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How Massage Therapy Affects Educational Interpreters

Sarah Ray

Western Oregon University

Master's thesis in fulfillment of the degree

Master of Arts in Interpreting Studies

Abstract

This thesis examines the importance of self-care for American Sign Language educational interpreters. The research presented in this study adopts a holistic approach to analyzing the mental and physical health effects resulting from the regular use of massage therapy. The goal of this thesis is to identify some controls an interpreter can implement when mental and physical demands intensify due to job-related stress. Data was collected using a questionnaire available only to educational interpreters concerning job-induced stresses and the effects of regular massage. The findings of this study identify the psychological and physiological benefits professionals feel after implementing periodic massage therapy as a form of self-care. Further investigation could reveal a greater variety of self-care opportunities that could impact an interpreter's wellbeing.

Keywords: self-care, American Sign Language interpreters, massage therapy, stretching, educational interpreters

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Chapter 1: Introduction

Background

This research stems from my personal interest in connecting the importance of mental and physical health with the profession of American Sign Language (ASL)/English educational interpreting. During my time as an undergraduate student, I began to realize the importance of integrating regular forms of self-care to reduce the impact of my internal stressors. Once I officially began working toward becoming an interpreter, I began to frequently hear warning urging me to take care of my body to prevent a variety of work-related injuries. This piqued my interest regarding how educational interpreters might improve or develop mental, emotional, and physical resilience to prevent such injuries, thereby reducing the likelihood that they will leave the interpreting field due to physical pain. Since I am still relatively new to the profession of interpreting, I decided to begin this research by studying myself and my experiences. I began to research different forms of stretching, yoga, weightlifting, massage, meditation, nutrition, and preventative care (braces, icing vs. heating pads, etc.). During my personal research, I found myself discussing this topic with different interpreters in hopes of finding a common thread; however, all I found were more questions. Some of the common questions included the following: Can sleeping with braces reduce or exacerbate inflammation within the wrist? Do massages help increase flexibility in muscles and tendons? Should interpreters eat more food that naturally decreases inflammation in muscles and tendons? Would yoga or massage be more beneficial for interpreters? These questions, combined with my review of the literature, led me to conclude that more research into interpreters' mental and physical health needs to become a priority for the ASL interpreter profession. To begin this discussion with this thesis, I narrowed my main research topic to determining whether there is a causal connection between periodic

massage and improved mental and emotional stamina, a reduction in work-related injuries, and a decrease in the burnout rate of educational interpreters.

Statement of the Problem

With ASL gaining popularity, more research is being conducted regarding the linguistic, cultural, and social aspects of interpreting. However, minimal research has considered how the act of interpreting affects the interpreter. Other professions have driven the conversation about the importance of employees' mental and physical wellbeing and noted the results in terms of increased job satisfaction, professional longevity, and lower burnout rates (Karasek, 1979; Skovholt & Trotter-Mathison, 2011). The conversation has now come to include ASL/English interpreters. It is time for this profession to conduct specific research on the connection between interpreters' individual wellbeing and job satisfaction. This research does not pretend to address all these points but rather examines a subset thereof to determine whether a causal relationship exists between periodic massage and improved mental stamina, a reduction in work-related injuries, and a decrease in the burnout rate of interpreters.

Creating a precise representation of all the daily demands an interpreter faces would be quite challenging due to the wide variety of environments and backgrounds interpreters find themselves regularly working from, such as working a variety of hours and having different experience levels, education levels, ages, and genders. To narrow the research focus and enable a better standardization of the problem, this study focuses on kindergarten to 12th grade (K–12) educational interpreters. These results may be easily and reasonably transferred to other specific areas within the broader interpreter profession, but that is not the claim of this research. This approach allows for certain constant variables to be present throughout the research. This

research may aid aspiring students, interpreters, and coordinators in developing a clear understanding of the demand's interpreters face daily.

Purpose of the Study

The purpose of this research is to determine whether there is a causal connection between periodic massages and improved mental stamina, a reduction in work-related injuries, and a decrease in burnout rate for educational interpreters. The information presented on the questionnaire (see Appendix B) also provides insight into demographics and various aspects of massage therapy. These data are valuable because they reveal different internal and external demands that educational interpreters face on a daily basis, developing a basis which makes it possible to establish a link between interpreters' mental and physical stamina, injury, burnout, job longevity, and job satisfaction.

Theoretical Framework and Organization

This research builds on existing massage therapy theories and positive psychological theories, particularly positive emotion, engagement, relationships, meaning, and accomplishment (PERMA) theory (Seligman & Csikszentmihalyi, 2014) and the gate control theory of pain reduction developed by Melzack and Wall in 1965 (Melzack & Katz, 2004). In more recent years, the concept of mental health influencing everyday life has begun to gain popularity. In 2011, Martin Seligman suggested a theory of positive psychology, more specifically the theory known as PERMA, which posits that a positive mindset influences individuals' decisions and behaviors. This positive psychology framework connects wellbeing, contentment, hope, optimism, satisfaction, and happiness to positive physical and mental health. The causes of a positive mindset are specific to the individual and thus vary from person to person, but if an individual is able to identify a source or sources of positivity, those sources can be used to help

manage an area that needs nurturing, thereby converting potential weak areas into areas of strength. In Seligman's book *Flourish* (2012, p. 234), he writes, "Positive psychology aims to develop interventions that build the enabling conditions of life. This theory focuses on establishing positive coping mechanisms to move from happiness or life satisfaction to well-being or flourishing" (Seligman, 2012, p. 234).

Taking this positive psychology approach one step further, it is possible to break down different emotions and predict how they affect an individual. Robert Plutchik, the creator of Plutchik's wheel of emotions, concluded that there are eight primary emotions: anger, fear, sadness, disgust, surprise, anticipation, trust, and joy, each of which results in a unique behavior, feeling on the part of an individual. These emotions can result in a change in an individual's psychological state. For example, if a person is afraid, they may sweat, experience an increased heart rate, be short of breath, and/or speak more quietly (Michl et al., 2017). This theory serves as a strong research basis to substantiate the claim that there is a connection among the emotions experienced by an individual, the resulting behavioral impact, and subsequent mental and physical decisions.

Given the assumption that emotional and physical pain affect the brain in the same way, it is necessary to comprehend how this pain is internally processed. Melzack and Wall (1965) acknowledge that in the past, psychologists viewed the nature of pain from the perspective of specificity or pattern theory. Von Frey developed specificity theory in 1895; this theory posits that the brain has a pain center that receives and produces pain receptors (Melzack & Wall, 1965) similarly to how the brain processes sound or vision. In contrast, the pattern theory of pain is that pain is a sensation that occurs during neural firing, and those neurons determine the intensity of

the pain. However, both theories agree that when the body feels pain, a message is sent to the brain, and this triggers a response.

Gate control theory agrees with the aforementioned theories that when the body feels pain, a signal is transmitted to the brain. The difference appears in the intensity of the signal and the corresponding response to the pain. According to gate control theory, before a nerve signal arrives at the brain, it must pass through a “gate” that filters which sensations enter the transmission cells to ultimately arrive at the brain for processing and which do not. These gates can become overworked and overwhelmed if they do not receive proper care, resulting in the potential for a gate to remain open or malfunction. When a gate is left open, nerve sensations are no longer checked or filtered and are permitted access to transmission cells for subsequent connection to the brain. Ultimately, the end result is an increase in both acute and chronic discomfort, including continuous emotional, physical, and mental pain of low or high intensity. These unfiltered nerves can result in phantom and spontaneous pain as well as irregular intensity levels (Melzack & Wall, 1965).

The present research builds on existing massage therapy theories and positive psychological theories, particularly PERMA theory (Seligman, 2000) and the gate control theory of pain reduction developed by Melzack and Wall (1965). This study acknowledges the mental and physical demands interpreters experience daily while studying the toll this takes on their work and providing massages as a control to reduce these strains.

Hypotheses

This study tests three different hypotheses:

Hypothesis 1: The majority of respondents will be in the age group of 35 to 54 years and actively receiving massage therapy.

Hypothesis 2: The more involved an individual is in the interpreting profession (i.e., continuing education, attending workshops, holding various memberships, etc.), the more likely that individual is to participate in preventative care such as massage therapy.

Hypothesis 3: Interpreters who utilize massage therapy experience both mental and physical impacts that correlate with interpreters' work.

Limitations of Study

The primary data collection instrument is a written questionnaire available on three platforms in three formats: online via Facebook, through an email, and in person. Each format presents a particular challenge. The first required participants to have a Facebook account and be members of one of the discussion groups where the questionnaire was posted. The questionnaire was posted in Educational Interpreter Support Group, Discover Interpreting, ASLThat, ASLIE RIT-NTID, the Central California Registry for Interpreters for the Deaf, and Registry of Interpreters for the Deaf Inc. The second option for questionnaire participants was to receive the questionnaire via email. This excluded anyone who did not have access to the appropriate electronics or does not have email. Although the in-person option allowed for more information to be collected from the participant due to the possibility of dynamic interchanges and follow-up questions, it may be the most limiting for gathering larger datasets due to logistical issues related to time and space. Finally, anyone who did not have access to one of these formats was excluded from the study.

Another study limitation was the preparation of the questionnaire. Since I prepared the questionnaire, there could be a category of data or a question that was not anticipated and thus missed. For instance, suppose the pressure the masseuse applies is a crucial factor in the effectiveness of massage therapy but there are no questions regarding pressure. This important

variable would be completely missed because the data collection instrument was not designed to accommodate this unexpected factor.

Finally, the availability of study participants was small due to K–12 ASL interpreters being a specialized group. To qualify for inclusion in the study, each participant had to be a K–12 ASL/English educational interpreter willing to receive bimonthly massages and write down mental and physical observations prior to, during, and after receiving a massage. This limitation was so severe that access to this research was extended since gaining an adequate number of participants proved to be a slow process.

Definition of Terms

Burnout: The state of emotional, physical, and mental exhaustion caused by prolonged stress.

Controls: Mental and/or physical responses to various goals that increase demands (Dean & Pollard, 2013).

