and be considered for presentation at AOTA INSPIRE.

AOTA General Proposal

General Proposals advance the areas of occupational therapy practice, education, or program development.

Proposal Title

DO NOT USE ALL CAPS. Please do not use abbreviations in the title.

You are limited to 150 characters for the proposal title (including spaces).

Title: **Improving Participation in Daily Occupations Using Myofascial Decompression**

Session Format

· **Pre-Conference Institute**: 6-hour session held March 20, 2024. A reflective period must be included.

NOTE: If you need to cap the attendance at your proposed Institute, please make a note in the abstract. The only Institutes that will be considered for capping are those that have a clearly defined experiential component as a significant piece of the session overall.

· **Workshop**: 3-hour session with reflective period for attendees with comprehensive understanding of subject matter. Intermediate and Advanced-level content only.

· **Short Course**: 1-hour session with reflective time for attendees.

· **Student**: 50-minute session geared towards a student-only audience.

· **Poster**: Displayed on an 8’ wide x 4’ tall bulletin board. Posters will be on display during a designated 2-hour period. Presenters are required to be with their poster for the entire 2-hour block of time.

Speakers and Authors

Please include all presenters and authors. Presenters will be published in the order listed. Speakers and authors are responsible for maintaining their own profile, please make sure you have the email linked to the AOTA account for all speakers and authors to ensure the correct account is linked to the submission. If a speaker or author is not an AOTA member you will have the opportunity to add them to the system during the submission process with all of the required information listed below.

Reminder: All OT, OTA, and student speakers whose proposals are accepted for presentation must register for at least one day of the Annual Conference & Expo.

· **Primary Speaker** – The only person to whom AOTA will send subsequent communication regarding acceptance of the proposal and onsite logistics.

Michaela Gallagher

· **Additional Speaker** - Will be onsite presenting with the Primary Speaker.

Morgan Lukasik

Kaeli Serafino

Justin Murata

· **Contributing Author** - Persons who have contributed to the development and content of the proposal but will NOT be presenting onsite.

IMPORTANT: You must select only ONE person to be the Primary Speaker.

The following information is collected for each Speaker/Author and will be published as submitted.

Name*

*First Name: Michaela

Middle Name or Initials:

*Last Name: Gallagher

*First Name: Morgan

Middle Name or Initials:

*Last Name: Lukasik

*First Name: Kaeli

Middle Name or Initials:

*Last Name: Serafino

*First Name: Justin

Middle Name or Initials:

*Last Name: Murata

Credentials

· Ensure capitalization and sequence are correct (e.g., PhD, OTR/L, FAOTA). Please do not use periods in credentials.

· List only the highest degree earned.

· Do **NOT** list student credentials. AOTA does not recognize credentials such as BA, BS, OTS or PhD(C), which identify students in pursuit of a degree not yet earned.

Credentials:

n/a

Contact Information

Michaela Gallagher

Member ID Number: 000004621802

Daytime Phone Number (incl. area code and extension): 774-313-7541

*Email Address: michaela.gallagher@wne.edu

Employer or Academic Institution

*Employer Name: Western New England University

*Employer City: Springfield

*Employer State/Province: Massachusetts

*Employer Country: United States

Abstract Synopsis

Character Maximum Limit: 250 (including spaces)

Summarize the major points of your abstract and describe how this topic will advance either the practice/professional development of the participant or the field of occupational therapy. If your proposal is accepted, this information will be published in the AOTA INSPIRE mobile app and MUST be submitted ready for publication.

Abstract Synopsis:

Myofascial decompression can reduce pain, muscle tension, and improve quality of life and occupational performance. This presentation highlights the benefits of this modality for students experiencing chronic pain and muscle tension.

Learning Objectives

Should complete the sentence: “At the conclusion of this session, participants will be able to...”:

Please identify 1 or 2 learning objectives. Pre-Conference Institutes may provide up to 3 objectives.

Character Maximum Limit: 150 (including spaces)

*__**Learning Objective 1**__: At the conclusion of this session, participants will be able to describe three benefits of myofascial decompression on pain and muscle tension.

