A Comparative Study of the Impact of Acupuncture and Press Seeds to Auricular Points for Persons Suffering from Stress

A Capstone Project
Submitted in partial fulfillment of the requirement for the degree Doctor of Acupuncture & Oriental Medicine

By

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ABSTRACT

This study was a preliminary pilot study to compare the effectiveness of acupuncture and press seeds to the auricle in the treatment of stress. Three groups treated over a period of six weeks. The groups included an acupuncture treatment group, a press seed treatment group, and a control group that received no treatments. The sample consisted of four female, and two male subjects who participated in the study. Prior to treatment, all subjects responded to a demographic questionnaire, as well as a series of questions designed to assess current stress levels. Because of the limited number of subjects, only descriptive statistical analyses were engaged. The preliminary analysis indicates the possibility of the greater positive impact on the treatment of stress by using press seed treatment. The results were discussed in terms of theory and practice, and recommendations for future research were made.
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Chapter 1: Introduction

Background

In the United States and throughout the world, stress has reached epidemic stature. Stress is a major factor in many health issues affecting the world’s population. A recent study disseminated by the American Psychological Association (APA) purports that American citizens are concerned about stress and know that they need to make changes. The study also states that little is done to alleviate stress, and that health care providers tend not to be very supportive in the process of making behavioral or lifestyle changes to relieve stress. Notable figures within that study show that 20% of Americans consider their stress to be high or extreme, and that 69% of those 20% claim that their stress has increased over that past year, compared to 35% overall that claimed an increase in stress over the past year. Forty-six percent of the respondents believe that it is extremely important to discuss lifestyle changes that could improve their health. However, only 25% actually have those discussions with their health care provider, and only 22% claim their health care provider supports them in making lifestyle or behavioral changes to relieve stress and improve well being (APA, 2013).

It is known that stress can contribute to, exacerbate, or be the source of some serious health problems such as anxiety, insomnia, muscle pain, high blood pressure, a weakened immune system, heart disease, depression, and obesity (Sapolski, Romero, & Munck, 2010).

There are two major forms of stress—physical and emotional, which is further differentiated between acute and chronic stress. Physical stress can be from being exposed to too much heat, too much cold, too much dampness, trauma, too much exercise, too much work, too much sex, or even diseases a person already has. Emotional stress tends to come from our ability to created the stress response in our body, just from our thoughts, emotions, and memories (Sapolski,
Acute stress can be positive or negative depending on the intensity of the stress, how each individual handles stressful situations, and whether the individual is already overwhelmed with other stress factors. Chronic stress on the other hand leads to the breakdown of the body, and generally leads to health issues (Harvard Medical School, 2003).

Can stress be positive? The answer is yes. Since the primary purpose of the stress process is survival. Stress can be considered to be an adaptive mechanism which has existed since the beginning of time. The adaptive aspect of stress has been referred to as “the fight of flight mechanism.” Its purpose is to give our body the necessary boost to either flee from a threat or to directly confront or fight the threat, if necessary.

According to the principle of toxicology called hormesis, before negative effects occur from stress (or a toxin), the stress can actually make us stronger. A good example of this phenomena is exercise, a form of physical stress. If an individual starts to lift weights, he or she will start to become stronger. However, if the individual over-exercises, then they will start to see a plateau and then a decline in gains. If an individual persists with over-exercise, it is possible to experience a reversal with the onset of problems and the possibility of injury. The same principle applies to our immune system. As we are subjected to bacteria or viruses, our immune system becomes stronger. However, if we are too weak, or exposed to strong pathogens, our immune system may not be able to defend itself (Mattson, 2008).

Without effective behavioral, and other self coping strategies and systems for handling the damaging effects of stress, human beings are most often recommended by physicians to take prescription medications that have side effects, and that further place more stress on the body, leading to a downward spiral of added stress and poor health. However, more and more physicians are recommending alternatives or supplements to drugs, such as yoga, tai chi,
hypnosis, and cognitive training; because more studies are showing these methods are effective in reducing stress levels (NIH, 2010).

Traditional Chinese Medicine through the use of herbal formulas, acupuncture, meditation, and exercise (e.g. tai chi, qi gong, dao yin) has provided alternatives for the treatment of acute and chronic stress. One specific form of acupuncture is utilizing points that are located on the ear, otherwise known as Auricular therapy or as Dr. Li Chun Huang calls it, Auricular Medicine (Huang, 2005). From the time TCM students arrive in the clinic as student interns, they have been taught to consider including auricular points in their treatment plans. Typically practitioners use acupuncture needles, or they may apply press seeds after the acupuncture treatment so that the patient can continue having treatment between clinic visits. However, this process typically is viewed as a little extra in the treatment, not the focus of the treatment.

One day while driving with Dr. Li Chun Huang, and the late Dr. William Huang the researcher became intrigued as to whether acupuncture or press seed treatments are more effective than the other. The researcher asked those two experts out of all the methods we can use for Auricular Medicine (acupuncture needles, laser, magnets, press seeds, injections, etc.) which is the most effective. Dr. William Huang replied; “Even though needles are effective, the most effective is utilizing auricular press seeds. Dr. Huang [Li Chun] only uses seeds in her private practice, and has been doing this for over 40 years” (personal communication, March, 2010). Also to note, Dr. Li Chun Huang only uses auricular medicine in her private practice.

Research Objective

There are papers written about auricular points being used for stress mostly specific to PTSD (Golden, 2012). However, those papers only mention using acupuncture needles, or in the case of Battlefield acupuncture, they use special tacks in place of needles. That observation
brought into question which technique, auricular acupuncture or press seeds, is more effective. Are there studies that provide evidence regarding which technique is more effective? The researcher quickly discerned that there are no specific comparison studies to validate Dr. Huang’s statement (at least in English). As a result, it would do the TCM profession, and the world of stressed-out people a great service to discern which technique really is more effective. Finding the answer to that simple question can potentially help people get rid of their stress, and thus help them recover from some of the health conditions they are suffering from as a result of stress. The objective of the current research is to discern which is more effective, auricular acupuncture or auricular press seeds, in the treatment of stress.

While there has been considerable theorization and research accomplished from both Western and TCM perspectives regarding the impact of stress on the human body. One of the TCM factors that shows promise is the use of auricular therapy, including auricular acupuncture and auricular press seeds. To date it appears there have been no studies which compared the impact of auricular acupuncture and auricular ear seeds on patients suffering from stress, at least studies done in English. Only clinical observations have led some practitioners to the belief that press seeds may be more effective. It is the objective of the current research project to complete a preliminary study that compares the impact of auricular acupuncture with the impact of auricular press seeds on stress. It is this researcher’s hope that the data that emerges from this study will allow the TCM community at large to have a better understanding regarding how they can be most effective in the treatment of treat stress.

**Definition of Terms Used In The Current Study**

For the purpose of providing a common understanding, the following section provides brief definitions of factors that are repeatedly engaged in the current study.
• Adrenal Point: An auricular point located at the center of the lower part of the outer border of the Tragus. This point is used to regulate the function of the adrenal glands and diminish stress (Huang, 2005).

• Anxious Point: An auricular point located on the ear lobe in the center of area 7. It is used as the main point for diagnosing and treating emotional disorders, such as anxiety and stress (Huang, 2005).

• APA: American Psychological Association

• Auricular Therapy: A form of TCM utilizing the ear (auricle) for treatment of the body, based on a body micro-system, and utilizing four major nerves of the body. Most notably is the Vagus nerve (Huang, 2005).

• Be Happy Point: An auricular point located at the corresponding point of the anxious point on the posterior surface of the auricle. A major point for treating emotional disorders, such as anxiety and stress (Huang, 2005).

• Ear Center (AKA Vagus Nerve Point/Point zero): An auricular point located at the lower edge in the middle area of the Helix Crus, which regulates the function of the internal organs. Locate this point by dividing the ear in half horizontally and vertically this will be located in the center of those two divisions (Huang, 2005).

• Heart: An auricular point located in the depression at the center of the Cavum Concha. Tonifies the heart, and relieves anxiety or mental restlessness (Huang, 2005).

• Hormesis: A term used by toxicologists to refer to a biphasic dose response to an environmental agent characterized by a low dose stimulation or beneficial effect and a high dose inhibitory or toxic effect (Mattson, 2008).

• Hypothalamic-Pituitary-Adrenal axis (HPA Axis): The interactions among the
hypothalamus, pituitary, and adrenals constitute the HPA Axis. Also known as the LHPA Axis (Limbic-Hypothalamic-Pituitary-Adrenal). This is a major part of the neuroendocrine system that controls reactions to stress and regulates many body processes, including digestion, the immune system, mood and emotions, sexuality, and energy storage/expenditure (Lescheid, 2011).

• Liver: An auricular point located at the lateral inferior area of the Cymba Concha. Removes the stagnation of liver Qi, improves the function of the gallbladder, invigorates the function of the spleen, regulates the vital functions of the stomach, invigorates the flow of Qi and blood in the meridians, and stops pain (Huang, 2005).