Deaf/deaf: The word deaf is used to describe an individual who has hearing loss. The capitalized term Deaf means that the individual also abides by the cultural and linguistic norms of the Deaf community. A Deaf person also uses ASL as their primary language method.

Demands: Factors (environmental, interpersonal, paralinguistic, and intrapersonal) that increase to a level of significance that will or should impact the decision-making process (Dean & Pollard, 2013).

Environmental Demand: That which is specific to the setting (i.e., physical location, specialized terminology, etc.; Dean & Pollard, 2013).

Holistic: A method of treatment that cares for the whole person (body, mind, and spirit) rather than just one symptom or area. It also acknowledges the fact that everything is connected and tries to restore internal balance.

Intrapersonal Demand: That which is specific to the interpreter (i.e., feelings and thoughts, physiological distractions, and psychological response; Dean & Pollard, 2013).

Interpersonal Demand: That which is specific to the interaction of the consumers and the interpreter (power and authority dynamics, communication style and goal, culture, and thought worlds; Dean & Pollard, 2013).

Massage Therapy: Topical treatment that manipulates the soft tissues, muscles, tendons, ligaments, and skin.

Paralinguistic Demand: That which is specific to the quality of the consumers' expressive language (sign and speech, volume, pace, and accents; Dean & Pollard, 2013).

Self-Care: A deliberate and self-initiated practice to improve one's mental, emotional, and/or physical health.

Chapter 2: Literature Review

The act of interpreting requires many decisions to be made on a millisecond basis while mediating between two cultures and two languages, facing new demands, and knowing in the back of one's mind the mental and physical toll the work is taking while still striving for perfection. This striving for perfection has been found to be associated with high levels of stress and in turn burnout, physical disorders, impaired linguistic and cognitive capacity, reduced physical stamina, and emotional instability (Schwenke, 2012).

With the profession of ASL/English interpreting being relatively new, there are areas of the profession that have not yet been studied due to insufficient data. One such field is the mental

and physical toll interpreting takes on the individual and the message. In 1964, the Registry of Interpreters for the Deaf (RID) officially established interpreting as a formal profession (Ball, 2013), so the profession is approximately 56 years old. Therefore, this literature review examines a young profession and professionals through the lens of a self-care method established over 4,000 years ago (Cao, 1985).

Massage therapy has been used to help treat a variety of illnesses (both mental and physical), as preventative care, for relaxation, and much more (Field, 1998). Since interpreting has some of the same characteristics as blue-collar careers, similar injuries occur in both fields. These physical injuries include but are not limited to carpal tunnel, musculoskeletal disorders, circulation disorders, rheumatoid arthritis, and many more (Rhode, 2016). There are also mental components that overlap, such as high burnout rates, as well as depression, drowsiness, tardiness, and lack of motivation (Anderson & Pulich, 2001). The goal of this research is to help bridge the information gap from 1964 to the present with regard to different injuries interpreters are susceptible to and how such injuries increase the demands and stressors interpreters face and, in turn, the interpreter burnout rate.

Massage Therapy and Educational Interpreters

For an interpreter to function at the highest level, they need to be mentally, emotionally, and physically prepared. One aspect of being fully prepared is that their bodies need to be pain free and not serving as a distraction while they are interpreting. Specifically, if their hands hurt, this will degrade their job performance. One way to prevent and manage hand pain is through the use of massage therapy. Massage therapy, particularly reflexology, has the added advantage of potentially improving emotional and mental acuity in a holistic approach for interpreters.

Reflexology addresses this internal connection that allows for free flow of energy by relieving tension and illness based on reflex points in feet, hands, and head that connect to different organs. This method of focusing on pressure points produces more successful results in terms of improving the client's mental and physical wellbeing when accompanied with massage therapy (Wang et al., 2008). Massage therapy focuses on manipulation of the body's soft tissues to promote blood and lymph circulation (Field, 1998). The effects that can be felt after receiving a massage are the results of the blood moving around within the body. This movement brings oxygen to parts of the body that were lacking and creates new blood cells, which can repair internal damage, reduce inflammation, and improve mood.

Both reflexology and massage therapy focus on opening these internal channels to allow energy to flow freely. These methods acknowledge the fact that everything in the body is connected and if one area is being blocked, everything else will suffer, much like interpreting. If interpreters are struggling physically, this takes a toll on them mentally and emotionally by forcing them to overwork an area, which initiates a dangerous ripple effect. To protect their minds, interpreters must be proactive in protecting their bodies.

Hai-Ping (2009) writes about the effect of massage therapy and blood flow. More specifically, he addresses the correlation between diseases and low blood flow, rotational flow, high particle residence, and low and oscillatory shear stress near the artery walls. Increased blood flow is encouraged by massaging in the direction the blood needs to be stimulated. The deeper or firmer the massage, the greater the amount of blood circulated. Additionally, the more frequently a person receives a massage, the greater the blood flow becomes, simultaneously eliminating blood stasis. However, the weight of the patient affects the artery walls and thus the blood flow. The more obese a client is, the weaker the artery wall is, and the healthier the client's weight, the

stronger the artery wall. This is because the additional fat builds up inside the wall and stretches the artery, thinning the wall. To help increase blood flow and health benefits, it is important to consider the whole body rather than focusing on one individual part.

With blood flow and internal oxygen levels playing a crucial role in recovery time and injury prevention, it is of the utmost importance to have some basic knowledge in the necessary recovery time period. Bangsbo and Hellsten (1998) state that during vigorous exercise, muscles undergo a decline in blood flow and oxygen levels, thus increasing the chance of injury. Consequently, prolonging vigorous exercise without proper recovery can dramatically increase blood pressure, which poses the risk of vasodilatation, blood vessel deterioration, reduced nerve activity, and changes in pH levels. Bangsbo and Hellsten's (1998) study suggests that to help increase blood flow to a natural level during recovery, an individual must not elevate their heart rate and thus interrupt the recovery cycle. This steady cycle focuses on the point that recovery without elevating one's heart rate needs to be at the forefront of one's mind, alongside how massage therapy affects the body's internal chemistry. To fully comprehend the extent of the chemistry inside the human body, it is necessary to understand all the moving parts of a massage, which leads to the question of what massage therapy is.

What Is Massage Therapy?

As previously discussed, massage therapy has long been used as a form of treatment in many cultures. The Greek physician Hippocrates advocated rubbing as a treatment for stiffness; later, the physicians Celsus and Galen wrote extensive medicinal and therapeutic journals on massage therapy (Elton et al., 1983). Use of these treatments has been recorded in a variety of cultures, including Chinese, Egyptian, Greek, Hindu, Japanese, Roman, and, in more recent

years, Western. In 2019 alone, an estimated 47.5 million Americans received 214 million massages costing a total of \$15.5 billion (IBIS World, 2019).

The American Massage Therapy Association (AMTA) endorses the health benefits of massage, such as improved circulation, relaxation, feelings of wellbeing, and reductions in anxiety and pain. As previously mentioned, Field (1998) notes the effectiveness of massage therapy for pregnancy, labor, burn treatment, postoperative pain, rheumatoid arthritis, fibromyalgia, back pain, migraine headaches, multiple sclerosis, spinal cord injuries, anxiety, attention deficit and hyperactivity disorders, posttraumatic stress disorder, eating disorders, chronic fatigue, depression, diabetes, asthma, stress hormones, and breast cancer. Moyer et al. (2004) acknowledge these psychological and physiological effects of massage therapy. However, they also distinguish among the benefits of massage therapy based on how frequently an individual receives a massage. The two time measurements are single-dose and multiple-dose sessions. A single dose refers to an irregular massage session, meaning that the individual does not regularly receive massages or goes to a new therapist. This dosage level produces positive results for anxiety, negative mood, pain assessed immediately following treatment, heart rate, blood pressure, and cortisol level. The multiple-dosage level is a more enduring or consistent massage treatment. This dosage level has more progressive and prolonged results. Such results could include prolonged muscle relaxation, positive mood, lower blood pressure, and reduced anxiety.

Repetitive Strain Injuries, Carpal Tunnel Syndrome, and Tendonitis

An interpreter's success depends on how clearly they can produce ASL both expressively and receptively. This means that an interpreter's hands, wrists, and arms are directly connected to their livelihood. In one hand alone, there are 27 bones, over 30 muscles, four tendons, and three

main nerves (Schwarz & Taylor, 1955). Damaging any of these complex mechanisms can potentially lead to repetitive strain injuries (RSIs), carpal tunnel syndrome (CTS), and tendonitis (Feuerstein et al., 1997).

When attempting to understand and prevent RSIs, it is helpful to realize that RSI is an umbrella term. RSIs have also been referred to as “cumulative trauma disorders, occupational cervicobrachial disorders, occupational overuse syndrome, upper extremity musculoskeletal disorder, upper limb disorders, and upper limb pain syndromes” (Van Tulder et al., 2007). Regardless of the name, RSIs impact muscles, nerves, ligaments, and tendons. These types of injuries can be caused by improper technique, overuse, poor posture, inadequate strength, high workload, and stress. More specifically, continuous contraction of muscles for a long time period with insufficient breaks results in reduced local blood circulation, muscle fatigue, and inflamed tendons (Van Tulder et al., 2007). Extreme cases of RSI can necessitate surgery.

While RSI is an umbrella term, CTS is much more specialized. CTS occurs when the median nerve, which runs between the hand and forearm, becomes pressed against the wrist. This nerve controls sensations and impulses on the palm side to the thumb and fingers (except the little finger), controlling movement (U.S. Department of Health and Human Services, 2012). When the nerve is compressed or inflamed, this can cause pain, weakness, and numbness radiating throughout the hand, wrist, and arm. CTS is one of the more common injuries for interpreters due to the wide range of contributing factors as well as the nerves feeling overworked and inflamed. The following quotation outlines additional factors for developing CTS:

Other contributing factors include trauma or injury to the wrist that causes swelling, such as sprain or fracture; obesity; overactivity of the pituitary gland; hypothyroidism;

rheumatoid arthritis; mechanical problems in the wrist joint; work stress; repeated use of vibrating hand tools; fluid retention during pregnancy or menopause; or the development of a cyst or tumor in the canal. (U.S. Department of Health and Human Services, 2012, p. 5)

If left untreated or if compression occurs for long periods of time, the nerve is at risk of permanent damage. In the early stages of CTS, symptoms can include burning, tingling, itching, or numbness in the fingers and thumb. Patients have noted that their fingers feel “useless and swollen” with the constant feeling of needing to “shake out” one’s hand or wrist (U.S. Department of Health and Human Services, 2012). As the symptoms worsen, the tingling may last all day, and grip strength may decrease. In chronic cases, the muscles at the base of the thumb may waste away, along with the nerve sensations in the hand. With these chronic conditions, some patients are unable to differentiate between hot and cold temperatures.

