

An Analysis of the Effectiveness of Integrative Therapies for Chronic Trapezius Pain

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ABSTRACT

Millions suffer from chronic pain, particularly chronic back pain, but treatment-related research is limited, leading to physician overprescription of highly addictive drugs such as opioids. A common non-pharmacological treatment for chronic pain has been physical therapy, but this study examines a form of Eastern-hemisphere, mind-body techniques known as integrative therapies as a potential treatment for chronic pain in the trapezius. This study primarily analyzes acupuncture, massage therapy, and Ayurveda, three integrative therapies, to determine whether they are effective in treating chronic trapezius pain. Since integrative therapies have a large psychological component, the study also focuses on identifying whether perception of integrative therapies can influence its effectiveness and what factors can impact this perception. Through a series of interviews conducted with pain specialists, the study determines that massage therapy and Ayurveda are comparable to or more effective than physical therapy as chronic trapezius pain treatments, but the success of the therapy is dependent on the patient's psychological perception of it. The study then conducted a survey of the general population, which revealed that while experience with integrative therapies does not appear to impact one's perception of integrative therapy, those from an Asian/Middle Eastern background perceive integrative treatments differently and potentially perceive them as more effective. A better perception of integrative therapies leads to greater success with this treatment. These findings demonstrate that education of integrative therapies should be more widespread to counter stereotypes and misconceptions so that chronic pain treatment is, overall, more effective.

Introduction

Nearly twenty percent of all American adults have chronic pain—pain in a region or in the whole body that is described as lasting longer than three-to-six months (Dalhamer et al., 2018). Up until recently, physicians and surgeons have commonly prescribed opioids as a treatment for this sustained pain, especially for patients who develop chronic pain post-surgery, which has strongly contributed to the ongoing opioid epidemic due to growing cases of patient addiction to this drug (Murthy, 2016). Even if physicians do not prescribe opioids or medications, a lack of definitive diagnosis and treatment options for chronic pain often leads physicians to order a number of costly and uncomfortable imaging tests and procedures for patients that are commonly inconclusive (Finn, 2020). As physicians and scientists have begun to recognize the need for less-pharmacological and less-invasive treatments, physical therapy has been a common approach to treating chronic pain. However, though physical therapy has proven to be relatively effective as a treatment for chronic pain, recent research has been examining integrative therapies—or traditional mind-body medical therapies from the Eastern hemisphere—as a potential treatment for this ailment (Chen & Michalsen, 2017). While some research has been conducted on evaluating integrative therapies such as acupuncture, yoga, dietary intervention, massage therapy, and Ayurveda as treatments for chronic pain, most of these studies have been inconclusive and have not focused on the trapezius region (the upper-to-middle back).

Literature Review

Acupuncture's Effectiveness for Chronic Pain

Lin, Wan, and Jamison's (2017) study analyzes evidence from various case studies of different integrative therapies in pain management. The article evaluates integrative and complementary medicine for chronic pain syndrome, which it defines as persistent pain lasting three to six months and longer, and it emphasizes integrative medicine as a treatment that demonstrates strong potential in treating pain, especially during the ongoing opioid epidemic. The method of the study was an evidence review of existing case studies that discussed integrative medicine and the effectiveness of techniques such as yoga, Tai Chi, and acupuncture based on the conclusions of various studies on different databases. The study eventually concluded, after a substantial review, that while techniques such as yoga and Tai-Chi were not very effective in alleviating pain for chronic pain patients, acupuncture showed the potential in being an effective treatment in doing so. While the study reviewed many case studies on chronic pain, these studies were not focused on a specific region of the body.

Vickers, Cronin, and Maschino (2012) also conducted a study that was more specifically focused on acupuncture as a treatment for chronic pain. The method identified ongoing trials where acupuncture was being used to treat chronic headache, neck and back pain, osteoarthritis, and shoulder pain, and to examine and categorize the effectiveness of the results of each of these studies. Overall, the study, like Lin, Wan, and Jamison's (2017) study, concluded that acupuncture was more effective in improving chronic pain in all four locations when compared to sham acupuncture and no acupuncture. However, since sham acupuncture is similar to normal acupuncture, the researchers concluded that there may have been some external variables that led to the minor differences in the level of improvement of patients who received acupuncture, no acupuncture, and sham acupuncture.

Massage Therapy's Effectiveness for Chronic Pain

Field (2014) additionally completed a study that analyzed the effects of massage therapy when being used to treat pre-term infants and various pain syndromes such as fibromyalgia, chronic pain, and rheumatoid arthritis. Field (2014) reviews a study where massage therapy was conducted on both adolescents and adults with chronic pain, and, ultimately, both groups reported lower-intensity pain and decreased anxiety levels. Field (2014) also analyzes the scientific evidence demonstrating that massage therapy stimulates the regions in the brain that contribute to stress and anxiety, which also can contribute to pain, which provides evidence to prove how massage therapy is scientifically beneficial to pain patients. The primary study analyzed, however, tested massage therapy on both adolescents and adults who had a variety of different pain syndromes in different regions of the body and did not focus on chronic pain in a singular region.