• National Acupuncture Detoxification Association (NADA): An organization utilizing auricular therapy for helping people to detox from substance abuse, but also their protocol has shown to be effective in treating PTSD (National Acupuncture Detoxification Association, n.d.).

• Occiput: An auricular point located at the midpoint of the line on the exterior Antitragus going from the temple to brain stem. The distance between temple to occiput is the same as that between temple to forehead. Can be used to tranquilize the mind (Huang, 2005).

• Post Traumatic Stress Disorder (PTSD): A type of anxiety disorder which is brought on from experiencing an extreme emotional trauma, involving the injury, or the threat of injury or death (American Psychiatric Association, 2000).

• Press Seeds: A form of therapy for ear therapy in Chinese medicine. It consists of either a seed or metal ball attached to a small piece of adhesive bandage that is taped to specific points on the ear for specific treatments (Huang, 2005).

• Shen Men: An auricular point located on the ear in the triangular fossa. Tranquilizes the
mind, and helps regulates the nervous system (Huang, 2005).

- **SSRIs**: Selective serotonin re-uptake inhibitors or serotonin-specific re-uptake inhibitors are a class of compounds typically used as antidepressants in the treatment of depression, anxiety disorders, and some personality disorders (Henry & Demotes-Mainard, 2006).

- **Sympathetic**: An auricular point located on the ear at the end of the upper edge of the lower crus of the Antihelix. Regulates the function of the vegetative nerves but also for functional vegetative nerve disturbances (Huang, 2005).
Chapter 2: Literature Review

Overview

To fully understand the nature, impact, and treatment of stress, from the Western and Eastern points of view, a thorough literature review was completed. The literature review was conducted primarily by searching PubMed and Ebscohost websites for peer reviewed articles. Additional searches were conducted utilizing the Yo San University Library, as well as the researcher’s personal library. Among the descriptors used in the process of conducting the searches were the following: “stress,” “stress and anxiety,” “treatment of stress,” “Western treatment of stress,” “TCM treatment of stress,” “auricular acupuncture,” and “auricular ear seeds.”

This chapter begins with consideration of definitions, physiological manifestations, and the measurement of stress. It proceeds to explore the Western medicine, and TCM perspectives regarding stress. The chapter culminates with a summary/integration section which sums up the research and theory regarding stress, and leads directly to the need for the current study.

Definitions of Stress

Stress as a noun is defined as a constraining force or influence. One aspect of stress is its status as a physical, chemical, or emotional factor that causes bodily or mental tension, and which may be a factor in disease causation and/or exacerbation. Another aspect of stress is the state of being that results from the presence of a stressor, especially a state of bodily or mental tension resulting from factors that tend to alter existent equilibrium (Merriam-Webster Dictionary, 2006).

From the above definition one can discern that stress on the body can be physical (trauma, cold, heat, etc.), chemical (chemotherapy, household toxins, radiation, etc.), or emotional (anger, worry, fear, etc.). Each type of stress can contribute to disease. The above definition also
explains that stress can put tension on the body, which in turn can create more stress. The definition of stress implies that stress can be a vortex that builds upon itself until it becomes rampant and self sustaining. The self sustaining cycle of stress can be deadly, since it may lead to severe health conditions, and even to suicide (Health & Stress, 1997). The original Hans Selye stress model duplicated below demonstrates how the stress cycle works.

Figure 1: Hans Selye model of stress

![Hans Selye model of stress](http://psychology4a.com/stress%202.htm)

Why We Need To Focus On Stress

Stress is not simply an inconvenience that we have to tolerate, it can lead to a major disruption in a person’s life and in the lives of those around the person under stress. Stress also has an inevitable impact on society at large. The impact of stress on society can be illustrated by examining the financial and health costs that are associated with stress. According to various reports online stress costs over $300 billion dollars each year in healthcare costs. According to the APA study released in 2013, 69% of the people that reported they had high stress also reported an increase in stress over the past year. Thus the cost to the stressed individual and the cost to society will continue to increase as well (APA, 2013).

Physiological Manifestations of Stress

Stress is often identified as a one of the causes of accelerated aging, as well as being an
important factor in disorders such as cardiovascular disease and depression. Stress is viewed by researchers and practitioners as contributing to other disorders. Being “stressed out” means that a person is overcome with anxiety, anger, and frustration which may be pushed beyond a person’s ability to cope. Time pressures, daily hassles at work and/or home, economic insecurity, poor health, interpersonal conflict, accidents, natural disasters, and violence are perceived as the most frequent causes of stress. Each of these situations has the potential to evoke the classical “fight or flight” response. Stressors may be acute and can lead to depression, anxiety and PTSD. Other forms of stress may be chronic, such as the enduring impact of a tragic event (Fillit, 2010).

Being “stressed out” may be accompanied by other behaviors such as poor sleep, overeating, over consumption of calories, smoking, or drinking alcohol excessively. Stress may also cause a reduction of social interactions and physical activity. It may also lead to weight gain, metabolic deregulation, and atherosclerotic plaques. Life’s daily stressful events can produce changes in human physiological systems, and result in the deterioration of health. Over time stress results in wear and tear on the body, a syndrome known as allostatic load/overload. This phenomenon results not only from the impact of the experience of stress, but also from genetic constitution. Individual behaviors, and lifestyle habits, and early life experiences that are paired with stress become active in establishing life-long patterns of behavior and physiologic reactivity. Hormones and other internal reactions from stress as well as allostatic overload may protect the body in the short run. However, they ultimately lead to adaptation by allostasis (Fillit, 2010).

When dangers are sensed, nerve impulses go to the hypothalamus, a syndrome which increases sympathetic stimulation and the secretion of adrenal hormones. These stimuli and their subsequent reactions are ultimately labeled by the individual as “stressors.” Stressors may be
physical, psychological, or a combination of both. Physical stressors include threats to tissue, extreme heat or cold, decreased oxygen concentration, infections, injuries, prolonged heavy exercise, and loud sounds. Physical threats are usually accompanied by unpleasant or painful sensations (Shier, 2002).

Psychological stressors emerge from thoughts about real or imagined dangers, personal losses, unpleasant social interactions, or any factors that threaten a person. The following are typical examples of the manifestation of psychological stress: anger, fear, grief, anxiety, depression, and guilt. Psychological stress can also emerge from pleasant stimuli such as friendly social contacts, joy or happiness, or sexual arousal if the person associates those stimuli with anxiety provoking experiences. The factors that produce stress vary greatly from person to person, and from time to time (Shier, 2002).

**The Measurement of Stress**

Stress is a subjective force that manifests uniquely in each person. One person may experience an event and be highly stressed by it, while another isn’t bothered at all. There are several ways to discern if a person is under stress. The first and most obvious is through the report of each person’s self perception of stress. Secondly, stress can be discerned through standardized measures of the physical and emotional manifestations of stress. Besides each individual’s perceived stress levels, quantitative instruments can be used to measure stress loads on the body. A third way for assessing stress is via physiological laboratory testing. Serum cortisol (an important glucocorticoid) is a substance released by the adrenal glands at times of stress when the “fight or flight” mechanism is kicking in. Cortisol levels within the body follow a cycle that includes a peak in the morning around 7am, and then proceeds to drop throughout the day as is evidenced in the figure below. Of course if a person works at night, it is
possible that this factor may change over time.

![Circadian Release of Cortisol](Figure 2: Circadian Release of Cortisol)

In the process of monitoring stress, cortisol levels should be checked at a minimum twice a day, once in the morning and once in the afternoon. In order to provide maximum monitoring, cortisol level should be checked four times a day, between the hours of 6am-8am, 11am-1pm, 4pm-5pm, and 10pm-midnight. The cortisol level is best assessed through a saliva test to be able to check all four times a day (Borkin & Stuppy, 2000).

If there is a change in the cortisol cycle, there may be an issue with the HPA Axis, either through disease, medications, or the presence of excess stress. By combining the cortisol test with a questionnaire to determine perceived stress one can determine if a person is experiencing high levels of stress or not.

**Hormesis**

In the biology and psychology of stress, hormesis is a concept which indicates the potentially beneficial aspects of stress. The basic premise of hormesis is that what stress or adversity doesn’t kill a person, has the potential to make her/him stronger (Mattson, 2008). The concept of hormesis is based on toxicology. The premise of the concept is that at low doses a toxin can be beneficial to the body, but at a higher dose can be deadly. The same principle applies to stress.
A little stress can do the body good, but problems arise when we are overwhelmed by stress, either acutely, chronically, or from both. A good example of the hormesis concept can be observed in exercise. With a little to moderate exercise, the body gets healthier and stronger. However, if a person over-exercises, the body can no longer adapt and starts to break down. Hormesis is observed when strength and conditioning from exercise strength reach a plateau and then decrease, eventually leading to potential injury. As illustrated below stressors lead to a weakness. We need to be able to manage stressors so that they don’t get to the point of causing damage.