While injuries can occur anywhere in the body, the muscle–tendon junction where the tendon enters the bone tends to be the most susceptible to injury. Tendonitis and CTS influence each other, and, just like RSI, tendonitis is an independent injury. Unlike CTS, tendonitis can occur wherever the tissue connects the muscle and bone. The most common types are in the elbow, Achilles tendon, thumb, shoulder, and wrist (Last & Porta, 2018). Second only to bone, tendons are one of the stronger connections in the body. A tendon is composed of “30% collagen fibers, 2% elastin embedded in an extracellular matrix containing 68% water” (Giffin & Stanish, 1993). Collagen is the major building blocks for bones, skin, muscles, tendons, ligaments, blood vessels, corneas, teeth, and nails (Kew et al., 2011). Collagen which has a high breaking point, reinforces tendons to prevent them snapping; this breaking point is similar to that of steel. Additionally, elastin can stretch up to 170% of its initial resting length prior to rupture, thus

helping tendons remain flexible (Giffin & Stanish, 1993). Collagen and elastin fibers are intertwined, allowing water to act as the foundation for forming the shape of a tendon.

Tendonitis occurs when one of these three foundational factors is missing or lacking. For instance, if a tendon has a high amount of collagen and a lower amount of elastin, this creates an immobile tendon and an increased chance of injury. This injury can range from mild inflammation of the surrounding tissue to more extensive structural alteration (Giffin & Stanish, 1993). Mild symptoms could include pain that correlates with movements, crackling or grating sounds, swelling, heat, discoloration, and lumps along the tendon. Untreated cases can lead to tendon rupture, which occurs when a tendon completely separates from the muscle or bone (Kew et al., 2011).

While RSI, CTS, and tendonitis are common with age and overuse, the chances of developing these injuries can be reduced with preventative care. If an individual has developed any of the above injuries, they should seek medical advice prior to starting any form of care. This study examines massage therapy as a preventative care option for educational interpreters since they are more susceptible to these types of injuries due to the repetitive strain signing puts on the hands, wrists, arms, and shoulders.

Psychological and Physiological Effects of Massage Therapy

Without any additional psychological and physiological demands to disrupt the interpreting process, it usually includes approximately seven steps. Humphrey and Alcorn (1995) provide a breakdown of the normal flow of information:

- a) The interpreter takes in the source utterance;
- b) lexical and semantic units are strung together and held until the interpreter has sufficient units to determine the meaning of what is being said or signed;

- c) a string of lexical and semantic units (referred to as a chunk) is analyzed to identify the speaker's or signer's intent and communication goal(s), explicit and implicit ideas, and a multitude of sociolinguistic features that impact upon the meaning of the source utterance. This could include gender, power distance between the speakers, setting, and contextual factors such as the impact or significance of the message on the receiver;
- d) cultural and linguistic equivalents are sought, observing cultural norms and the cultural overlays of meaning;
- e) a search is made of the target language to identify the lexical and semantic units and communication behaviors that can be used to produce an utterance in the target language with an equivalent meaning;
- f) the interpretation is expressed in the target language;
- g) the interpreter monitors internal and external feedback to check for errors or needed corrections. (Humphrey & Alcorn, 1995)

This complex system is used every time an interpreter interprets an utterance. An utterance may require a split-second decision, adjustment, and correction, which become more difficult when the interpreter is experiencing additional demands. A demand is defined as a factor (environmental, interpersonal, paralinguistic, or intrapersonal) that increases the level of significance that will or should impact the decision-making process (Dean & Pollard, 2013). The interpreter needs to actively employ various controls to protect themselves psychologically and physiologically from burnout, injury, and misinterpretations.

Pain is a part of life. It is how people process and respond to pain that truly defines it. Everyday individuals feel a variety of physical pains. This sensation can be as simple as touching something hot and pulling one's hand away or working a long day and straining a muscle.

Ignoring or enduring this sensory information can have life-altering consequences. When first seeking physical relief, a good starting place is the musculoskeletal system, which is the source of most strain. Human skeletal muscles account for nearly 50% of human body weight and consist of 200 paired muscles, any of which can cause significant pain and dysfunction in the body (Jurch & Crow, 2020). This pain and dysfunction is the leading source of muscle pain that manifests in the hands, lower back, neck, shoulders, and knees.

With interpreters depending on their hands as their primary tool, work-related injuries such as arthritis, RSIs, CTS, and tendonitis are primary concerns. When targeting these specific injuries, the goal of massage therapy is to decrease pressure or tension on the joint, decrease pain, increase range of motion, increase circulation, and promote overall relaxation of the whole body (Journal of the Australian Traditional-Medicine Society, 2011). If a pain sensor is detected, the brain draws attention to it and releases additional stress hormones. One of the first steps to reduce pain during a massage is to increase blood circulation. This upswing in circulation brings more blood and oxygen to the affected areas, ultimately relaxing the muscles or tendons and allowing the pain to reduce. This gain in blood flow brings more blood and oxygen to the brain, slowly decreasing the brain's fight response (stress hormones) and allowing the brain to enter into a state of relaxation and healing (Nelson & Churilla, 2017).

This improved circulation and manipulation of the body's soft tissue allows for both the body and the mind to heal. Various studies, such as those by Nelson and Churilla (2017) and Cavaye (2012), have proven that massage therapy helps relieve anxiety, depression, and stress hormones. Cavaye (2012) has concluded that massage therapy promotes recovery beyond emotional and cognitive managements by also enhancing social capacity and promoting the patient's independence. Rusinova et al. (2002) supported this claim by studying 157 patients with

severe mental illness, such as schizophrenia, depression, and bipolar disorder, all of whom benefited from regular massage therapy treatments. While the healing process is different for each patient, there are some commonalities.

Richards (1998) studied how massage therapy affects critically ill patients suffering from sleep deprivation. Sixty-nine men were randomly selected and received 6-minute back massages prior to trying to sleep. Once the patient was asleep, Richards used polysomnography to measure the patient's sleep efficiency for one night. The results indicate sleep improvements for the patients varying from deeper sleep cycles to additional hours of rest. Promoting sleep as part of a holistic approach for patients in critical care units has been demonstrated to be crucial to their recovery. When the body falls asleep naturally (without the aid of medication), this increases daytime performance, delays fatigue, increases rapid eye movement during rest, and stimulates healing. It is reasonable to assume that these benefits, which are measurable in a variety of applications such as those listed here, will also be measurable for educational interpreters.

Komori et al. (2018) conducted research regarding how hand massages accompanied with aromatherapy can decrease stress and pain, noting that while human bodies are entering the relaxation stage, they are susceptible to interrupting or deepening this cycle based on the smells in their environment. When they inhaled lavender, participants reported decreased anxiety and improved sleep quality. Sweet orange was noted to improve sleep quality and fatigue and lessen mood swings before menstruation, while elderly patients noticed pain, depression, and anxiety decrease while smelling bergamot and lemon. Finally, ginger, sweet marjoram, and mandarin were all found to reduce pain, anxiety, and nausea. There has also been success with aromatherapy decreasing stressors for professionals in high-stress fields such as nursing, resulting in decreased stress and improved nerve function, heart rate, and care for patients.

Since the interpreting process is complex and requires a sharp mind and healthy body, it is important for the practitioner to be proactive about their level of care. Aromatherapy can be used in conjunction with massage therapy, but it can also be a valuable tool for interpreters to use in between sessions. This could be employed before, during, and after an assignment to help keep the body and mind functioning at advantageous levels while also minimizing stress hormones.

These are all general observations based on research conducted on groups of people. This discussion should not be understood as prescriptive for any individual. While massage and aromatherapy can be used as preventative and/or corrective care, individuals should consult their individual physician prior to starting such a regime.

Chapter 3: Methodology

This study was developed to examine quantitative data concerning self-care by ASL/English interpreters. Since interpreting is a very versatile job with an overwhelming number of variables, for this study, I narrowed the focus to K–12 educational interpreters. I made this decision in order to study a more controlled group. The study’s primary instrument was to examine the mental and physical demands on interpreters via in-person interviews and surveys in the form of a questionnaire. Furthermore, the hope was to expand the response pool by identifying additional interpreters receiving bimonthly massages. However, due to the COVID-19 pandemic, the interview portion of the data collection was eliminated, leaving only the questionnaire responses. The secondary goal was to investigate a correlation between self-care and burnout.

Design

With the term self-care having such a wide range of meanings, I further restricted this research project to narrow the lens to study a specific form of self-care: periodic massage therapy. The primary goal was to first send a questionnaire to a wide pool of K–12 interpreters. This goal was developed to study what demands, and controls interpreters utilize in their everyday work. This questionnaire was designed to be accessible via three different formats – email, Facebook, and in person – with the goal of increasing the data pool from local interpreters to interpreters from across the United States. The second goal was to study how receiving bimonthly massages affects the interpreters' work. This portion of the study mostly occurred in person, and since this research began during a pandemic, the data collection method had to be adjusted to only the questionnaire. The questionnaire was altered to include additional questions to assess the participants' mental, emotional, and physical state prior to, during, and upon completion of the massages. Completing this portion online allowed me to collect data from a wider pool of participants.

The foundation of the questionnaire stems from the research found in the literature review. Schwenke (2012) and Wang et al. (2008) mention the importance of studying participants' age, gender, and ethnicity to help understand the source of the data considered in a research study, which indicated the importance of including a demographic section of the questionnaire. Since this study analyzes interpreters, it was also valuable to include demographic questions regarding workload, education level, and professional training. Adding these sections provided a clear picture of the participant's background and experience without including names.