__**Learning Objective 2**__: At the conclusion of this session, participants will be able to identify three occupations that can be improved through myofascial decompression.

Abstract

Character Maximum Limit: 2,000 (including spaces)

The scoring of your proposal depends upon following the submission criteria closely and completely. Reviewers will use this information to score your submission.

- Topic is timely
- Topic demonstrates relevance to occupation-based practice or occupational therapy
- Topic demonstrates consistency with available literature and evidence
- A clear, reflective component is identified
- Learning objectives are appropriate and clearly stated

· Abstract synopsis articulates purpose and content of presentation

· Level of material is appropriate for the identified target audience (e.g., Introductory, Intermediate, Advanced)

· References are current and relevant

· Proposal is coherent

Note: Character count is used NOT word count.

· An exceeded character count will paste into the text box but will not save. Please refer to the character counter below the text box.

Abstract:

This study aims to investigate myofascial decompression's effectiveness in reducing pain and muscular tension to enhance participation in daily activities and overall quality of life. The research method of this study includes myofascial decompression through the application of cupping. The study looks at the effectiveness of this instrument-assisted soft tissue mobilization technique when applied twice per week for four weeks to a sample of undergraduate and graduate students enrolled at Western New England University. This study utilizes objective measures including the World Health Organization’s Quality of Life Scale, Quick DASH, and Wong-Baker Pain Scale to assess the modality's effectiveness on the neck, shoulders and arms, upper back, and lower back. These results can be used as a resource in occupational therapy and incorporated into evidence-based practice for practitioners seeking a more holistic and sustainable pain management technique. By using this instrument-assisted soft tissue

mobilization technique, practitioners can provide their clients with complementary or alternative approaches to pain management. This modality is sustainable within the field of occupational therapy as it is affordable, requires minimal training, and is highly accessible to obtain materials for interventions.

Primary Topic Category

Each proposal will require a selection of one Primary Topic Category that best describes the proposal. AOTA reserves the right to change submitter's Primary Topic Category selection.

- Academic Education (includes Fieldwork Education)
- Advocacy
- Children & Youth
- Coding & Billing/Payment Policy
- Developmental Disabilities
- Diversity, Equity, and Inclusion
- General & Professional Issues
- Home & Community Health
- Innovative & Evolving Practice
- International

- Mental Health & Behavioral Health
- Productive Aging
- Rehabilitation & Disability
- Sensory Integration & Processing
- Work & Industry

Secondary Topic Category

Depending on the Proposal Type, submitters will decide on one Secondary Topic Category that best describes the proposal. AOTA reserves the right to change the Submitter's Secondary Topic Category selection.

- Academic Education
- Administration & Management
- Advocacy
- Children & Youth
- Chronic Conditions
- Coding & Billing
- Cognition
- Developmental Disabilities

- Diversity, Equity & Inclusion
- Driving & Community Mobility
- Early Childhood
- Environmental Modifications
- Ethics
- Evidence-Based Practice & Knowledge Translation
- Feeding, Eating, & Swallowing
- Fieldwork Education
- General & Professional Issues
- Gerontology
- Hand & Upper Extremity
- Health & Wellness
- Home & Community Health
- Innovative & Evolving Practice
- International
- Leadership
- Low Vision

- Mental Health & Behavioral Health
- Occupation-Based Practice
- Oncology
- OT/OTA Wellbeing
- Payment Policy
- Physical Rehabilitation
- Primary Care
- Private Practice
- Productive Aging
- Quality & Value Based Care
- Rehabilitation & Disability
- Research
- School Systems
- Sensory Integration & Processing
- Technology
- Telehealth & Virtual Services
- Work & Industry

Level of Material

· **Introductory** level is geared to practitioners with little or no knowledge of the subject matter. Focus is on providing general introductory information.

· **Intermediate** level is geared to practitioners with a general working knowledge of current practice trends and literature related to the subject matter. Focus is on increasing knowledge and competent application of the subject matter.

· **Advanced** level is geared to practitioners with a comprehensive understanding of the subject matter based on current theories and standards of practice as well as current literature and research. Focus is on recent advances and trends, and/or research applications. A high-level of participation by attendees is encouraged during this session.