Figure 3: Homeodynamics of Stress

![Homeodynamics of Stress](http://sureshrattan.com/category/researchs/c37-hormesis/)

**Western Medicine Perspectives On Stress**

*Robert Sapolsky On Stress*

Over 20 years ago Robert Sapolsky initiated studies regarding the effects of stress by measuring cortisol and epinephrine levels in baboons living naturally in Africa. One notable observation that Sapolsky made is that when an animal escapes a life or death situation, the stress response shuts down and the animal returns to normal. However, in humans we don’t seem to be able to find the shut off switch as easily as animals, as a result, the stress response goes on and
on. This observation is partially explained by the fact that humans can turn on the stress response on a purely psychological level. Humans are able to create stressful situations only in their minds, for example, the fear of asking someone for a date. The result is often that they don’t ever ask. However, the body does not know that there actually isn’t attack against itself. As a result, the stress response still physically occurs within the body. A major problem is that humans engage this cycle repeatedly, worrying if a lover is cheating, if a high or low score was achieved on an exam, or how a public speech will be delivered. Eventually the stress response becomes more damaging than the actual stressor that stimulated it in the first place (Sapolsky, 2010).

What Sapolsky observed in the baboon troop is that the lower ranked members had more stress, higher blood pressure, and increased heart rates than the higher ranking members. This observation is explained by the fact that the lower ranked members never knew when they would be bullied by the higher ranked members. As a result, the lower ranked members were under constant threat of potential attack and thus experienced higher levels of stress. Sapolsky also noticed that within the lower ranks the immune system wasn’t as functional, reproductive cycles were more vulnerable to being irregular, and brain chemistry was similar to depressed individuals. His conclusion was that these factors are predictive of a shortened life for the baboons (Sapolsky, 2010). Another observation by Sapolsky is that chronic exposure to glucocorticoids also can kill brain cells. The hippocampus is directly affected by stress, and since the hippocampus is the area where we learn and remember things, chronic stress changes the brain so that we lose the capacity to remember things. Could this also be a reason why there are more cases of alzheimer’s? This observation was further supported by McEwen of who believes that stress can interfere with logical and cognitive processes, a phenomena experienced
frequently by students when on final exams they cannot recall factors that they know well (McEwan & Lasley, 2002). Lastly, Sapolsky observed that an individual organism does not have to be actually low ranking or poor in life skills. What is important is the self perception of being low ranking or poor in life skills. Again one’s thoughts are enough to cause the onset of the stress response. It doesn’t help that society reinforces the perception of low rank via commercials, movies, and pressure to keep up with the Jones’s (National Geographic Society, 2008).

The Whitehall Studies

A UK study that began in 1967 was designed to determine how stress affected civil servants in the prevalence of heart and lung disease. This was followed up in 1985 with the Whitehall II study which consisted of over 10,000 civil servants. The primary focus of this study was to determine the relationship between work stress and health (Rosch, 2008). The main factor that was determined is that there is a direct correlation between stress, social ranking, and how you put on weight (not just putting on weight, but the distribution of fat). The lower an individual is in the hierarchy, the higher is the risk of heart disease and other diseases, directly tracked to the individual’s level within the government (National Geographic Society, 2008).

Macaque Artery Study

For two decades Karen Shrivrey studied the arteries of captive macaque monkeys. What Shrivrey noticed was that stress hormones can trigger an intense negative cardiovascular response, a pounding heart, and increased blood pressure. If a macaque monkey had little history of stress, the arteries tend to be clean, but with increased stress more plaque develops in the arteries. The reason for this is because stress increases the blood pressure, which then can damage the artery walls, which becomes an area to host for plaque, usually at the Y junctions of
arteries.

Shrivrey also noticed that the stress you feel today, will affect your health tomorrow and for years to come. When neurotransmitters in the brain called dopamine binds with specific receptors it signals pleasure. The monkeys at the top of the hierarchy shows lots of dopamine, whereas the stressed monkeys at the lower level of the hierarchy are very dull, thus it means that things that you normally would consider pleasurable isn’t as much anymore. Lastly she noticed that the subordinate monkeys have a higher percentage of excess fat around their abdomen than the dominant monkeys, evidence to what was noticed in the Whitehall study (National Geographic Society, 2008).

Telomeres And Stress

Elizabeth Blackburn a biologist at the University of California in San Francisco, the leader in the study of telomere research, studied what happened at the heart of cells of mothers experiencing chronic stress. Humans have 46 chromosomes each capped by telomeres which protects the ends of the chromosomes. As humans age, these telomeres shorten, also stress by the way of stress hormones can shorten telomeres, the length of the telomeres directly relate to the amount of stress somebody is under, as well as the number of years they have been under stress. This is not just someone complaining about being stressed, but evidence of serious aging caused by chronic stress (National Geographic Society, 2008). She also discovered an enzyme called “telomerase” that can repair the damage done to the telomeres. In another study with mothers of children that are under high stress, Elissa Epel from the University of California San Francisco found that for every year a mother takes care of a special needs child, it’s equivalent to six years of aging (National Geographic Society, 2008).
The Dutch Famine Study

Researcher Tessa Rosebloom wanted to know if there were any lingering effects of the Holland Winter of starvation. She determined that our body responds to famine much as they do to other stressors. She studied the children of women that survived those arduous days, whom could have been affected by stress from the famine. She identified 2,400 people that could have been affected, studied those born before and after the famine, and came to the conclusion that not only were the mothers affected by the stress, but so were the babies, and they still suffer the effects 60 years later. She found many of those children have an increased risk of cardiovascular disease, more incidences of hypercholestoremia, they are more responsive to stress, and generally they are in poorer health than those born before or after the famine. Thus the conclusion is that stress before birth can affect the child for a lifetime (National Geographic Society, 2008).

Holmes and Rahe Stress Scale

In 1967 Holmes and Rahe developed a scale to determine stress based on a person’s adjustment to social events over the past 12 months. This scale is based on 43 possible life events that could affect a person, each with a different score. After totaling up the score, it would indicate if the person’s stress was at high risk of illness (300+), moderate risk of illness (150-299), or slight risk of illness (<150) (Holmes & Rahe, 1967).

Western Medicine Treatment of Stress

There really hasn’t been a satisfactory answer provided by Western Medicine regarding the treatment of stress, except the recommendation to use strong benzodiazepines to achieve a sense of calm. Some drugs, such as Valium, Ativan, and Xanax, can actually be counterproductive, because they only mask the symptoms, and patients never learn effective ways to cope with
stress. The use of such medications can also lead to chemical dependency (Henry & Demotes-Mainard, 2006).

For critical cases like PTSD, anxiety disorders, or clinical depression some Western physicians may prescribe SSRIs, such as Zoloft, Paxil or Prozac. These medicines only mask the problem and do not truly treat the problem. The medications do not teach the patient to cope with stressors in life. On top of just masking to problem, all of these drugs have strong side effects which add to the stress load the body is already under (American Psychiatric Association, 2000).

However, more doctors are suggesting alternate means to handling stress such as cognitive restructuring, journal writing, time management, relaxation techniques, diaphragmatic breathing, meditation, and yoga (Wallace, 2007).

**Traditional Chinese Medicine Perspectives on Stress**

Traditional Chinese Medicine recognizes the effect that stress has on the bladder, gall bladder, heart, kidney, large intestine, liver, lungs, pericardium, small intestine, stomach, and spleen. Additionally stress is known to affect blood either in the form of deficiency, or blood stasis, and also directly to the heart blood, and liver blood (Maciocia, 2005).

However, typically when people in Chinese medicine discuss stress they usually define it as Liver Qi Stagnation. This is because the Liver Qi controls the smooth flow of Qi throughout the body, and when subjected to stress it easily stagnates. This stagnation can lead to irritability and even more stress, emotionally and physically, thus again another vicious cycle (Lyttleton, 2004).

With that said, the Chinese medicine view of the body isn’t so simple as to simplified stress into just one diagnosis, due to there are many root causes that can lead to stress, and even lead to Liver Qi Stagnation. Some causes can be dysfunction with any of the other organs, as well as
either deficiency or stagnation of Qi and/or blood within the other organs (Maciocia, 2005).

**TCM Treatment of Stress**

TCM can approach the treatment of stress from many angles. One is with Chinese herbal medicine, with formulas such as Xiao Yao San or Chai Hu Long Gu Mu Li San (Chen & Chen, 2008). Another is acupuncture which has a lot of studies for the treatment of pain, and also stress. One such randomly controlled study shows that acupuncture may be an efficacious treatment option of the treatment of PTSD (Hollifield, 2007). Included in TCM treatments would be movement exercises such as dao-yin, or tai ji quan, as well as meditation.

**Auricular Medicine**

One unique form of TCM is auricular medicine (or auricular therapy), which is using the ear as a microsystem for diagnosing and treating health concerns and diseases of the body and mind (Huang, 2005).