The other portion of the questionnaire was primarily focused on the benefits and frequency of massage therapy. It was challenging to select a wide range of questions while also keeping the questionnaire brief to encourage a variety of responses. Field (1998) discusses the wide range of psychological and physical benefits of massage. Moyer et al. (2004) support Field's research by discussing the importance of frequency of massage therapy sessions. Studying the findings of both Field (1998) and Moyer, Rounds, and Hunnun (2004) led to a variety of benefits, such as the inclusion of session frequency and massage preference in this research. Since I did not hand select the participants, it was also crucial to study the process of deciding to attend a massage therapy session. I added questions about who referred the interpreter to massage therapy and whether they would recommend that other working interpreters attend a session.

Participant Population

Participation in this study was on a voluntary basis with no disqualifying factors based on experience, race, gender, age, or ethnicity. The participant population included ASL educational interpreters from across the country. There were three qualifying factors to participate in this study: the individual must be an educational interpreter of at least 21 years of age and have a minimum education level of a high school diploma. In terms of technology, the only requirement was access to a device that had internet, email, and/or Facebook capability. The questionnaire did not include any identifying questions, and participants were completely anonymous.

A total of 40 participants provided data for consideration in this study. All of the participants met the requirements of the study as stated above, and they were all working in U.S. states or territories. Some basic demographic information concerning the study sample is shown in Table 1 and breaks down as follows: 94.7% were female and 5.3% male; 94.7% were hearing

and 5.3% Deaf/deaf; 5.3% were 21 to 24 years of age, 57.9% 25 to 34 years of age, 5.3% 35 to 44 years of age, 21.1% 45 to 54 years of age, and 10.5% 55 to 64 years of age; and 89.5% were White, 5.3% Hispanic or Latino, and 5.3% Black or African American.

Table 1

Participant Characteristics

	Frequency	Percentage
Female	36	94.7%
Male	4	5.3%
Hearing	36	94.7%
Deaf/deaf	4	5.3%
21–24 years old	2	5.3%
25–34 years old	22	57.9%
35–44 years old	2	5.3%
45–54 years old	8	21%
55–64 years old	4	10.5%
White	36	89.5%
Hispanic or Latino	2	5.3%

Black or African American	2	5.3%
	N = 40	100%

Data Collection

Prior to participants accessing the questionnaire, each participant had to read and virtually sign the consent form. This consent form (see Appendix C) provides an introduction to why this research was important, eligibility, risks, benefits, and confidentiality. After reading the consent form, participants were asked if they wanted to participate in a questionnaire (see Appendix B). If they selected “yes,” the questionnaire would continue to the message portion and proceed to the demographic questions. If the participant decided they did not want to participate, they would select “no,” which took them to a new window stating “participation declined” and explaining that they could either click “submit” or just close their browser window. Because they could clear their internet browser, the number of potential study participants who declined to participate is unknown.

I developed the consent form and questionnaire using Google Forms. To ensure that confidentiality was respected, I kept both of these items in a password-protected file and on a secure computer. This computer also had two levels of security: the password for the computer itself and the password for the Google account. To allow the participants to remain anonymous, the setting “summary view” was enabled. Once I had collected the data from the questionnaire, I transferred them to Google Sheets, which also had all the aforementioned protections attached. The questionnaire primarily consisted of close-ended questions to help limit the number of

variables in the questionnaire. The close-ended questions included the option “other” that if selected subsequently offered an opportunity to provide free response-type input.

Data Analysis Procedures

The data was collected from two segments: the questionnaire and the research study. The questionnaire was intended to be accessible to a large pool of interpreters. This questionnaire was posted on three platforms and was open for 3 months. The research study was slightly more limiting. These data were gathered from participants who work regularly in the K–12 setting and receive bimonthly massages. The research study included four full-time educational interpreters. One interpreter has been receiving regular massages every month for the past two years. Two other interpreters have noted back, shoulder, and wrist pain. They wanted to participate in this study to see the effects of massages on their ongoing pain. The last interpreter has a shoulder injury that flares up after working long hours. This interpreter has been receiving regular massages for the past year, although they have not formally tracked how this has affected their work.

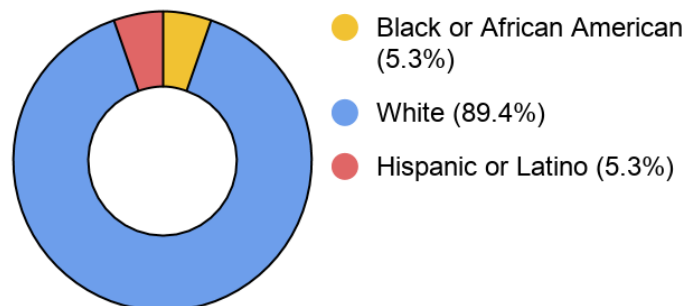
Chapter 4: Results

Participant Characteristics

The results of this study were collected from 40 ASL/English interpreters currently working in educational settings. Of the respondents, 36 (94.7%) were female and two (5.2%) were male. Interestingly, this study included two (5.2%) participants who identified as Deaf/deaf and 36 (94.7%) who identified as hearing.

Figure 1

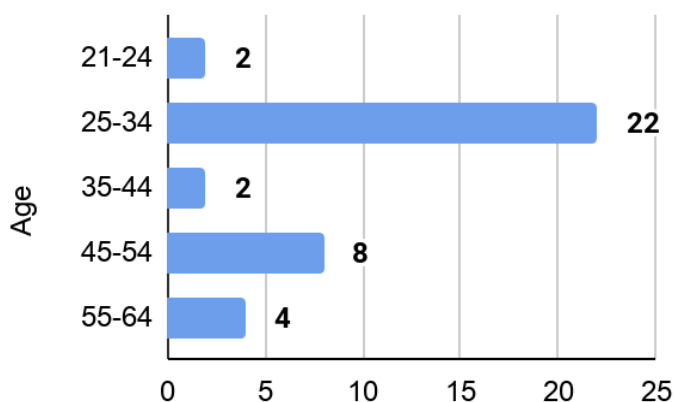
Participant Ethnicity



The participants' ethnicities as indicated in Figure 1 are all self-identified. Of a total of 40 participants, two (5.3%) identified as Black or African American, 36 (89.4%) identified as White, and two (5.3%) identified as Hispanic or Latino. Considering the interpreting profession as a whole, the RID (2018) Annual Report shows 9,218 members in total, with 449 (4.8%) self-identified as Black or African American, 8,023 (87%) as White or Euro American, and 463 (5%) as Hispanic or Latino. In this study and the overall profession, the majority of interpreters self-identify as White or Euro American and the minority as Black or African American or Hispanic or Latino.

Figure 2

Participant Age



The information in Figure 2 provides a breakdown of the age of the participants. Since mental and physical injury can occur acutely or chronically – a distinction that is beyond the

scope of this research – it is particularly interesting that 58% of the participants self-identified as being between 25 and 34 years of age. Presumably, younger workers are more likely to report acute injuries, whereas older workers tend to report both acute and chronic injuries. With 63% of the participants being 34 or younger and 37% 35 or older, further research needs to be conducted to determine the causal relationship of the injuries and age distinguishing between acute and chronic injuries. Two participants did not indicate their age bracket.

Figure 3

Education Level

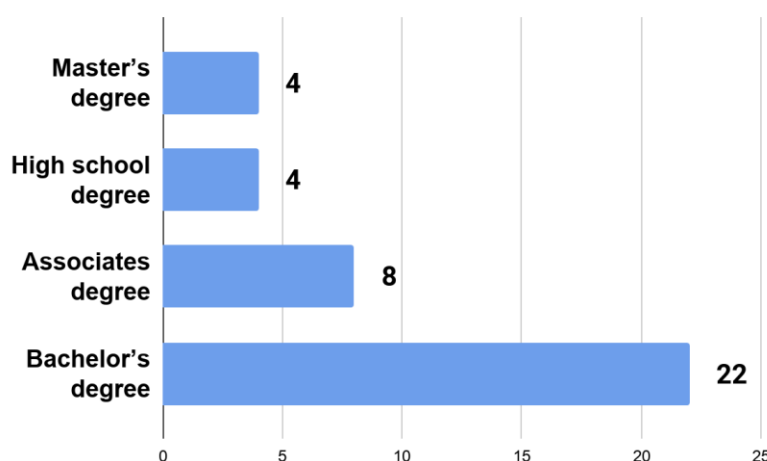
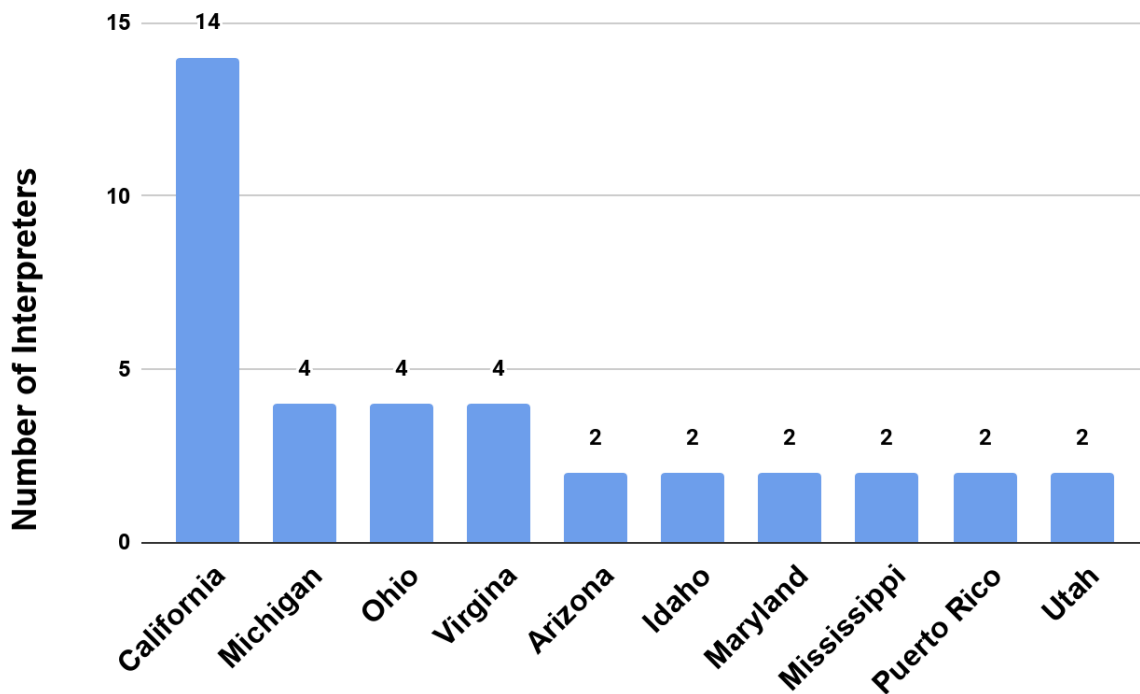


Figure 3 summarizes the study participants' educational background. Since the study required that each participant be currently working as an educational interpreter and the local education requirements to be qualified as an educational interpreter vary, it is reasonable to expect some variability in the results of this question. The majority of participants (58%) reported that their highest level of education is a bachelor's degree. Of the remainder, 10.5% reported that they held a master's degree, while another 10.5% reported that their highest level of education is a high school diploma. The remaining 21% reported having an associate's degree. Two participants did not indicate their level of education.