Furthermore, Jazayeri and Seffinger conducted a (2018) study that evaluated myofascial therapy, an integrative therapy that shares similarities to massage therapy, as a treatment for chronic pain. The study had fifty-four participants, and each of these participants either underwent regular 40-minute myofascial therapy sessions over the course of 8 weeks or sham 40-minute sessions for the same duration. The data showed that there was a reduction in pain for the participants undergoing actual myofascial therapy, but the researchers concluded that this data was not clinically significant due to several limitations, such as not knowing whether

both groups had a similar fear-avoidance score or that there was no data collected during the two-week check-in with both groups.

Similarly, Deng's (2019) study reviews case studies of integrative therapies such as music therapy, hypnosis, massage therapy, and meditation when treating chronic pain in cancer patients. Three of the massage therapy studies showed that massage therapy significantly alleviated the patients' pain, supporting Field's (2014) findings. However, many of the case studies that Deng (2019) analyzed, especially the massage therapy studies, had poor and/or lower-quality data. Deng also states that patients who have a better perception of integrative medicine and a desire to try natural medicine will generally see better results and also have a better relationship with their integrative medicine practitioners. The factors that can influence this perception were not discussed further in this study.

Ayurveda's Effectiveness for Chronic Pain

In 2017, Chen and Michaelsen review evidence from a number of case studies, similar to Lin, Wan, and Jamison (2017), to evaluate the effectiveness of Complementary and Integrative Medicine (CIM) in treating chronic pain from rheumatoid arthritis and in the neck and back. They discussed how CIM has its roots in the Eastern hemisphere, especially in Asian cultures. The most conclusive evidence proved that when treating rheumatoid arthritis, acupuncture, and dietary intervention were shown to lead to improvement in arthritis patients, with Ayurvedic herbal treatments being somewhat effective. However, Chen and Michaelsen (2017) also analyzed a few contradictory studies that showed that there was no significant improvement in patients' pain using these techniques, and the researchers further emphasized how most of the case studies were biased since they could not be made double-blind (due to patients' awareness of the treatment).

Agarwal's (2020) study more specifically focused on Ayurvedic medicine as a pain management technique that consisted of two parts. Agarwal conducted interviews with Ayurvedic specialists to understand their practices and beliefs when treating pain, which serves as the primary basis for the interview component of the method for the current study, and also conducted a case study to evaluate how effective these practices were on patients. While the research proved Ayurveda to, overall, be effective in managing general pain, the researcher concluded that there were external factors such as seasonal changes, patient's mood, circadian rhythms, and ecosystemic factors that could also contribute to the effectiveness of Ayurveda as a treatment. Agarwal (2020) also concluded that much of the data from the case study was limited due to it being heavily qualitative.

Conclusion Derived from Literature

The basis for the current study's methodology emerges from the aforementioned case studies and evidence reviews of case studies that show potential in integrative therapies as a treatment for general chronic pain. However, as demonstrated, these case studies contain bias, limitations, and less-conclusive data and were not focused on chronic pain in the trapezius region. Therefore, this study uses a correlational research method in contrast to a case study method to approach the topic from a different angle. Additionally, Deng's (2019) study indicates that a positive perception of integrative medicine can also lead to it being more successful in decreasing chronic pain. However, further research on this idea in addition to the factors that can influence this perception have not yet been thoroughly researched. Finally, there is little to no research that focuses on integrative therapy's effectiveness in specifically treating chronic pain in the trapezius region. These gaps, therefore, are what the present study aims to address.

Based on the literature and the researcher's analysis of this literature, the researcher developed several hypotheses. The primary hypothesis of this study was that acupuncture and massage therapy would be equally effective or more effective than physical therapy in treating chronic trapezius pain, and Ayurveda would be less effective than physical therapy in treating chronic trapezius pain. The second hypothesis was that there would

be a significant difference between perceptions of integrative therapy between those from a Middle Eastern/Asian background and those with a different ethnic background. Similarly, the researcher's third hypothesis was that those with direct or indirect experience with integrative therapies would have significantly different perceptions of it than those who did not have experience. The final hypothesis was that, ultimately, having a better perception of integrative therapies would make them more effective for treating a patient's trapezius chronic pain.