One of the most popular protocols utilizing auricular medicine is the NADA protocol (National Acupuncture Detoxification Association, n. d.).

**Literature Review Integration**

There has been a great deal of theorization as well as research regarding the nature of, experience of and the cycles of stress. Both Western medicine and Traditional Chinese Medicine have well developed perspectives regarding the origins and treatment of stress. For many years TCM practitioners and educators have utilized auricular acupuncture and auricular press seeds as a mechanism for relieving stress.

Some renowned TCM practitioners have verbally expressed favor regarding the impact of press seeds such as the private conversation the research had with Dr. Li Chun Huang (personal communication, March, 2010). However, to date there are no pilot or large scale studies that
have compared the outcome of acupuncture and press seeds in the treatment of stress (at least written in English). As a result a gap or blind spot exists in the literature. It is the intent of the current study to begin to fill that gap by providing data from a small sample pilot study that compares the impact of auricular acupuncture and auricular press seeds in the treatment of stress.
Chapter 3: Method

Designation of Research Design

The current study will engage a pre/post experimental study method that is suitable as a preliminary small sample study. This pilot study is designed to provide preliminary information regarding the comparative effectiveness of using acupuncture needles or press seeds on the ear for the treatment of stress.

The use of the pre/post experimental study method is appropriate for this study as it involves the direct application of a treatment with pertinent measures being taken both prior to and after treatment. This method was chosen because the cross-sectional studies are specifically geared towards the demonstration of a direction for a “cause and effect” relationship. In this case the researcher is attempting to demonstrate a “cause and effect” relationship between the application of a treatment technique (acupuncture and press seed), and the outcome of that treatment (Sheridan, 1971). The modification of classical clinical trials method was chosen for, and is appropriate for this study for a number of reasons. First, the method is one that has the potential to demonstrate the direction for a “cause and effect” relationships. Secondly, with the modification of limiting the current study to a small sample size, the clinical trials method is one that is within the time and resource limitations of a doctoral capstone project, and consistent with the researcher’s personal time and resource limitations.

Subjects

The APA stress study was used as a source for considering the populations with the highest stress levels (APA, 2013). In view of that study the researcher chose to focus the current research on the two age groups that were identified in prior research as experiencing the highest levels of stress. The population which is identified as having the highest stress levels are
individuals who are 21-33 years of age and are popularly known as “Millennials”. The group that is identified as the second highest stressed levels are individuals who are 34-47 years of age, who are popularly known as “Gen Xers”. Although the APA study shows that both of these groups experience high levels of stress, the secondary group (Gen Xers) are more established in life, whereas the primary stress group (Millennials) may still be in college, just starting a career, or just generally not settled in life at this time of their life, thus the potential of being less stable can be a major variable in their stress levels. Because of these factors, the researcher felt that the younger group offered dynamics that are difficult to discern and control. Given the current economy and socio-cultural conditions, the younger group is likely to be less settled, more diverse in terms of cultural identity and perhaps more difficult to recruit for research purposes. As a result, the researcher chose to extend the current study to include a sample of individuals that comprises individuals from both age categories identified as being characterized as high stress groups. While the goal of the current study was to target and only use the secondary group (Gen Xers), both the Millennials and Gen Xers were solicited for inclusion in the study. The following constitute the inclusion criteria for subjects to participate in the current study:

- Full time working adults
- Ages 21-47
- Those scoring qualifying levels on the following preliminary stress survey (Appendix F).
  - > 30 Section A
  - > 0 Section B

The following constitute the subject exclusion criteria for the current study:

- Anyone currently in psychotherapy or psychiatric treatment
- Anyone that is unable to effectively fill out forms on their own, or communicate on their
own, or is unable to explain any changes in their symptoms and body from each treatment.

- Anyone who is currently receiving acupuncture for any reason
- Anyone currently using any method for combating stress (medication, meditation, medical marijuana, etc.)
- Anyone unable to read or speak English
- Anyone physically unable to complete the required tests.

**Demographic and Subject Status Instruments**

Several instruments were used to identify whether a potential subject would qualify for participation in this study. These instruments used in this study were designed to assess if subjects are experiencing moderate to high levels of stress. Given the objective of the current study it is obvious that it is best to include subjects who experience higher levels of stress, since changes in the stress level of higher stress level subjects will be easier to discern over the course of the study. These instruments include a preliminary stress survey, a postural hypotension test, and a pupillary reflex test.

The preliminary stress survey (Appendix F), has four parts. The first part of this survey asks the general questions for inclusion/exclusion in the study. Responses in this section are indicated with a simple Yes/No check box. The items include indication of whether the potential subject is being treated by a psychiatrist or psychologist, and whether the potential subject is employed full-time, considered mentally challenged/handicapped, currently receiving acupuncture for any reason, or currently using any method to combat stress, including medications, meditation, and medical marijuana.

The second part of the preliminary stress survey provides a general score based on symptoms corresponding to adrenal fatigue. This section includes 13 symptoms which the
subject was asked to check if they have experienced it within a half year, one year, or two or more years. Each symptom has a number assigned to it. That number is multiplied by the number of years the potential subject reports having experienced the symptom. If the combined score was 31 or greater, the subject qualified for the study. The symptoms included the following factors with indication of the numerical value of each symptom:

- Excessive Fatigue 10
- Dry & Thin Skin 10
- Nervous/Irritability 9
- Low body temperature 9
- Premenstrual tension 8
- Inability to concentrate 8
- Mental depression 8
- Food allergies & sensitivities 7
- Craving for sweets 7
- Headaches 6
- Alcohol intolerance 6
- Poor memory 5
- Heart palpitations 5

The third part of this instrument is the simplest. Potential subjects were asked to check a box if they have Chronic Pain, Chronic Inflammation, or both. If the subject scored positive on the adrenal failure symptoms section, they could skip this section. However, this section does show that potential subjects are experiencing stress, since both chronic inflammation or chronic pain cause the body to be in a constant state of stress.
Finally, the fourth part of this instrument includes the Holmes and Rahe Social Readjustment Scale, which was developed to measure a person’s stress level based on events that have occurred during the past 12 months (Holmes & Rahe, 1967). The scale includes 42 items, with each item assigned a value. The full list of questions and values are detailed in the Preliminary Stress Survey included in Appendix F of this document. For the Holmes and Rahe scale, this was not used as a form for inclusion or exclusion.

The Postural Hypotension Test tells if there is adrenal fatigue from hypoandrenia in an individual. The test consists of taking the blood pressure while laying down, and then again immediately after standing, and comparing the two results. If there is any drop in blood pressure it is abnormal, but for a patient experiencing adrenal fatigue a usual drop will be 10-15 mm, but can be as much as a drop of 40 mm. The reason this happens, is because when we stand up the body has to increase blood pressure to counteract a drop in blood pressure from gravity. This mechanism is controlled by the splanchnic nerves, which in turn are controlled by the adrenal system. Thus if the adrenal glands are fatigued they can’t adequately stimulate the splanchnic nerves to keep the blood pressure balanced, and that when a drop in blood pressure will be noticed (Goodheart, 1965).

The Pupillary Reflex Test is another instrument for assessing adrenal fatigue. This test consists of shining a light into one eye to see the pupil constrict as a reflex to the light. If the adrenals are strong, the pupils will remain constricted. However, if the adrenals are fatigued the pupils will not be able to maintain constriction and will return to the pre-constrictive state, or will alternate constriction and dilation after 40 seconds (Goodheart, 1965).

After the subjects had been chosen to be included in the study, they were asked to complete a Demographic Questionnaire (see Appendix H). This questionnaire provided data that could
potentially reveal connections between demographic factors and the experience of stress. The Demographic Questionnaire taps standard life situations and background factors. However, it also included tongue, pulse, and TCM diagnosis to see if there might be a difference in the “type” of TCM diagnosis in relation to changes in stress from the treatment they receive. The following is a listing of the factors that were included in the Demographic Survey:

- Age
- Gender: Female / Male
- Education: Less than High School / High school or GED / Some college / Associate, Bachelor, or Masters / Doctoral degree
- Ethnicity: Asian or Pacific Islander / African-American / Caucasian / Hispanic or Latino / Native American or Alaskan / Multiracial
- Marital status: Divorced / Living with committed partner / Living with roommate (platonic) / Married / Separated / Single / Widowed
- Household income: Under $10,000 / $10,000 - $19,999 / $20,000 - $29,999 / $30,000 - $39,999 / $40,000 - $49,999 / $50,000 - $74,999 / $75,000 - $99,999 / $100,000 - $150,000 / Over $150,000
- Area living in: Urban / Suburban / Rural
- Living situation: Renting / Own home
- Children under 16 years old in your household: 0 / 1 / 2 / 3 / 4 or more
- Role in industry: Skilled laborer / Trained professional / Junior management / Middle management / Upper management / Self-employed / Other

After being chosen to be included in the study, and before the start of any treatments, the subjects were asked to complete the Pre/Post Stress Survey and the Quality of Life Survey
In order to obtain quantifiable “before and after” stress data, these surveys were completed by each subject at the start of the study as well as at the end of the study. The no-treatment control group also completed the surveys when first enrolled into the study, and then again after seven weeks. The Quality of Life Survey consists of eight areas of life that subjects responded to on a scale of 1-10, with 1 being poor and 10 being excellent. The eight areas are: Mental Fitness, Physical Fitness, Financial Fitness, Spiritual Fitness, Family Fitness, Relationship Fitness, Career Fitness, and Social Fitness.