Figure 4*Interpreter Locations*

This study was intended to reach ASL interpreters across America and Puerto Rico.

Figure 4 shows that 14 of the survey respondents are currently working in California, while Ohio, Virginia, and Michigan each host four interpreters. Maryland, Utah, Arizona, Mississippi, Idaho, and Puerto Rico each produced two responses. Two interpreters did not disclose their location.

Figure 5*Participant Memberships*

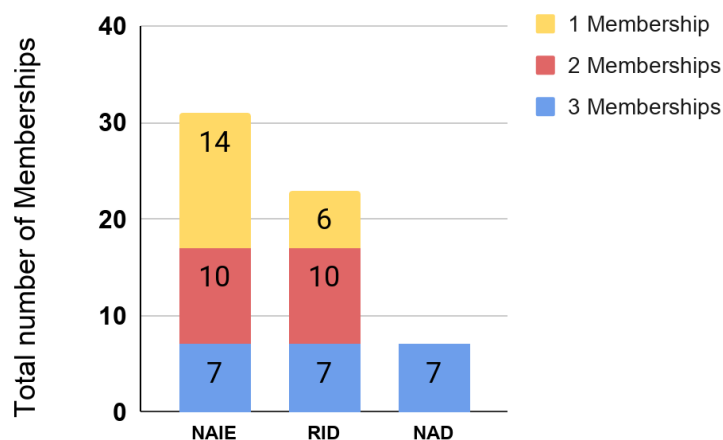


Figure 5 shows the memberships held by the survey participants. Since each individual had the potential to subscribe to none or all of the professional organizations and there were 40 respondents, the range of these data could be from 0 memberships to 120 membership combinations. Among the 40 participants, a total of 57 memberships were held. Seven (17%) participants held memberships within the RID, the National Association of Interpreter Educators (NAIE), and the National Association of the Deaf (NAD). Ten (25%) individuals identified as having only two memberships with RID and NAIE. The greatest difference is that 14 (35%) participants have only one membership with NAIE compared to the six (15%) individuals that hold only an RID membership.

Massage Therapy Results

Of the 40 participants, 57.9% responded “yes” to the question of whether they prioritize their own self-care, while the other 42.1% said they do not. However, 100% of the respondents responded that they consider massage therapy a form of preventative care and think that various forms of self-care should be taught in interpreter programs. It is interesting that the distribution of those who consider self-care a priority roughly correlates to the age breakdown in the study.

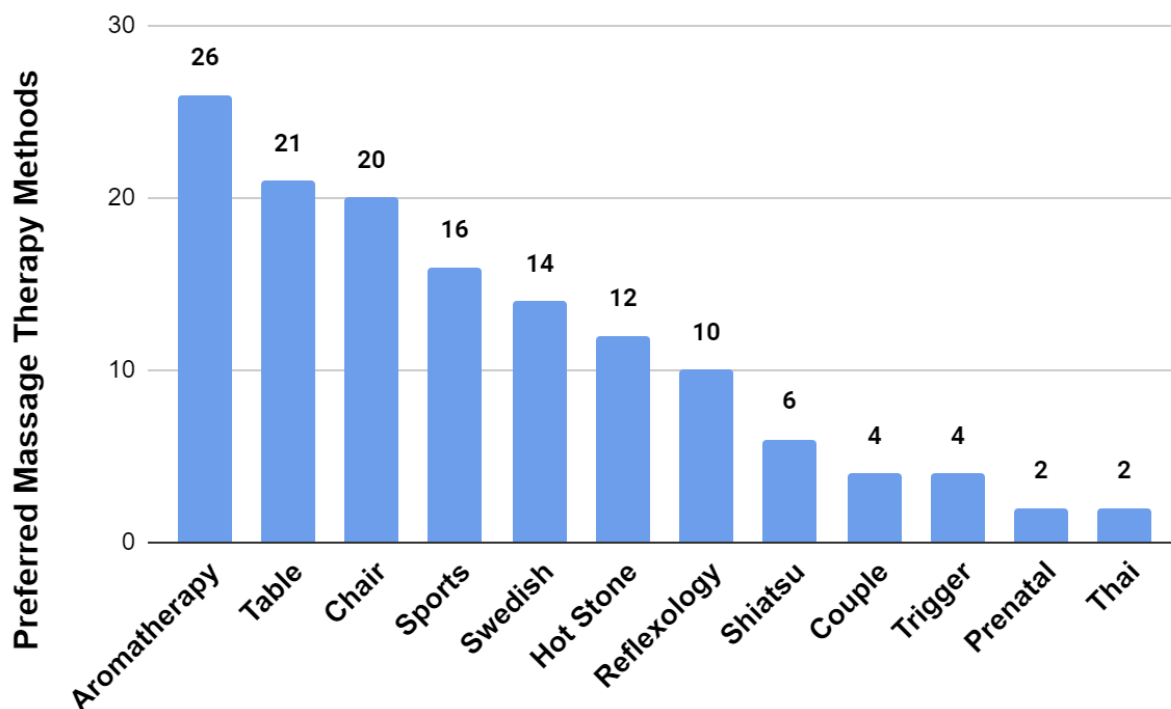
Figure 6*Massage Therapy Methods*

Figure 6 provides data on preferred types of massage therapy. There were 12 options offered, with the respondents being able to select 0 or all 12 of the massage therapy methods as preferred. This means the data range for each therapy method is 0 to 40. The most popular method was aromatherapy, with 65% of respondents reporting a preference for this method. This was followed by the table method (53%) and the chair method (50%). The least popular methods were Thai and prenatal massage (5% each).

Figure 7*Massage Pressure*

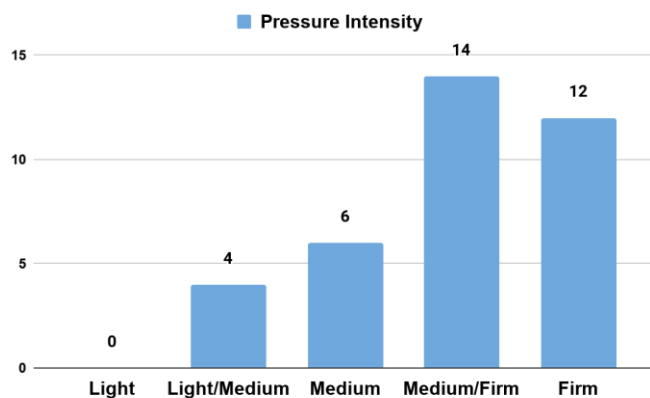


Figure 7 shows the preferred massage pressure intensity. These are very subjective data since there is no definition of different pressure levels. That said, different pressures reach and affect different muscles, tendons, and ligaments differently. Only 36 participants selected a preferred pressure intensity. No participant chose the lightest pressure level, while 33% preferred the highest (firm) pressure. The majority of respondents (38%) indicated a preference for something just short of the highest pressure (i.e., “Medium/Firm”). In this group of respondents, 10 individuals (27%) preferred a lighter touch.