Level Rational *

Please state why you selected this level:

This modality is not a commonly used practice in occupational therapy. Though many occupational therapists may know what myofascial decompression is, it will be a new concept to many practitioners of pain management and occupational performance. This study aims to prove the benefits of using myofascial decompression as a pain management technique to increase the quality of life and functional performance of the participants. This will give a basic understanding of the use of this modality for pain management, the benefits of using this modality, contraindications/precautions, and a background on the history of this modality in pain management.

References

References to literature should be formatted using APA style. A minimum of 2 references are required. A maximum of 4 references can be submitted. All references to journal articles should include the DOI (digital object identifier).

Reference 1:

Chiu Y-C, Manousakas I, Kuo SM, 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. https://doi.org/10.1371/journal.pone.0242371

Reference 2:

Hadi, M. A., McHugh, G. A., & Closs, S. J. (2018). Impact of chronic pain on patients' quality of life: A comparative mixed-methods study. *Journal of Patient Experience*, *6*(2), 133–141. https://doi.org/10.1177/2374373518786013

Reference 3:

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

Reference 4:

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

Proposal Submission for INSPIRE 2024

Welcome to the AOTA Proposal Submission Form!

8652 - **Improving Participation in Daily Occupations Using Myofascial Decompression**
Conference: INSPIRE 2024
Type Of Proposal: General
Submission Status: Completed
Acceptance Status: Pending · *View Reviewer Feedback*
View/Print | Withdraw

Appendix I- MAOT Poster Proposal Submission

Title of Presentation or Poster (Limit 8 words or less):

Improving Participation in Daily Occupations Using Myofascial Decompression

Presenter #1

Name, Credentials, Job Title, Affiliation or Organization: (This presenter will be the primary contact person for the MAOT Conference Committee) Kaeli Serafino OT/s, third year OTD student at Western New England University.

Phone: 413-388-9432

Email: ks358859@wne.edu

Presenter #2

Name, Credentials, Job Title, Affiliation or Organization: Michaela Gallagher OT/s, third year OTD student at Western New England University.

Phone: 774-313-7541

Email: Michaela.gallagher@wne.edu

Presenter #3

Name, Credentials, Job Title, Affiliation or Organization: Justin Murata OT/s, third year OTD student at Western New England University

Phone: 928-551-0011

Email: justin.murata@wne.edu

(Add additional presenters as needed by including an additional a document with Presenter info and biographical sketch)

Presentation Abstract (75 words or less to be published in the brochure): Students at Western New England University participated in a four-week research study. The study focused on the effects of myofascial decompression interventions on pain, muscle tension, daily performance, and quality of life. Assessments such as the Quick DASH, Quality of Life Scale, and Wong-Baker Pain Scale were used to measure the impact of the intervention. The goal was to determine if the interventions could reduce pain and tension while improving overall well-being and daily functioning.

Learning Objectives (3):

By the end of this presentation/poster, participants will be able to:

1. By the end of this presentation, participants will be able to describe three overall benefits of myofascial decompression on pain and muscle tension.

2. By the end of this presentation, participants will be able to describe three precautions and three contraindications of myofascial decompression as a modality.

3. By the end of this presentation, participants will be able to identify three daily occupations that can be improved through the use of myofascial decompression

Proposal (250-500 words for presentation, 150-250 words for poster):

The aim of this study is to investigate the effectiveness of myofascial decompression to reduce pain and muscular tension to enhance participation in daily activities and overall quality of life. The research method of this study includes myofascial decompression through the application of cupping. The study looks at the effectiveness of this instrument assisted soft tissue mobilization technique when applied twice per week for four weeks to a sample of undergraduate and graduate students enrolled at Western New England University. This study utilizes objective measures including the World Health Organization Quality of Life Scale, Quick DASH, and Wong Baker Pain Scale to assess the effectiveness of the modality on the neck, shoulders and arms, upper back, and lower back. These results can be used as a resource in the field of occupational therapy and incorporated into evidence-based practice for practitioners who are

seeking a more holistic and sustainable pain management technique. By using this instrument assisted soft tissue mobilization technique, practitioners can provide their clients with complimentary or alternative approaches to pain management. This modality is sustainable within the field of occupational therapy as it is affordable, requires minimal training, and is highly accessible to obtain materials for interventions.