**Pre and post treatment instruments**

The Pre/Post Stress Survey (Appendix G) consists of five sections each with several questions. The sections are: Physical Indicators, Sleep Indicators, Behavioral Indicators, Emotional Indicators, and Personal Habits. For each question in each section the participant scored indicated one of the following: Almost Always (on five days a week), Most of the time (on three days a week), Some of the time (on one and one-half days a week), Almost never (less than two hours a week), or Never. Each section yielded a total score, which served as an indicator of each subject’s level of stress. Stress levels were categorized from “Very Low” to “Dangerous,” as indicated in Table 1 below. It should be pointed out that for this survey, no single question indicated that the subject is experiencing stress. However, by examining all the totals scores of groups of items, it may be possible to define which area(s) of life stress mostly affects the subject.
Table 1: Stress levels as indicated by the Pre/Post Stress Survey Levels

<table>
<thead>
<tr>
<th>Personal Stress Levels</th>
<th>Very Low</th>
<th>Medium</th>
<th>High</th>
<th>Very High</th>
<th>Dangerous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>22</td>
<td>30</td>
<td>38</td>
<td>48</td>
<td>54+</td>
</tr>
<tr>
<td>Sleep</td>
<td>5</td>
<td>8</td>
<td>10</td>
<td>12</td>
<td>14+</td>
</tr>
<tr>
<td>Behavioral</td>
<td>18</td>
<td>27</td>
<td>36</td>
<td>45</td>
<td>50+</td>
</tr>
<tr>
<td>Emotional</td>
<td>21</td>
<td>29</td>
<td>37</td>
<td>46</td>
<td>55+</td>
</tr>
<tr>
<td>Personal</td>
<td>9</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>30+</td>
</tr>
</tbody>
</table>

Subject Recruitment Procedures

A flyer (Appendix A) was designed to be distributed to health care professionals, networking groups, current patients, as well as at public talks, and places where potential participants may frequent. Advertisements were posted on Facebook, the researcher’s website (Appendix B), and other similar websites.

While different mediums were engaged to reach potential subjects, all advertisements and announcements for attracting subjects included the same information. Potential participants were able to contact the principle researcher in person at Arvada Acupuncture & Wellness by telephone, or by e-mail to learn more about participating in the study, or if they had any concerns prior to, or during the study.

The first requirement of all potential subjects was that each had to pass the preliminary stress survey. Once qualified for participation, each subject in the press seed group then had a piece of the adhesive tape placed on her/his ear for two days to determine if there existed any allergies to the adhesive. If the subject showed any irritation from the adhesive tape, they would be included in either the acupuncture group, or the control group which ever was next in line for a participant.

As part of the recruitment procedures, each participant completed the Postural Hypotension
Test as well as the Pupillary Reflex Test to discern the presence of absence of adrenal fatigue, which is a prominent impact of chronic stress. The Postural Hypotension Test includes having the subjects’s blood pressure checked laying down as well as standing up. The Pupillary Reflex Tests assesses the constriction of each subject’s pupils with a light.

If a potential participant had a qualifying score on the Preliminary Stress Survey (Appendix F), and tests positive on both the Postural Hypotension Test and the Pupillary Reflex Test, then they were then admitted to the study.

Participants were randomly assigned to the acupuncture, press seed, or control groups on the basis of the order of enrollment. The first participant was assigned to the acupuncture group, the second participant was assigned to the press seed group. If a subject was shown to be allergic to the adhesive, they were then assigned to the Control Group. The third qualifying participant was assigned to the control group, unless the second person was allergic to the adhesive, then they were assigned to the press seed group. The cycle was repeated to populate the three groups for the study.

**Clinical procedures**

After all participants met the inclusion criteria and scored positive on the tests, they completed the Informed Consent Form (Appendix J), Pre/Post Stress Survey/Quality of Life Survey (Appendix G), the Demographics Survey (Appendix H), and the Colorado State required Mandatory Disclosure Statement (Appendix I).

The participants who were actually treated in either with acupuncture or press seeds groups were instructed to attend weekly treatment sessions for six consecutive weeks, plus an additional final session to complete the Post Stress Survey (Appendix G). The subjects from the acupuncture and press seed groups were invited to attend one additional week to review their
pre- and post-treatment scores if they wished. Each participant was committed to a maximum of 8 weeks involvement to complete the study including the initial interview with paperwork, the pre-testing, the series of treatments and finally the post-study review.

There were three groups of two participants each. Group A was treated with acupuncture needles once a week, each week for six weeks. Each treatment session took no longer than 30 minutes. Group B was treated with press seeds, each week for six weeks. The press seed treatments took no longer than 15 minutes. Those subjects were instructed to wear the press seeds for six days, and stimulate them three times a day. Group C was the control group and did not receive any treatments. The control group subjects were only required to complete all the surveys and forms.

The two treatment groups had the following auricular points stimulated, either with acupuncture needles for Group A, or press seeds for Group B:

- Shenmen / Heart / Liver / Occiput / Adrenal gland / Anxious / Be Happy

The choice of these points are based on a protocol designed by Dr. Li Chun Huang. However, the researcher modified her protocol by removing a couple of points, and adding the adrenal point.

**Human Subjects Ethical Considerations**

In order to assure the ethical treatment of human subjects, the standard procedures of the Yo San University Institutional Review Board (IRB) were followed. The copy of the IRB approval letter is included in Appendix L. In the IRB process special focus was placed on the health, safety, and privacy of subjects. The Yo San University IRB Manual follows guidelines introduced to the scientific community through the Belmont Report released in 1979. The current study involved interactions with human subjects who require complete confidentiality.
As a result only the researcher and his advisor knows the names of the participants. Code numbers were assigned and used to identify the data of all participants. Only the researcher and his advisor had access to the coded names. None of the names were used in data collection forms. To provide data protection in the event of a computer crash, or other unanticipated event, all data were maintained on a flash drive dedicated to this study and locked in a fireproof lock box, which was locked in a file cabinet in the researcher’s office. These files are stored at Arvada Acupuncture & Wellness, 8910 Ralston Rd. Suite 102, Arvada, CO 80002, and with a back up maintained in the office of the Capstone Project Advisor, Dr. Larry Ryan at Yo San University of Traditional Chinese Medicine 13315 W. Washington Blvd. Los Angeles CA 90066.

Only the primary investigator had access to the flash drive. The capstone advisor, Dr. Larry Ryan, received a password protected copy of the files for safe keeping. No others had access to any of the non-coded records for data entry, or any other reason. All records will be destroyed after three years by the researcher according to the policy of Yo San University of Traditional Chinese Medicine.

The only paper files that are stored at the researchers office in a locked file cabinet, is the non-coded Mandatory Disclosure Statement, and the Informed Consent Form. These are necessary to keep on file in case any question appears as to the participant agreeing to be part of the study. Each file had the participant’s signature, however, neither form included their privacy code. All other forms were shredded after all the information was recorded in a database saved on the protected flash drive.

**Data collection, and reporting**

All data were collected on forms organized specifically for the recording of data generated
from the current study, and then transferred to a master spreadsheet. Final data analysis was completed with consultation of a statistician. All treatments were provided by the Principal Investigator at Arvada Acupuncture & Wellness, 8910 Ralston Rd., Suite 102, Arvada, CO 80002.

**Data analysis**

With the consultation of a statistician, the researcher analyzed the data resulting from the study. Data were derived from the Pre/Post Stress Survey/Quality of Life Survey (Appendix G), and also the Demographics Questionnaire (Appendix H). The data generated were analyzed using both descriptive and inferential statistical procedures. The primary indicator was the data that emerged from T-Tests for the significance of difference between the means of several indices generated at the start and end of the study.
Chapter 4 ~ Results

Data Overview

The current research was a pilot study that gathered demographic data, as well as pre- and post-treatment data regarding a small sample of individuals to compare the effectiveness of the use of acupuncture and press seeds for the treatment of stress. Data were also collected for a control group that received no treatments. As a preliminary pilot study, the number of subjects involved in the current study was very limited. Because of the small sample size, it was not possible to perform any parametric inferential statistical procedures. However, as a preliminary study, the trends will be described so that future research may follow up with expanded subject samples.