Methods

Introduction

The primary goal of this research paper was to analyze how effective various integrative therapies are in treating chronic trapezius pain in adults when compared to physical therapy. A secondary goal of this research was to understand which factors most influence the psychological perception of integrative therapies, considering that integrative medicine uses mind-body techniques. To achieve these goals, this research project utilized a two-pronged, mixed-methodology correlational research method: 1) a series of interviews with pain management professionals to qualitatively address its primary purpose of evaluating the effectiveness of integrative therapies and 2) a mixed quantitative/qualitative survey of the general population to understand the relationship between perceptions of integrative therapy and the effectiveness of integrative therapy. The interview component of this methodology is modeled from Agarwal's 2020 study on Ayurvedic medicine, and the survey component of the methodology aims to elaborate on the relationship between psychological perceptions and the effectiveness of integrative treatment, which is briefly mentioned in Deng's (2019) study and also indicated in Agarwal's (2020) study.

Interview Method

Population/Sample Selection

The participants in the interview segment of this research project included four licensed medical professionals with a further specialization in the treatment of pain. The researcher emailed ten pain specialists based out of Southern California, and four responded and agreed to participate in the interviews.

Instruments

For this component, the researcher provided each participant with an Informed Consent Form prior to the interview (Appendix A), called each participant using a mobile phone to conduct the interview, asked a series of pre-planned interview questions (Appendix C), recorded the interview using another mobile phone, and transcribed the responses using a Google Doc (Appendix D).

Implementation of Study Details

Upon the signed consent of each participant, the researcher conducted a qualitative interview with each participant. The researcher mostly asked each participant 7 main questions and 5 follow-up questions through a phone call (Appendix C). The first set of questions aimed to establish the credibility of the specialist being interviewed, the second set of questions asked the interviewees' professional opinion of the effectiveness of acupuncture, massage therapy, and Ayurveda, and the final set of questions asked the interviewees about how psychological perception could influence the success of integrative treatment. These questions were intentionally designed to be broad and open-ended in order to minimize bias and obtain qualitative data. Some questions were repeated

or re-phrased if the interviewee asked for further clarification, and other questions were omitted if the interviewee incorporated the answer to the question in a previous response. The duration of each interview was anywhere from 5 minutes to 12 minutes, depending on the length of each interviewee's responses. The phone call was recorded through a smartphone, and the conversation was then transcribed to an online Google Doc by the researcher.

Survey Method

Population/Sample Selection

The targeted population for this study was the general population aged 14 and older in the Los Angeles and Orange Counties in California, USA. Therefore, the researcher used simple random sampling to collect the data. The researcher sent the survey to all of their telephone contacts aged 14 and older residing in the Los Angeles and Orange Counties and asked the researcher's contacts to message this survey to others at the minimum age of 14 residing in the specified counties. Additionally, the researcher compiled a list of former teachers from Calabasas High School, a co-ed 9-12th grade school located in an upper-income suburban region in Los Angeles County, and completely darkened the teachers' names on a Google Doc. To minimize bias, the researcher then asked an unrelated person to place a star next to seven of the darkened names (the person was unable to read the names), and the researcher emailed this survey to the starred teachers requesting them to share it with all of the students in their classes through Google Classroom. Calabasas High School's population is 78.5% White, 9% Latinx, 5.5% Asian, and 5% African American. According to the 2019 U.S. Census Bureau estimates, Los Angeles County's population is 48.6% Latino, 25.9% White Non-Hispanic, 7.7% Black or African American, 14.5% Asian, 0.2% Native American and Alaskan Native, 0.2% Pacific Islander, 0.4% Other Race, and 2.4% from two or more races. According to 2020 U.S. Census Bureau estimates, Orange County's population is 34.1% Latino, 37.6% White Non-Hispanic, 1.6% Black or African American, 21.9% Asian, 0.2% Native American and Alaskan Native, 0.5% Other Race, and 3.9% from two or more races.

Instruments

For this component, the researcher provided each survey participant with a digital Informed Consent Form (Appendix B) which, upon their signature, was followed by a Google Forms questionnaire (Appendix E). The data was then analyzed using the Google Sheets program and t-tests.

Implementation of Study Details

The survey was created following the completion of the first part of this method. During the interviews, the pain specialists discussed potential factors that can affect a patient's perception of integrative therapies and primarily stated these factors to be experience and ethnic background. The questions of this mixed-method correlational survey, as a result, focused on asking the respondents about their ethnicity and their experience with integrative medicine and then gauging their perceptions of the three integrative treatments. The first section of the questionnaire was a section to affirm that the participant had read and understood the Informed Consent description, the second section included multiple-choice questions to identify the demographic characteristics of the participant, the third section included several short-answer "yes/no" questions to understand the participant's experience with integrative medicine and chronic pain, and the fourth section included four Likert-Scale questions to quantitatively gauge the participant's views on several chronic trapezius pain therapies (acupuncture, massage therapy, Ayurveda) and physical therapy. Each Likert-scale question first provided a definition of the treatment from the Mayo Clinic or Johns Hopkins Medicine to ensure that participants unfamiliar with the treatments could gain a general understanding of the treatment prior to rating its effectiveness. Afterward, the researcher analyzed the data using Google Sheets, two-tailed independent t-tests, and one-tailed dependent

t-tests. To minimize bias and skewing of the data, settings were placed on the Google Form to ensure that each person could only respond once.