Figure 8

Results of Massage Therapy

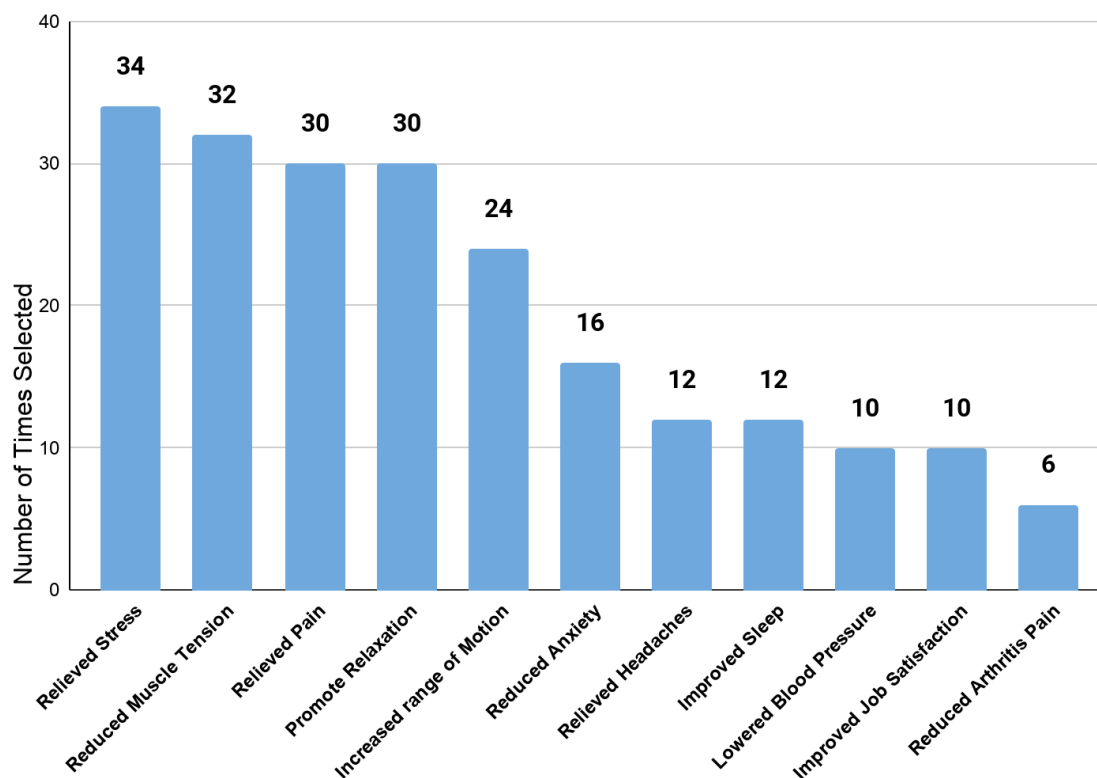
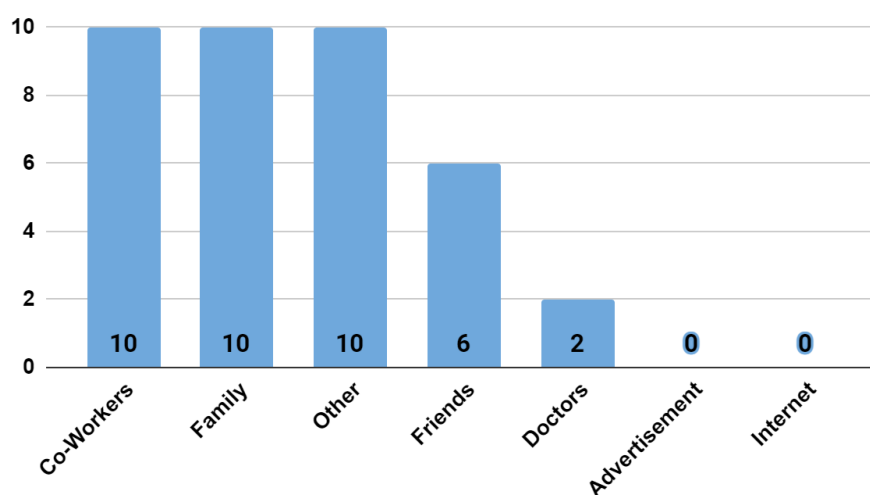


Figure 8 presents the outcomes of massage therapies experienced by study participants. Since each candidate could select each category, the range of the data is 0 to 40 for each outcome. There was an additional category called “other” that none of the participants selected. The study participants reported a total of 216 effects, all of which are shown in Figure 8. The leading result was “Relieve Stress,” with 85% of the participants who had received massages reporting this effect. This was closely followed by “Reduced Muscle Tension” at 80% and “Relieved Pain”/“Promote Relaxation” both at 75%. It is noteworthy that stress could be attributable to muscle tension, pain, or not being relaxed, which are the second, third, and fourth most common responses, respectively. The fifth most commonly selected effect, and the first one not obviously connected to stress reduction, is “Increase Range of Motion,” at 60%. The least

frequently selected choice is “Reduced Arthritis Pain,” which 15% of respondents chose. The dramatic decrease of 70% from the highest response could be attributable to the age differences among the study participants. If arthritis is typically experienced by older individuals and the majority of study participants were younger, it is reasonable to assume that this finding is attributable to the age difference among the study participants. This is an area that requires further study to establish causality.

Figure 9

Who Suggested Massage Therapy?



In the medical profession, massage therapy is labeled as a form of holistic medicine and is often used as preventative care. However, according to the data presented in Figure 9, medical professionals were the least common source of recommendations of this type of therapeutic strategy. The top referring sources were equally divided among coworkers, family, and the “Other” category, making up a total referral rate of 79%. It is interesting that none of the educational interpreters who were using massage therapy reported learning about massage

therapy or receiving a recommendation from their interpreter preparation program. The remaining two participants did not respond to this question.

Chapter 5: Discussion

Background and Participant Characteristics

The purpose of this study is to examine the correlation between ASL educational interpreters and self-care, specifically self-care in the form of massage therapy. More specifically, the purpose is to identify whether there is a causal connection between periodic massages and improved mental stamina, a reduction in work-related injuries, and a decrease in burnout rate for educational interpreters. The data from this research were collected from 40 interpreters, all of whom self-identified various characteristics and described how massage therapy has affected them mentally and physically. The design for this research stems from Seligman's (2000) PERMA theory and Melzack and Wall's in 1965 gate control theory of pain. Both focus on the importance of health in mind, body, and soul to excel in any part of life.

The PERMA theory emphasizes the value of optimism, as this emotion increases the brain's resilience against developing depression or feeling complacent in one's professional life. Optimism feeds into engagement, and this allows human brains and bodies to focus on the present. The sense of immersion fills the body with neurotransmitters and hormones that elevate one's sense of wellbeing. Since humans function as social beings, connecting with other humans is important. This connection allows human bodies to become very resilient during difficult times. Seligman mentions that when humans are in isolation, their pain centers are activated in overdrive. Human connection can also contribute to individuals' personal and professional meaning. This sense of meaning can drive fulfillment in individuals' professional and personal

life. All of the above emotions are the foundation of a sense of accomplishment, which allows for the mind and body to beam with pride on achieving a goal.

Melzack and Wall's (1965) gate control theory of pain posits the existence of "gates" that regulate and filter access of nerve sensations to transmission cells that report to the brain. The process of filtering depends on the gate's ability to resist transmission of the pain message to the transmission cells in the spine. This ability is affected by several factors, including pain anticipation, the existence of nonpainful sensations, and other health factors. If it is not cared for, it is possible for a gate to lose the ability to function. If the information being transmitted is always mentally taxing, the gate's resilience will be lower, thus overwhelming the brain's ability to process any information. This lower resilience then tells the body to process everything at a high rate and increase the resilience of the body's pain centers. In contrast, if the information is of lower intensity, this allows the brain to decide whether that information is valuable enough to be processed. The time it takes to process the information controls which pain center is activated and to what degree.

Both PERMA and gate control theory are either successful or unsuccessful depending on the individual's state of mind. Interpreters must assess every assignment's demands and respond accordingly with their current controls. These demands could be environmental, interpersonal, paralinguistic, and intrapersonal with endless controls. However, the demands increase or decrease depending on the interpreter's state of mind. If they are mentally burned out, exhausted, or emotionally unavailable, their demands increase dramatically. This increase causes the interpreter to focus on implementing controls rather than on interpreting the message, which emphasizes the importance of interpreters' mental resilience.

Forty educational interpreters volunteered to participate in this study. Of these 40 interpreters, 89.4% self-identified as White or Euro American, while 5.3% identified as Black or African American and another 5.3% as Hispanic or Latino. The RID annual reports for the past five years show that the majority of interpreters fall within these ethnic groups. Additionally, 36 (94.7%) interpreters identified as female and four (5.3%) as male. The majority of participants were hearing (94.7%); however, 5.3% of the responses were from Deaf/deaf individuals.

When asked if self-care is important for an interpreter's mental and physical wellbeing, all participants responded "yes." Furthermore, they all responded "yes" to the question "Should interpreter training programs teach their students about self-care?" However, only 57.9% indicated that they prioritize their own self-care. The focus of massage therapy is on manipulating the soft tissues of the body and thereby increasing blood circulation. This increase of circulation repairs internal damage, improves mood, reduces inflammation, reduces stress, and improves overall wellbeing. However, massage therapy is more successful the more frequently it is used.

The majority of respondents said they received a massage more than one year ago. Eight respondents said they receive massages yearly, and another eight said they receive them monthly. Four individuals said they receive a massage quarterly, and two reported having received a massage within the past week. According to Hai-Ping's (2009) research on massage therapy and blood flow, only 14 out of 40 participants receive massages frequently enough to significantly benefit from the results of massage therapy.

With fewer than half the participants regularly receiving massages, one must ask whether there is a determining factor, such as age, COVID-19, or school closure, driving this behavior. A review of this study's hypotheses reveals that the first hypothesis regarding the age of the

educational interpreters is false. Hypothesis 1 stated that most educational interpreters are 35 to 54 years old. However, the data indicate the study population is centered in the 25- to 34-year-old category. Based on the data, it appears that the study participants who regularly receive massage therapy are evenly distributed among the age groups, which reveals that age is not a factor. Since the survey instrument did not measure the impact of COVID-19 or school closure, the effects of these environmental factors are more difficult to discern.

According to the U.S. Bureau of Labor Statistics, people between the ages of 30 and 64 experience the majority of workplace injuries. This makes sense from an intuitive perspective since, by definition, chronic injuries occur over time. Acute or short-term injuries should occur at a rate that is more evenly distributed independent of age since, by definition, these injuries occur abruptly and can happen to anyone. Although all respondents currently work in education, further research is necessary to examine the causal relationship between workplace injuries attributable to age. Furthermore, younger workers are more accepting of nonconventional holistic therapy such as massage therapy that has the potential to prevent or delay the onset of chronic injuries.

Working as an educational interpreter does not require a specific level of education, and certification or performance score varies depending on the interpreter's state of residence. This is important because there were 40 participants spanning nine states and a U.S. territory. However, 22 participants indicated that their highest level of education was a bachelor's degree, while four revealed that they have a high school diploma and another four had obtained their master's degree. The remaining eight revealed that they have an associate's degree. Regardless of their educational level, all participants confirmed that they are currently working full-time in an

educational setting. All experience the same physical and mental demands, thus putting their bodies under approximately the same stressors.

Of those who have a master's degree, those between the ages of 21 and 34 receive massages the most frequently when compared to the other educational groups. The 22 participants who have a bachelor's degree range in age from 25 to 54 and primarily responded that they receive a massage once per year. The second largest group of respondents have an associate's degree, range in age from 25 to 64, and typically receive a massage once per year. Only half of the participants who indicated that they have a high school diploma, who range in age from 25 to 54, said they receive massages once per month. Based on the information stated above, those who have a higher level of education are more active in terms of preventative care and maintaining their health. Perhaps this is because they have a greater understanding of the physical and mental demands of interpreting.