Demographics

A total of six subjects participated in this study. The following section will summarize demographic data regarding those subjects. The variables of age, gender, education, ethnicity, marital status, and household income are addressed. Additionally the factors of urban/suburban/rural residence; home ownership vs. renting; children under 16 years of age in the household; and profession of the subjects were also gathered and summarized below.

There were four females and two males who participated in the study. The four females included two in the acupuncture group and two in the press seeds group, the two males comprised the control group. It is interesting to note that 67% of the study participants were female, which in clinical observation seems to match the same ratio of men to women that seek out acupuncture care.

Of the six participants, three had some college, two had an advanced degree (AS, BS, MS), and one had less than a high school diploma. From these data it appears that higher educated
people may be more open to acupuncture, may be under higher stress, and/or more open to participating in studies.

Of the participants, half considered themselves white, and two indicated that they are multi-racial. One indicated Asian ethnicity. The observed range of ethnicity of the subjects could be a factor of the population in the area of the study. According to the 2012 Arvada demographics 81.3% of the population are white alone, 2.1% are Asian alone, and 1.6% are two or more races (City Data, 2013)

Of the six participants, three were married, two of which were in the press seed group and one in the control group. In the acupuncture group one was single, and one was living with a steady partner.

The household income of the six participants ranged from $10,000 to $100,000. Two subjects were within the $75-100K range, one in the control group and one in the press seed group. There was one participant in the $10-20K range (control), one in the $30-40K range (acupuncture), one in the $40-50k range (press seed), and finally one in the $50-75k range (acupuncture).

Of the six participants four live in the suburbs, and two in urban areas. Of those living in the urban areas, one was in the acupuncture group, and one in the control group. Of the six participants four own their own homes, while the other two rent. The two renters were in the acupuncture and control groups. Of the six participants two do not have any children under 16 in the household, three have one child under 16 in the household, and one has two children under 16 in the household.

Of the six participants three are trained professionals. One is a laborer, one is in a junior management position, and one is self employed. The acupuncture group had one trained
professional, and one self-employed. The press seed group included one trained professional, and one junior management participant, finally the control group included one laborer, and one trained professional.

**Pre and Post-Treatment Data**

The following sections summarize the data generated regarding the pre and post-treatment measures of the Quality of Life Questionnaire and the Pre/Post Stress Survey. The data provides the mean values of the before and after treatment scores as an indication of the comparative effectiveness of the two treatment methods as well as comparison with data generated from the control group subjects.

**Quality of Life Survey Data**

The first treatment outcome measure was derived from the subjects’ scores on the Quality of Life Fitness Survey. For this instrument the subjects rated themselves on a one to ten scale for each of the eight specified areas (mental, physical, financial, spiritual, family, relationship, career, and social). 10 was the most favorable score, while 1 was the least favorable. Table 1 summarizes the data generated.

On the basis of the Quality of Life scores, it can be observed that both the acupuncture and press seed groups show improvements in their lives. For the acupuncture group, six of the seven scales show higher scores from pre-to post treatment with only the Career and Social mean scores observed as having decreased post-treatment. For the press seeds group higher mean scores on all eight of the scales were shown from pre to post-treatment. It is interesting and affirming to observe that the Life Fitness Survey scores of the control subjects remained relatively consistent with three scales (Family, Relationship and Social) improving by only one point. For the Quality of Life scores, it is observed that, the press seed group showed the most
consistent improvement.

The Acupuncture Group averaged an improvement of 5 points, the Press Seed Group averaged an improvement of 21 points, while the Control Group showed no changes. Again it must be stated that because there was such a small sample group, these numbers only point to the possibility that the press seeds are more effective in the treatment of stress.

Comparing each area of life, the greatest improvement of all participants were in their spiritual and family areas, whereas the least improvement were in the areas of physical and relationship fitness.

Table 2: Quality of Life Comparisons

<table>
<thead>
<tr>
<th></th>
<th>Mental</th>
<th>Physical</th>
<th>Financial</th>
<th>Spiritual</th>
<th>Family</th>
<th>Rel</th>
<th>Career</th>
<th>Social</th>
<th>Ave. Total</th>
<th>Change</th>
<th>Ave. Change</th>
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</thead>
<tbody>
<tr>
<td>Acu 1 - Pre</td>
<td>8</td>
<td>6</td>
<td>5</td>
<td>9</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>8</td>
<td>43</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Acu 1 - Post</td>
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<td>8</td>
<td>10</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>5</td>
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<tr>
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<td>6</td>
<td>7</td>
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<td>8</td>
<td>6</td>
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<td>5</td>
<td>6</td>
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<td>9</td>
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<td>6</td>
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<td>2</td>
<td>4</td>
<td>7</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Physical indicators

Physical indicators of stress includes such things as feeling tense, having chronic headaches, and much more. These symptoms indicate how the body is showing signs in response to the stress a participant experiences.
In the acupuncture group there was one person that decreased their stress levels, and one that actually had an increase in their stress levels. The control group both had an increase in stress. However, looking at the individual scores, one acupuncture participant actually did worse than the control participants. The press seed group individually and collectively showed a decrease in stress levels.

The questions that had the greatest improvement were concerning chronic headaches and muscle spasms, whereas the questions that got worse were concerning lower back pain, and resting pulse rate (see appendix O).

Table 3: Average Physical Indicators Comparisons

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test Sum</th>
<th>Post-test Sum</th>
<th>Pre-Post Difference</th>
<th>Average Pre-Post Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acu1</td>
<td>2.0</td>
<td>2.4</td>
<td>0.4</td>
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<tr>
<td>Acu2</td>
<td>2.8</td>
<td>2.4</td>
<td>-0.4</td>
<td></td>
</tr>
<tr>
<td>Press1</td>
<td>2.5</td>
<td>2.3</td>
<td>-0.2</td>
<td>-0.4</td>
</tr>
<tr>
<td>Press2</td>
<td>2.1</td>
<td>1.6</td>
<td>-0.5</td>
<td></td>
</tr>
<tr>
<td>Control1</td>
<td>3.3</td>
<td>3.4</td>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>Control2</td>
<td>2.2</td>
<td>2.5</td>
<td>0.3</td>
<td></td>
</tr>
</tbody>
</table>

Sleep indicators

Sleep indicators of stress include any disturbances in sleep. This data provides an indication of how the body is affected by stress. The troubling issue with stress, and we see it in sleep issues, is that stress can cause problems with sleeping, and then the lack of proper sleep can cause more stress, which then becomes a vicious cycle.

For the sleep indicators data, in the acupuncture group one participant appears to have increased their stress, while one had a decrease in their stress. When combined the data indicates an overall slight increase in stress was observed. For the control group there were no changes individually or combined. However, in the press seed group again both participants had a
decrease in stress.

The question that had the greatest improvement was concerning falling to sleep, whereas the question that got worse was concerning waking up throughout the night (see appendix P).

It is well known that stress can cause problems with sleep, and that the lack of sleep can further increase the level of stress, which becomes a vicious cycle. The “Sleep Indicators” instrument was designed to discern the level that the body is affected by stress in terms of the quantity and quality of sleep that each subject currently experiences. The pilot data again indicates the potential greater positive impact of the press seed treatment method. Table 4 below provides a summary of the data that emerged from the Sleep Indicators instrument.

**Table 4: Sleep Indicators Comparison Table**

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test Sum</th>
<th>Post-test Sum</th>
<th>Pre-Post Difference</th>
<th>Average Pre-Post Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acu1</td>
<td>2.1</td>
<td>2.5</td>
<td>0.4</td>
<td>0.1</td>
</tr>
<tr>
<td>Acu2</td>
<td>2.4</td>
<td>2.1</td>
<td>-0.2</td>
<td></td>
</tr>
<tr>
<td>Press1</td>
<td>1.8</td>
<td>1.7</td>
<td>-0.1</td>
<td>-0.3</td>
</tr>
<tr>
<td>Press2</td>
<td>2.3</td>
<td>1.8</td>
<td>-0.5</td>
<td></td>
</tr>
<tr>
<td>Control1</td>
<td>2.8</td>
<td>2.6</td>
<td>-0.2</td>
<td>-0.1</td>
</tr>
<tr>
<td>Control2</td>
<td>2.0</td>
<td>2.1</td>
<td>0.1</td>
<td></td>
</tr>
</tbody>
</table>

**Behavioral indicators**

Behavioral Indicators of stress includes any changes in behavior, from problems with a participant’s sex life, to lack of socialization. In the acupuncture group the Behavioral Indicator score of one participant declined, and one improved. When combined the overall score increased, thus indicating an increase in stress. The control group manifested a slight decrease for one of the participants, but an increase in the other. Together the control group showed a slight decrease in stress. As for the press seed group, they manifested a decrease in stress individually and collectively.
The questions that had the greatest improvement were concerning working while sick, and spending more time watching TV vs. spending time with friends, whereas the question that got worse was concerning arriving to work late (see appendix Q).