Results & Discussion

Interview Analysis

Based on the interviewees' credentials and their responses to the first set of questions (Appendix D), the researcher determined that all four interviewees were credible pain specialists with medical degrees and significant experience in pain management. Therefore, their professional opinions on which integrative therapies are effective in treating chronic trapezius pain compared to physical therapy are valid and significant. Only Doctor #1 (Appendix D) thought that acupuncture would be effective compared to physical therapy, while the rest of the doctors claimed that the needling technique of acupuncture would not be sufficient for treating chronic trapezius pain in comparison to physical therapy. However, three out of the four doctors discussed how massage therapy and Ayurveda can be highly effective in treating chronic trapezius pain as a supplement to physical therapy, which aligns with Field's (2014) findings, Deng's (2019) findings, and Agarwal's (2020) findings. Therefore, the researcher's primary hypothesis was partially correct. In their responses to the third section of the interview, all four doctors responded that a better psychological perception of integrative therapies can make the therapy more effective for a patient, verifying the researcher's final hypothesis. All four doctors said that experience can impact this perception, while three of the doctors also claimed that those who had an Asian ethnic background would have a better perception. Therefore, the researcher's variables of focus for the survey component of this study were analyzing prior experience with integrative therapies and ethnic background to understand how these can influence the perception of integrative therapies.

General Analysis of Survey

There were 150 respondents to the survey, of which 61.33% identified as female, 38.00% identified as male, and 0.67% preferred not to state their gender. Additionally, out of the 150 participants, 4.7% were Latino, 32% were White Non-Hispanic and Non-Middle-Eastern, 6.7% were Middle Eastern, 1.3% were Black/African-American, 48% were Asian, and 7.3% were of another race/2 or more races. Therefore, the ethnic breakdown is largely representative of the diversity in Los Angeles and Orange Counties. The participants were required to answer four 5-Point-Likert-Scale questions that asked about their perceptions of the effectiveness of acupuncture, massage therapy, Ayurveda, and physical therapy as a treatment for chronic back pain (1=not effective at all, 5=very effective). As evident from Figure 1, 9.33% rated acupuncture as a 1 or 2-level treatment, 8.67% rated massage therapy as a 1 or 2, and 18.00% rated Ayurveda as a 1 or 2, but only 5.33% rated physical therapy as a 1 or 2. This pattern is seen again, where 56% of participants rated acupuncture as a 4 or 5-level treatment, 63% rated massage therapy as a 4 or 5, 51.33% rated Ayurveda as a 4 or 5, but 78% of all participants rated physical therapy as a 4 or 5.

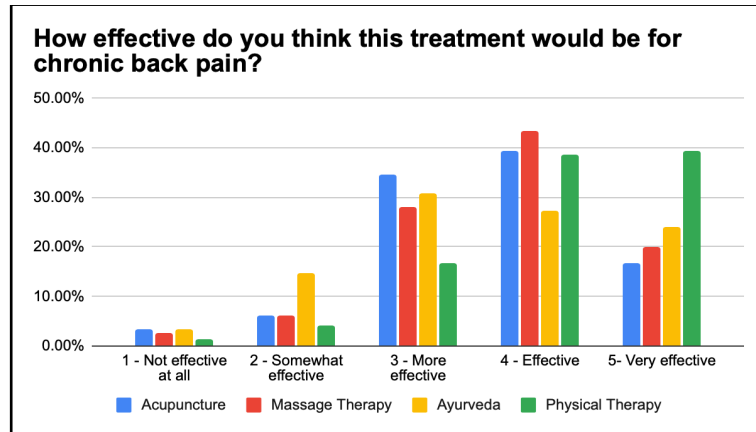


Figure 1. Percentage of participants per rating (1-5) for each therapy

Therefore, the general population largely views all therapies as effective treatments for chronic back pain, but comparatively, physical therapy is perceived to be the most effective treatment. These findings align with the discussion in Lin, Wan, and Jameson’s study, which discusses how there is a general lack of trust and understanding in integrative treatment when compared to more traditional Western methods of treatment, such as physical therapy. The researcher then more closely analyzed what factors can influence the population’s perspective on integrative therapies. In the “Demographics” section of the survey, the participants were asked which gender they identify with. The researcher conducted two-tailed Independent T-Tests in order to identify any correlational relationship between gender and perception of integrative therapies.