References (3-5 references within the past 5 years using APA-7th edition):

1. Chiu Y-C, Manousakas I, Kuo SM, 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. https://doi.org/10.1371/journal.pone.0242371

2. Hadi, M. A., McHugh, G. A., & Closs, S. J. (2018). Impact of chronic pain on patients' quality of life: A comparative mixed-methods study. *Journal of Patient Experience*, *6*(2), 133–141. https://doi.org/10.1177/2374373518786013

3. 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

4. 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

5. 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

If you are promoting a product within your presentation or poster, please check here: ▢

Educational Level (select one): Refer to ***Tip Sheet*** for descriptions of each level.

▢ Student

▢ Introductory

▢ Intermediate ▢

Advanced

Preferred Length (select one):

▢ Full Day ▢

1.5 hour

▢ 1 Hour

▢ 30 Minutes (first-time presenters & students only)

▢ Poster Presentation

Content Area:

☐ Administration/ Leadership

Acute Care/Hospital Clinical Practice

☐ Aquatics

☐ Assistive Technology

☐ Cardiopulmonary Care

☐ Developmental Disabilities

☐ Emerging Practice

☐ Ethics

☐ Gerontology

☐ Hand Rehabilitation

☐ Home Health

☐ Justice/Equity/ Diversity/Inclusion (JEDI)

☐ Mental Health

☐ Neurology

☐ Oncology

☐ OT/OTA Education

☐ Orthopedics

☐ Pain Management

☐ Pediatrics/School-Based Practice

☐ Physical Disabilities

☐ Prevention/Wellness

☐ Professional Development

☐ Research

☐ Sensory Integration/Sensory Processing

☐ Sports

☐ Women's Health ☐ Work Practice/Industrial Rehabilitation

☐ Wound Care

☐ Other

Biographical Sketch (200 words or less for each presenter for introduction at the conference): Presenter #1 Kaeli Serafino is a Doctor of Occupational therapy student entering her final semester at Western New England University. Kaeli is set to graduate with her Doctorate in Occupational Therapy in July 2023. Throughout her studies at Western New England University, she has developed a research project focused on myofascial decompression's effects on pain and muscle tension and its impact on quality of

life. She completed a pilot study gaining information from professionals who use myofascial decompression in their own practice to treat pain and muscle tension. This preliminary research helped fuel the research being presented as she is now working with her co-researchers to perform myofascial decompression on the neck, shoulders, arms, upper back, and lower back to students at Western New England University who have volunteered to be part of this study and have met the inclusion criteria of having chronic pain that impacts their daily performance. The data from this study will show the impact myofascial decompression has on pain and muscle tension and overall quality of life for participants. The aim of this study is to prove its effectiveness in these areas and educate other clinicians on this holistic technique to help clients with similar struggles.

Presenter #2 Michaela Gallagher is a third- year graduate student in the entry-level Doctor of Occupational Therapy (OTD) program in the College of Pharmacy and Health Sciences at Western New England University (WNE). She is expected to graduate in July, 2023. Throughout her time in this graduate program, Michaela has acquired an interest in physical agent modalities and instrument assisted soft tissue mobilization techniques for pain management within the upper extremity. For her doctoral capstone, she chose to investigate the effects that myofascial decompression has on the upper extremity and how these outcomes can lead to the potential of increased quality of life and performance within daily activities of participants. Throughout her Level II OT fieldwork, she was placed into

a hand and upper extremity clinic, where she was exposed to multiple prevention techniques for pain and muscle tension. At this clinic, she advocated for myofascial decompression to be implemented into the clinic. Michaela also embraced the opportunity to educate others on the benefits of this modality and promote awareness of pain management intervention that can be accessible to multiple populations.