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test Sum</th>
<th>Post-test Sum</th>
<th>Pre-Post Difference</th>
<th>Average Pre-Post Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acu1</td>
<td>2.2</td>
<td>2.8</td>
<td>0.6</td>
<td>-0.0</td>
</tr>
<tr>
<td>Acu2</td>
<td>2.9</td>
<td>2.2</td>
<td>-0.7</td>
<td></td>
</tr>
<tr>
<td>Press1</td>
<td>3.2</td>
<td>2.2</td>
<td>-1.0</td>
<td>-1.1</td>
</tr>
<tr>
<td>Press2</td>
<td>3.3</td>
<td>2.1</td>
<td>-1.2</td>
<td></td>
</tr>
<tr>
<td>Control1</td>
<td>3.6</td>
<td>3.3</td>
<td>-0.2</td>
<td>-0.1</td>
</tr>
<tr>
<td>Control2</td>
<td>2.5</td>
<td>2.5</td>
<td>0.0</td>
<td></td>
</tr>
</tbody>
</table>

**Emotional indicators**

Emotional Indicators of stress includes responses to items indicative of finding it hard to relax, being sensitive, feeling disinterested in life, etc. In the acupuncture group one participant’s stress decreased while the other increased. However, when combined there was no change. In the control group one participant decreased while the other had no change, and combined there was only a slight decrease in stress. The press seed group again individually and collectively decreased their stress.

The questions that had the greatest improvement were concerning telling friends when they aren’t feeling well, and being offended with the lightest criticism, whereas the questions that got worse were concerning emotions changing unpredictably, and being generally pessimistic about their future (see appendix R).
### Table 6: Emotional Indicators Data

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test Sum</th>
<th>Post-test Sum</th>
<th>Pre-Post Difference</th>
<th>Average Pre-Post Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acu1</td>
<td>2.6</td>
<td>3.0</td>
<td>0.4</td>
<td>0.1</td>
</tr>
<tr>
<td>Acu2</td>
<td>3.0</td>
<td>2.8</td>
<td>-0.2</td>
<td></td>
</tr>
<tr>
<td>Press1</td>
<td>2.4</td>
<td>2.0</td>
<td>-0.4</td>
<td>-0.3</td>
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<tr>
<td>Press2</td>
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<td></td>
</tr>
<tr>
<td>Control1</td>
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<tr>
<td>Control2</td>
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<td>0.0</td>
<td></td>
</tr>
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</table>

**Personal habits indicators**

Personal Habits includes response to items such as spending less time on hobbies, not having time to do other daily activities the participant would like, and other similar habits. In the acupuncture group both participants had an increase in stress, the same result appeared in the control group as well. Within the press seed group one participant had an increase in stress, while another had a big decrease. Overall when combined there was a decrease in stress for the press seed group.

The questions that had the greatest improvement were driving over the speed limit, and their day to day life being affected by religious or philosophical beliefs, whereas the question that dramatically got worse concerned spending time talking to neighbors (see appendix S).

### Table 7: Personal Habits Data

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test Sum</th>
<th>Post-test Sum</th>
<th>Pre-Post Difference</th>
<th>Average Pre-Post Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acu1</td>
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<td>0.3</td>
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</tr>
<tr>
<td>Acu2</td>
<td>2.3</td>
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<td>0.1</td>
<td></td>
</tr>
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<td>Press1</td>
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<td>-0.9</td>
<td>-0.3</td>
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<td>Press2</td>
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<tr>
<td>Control1</td>
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<td>3.9</td>
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<tr>
<td>Control2</td>
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<td>2.2</td>
<td>0.1</td>
<td></td>
</tr>
</tbody>
</table>
**Combined indicator scores**

Finally, when we add up all the scores from all the sections: Quality of Life, Physical Indicators, Sleep Indicators, Behavioral Indicators, Emotional Indicators, and Personal Habits, we can get a better sense of overall increase or decrease in stress, individually and in combined groups. The table below gives the results.

The acupuncture group actually had the greatest increase in stress, followed by the control group. Finally the press seed group demonstrated a large decrease in perceived stress.

**Table 8: Combined Stress Increase/Decrease Table**

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test Sum</th>
<th>Post-test Sum</th>
<th>Pre-Post Difference</th>
<th>Average Pre-Post Difference</th>
</tr>
</thead>
<tbody>
<tr>
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<td>3.5</td>
</tr>
<tr>
<td>Acu 2</td>
<td>195</td>
<td>168</td>
<td>-27</td>
<td></td>
</tr>
<tr>
<td>Press 1</td>
<td>201</td>
<td>162</td>
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<td>-41.5</td>
</tr>
<tr>
<td>Press 2</td>
<td>190</td>
<td>146</td>
<td>-44</td>
<td></td>
</tr>
<tr>
<td>Control 1</td>
<td>243</td>
<td>239</td>
<td>-4</td>
<td>2.0</td>
</tr>
<tr>
<td>Control 2</td>
<td>166</td>
<td>174</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

**Press seed tracking forms**

The press seed tracking forms were helpful in that the participants did a good job tracking how many times a day they stimulated the press seeds, when and how many press seeds fell off (if any), and when they removed the press seeds. With a larger sample the tracking forms may enable researchers to determine the effects of compliance on the increase or decrease in stress, however, with the small sample of this study, the result were unusable for any statistical data. Refer to appendices U and V for more details.
Chapter 5 ~ Discussion

Summary of findings

The purpose of this preliminary small-sample pilot study was to explore whether the use of auricular acupuncture or auricular press seeds showed enhanced treatment outcomes over a control group. The study also sought to discern which auricular method, acupuncture or press seeds, was more effective in the treatment of stress. There were two hypotheses:

- Hypothesis #1: Both acupuncture and press seed therapy to the auricle would show overall improvement compared to a control group that received no treatments.
- Hypothesis #2: The second hypothesis was that the press seed group would do better than the acupuncture group.

As a result of the analysis of response data from the participants’ self-report surveys and questionnaires, it was shown that Hypothesis #1 was not upheld, and Hypothesis #2 was upheld. Surprisingly, the data manifested that the control group actually did better than the acupuncture group, and that the press seed group did better than the acupuncture and control groups in terms of treatment outcome as indicated by the instruments utilized in the current study. This initial pilot study shows that for the treatment of stress, press seeds may be a more effective treatment modality to use when compared with than acupuncture needles, or nothing at all.

Implications for Theory

One of the most obvious implications that emerges from the results of the current study pertains to the way that TCM practitioners are trained. In TCM schools when teaching the use of auricular points for treatment of stress, there typically isn’t a distinction made regarding which method is more effective. Acupuncture needles typically are used while the patient is on the table with acupuncture being applied to body points, and then occasionally press seeds are
applied before the patient leaves. When the condition is considered serious, often both procedures are used. The researcher is aware that in at least one TCM school, two forms of treatment are applied to every patient treated by student interns. The results of the current study at least tentatively indicate that TCM schools should provide more training regarding the use of press seeds and consider their use as a routine part of clinic treatment processes.

The questions arises regarding why press seeds may be more effective than acupuncture needles. One explanation is that acupuncture needles are inserted only once per week. Once the needles are removed the treatment essentially is over. Whereas, with press seeds, after they are applied, the patient is asked to massage the seeds three to five times a day. As a result, in essence, the patient is receiving numerous treatments per day.

From Western research there are many factors that have been shown to reduce the level of stress in subjects. One is the thought of having control over the situation that is causing the stress. As a result, when a patient receives acupuncture, it is the practitioner that is in control. However, with press seeds, the subject has a sense of control over her/his own stress reduction. Thus the added sense of control may provide an added level of success in reducing stress.

Implications for Practice

The next question to consider is what these tentative findings might mean for modern day practice, and how can acupuncturists utilize these findings? Even though the current study was a small sample pilot study, which didn’t really have a sufficient number of subjects to generate definitive conclusions, it is nonetheless important for practitioners to derive some practical suggestions from this study to consider using in their own work with patients. The data from the current study indicate that it is possible that press seeds may be more effective than auricular acupuncture for treating stress. As a result practitioners may want to consider focusing their
efforts on, or at least introducing press seeds when treating patients for stress.

Also some patients are apprehensive about any needles, and by being able to use press seeds a practitioner is able to still treat the needle shy patient, as well as have a quicker treatment time with the press seeds since there is no retention time during the application. There is also less chance of any infection, bleeding, or bruising while using press seeds.

**Limitations of the Current Study**

The current study is limited by several factors including the nature of the sample used in the study. The subjects who participated in the current study were from a convenience sample. It was not a random sample. Further, there are limitations relative to the measurement instruments from which the data were generated in the current study. Both sample and instrumentation limitations are addressed below.