Table 1. Gender-based mean, median, standard deviation per Likert-Scale Question

Likert-Question 1: Perception of Acupuncture			
Gender	Mean	Median	Standard Dev.
Female	3.72826087	4	0.8657495116
Male	3.396551724	4	1.041922231
Likert-Question 2: Perception of Massage Therapy			
Gender	Mean	Median	Standard Dev.
Female	3.804347826	4	0.8285977886
Male	3.586206897	4	1.092791095
Likert-Question 3: Perception of Ayurveda			
Gender	Mean	Median	Standard Dev.
Female	3.608695652	3	1.005004201
Male	3.431034483	4	1.258125436

Table 2. Independent T-Test results on gender-based perceptions of integrative therapies

Likert-Question #	t-value	p-value
1	2.16174	*0.032
2	1.31027	0.096
3	0.95518	0.171
* = p-value is significant		

For Likert-Question 1 (Appendix E), there is a correlation between gender and the Likert Scale response, since there is a significant difference in acupuncture’s rating given by the female sub-population in comparison to the male sub-population, $t(149)=2.16$, $p < .05$. However, this largely contrasts with the results of Question 2, $t(149)=0.96$, $p > .05$, and Question 3 $t(149)=0.96$, $p > .05$, where there is no significant difference in the responses between the female and the male sub-populations for massage therapy and Ayurveda. This demonstrates that overall, gender does not have a significant impact on the participant’s perception of integrative therapy for chronic back pain and aligns with the researcher’s hypothesis that gender is not a factor.

Ethnicity and Perceptions of Integrative Treatments

In the first section of the survey, “Demographics,” the participants were asked to answer a question selecting the ethnicity they identified with (Appendix C). The researcher grouped those who responded as “Asian” or “Middle Eastern” (Southwest Asian/North African) into one category, which will be referred to as the “Asian/Middle Eastern” sub-population, and grouped the remainder of respondents into a second category which will be referred to as “Non-Asian/Middle Eastern” sub-population. In Chen and Michaelson’s study, it is stated that integrative therapies are deeply-rooted in the Eastern hemisphere, particularly in Asia and Asian culture. This idea is further supported by the responses of three pain specialists who discuss how one’s culture and experience with Asian cultures can influence a patient’s perception of integrative treatments. Therefore, the researcher hypothesized that the ethnic category of the respondent would influence their perception of integrative therapies for chronic back pain. To test this hypothesis, the researcher conducted a one-tailed dependent t-test comparing the Likert-Scale responses of the participants in the Asian/Middle Eastern category on Likert-Question 1 to the responses from the participants in the Non-Asian/Middle Eastern category on the same question. This test was then repeated on Likert-Questions 2 and 3.

Table 3. Dependent T-Test results on ethnicity-based perceptions of integrative therapies

Likert-Question #	t-value	p-value
1	-1.589	*0.048
2	-0.597	0.277
3	-3.179	*0.001

* = p-value is significant

Table 4. Ethnicity-based mean, median, standard deviation per Likert-Scale Question

Question 1 (Acupuncture):			
<u>Ethnicity</u>	<u>Mean</u>	<u>Median</u>	<u>Standard Dev.</u>
Asian	3.638888889	4	0.8611151783
Black	3.5	3.5	0.7071067812
Hispanic/Latino	3.857142857	3	1.069044968
Middle Eastern	4	4	0.666666667
White	3.520833333	4	1.071677614
Question 2 (Massage Therapy):			
<u>Ethnicity</u>	<u>Mean</u>	<u>Median</u>	<u>Standard Dev.</u>
Asian	3.72826087	4	0.9388239179
Black	3.5	3.5	0.7071067812
Hispanic/Latino	4	4	0.8164965809
Middle Eastern	3.4	3.5	0.9371024061
White	3.708333333	4	0.921569737
Question 3 (Ayurveda):			
<u>Ethnicity</u>	<u>Mean</u>	<u>Median</u>	<u>Standard Dev.</u>
Asian	3.695652174	4	1.01352535
Black	3	3	0
Hispanic/Latino	3.714285714	3	1.253566341
Middle Eastern	3	3	0.9428090416
White	3.229166667	3	1.224563897