Presenter #3 Justin Murata is in his third year as a Doctor of Occupational Therapy student at Western New England University and is expected to graduate in July 2023. His Doctoral Experiential Capstone project focuses on the effects of myofascial decompression on pain and muscle tension, as well as, improving occupational performance in daily activities. He has been inspired to pursue this current topic when he first learned about holistic interventions such as myofascial decompression during his study abroad program in Taichung, Taiwan in 2015. His passion grew more intensely for alternative medicine when he previously worked in an outpatient therapy clinic where myofascial decompression was utilized on multiple populations ranging from Olympic athletes to older adults who sought to reduce their need for pain medications due to its intense side effects and addictive properties.

(Add additional presenters as needed by including an additional a document with Presenter info and biographical sketch)

Please include a copy of recent resume for <u>each presenter</u> and email completed proposal and resumes to info@maot.org by May 31, 2023.

Thank you!

-MAOT Conference Committee

Presenter 4: Morgan Lukasik OT/s, third year student at Western New England University.

Biographical Sketch: Morgan Lukasik is a third-year graduate student in the entry-level Doctor of Occupational Therapy program at Western New England University (WNE). Throughout her time at WNE, Morgan had the opportunity to gain hands-on experience and explored non-pharmacological pain management techniques and modalities. During her Level II fieldwork, she worked in an acute rehabilitation hospital and gained further knowledge and experience working

with the chronic pain population. She was exposed to prevention techniques, modalities, and was able to advocate and educate her patients on non-pharmacological pain management techniques. During this time and with additional investigation, she was able to educate herself and on the benefits of myofascial decompression and how it can decrease pain and muscle tension and increase overall quality of life on daily occupations. For her doctoral capstone, Morgan chose to investigate the effects of myofascial decompression on the upper back region regarding how this technique can increase quality of life and improve performance. She aims to educate upcoming doctoral students and occupational therapists on the benefits, precautions, protocols, and procedure of myofascial decompression as a pain management modality to adopt into the field of occupational therapy to improve overall quality of life and increase daily occupational participation.

Appendix J- OT Practice Manuscript

The Silent Struggle: College Students and Pain Impacting Occupational Performance

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

Introduction

College life is often romanticized as a time of discovery, growth, and endless possibilities. However, beneath the surface, many students face a hidden battle that threatens to undermine their academic pursuits and overall well-being: chronic pain. Throughout our academic experience, we have observed and experienced firsthand how chronic pain can affect mental, physical, and emotional performance in and outside the classroom. The impact of chronic pain can reach deep into a student's academic performance, mental well-being, and overall quality of life. Chronic pain also significantly impacts sleep, affecting a student's ability to concentrate and pay attention in class. Due to the high prevalence of pain in college students and the lack of cost-effective pain management options, we explored the benefits of cupping therapy and how it could enhance a student’s daily occupational performance. Cupping therapy uses cups placed on the skin with suction from a pump to allow the body to begin the natural healing process in that area.

Intervention

Four Doctor of Occupational Therapy (OTD) students at Western New England University (WNE), started a pilot program investigating the effects of cupping therapy for WNE students who experience chronic pain. Included in this study were 23 students experiencing pain

in the upper back, neck, lower back, arm, and/or shoulder and whose pain impacted their occupational performance and quality of life. Throughout this study, students at WNE received free cupping therapy services to treat the areas of their body that they identified as painful. Throughout this time, we could see how cupping therapy provided immediate relief from pain and muscle tension to these students, after each session. Students often would note that they "felt looser" and "in less pain" once the cups were removed and that they were "looking forward" to their next cupping session. These sessions occurred twice a week for 4 weeks, including a two-week intermission between the first and last two weeks due to campus closure and summer break. During the two-week break, students noted worse sleep and more difficulty with daily activities than when cupped regularly.

Case Studies

Neck

Jean is a graduate student who works two jobs and is highly active, waking up every morning to exercise before going to work. She had been in a ski accident, which has since caused her to have chronic pain, which worsens when exercising or being physically active. She agreed to try cupping therapy to treat her neck pain. After cupping, she told researchers "I noticed that my day-to-day activities and exercise became easier, and my recovery after intense exercise was faster and smoother." Additionally, there was immediate relief of pain and tension after interventions. At each session, she filled out a pain log to track the differences in pain from before to after cupping and saw an improvement after every session. She told researchers her pain relief lasted about 18 hours after being cupped and her muscles got much looser immediately after the cups were removed.