Interestingly, all four participants who have a master's degree also only hold memberships in one organization (NAIE). Of the 22 participants with a bachelor's degree, four hold memberships in all three organizations (RID, NAIE, and NAD). Eight of the 22 hold memberships primarily in RID and NAIE, and the remaining 10 hold only one membership in RID. Two out of the eight with an associate's degree have memberships with all three organizations, while the remaining six only belong to RID. Half of the participants with a high school diploma only belong to NAIE, and the other half responded "other."

The second working hypothesis for this research was that the more involved an individual is in the interpreting profession (i.e., continuing education, attending workshops, holding various memberships, etc.), the more likely they are to participate in preventative care such as massage therapy. The majority of participants have received a formal education, work as professional

educational interpreters, and hold memberships in various organizations. It is surprising that many do not actively seek regular preventative care. The AMTA recommends that an individual seeking a full-body massage should attend therapy twice a month to maximize the mental and physical health benefits. If organizations such as the AMTA recommend regular massage therapy and the ASL interpreting profession is becoming more well rounded and educated, then we must consider what is causing this self-care gap. The AMTA confirmed that in recent years, massage therapy has gained popularity among U.S. citizens and in Western medicine; however, little is known about massage therapy and ASL interpreters. For instance, when asked who encouraged them to try massage therapy, the majority of interpreters responded that it was family, friends, and coworkers; only two of the 40 responded that a medical practitioner encouraged them to try it. Thirty-four of 40 participants indicated that they had received formal education, yet none of them indicated that their interpreter training program (ITP) or equivalent taught them about self-care or, more specifically, preventative care. The fact that these formal institutions do not teach young interpreters about the physical and mental demands of interpreting and thus dramatically limit their controls sets interpreters on the path toward injury and burnout. Whether conscious or not, this decision to not teach self-care controls shifts this responsibility to professional organizations.

Massage Therapy and Interpreters

The final working hypothesis for this research was that interpreters who utilize massage therapy experience both mental and physical impacts that impacts their work. Massage therapy dates to more than 4,000 years ago (Cao, 1985) and includes a variety of massage forms that target different areas of the body. Of the 40 participants, 26 regularly combine massages and aromatherapy to help relieve the mental and physical demands of everyday life. Komori et al.

(2018) confirm that this combination can decrease both mental and physical stress and pain. This occurs when the body and spirit begin to relax and the other senses such as smell become heightened, thus becoming susceptible to interrupting or deepening the healing process. Relaxing smells such as lavender and orange add an extra layer of relaxation and recovery (Komori et al., 2018).

Many individuals who are novices when it comes to massage therapy hold both chair and table therapy in the same regard when in reality the two are quite different. This confusion regarding the differences was evident in the participants' responses. Chair therapy was selected 20 times and table therapy 21 times. Chair therapy is designed to target the upper back, neck, shoulders, and arms (Shulman & Jones, 1996). This style of massage therapy is typically used in short intervals. The mental and physical effects are still felt to some degree, but the lasting effects of the massage on the body and between sessions are significantly shorter. In contrast, table therapy provides more of a full-body massage since the body lies in a neutral position, allowing all the muscles to relax. The lying position allows the therapist better control of the body's soft tissue and manipulates blood flow. This position also provides the therapist with a clear picture of what areas they need to target since it is easier to feel which muscles are pulling and where the problem areas lie.

A sports massage can provide interesting data for interpreters. A sports massage is not to be confused with a trigger massage. The sports massage technique traditionally targets the muscles that are at the greatest risk of injury. For example, a baseball pitcher would receive a sports massage targeting the shoulder, arm, and back to prevent injury or strain. This style of massage therapy was selected 16 times, and this type of proactive care could be beneficial for interpreters. However, the goal of this massage is to target areas that have been overused

immediately after the action has occurred, and it is unlikely that an interpreter will be able to interpret a vigorous assignment and immediately meet with a massage therapist.

A trigger massage is similar to the sports massage method. A trigger massage is more focused on one specific muscle, tendon, or area of tension rather than the whole body. This method was only selected four times, which speaks to this method's lack of popularity or the participants' lack of familiarity with it. A trigger massage is used as a tool accompanied by another method. Nevertheless, this method is regarded as more painful since it is not used as preventative care. This is a method and not a pressure intensity selection. One would select this option to target a muscle or tendon that has already knotted or been injured.

Another tool that is confused with a method is the hot stone massage. Participants selected this option 12 times, emphasizing the confusion between method and tool. The purpose of hot stone massage is to heat up the muscles, allowing them to relax and move easily. Once the muscle is willing to move, this increases the blood flow. This increased blood flow improves relaxation and healing and ultimately makes it easier for tension and muscle knots to be relieved. In spite of the hot stones being the primary source of immediate relaxation, the therapist still uses a method (e.g., Swedish) to manipulate the muscles.

The Swedish massage method is one of the more common methods. This method focuses on relaxation and relieving tension. This was the preferred method of 14 participants in this research. Swedish massage involves soft, kneading strokes of the soft tissue while tapping into the various layers of muscle. The AMTA calls this technique a natural healing approach. This method requires the therapist to consider the patient's background and experience prior to starting the massage. During the session, the therapist inquires as to the client's physical activity

level, occupation, health issues, area of focus, and prior injuries to understand the stress placed on the body.

Swedish massage and reflexology emphasize the importance of every fiber, cell, and tissue in the body being connected. Reflexology and Swedish massage were almost tied in popularity with a difference of 4 votes; however, reflexology was only selected 10 times and Swedish massage 14. While Swedish massage focuses on the whole body, reflexology targets the feet, hands, and head. The goal of reflexology is to target the organs in addition to muscles and tendons (Wang et al., 2008). The idea behind it is that the manipulation of the soft tissues that connect to lymph nodes will not only improve blood circulation in muscles but also improve the overall health of various organs. Mental and physical health is a balancing act, and when a strong foundation (i.e., organs) is lacking, everything is at risk of failure.

Although the above methods are better known than the Shiatsu (/SHĕ'ät, sōō/) method, the latter is still gaining popularity. Six participants indicated a preference for this method. Shiatsu originated in Japan but resembles the Swedish and reflexology styles. This style focuses on opening the body's internal channels and in turn stimulates circulation, reduces stress, and soothes mental and physical pain. Much like other methods, this increased blood flow helps strengthen arteries and organs, reduces stress, and more (Hai-Ping, 2009). The Shiatsu method differs from previous methods because it does not require different pressure intensities. The pressure is constant and should not feel painful.

The above massage techniques are better known than the Thai method. Thai massage is sometimes referred to as Thai yoga and uses a mixture of soft tissue manipulation, pressure points, and stretching. The massage therapist has the client lie on a mat instead of a table and

uses their hands, feet, and knees to help manipulate the body. In this study, this approach was only selected twice.

The low selection rate for Thai massage was not surprising; however, since the majority of respondents identified as women, it was interesting that prenatal massage was only selected twice. The primary goal of a prenatal massage is to help relieve some of the aches and pains caused by pregnancy. It is worth noting that a prenatal massage is not suitable for every person and pregnancy, and a doctor should be consulted. In contrast to other massage techniques, which focus on pressure and trigger points, prenatal massage avoids such points. Research is currently being conducted on newborn massage therapy (Chen et al., 2011).

Regardless of the client's preferred massage technique, every therapist should inquire about the preferred pressure intensity. The typical pressure scale is as follows: light, light/medium, medium, medium/firm, and firm. A light massage is sometimes referred to as a light touch massage. This pressure is targeted to reduce pain in sore muscles. Light pressure is commonly used in Swedish massage, which utilizes long strokes, kneading, circular movements, and tapping. In this study, light pressure was not selected as a preferred pressure.

The next level of intensity is light/medium and medium pressure. Light/medium was selected four times and medium six times. Since the research is similar for both pressure points, these are discussed simultaneously. These pressure intensities are commonly found within the sports and trigger point massage techniques. The difference between medium and light intensity is that the therapist uses the finer points of the body (i.e., fingers and elbows) in addition to the palms and forearms during the massage. At this level, the goal is relaxation while using a firmer stroke and lightly focusing on muscle tension and knots.

Medium/firm and firm (otherwise referred to as deep tissue) were selected the most of all of the preferred intensities. Medium/firm was chosen 14 times, and firm was selected 12 times. As mentioned above, prior research does not differentiate between these preferred intensities to allow for separate discussions. The slight difference between the two is that firm pressure only uses the finer points of the body and focuses on knots, tension, pressure points, and underlying muscles. The objective of this massage is to apply slow and deep strokes to target the inner layers of the muscles and connective tissues.

Regardless of the preferred massage method and pressure intensity, all massage therapy provides physical and psychological health benefits. When participants were asked about how they arrived at the decision to try massage therapy, they revealed that doctors were rarely involved in the decision, demonstrating the gap between Western medical recommendations and interpreters' needs. Only 10% of participants said doctors recommended they try massage therapy. Friends referred six interpreters to massage therapy, while coworkers, family, and other sources provided 83% of the recommendations. Regardless of who recommended massage therapy, all 40 participants indicated both mental and physical benefits.

The human body's skeletal muscles account for 50% of the body's weight and consist of 200 muscle pairs, and if balance is not maintained, significant pain and dysfunction in the body occur (Jurch & Crow, 2020). In one hand alone, there are 27 bones, over 30 muscles, four tendons, and three main nerves (Schwarz & Taylor, 1955). Figure 8 shows the wide range of both mental and physical results interpreters felt upon receiving massage therapy. The domino effect is performing much like the body, many physical and psychological effects are intertwined. For instance, when new blood cells and oxygen enter the deprived areas, this results in decreased pressure and tension on the joints; increased range of motion; and reduced stress, anxiety, and

depression (Nelson & Churilla, 2017). Connecting the comparison of the domino effect, if new blood cells cannot enter deprived areas, pressure and tension will continue to increase, resulting in pain, decreased range of motion, increased stress hormones, higher anxiety, and raised depression levels. A total of 216 effects were felt, which emphasizes the need for active preventative care.