As can be seen in Table 3, since the p-value was greater than 0.05, the results from Question 2 did not demonstrate a significant difference between the responses of participants from the Asian/Middle Eastern category and the Non-Asian/Middle Eastern category for massage therapy, $t(149) = -0.60$, $p > 0.05$. Therefore, ethnicity does not seem to influence participants' perceptions of massage therapy. Contrastingly, however, there is a significant difference between the ethnic categories' responses to Likert-Question 1, $t(149) = -1.60$, $p < .05$, and 3, $t(149) = -3.18$, $p < .05$, since the p-value is less than 0.05 for both questions. This implies that ethnicity can influence a person's perception of acupuncture and Ayurveda, verifying the researcher's hypothesis. Comparing the mean responses from different ethnic groups also indicates that those from Asian/Middle Eastern backgrounds could have a better perception of integrative therapies such as acupuncture, massage therapy, and Ayurveda. As depicted in Table 4, when responding to Likert-Question 1 about acupuncture, those who identified as Middle Eastern had the highest mean rating for acupuncture, Asian respondents had the highest mean rating for Likert-Question 2 about massage therapy, and Asian respondents had the second-highest mean rating for Likert-Question 3 regarding Ayurveda. While this shows a possible correlation between those from the Asian/Middle Eastern ethnic group and a *better* perception of integrative therapies, this data is not highly significant since other ethnic groups had mean values that only differed by approximately 0.02 points for all three questions.

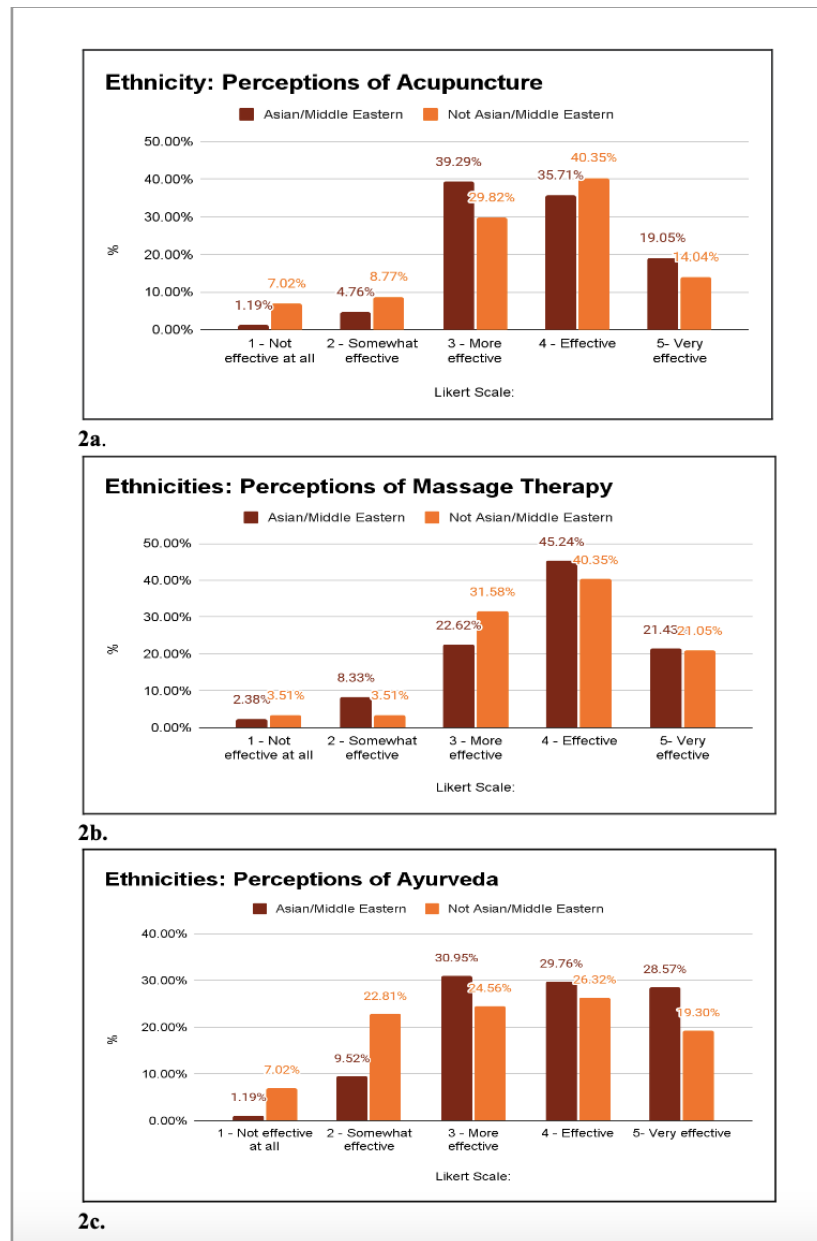


Figure 2. Percentage of participants per rating (1-5) for each therapy based on ethnicity

However, this trend is seen again when analyzing Figure 2c in particular, where it can be seen that approximately 30% of those from the Non-Asian/Middle Eastern category rated Ayurveda as a 1 or a 2 compared to approximately 11% those from the Asian/Middle Eastern category, and a higher percentage of Asian/Middle Eastern respondents rated Ayurveda as a 4 or a 5 compared to Non-Asian/Middle Eastern respondents. While it is not as consistent or prominent as in Figure 2c, this pattern can somewhat be seen through the other two graphs for acupuncture and massage therapy comparing ethnicity to the Likert-scale rating in Figures 2a and 2b. Therefore, this supports the previously stated finding that there could be a possible correlation between those from the Asian/Middle Eastern ethnic group and a better perception of integrative therapies. Once again, however, these results are not highly significant due to a lack of consistent trends in the data.