Lower Back

Jordan is a non-binary law student and community legal aid who embarked on a transformative journey seeking pain management alternatives. Hindered by chronic pain from stress fractures in their lower lumbar and a recent mastectomy, they sought refuge from prescribed medications. They quickly responded to the online post about our research study on free cupping therapy for students who are in pain. When completing Jordan's occupational profile, they stated that their pain was debilitating and they did not know what to do because they had difficulty doing the things they loved, including CrossFit, playing softball, going camping with their friends, or even sitting at their job. It was heartbreaking to hear their story and how their quality of life was negatively impacted, but we educated them about cupping therapy and how it could change their life. After the first session, Jordan was sold on cupping therapy and stated "[I] was able to work out for the first time in a month." Empowered by their progress, they eagerly continued the research study, finding solace in their diminished pain lasting about 48 hours after the four weeks. They expressed their gratitude for the study, which ultimately led to a 50% reduction in pain and enhanced quality of life. Such positive outcomes prompted Jordan to invest in a cupping set for ongoing pain management.

Upper Back

Alix is a first year OTD student at WNE who also dedicates her time to working remotely. Alix expressed interest in joining our study due to the pain and discomfort working from home and being a study brings to her upper back. When Alix is not attending school or work, she enjoys working out, socializing with friends, and being in nature, which has become less appealing due to her upper back pain. Following each session, Alix reported immediate

relief after each session. After the first initial session, Alix reported “I feel so much better.” She also reported feeling immediate pain anywhere from 24-48+ hours post-cupping intervention, allowing her to engage in the activities she loves with limited pain. Once analyzing the data from Alix’s results, it was also found that sleep improved from being neither satisfied nor dissatisfied to being satisfied by the end of the four weeks of the intervention. After completing all the interventions, Alix has reported having less pain when working, sleeping, and weightlifting at the gym.

Arm and Shoulder

Courtney is a full-time third-year Law student at WNE, who experiences pain which impacts her ability to engage in daily occupations fully. She reported that she has been experiencing “aching” and “throbbing” pain within her shoulder region for more than a year. Before law school, she swam collegiately, which required strenuous overhead motion of both her arms. Now, she spends most of her time studying for the BAR exam, increasing her stress and pain. Courtney reported that common occupations that tend to exacerbate the pain in her shoulders are sitting in class, driving, and sleeping. Due to her pain and difficulty with her daily activities, she decided to try cupping therapy to see if it would benefit her.

After receiving multiple cupping sessions, Courtney mentioned that she felt as if her pain was continuing to decrease and that she felt a lot looser in her muscles. On average, after the cups were removed, she typically had relief from pain symptoms for 24-36 hours, providing her with less discomfort while sitting and studying for the Bar exam. Not only did cupping therapy allow her to be less uncomfortable while studying, but her sleep quality has increased since she wasn’t experiencing as much pain as she felt before receiving cupping therapy. Further results

that she mentioned included being able to engage in activities of daily living better than before the modality was introduced to her. Overall, Courtney enjoyed receiving cupping therapy and mentioned that coming to these sessions was typically the highlight of her day because of the relief it provides her.

Outcomes

Overall, we found that participants on average felt immediate relief after 87% of sessions, including 87% relief in the arm/shoulder, 90% relief in the neck, 81.7% of relief in the upper back, and 87% of relief in the lower back (see Figure 1). Participants also felt relief for up to 24 hours on average, which allowed them to feel relief throughout the rest of their daily activities and positively impacted their sleep. By embracing cupping therapy, these students rediscovered their ability to engage in activities they once loved, reclaiming a sense of freedom and autonomy. These four case studies underscore the vital role of occupational therapy in promoting health and wellness, participation and engagement in occupations, and self-fulfillment in their roles while offering alternative pain management solutions. Their stories inspire others, highlighting the transformative impact of occupational therapy interventions in fostering empowerment, resilience, and a renewed zest for life.