While effort was made in the current study to affirm that the sample was truly representative of the intended study population, it is clear that the sample may be skewed by several factors including the following:

- The proposed number of subjects included in each group ($N=2$) is very significantly less than the standard numbers ($N=30+$) typically required for the assumption of a normal curve for accurate and reliable inferential statistical analyses to be conducted.
- The geographic location of the sample subjects (e.g. City vs. Suburban vs. Rural). The subjects come from a primarily suburban population.
- The possibility that the sample subjects represented a subset of the population that is open and amenable to alternative and complementary therapies. That fact may introduce a sampling bias that could have affected the results.
- The stress survey instruments that were used were not been verified for validity and
reliability. The study would have been more solid if the instruments used had demonstrated levels of validity and reliability. While the instruments used were not defective, they need to be refined to be more effective tools for evaluating a person’s stress levels.

- Press seeds may not be pressed daily by the participant, and/or fall off before six days. This factor may have affected the overall outcome. However, it is a factor that is almost always present when using press seeds.
- The timing of the participants was not consistent. Some participants went through the study processes during stressful holidays, a factor that could have had an impact on the resulting data.

**Recommendations for Future Research**

Like all pilot/preliminary studies, the most important result is the generation of directions for future research. There are a number of possibilities that should be considered to further advance the research data base pertaining to the effectiveness of press seeds. The first recommendation is that the current study be replicated, with the refinements of more participants and improved instrumentation for the purpose of generating more definite data.

Since the results of the current study are based on subjective observations by the research participants, further related research studies should strive to generate more objective data. It is recommended that a test of cortisol levels before and after the study be incorporated in order to provide an objective index of the stress level of each study subject.

Further advancement of the research path would involving completing a series of studies that examine various factors that could further prove or disprove the original hypothesis regarding the most efficacious treatment of stress. To name just a few factors, the following constitutes some
possible future studies that should be developed and carried out:

- Acupuncture vs. Press seeds using the NADA protocol
- Press seeds using the NADA protocol vs. the protocol used in this current study
- Press seeds without Ear Apex bleeding vs. press seeds with Ear apex bleeding
- Studies incorporating cortisol levels tests pre and post treatment
- Press seeds alone vs. press seeds with herbal supplements

As indicated above, ideally all the above studies would be best conducted with randomized samples of not less than 20 subjects in each group.

One factor that was considered, but due to the sample size couldn’t give any usable data in the current study was patient logs for the press seed groups. The use of logs allow the participant to track how often and when they pressed the seeds each day, and if any seeds fall off between treatments, which may or may not be a factor in outcome potential.

Some additional points for future researchers to attend to include the following:

- To eliminate or reduce the frequency of press seeds falling off, practitioners should clean the area of application, and use a press seed that sticks very well in all conditions.
- Inclusion of a preliminary questionnaire to elicit the potential participant’s view on acupuncture and the participants expectation of outcome prior to starting the study. Having this data would help to control for either negative or positive expectation factors in the resulting data.
- While it is recommended to use either the Holmes/Rahe Social Readjustment Rating Scale, and the Cohen/Kamarck/Mermelstein Perceived Stress Scale, both instruments seem to be limited in terms of what is scored, especially in regard to their sensitivity to discern changes over the six weeks period of the study. However a combination of both
instruments may provide more meaningful data in future studies.

• The requirements for participation could be changed. While the postural hypotension test, and the pupillary reflex test were used for initial assessment of stress, the data from those tests was not considered for determining if a person would be eligible to be a participant in the study. Those pre-treatment instruments should be considered for use as a factor for determining eligibility for participation in future studies.

Conclusions

The current study had two hypotheses, and two results. The hypotheses were:

• Acupuncture and press seed therapy to the auricle would show overall improvement compared to a control group that received no treatments.

• The press seed group would perform better than the acupuncture group.

The results showed:

• Acupuncture treatment may be less effective than treatment with press seeds or no treatment at all (control group).

• The press seed group showed data indicative of a more positive outcome than both the acupuncture and the no-treatment control groups.

Due to the limited sample size and other factors addressed in the limitations section of this chapter, it is obvious that further study with a larger number of participants is needed in order to complete a definitive comparison regarding the use of acupuncture, or press seeds to the auricle for the treatment of stress. However, this preliminary study shows that for the treatment of stress, press seeds to the auricle should be considered in the treatment of stress.
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Appendices

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Are you under **STRESS?**

Do you ever feel **OVERWHELMED?**

**YOU ARE NOT ALONE!**

If you are like the majority of Americans*, then you are probably experiencing stress that leaves you feeling constantly overwhelmed - even during the times you are not at your job.

If so, then you may be perfect for participating in a study for the treatment of stress using the natural, safe, and effective method of acupuncture.

White-Eagle Perry, LAc. of Arvada Acupuncture & Wellness is looking for people interested in participating in a 6 week acupuncture study on the effectiveness of stress. By participating you may experience lower stress levels, notice an improvement in your quality of life in general and even possibly notice a reduction of body fat.

White-Eagle Perry has completed his Masters in Acupuncture and Traditional Chinese Medicine, but now is working on this study for completion of his doctoral studies as a Doctor of Acupuncture & Oriental Medicine (DAOM).

If you are between the ages of 21-47, working full time, and are not under the care of a psychiatrist or psychologist, you may qualify to be a part of this study. To attain details, go to www.ArvadaAcupuncture.com/StressStudy.html or call (720) 317-2695.

**Call or go to the website NOW!**

**What have you got to lose?**

---

*77% of Americans regularly experience physical symptoms, and 73% experience psychological symptoms caused by stress.*

American Psychology Association, 4/6/2012
Appendix B: Recruitment Website

Acupuncture ~ Chinese Herbs ~ Auricular Medicine ~ Medical Qi Gong ~ Anma Massage

Stress Study Information

Thank you for your consideration in my study on the treatment of STRESS.

As you have read before, the majority of Americans* are experiencing physical and emotional symptoms to the stress they accumulate at work and at home.

This study is designed to help acupuncturists like myself, determine the quickest and most effective way to treat stress.

My name is White-Eagle Perry, and I am a licensed acupuncturist in the State of Colorado, and the owner of Arvada Acupuncture & Wellness. I am conducting this study as part of my doctoral dissertation through the Yo San University of Traditional Chinese Medicine in Los Angeles, California, while completing studies in the Integrative Care: Healthy Aging & Longevity cohort.

If you are between the ages of 21-47, working full time, and are not under the care of a psychiatrist or psychologist, you may qualify to be a part of this study.
If you would like to be part of the study, here is what you need to do:

- Fill out the form below to schedule an interview
- At the interview, all questions will be answered, and it will be determined if you qualify to be part of this study
- If you qualify, you will be asked to review and sign an Informed Consent Form, which will summarize all the details of the study, including what you need to do to participate.

Financial Considerations

- You will not receive any financial compensation for your participation, nor is there any cost to participate within this study.

If you are still interested in being part of this study, then fill out the required information below so that we can set up an interview, and for you to complete the Preliminary Stress Survey.

*77% of Americans regularly experience physical symptoms and 73% experience psychological symptoms caused by stress ~ American Psychology Association, 4/6/2012*
Yes, I would like to be part of your stress study!

Name:
Email:
Phone:

SUBMIT

We respect your email privacy

Powered by AWeber Autoreponder

Your confidentiality is 100% protected.

Are you ready to take charge of your health and life once and for all? Call NOW to set up your initial appointment or complimentary 15 minute consult.

(720) 317-2695
info@ArvadaAcupuncture.com

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Appendix N ~ Thank You Email

Name, I want to thank you for showing interest in participating in my doctoral study on the treatment of stress.

Before we set up a time to do the initial tests and have you fill out a survey to see if you qualify for the study, let me explain the people that can participate and those that can not participate in this study, as well as what will be expected of participants. (this will be fully explained in an informed consent form to be signed before the study starts)

Requirements for Participation
• Men and/or women ages 21-47 years old
• Full time working adults
• Qualifying scores on the preliminary survey

People Ineligible for Participation
• Anyone outside specified age range
• Anyone with non-qualifying scores on the scoring on the preliminary survey
• Anyone currently in psychotherapy or psychiatric treatment
• Anyone that is unable to effectively fill out forms on their own, or communicate on their own, or is unable to explain any changes in their symptoms and body from each treatment.
• Anyone who are currently receiving acupuncture for any reason
• Anyone currently using any method for combating stress (medication, meditation, medical marijuana, etc.)
• Anyone unable to read or speak English
• Anyone physically unable to fill out all forms, or complete the required tests.

Participation Expectations:
• If you will be in group A, you will receive weekly acupuncture treatments using acupuncture needles to your ears, for a duration of 6 weeks. Each treatment should take approximately 30 minutes.
• If you will be in group B, you will receive weekly treatments to your ears using "press seeds" for a duration of 6 weeks. Each treatment should take approximately 15 minutes.
• If you will be in group C, you will not receive any treatments during the study. But you will need to complete the surveys and questionnaires at the start and end of the study. Total time for the questionnaires, and survey should be less than an 30 minutes for each session.
If after reading the above you feel you are still eligible to be a participant in this study, please respond to this email so we can set up a time for the initial tests to see if you do qualify.

With All Good Medicine
White-Eagle Perry, MATCM, LAc, DiplAc.

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