Experience and Perceptions of Integrative Treatments

In the second section of the survey, “Experience,” participants were asked to answer three short-answer questions asking about their definition of chronic pain, their experiences with chronic pain, and whether they or someone they knew had experiences with integrative medicine (Appendix E). The researcher focused on this final question and sorted all responses to this question into two categories: “yes” if the participant responded that they or someone they knew had experience with integrative medicine, and “no” if the participant responded that they or someone they knew did not have any experience with integrative medicine. Out of the 150 participants, 59.33% reported that they had experience with integrative therapies, while 40.67% reported that they had no experience with integrative therapies. In all four interviews conducted in the earlier part of the research project, the pain specialists responded by saying that experience with integrative therapies could influence one’s perception of integrative therapies. Therefore, the researcher hypothesized that there would be a significant difference in the responses between those in the experienced sub-population and those in the sub-population with no experience with integrative treatments. The researcher then further analyzed this potential correlation by conducting a one-tailed dependent t-test comparing the responses for Likert-Question 1 from those in the “Yes” category to those in the “No” category. This test was then repeated for Likert-Questions 2 and 3

Table 5. Dependent T-Test results on experience-based perceptions of integrative therapies

Likert-Question #	t-value	p-value
1	-0.723	0.236
2	0.101	0.5
3	1.771	*0.041
* = p-value is significant		

As evident from Table 5, for Question 1, $t(149) = -0.72$, $p > .05$, and Question 2, $t(149) = 0.10$, $p > .05$, there is no significant difference between the responses of those who had experience with integrative therapies and those who did not have experience since the p-value is greater than .05. This potentially indicates that people’s experience with acupuncture does not necessarily impact their perception of it, and people’s experience with massage therapy does not necessarily impact their perception of it. However, for Question 3, there is a significant difference between the responses from those who answered “Yes” and those who answered “No,” which indicates a potential correlation between one’s experience with integrative therapies and their perception of Ayurveda, $t(149) = 1.77$, $p < .05$.