Occupational Therapy Role

After receiving feedback on how cupping therapy has temporarily relieved these students from pain and discomfort, we have concluded that this modality can be a beneficial preparatory method before occupational therapy interventions (OT). By using this modality before sessions, clients can improve their activity tolerance for OT sessions and be provided with relief from their pain and tension. This leads to the empowerment of clients, higher rates of independence in their

daily activities, and an alternative form of pain management. Cupping therapy has the potential to relieve pain and muscle tension, increase ROM, and enhance the client's participation in daily occupations. The incorporation of cupping therapy within the field of OT has the potential to empower clients, increase independence in daily activities, and provide a simple solution to the issue of pain management.

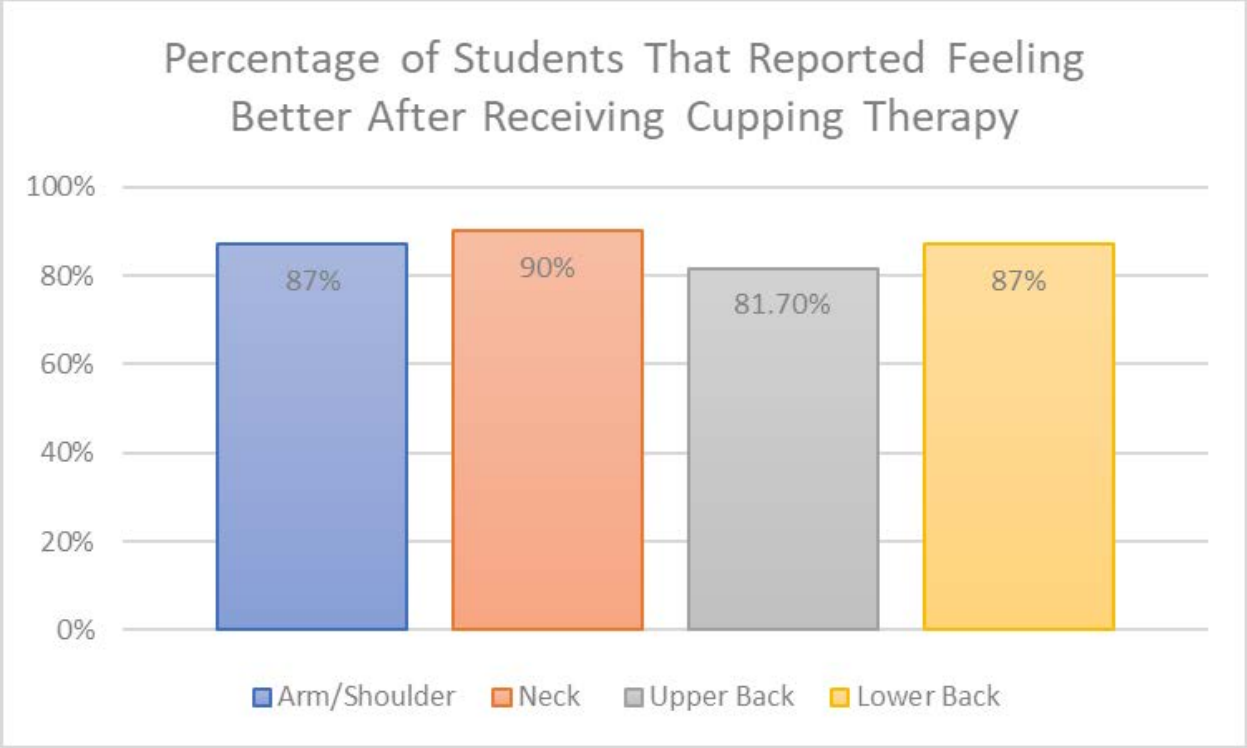


Figure 1

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

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

Healthline. (2019). *What is cupping therapy?* https://www.healthline.com/health/cupping-therapy

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. *The Journal of the International Association for the Study of Pain*, *157*(6), 1333–1338. https://doi.org/10.1097/j.pain.0000000000000522