Stress relief was the most common effect felt; it was selected 34 times. There is a fine line between stress being healthy or harmful. Healthy stress can be referred to as eustress (stress as a result of feeling excited) or acute stress (resulting from quick surprises that require a response). Healthy stress can be beneficial if one allows one's body to respond to the stressor and return to a state of homeostasis or the prestress state (Simmons & Nelson, 2007). Positive stress can result in contentment, interdependence, optimism, engagement, a sense of accomplishment, and a flourishing personal and professional life. Bad or chronic stress can result in stressors not being resolved or the prestress state of relaxation not being obtained. Chronic stress can result in burnout, job alienation, mood swings, injury, and insomnia.

Reduced muscle tension was almost tied for the most responses at 32, followed closely by pain relief (30 votes) and overall relaxation (30 votes). It is natural to mention these three effects together since they all have a cause-and-effect relationship. If the body experiences reduced muscle tension, this results in pain relief and overall relaxation. When the tension knots of the body are soothed, this opens the blood vessels, allowing for increased blood circulation. Increased blood circulation enables the body to enter a state of relaxation in which the cells, nerves, and tissues begin to heal (Nelson & Churilla, 2017). This occurs when new blood cells and oxygen enter the deprived areas, resulting in decreased pressure and tension on the joints;

increased range of motion; reduced stress, anxiety, and depression; and ultimately reduced mental and physical pain.

This study proves the health benefits of increased blood circulation. The top four effects felt were stress relief (34), reduced muscle tension (32), pain relief (30), and promotion of relaxation (30), all of which indicate that the body must enter a state of relaxation prior to healing. Once the above effects are obtained, more unique results can be achieved, such as improved sleep or improved job satisfaction. Future research needs to be conducted to study the more specific effects of massage therapy on educational interpreters.

Conclusion

This study examined the effect of massage on educational interpreters from across the country. The research was conducted during the COVID-19 pandemic, which restricted the form of data collection to questionnaires while simultaneously affecting the educational environment through school shutdowns and remote learning. I studied educational interpreters and their associated self-care through a holistic lens to allow for a complete analysis of how massage therapy affects an interpreter's physical and psychological health. Forty educational interpreters participated in this research. Thirty-eight interpreters worked in the contiguous United States and two in Puerto Rico.

Regardless of the interpreters' location, age, experience, and gender, the act of interpreting requires a high amount of physical and psychological stamina. This study highlighted not only the importance of preventative measures but also the importance of educating the targeted professionals. There are miscommunications about the physical and mental toll of interpreting between ITPs and professional organizations and between interpreters and medical personnel. Data from this study show that all participants experienced massage

therapy as a positive component of their personal self-care plan. Surprisingly, when asked about who recommended massage therapy as a form of self-care, very few participants reported professional medical recommendations, and none reported recommendations from interpreter preparation programs; rather, most received recommendations from family, friends, and coworkers.

Regardless of how the individual interpreter discovered massage therapy as a component of their self-care, all 40 study participants reported positive impacts resulting from massage therapy. The leading positive effect was “Relieved Stress,” with 85% of all participants reporting this effect. Other reported benefits were “Reduced Muscle Tension,” “Relieved Pain,” and “Promoted Relaxation” (80% each). A variety of other positive effects were reported, all of which are related to quality of life.

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Appendix A: Conceptual Framework

Adam et al. (2010) discuss the positive effects of massages on patients recovering in the hospital. The goal of this therapy is to activate the body's natural relaxation response, thereby facilitating enhanced ability to rest, stress reduction, increased healing, low blood pressure, and reduced muscle tension. Adam et al. (2010) tested this theory with hospital patients who exhibited high levels of mental and physical stress due to sleep deprivation, isolation, immobility, and high pain. The goal of the study was to determine whether the use of massage therapy improved patients' pain management.

Adam et al. (2010) note that patients who received regular massages stated that the most notable change was in the decrease of pain and increase in emotional wellbeing, relaxation, and ability to sleep. The methodology Adam et al. (2010) utilized is similar to my research plan in that they collected qualitative data using surveys. Once the patients identified their pain level between 0 (being the lowest) and 10 (being extreme pain) and answered other questions, each patient received a massage. After the massage, each patient once again completed a survey to identify their pain level and their sense of wellbeing, which was then included in the study. The final conclusion of the study was that massage therapy creates an overall positive mental and physical change in patients.

Appendix B: Questionnaire

Massage Survey Questionnaire

1. Do you find yourself prioritizing self-care?
 1. Yes
 2. No

2. Would you consider massage therapy as a form of self-care?
 1. Yes
 2. No

3. Have you ever received a professional massage?
 1. No
 2. Yes
 1. Please specify when you received your last massage.
 1. Within the previous week
 2. Within the previous month
 3. Within the previous quarter
 4. Within the previous year
 5. More than a year ago

4. Do you receive professional massages regularly?
 1. No
 2. Yes
 1. How often do you receive professional massages?
 1. Once a week
 2. Once a month
 3. Once a quarter
 4. Annually

5. Please select all the effects you felt from your massage (select all that apply)
 1. Relieved stress
 2. Relieved pain
 3. Reduced anxiety
 4. Reduced muscle tension
 5. Relieved headaches
 6. Improved sleep
 7. Reduced arthritis pain
 8. Promoted relaxation

9. Lowered blood pressure
10. Increased range of motion
11. Improved job satisfaction
12. Other

6. Which massage type or approach have you experienced? (Select all that apply)
 1. Swedish massage
 2. Hot stone massage
 3. Aromatherapy massage
 4. Sports massage
 5. Trigger massage
 6. Reflexology massage
 7. Shiatsu massage
 8. Thai massage
 9. Prenatal massage
 10. Couple massage
 11. Chair massage
 12. Table massage
 13. None of the above
 14. I don't know

7. When receiving a massage, what type of pressure do you typically request?
 1. Light
 2. Light/Medium
 3. Medium
 4. Medium/Firm
 5. Firm

8. Should interpreter training programs teach about various self-care techniques and/or options?
 1. Yes
 2. No

9. How did you learn about professional massages?
 1. Friends
 2. Coworkers
 3. Doctors
 4. Family
 5. Internet
 6. Advertisement

7. Other
10. Would you encourage other interpreters to receive massages?
1. No
 1. Why not?

2. Yes
 1. Why?

Demographic Survey Questionnaire

1. What is your age?
 1. 21–24
 2. 25–34
 3. 35–44
 4. 45–54
 5. 55–64
 6. Over 65

2. What is your gender?
 1. Female
 2. Male
 3. Other
 4. Prefer not to answer

3. Are you hearing, deaf, or hard of hearing?
 1. Hearing
 2. Deaf/deaf
 3. Hard of hearing

4. What is your ethnicity?
 1. White
 2. Hispanic or Latino
 3. Black or African American
 4. Asian/Pacific Islander

5. Native American
 6. Other
-
5. What is the highest level of education you have completed?
 1. High school degree or equivalent
 2. Associate's degree (i.e., AA or equivalent certificate)
 3. Bachelor's degree (i.e., BS or BA)
 4. Master's degree (i.e., MA or MS)
 5. Doctorate degree
 6. Other
-
6. What is your employment status?
 1. Full-time
 2. Part-time
 3. Unemployed
 4. Student
 5. Retired
-
7. Which state do you currently reside in?

8. What is your household income?
 1. Below \$10k
 2. \$10k–50k
 3. \$50k–100k
 4. \$100k–150k
 5. Over \$150k
-
9. Are you a member of (select all that apply):
 1. Registry of Interpreters for the Deaf (RID)
 2. National Association of Interpreter Educators (NAIE)
 3. World Association of Sign Language Interpreters (WASLI)
 4. National Black Deaf Advocates (NBDA)
 5. National Association of the Deaf (NAD)
 6. Other



Appendix C: Consent Letter

Consent for Participation in Questionnaire

Introduction

Hello, my name is Sarah Ray, and I am the lead researcher for this project regarding interpreter self-care. The purpose of this questionnaire is to gather data regarding the effects of massage therapy as a form of self-care for American Sign Language (ASL) educational interpreters in terms of job satisfaction and longevity. Self-care for ASL interpreters is an important area that is not well documented or studied. The completed research and study will be published through Western Oregon University as a master's thesis. If you are interested in participating in the questionnaire, then please complete the following consent form before continuing to the questionnaire regarding massages and interpreting. This consent form asks you to allow the researcher to save and record your responses to the following questions.

Participation

Participation in this study is on a volunteer basis with no anticipated side effects. Should you begin the study and then subsequently discontinue, there are no anticipated side effects. Please note that data for ASL educational interpreters who do not participate in massages are important to this study. Educational interpreters may discontinue their participation at any time during the questionnaire.

Eligibility

To be eligible to participate in this research, a participant must:

- Have work experience as an ASL educational interpreter
- Be at least 21 years of age
- Have a high school diploma, equivalent, or higher education

Risks

This questionnaire will be completed online, so there is potential that some of the information may be hacked or intercepted by nefarious actors.

- To mitigate risk, the survey results will be recorded in a password-protected file and public access to the survey results file will be restricted.
- To minimize individual personal risk, all individual data will be made anonymous within 72 hours of the survey closing.

Benefits

There are no direct personal benefits to completing this questionnaire or participating in this research. However, participation in this research will advance the body of knowledge for ASL interpreters and will serve to advance the corporate wellbeing of the interpreting profession.

Confidentiality

This questionnaire will remain anonymous.

Contact Information

Thank you for your time and willingness to help further our beloved profession. If you have any questions, comments, concerns, or any other inquiries, please contact

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Western Oregon University Institutional Review Board

Agreement to Participate

1. I agree to participate in the research study. I understand the purpose and nature of this study, and I am participating voluntarily. I understand that I can withdraw from the study at any time without any penalty or consequences.
2. I am above the age of 21.
3. I have a high school diploma, its equivalent, or higher education.
4. I have read and understand the above information.