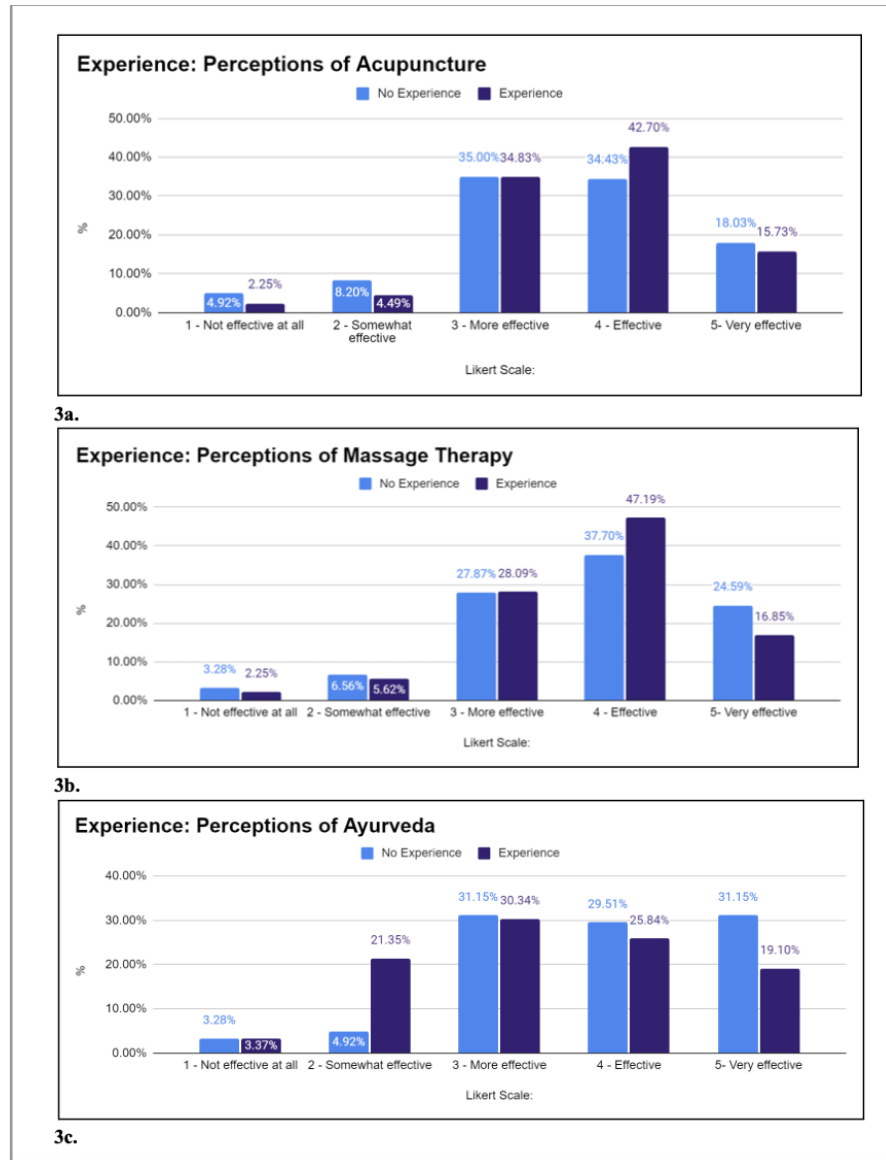


Figure 3. Percentage of participants rating (1-5) for each therapy based on experience

However, Figure 3c shows that experience with integrative therapies might not mean that a person has a *better* perception of massage therapy, since a substantially higher percentage of those *with* experience rated Ayurveda as a “2,” while a higher percentage of those *without* experience rated Ayurveda as a “4” or “5.” This idea that experience with integrative therapies might not indicate that a person has a *better* perception of integrative therapies is further supported by Figures 3a and 3b, where a higher percentage of those with no experience with integrative therapies rate acupuncture and massage therapy as a “5” compared to those with experience. Overall, the researcher’s hypothesis was not verified since there did not seem to be a consistent significant difference in the perceptions of integrative therapies of those who actually had experience with integrative treatments and those who did not.

Conclusion

Overall, this study further supplements existing literature discussing integrative medicine as a treatment for chronic pain, while specifically filling the gap in research on *trapezius* chronic pain. The interview component of this study demonstrates that while acupuncture may not be as effective when compared to physical therapy in treating adult chronic pain in the trapezius, massage therapy and Ayurveda can prove as effective treatments in conjunction with physical therapy. However, though integrative therapies, especially massage therapy and Ayurveda, can prove to be successful treatments for patients with chronic trapezius pain, the level of success can be further impacted by a patient's perception of the integrative treatment. The results demonstrate that having personal experience with integrative therapies or knowing someone who has experience is not an influence on a person's perception of integrative therapies. However, the survey's results do reveal that patients from an Asian and/or Middle Eastern background tend to have different perceptions of integrative treatments than those from another ethnic background, and also indicate that those from a Middle Eastern/Asian ethnicity could potentially view integrative treatments as being more effective compared to those from other ethnicities. Ultimately, existing literature and the interview component show that if a chronic pain patient has a better perception of integrative treatment, the patient can have more improvement from integrative treatment.

Limitations

There were, however, some limitations to this study. The researcher was able to interview four pain specialists to understand which integrative therapy was most effective for trapezius chronic pain, but this data sample is limited. Additionally, the data that was collected in these interviews is primarily qualitative and highly dependent on the experiences and beliefs of the four pain specialists interviewed. This means that the data can have a slight bias. Future research should work to collect more reliable qualitative data, for instance, by additionally analyzing cases from different integrative therapy and physical therapy centers and comparing this data to draw more significant conclusions. Due to the researcher's limited resources, the data collected from the survey could also have some bias since a percentage of the respondents had an indirect relationship with the researcher, and the sample size was limited to 150 people. Research in the future analyzing the factors that influence perceptions of integrative therapies should aim to gather a larger sample size for more conclusive results.

Implications

Ultimately, this research reveals that integrative therapies, from the experiences of specialists in the field of pain management, show significant potential to be a successful treatment for chronic trapezius pain, but since they are mind-body therapies, the success of an integrative therapy can correlate with a patient's psychological perception of this treatment. This research indicates that there may be an indirect correlation between having an Asian/Middle Eastern background and having more improvement from integrative therapies for chronic pain, but further research should be conducted to determine if there is any direct correlation between those from an Asian/Middle Eastern background and more improvement. This is reasonable since Asian and Middle Eastern people may have more knowledge and trust in integrative treatments since it is prominent in these cultures. Therefore, if more pain professionals along with the general American population were *educated* on integrative therapies, there could, overall, be greater success in treating chronic pain as a whole.

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