The Effects of Traditional Chinese Medicine on Postpartum Depression.

By

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Abstract

This research synthesis examined the effectiveness of Traditional Chinese Medicine (acupuncture and Chinese herbal medicine) in the treatment of postpartum depression. Fifty-six articles were analyzed and organized into data abstraction tables, and twenty-six were also reviewed that summarized clinical results. General depression, pain, delivery, insufficient lactation, and postpartum depression were topics included in the studies. Eighty-four percent of the acupuncture studies reviewed in this synthesis reported positive reactions or results in the subjects. Of the four hundred and sixty subjects with results reported in CHM research: 53% demonstrated complete recovery, 42% improved, and 5% had no improvement. These findings support the hypothesis that TCM treatments are effective for multiple conditions that fall under the causal factors and symptomology categories associated with the pathophysiology of PPD.
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My dad has been my inspiration to achieve my dream of being the next “Doctor Frerking” since I was a young girl, and I have aspired to help even a fraction of the population that he has over the span of his career. My mom has gone over and above her motherly duties to love me through the frustrations and joined me in celebrations on this journey. My sister, best friend, co-worker, and esteemed colleague, Stacy, has been with me from the start of my education in the world of Chinese Medicine and I could not have picked a better and more understanding mate to ride the waves with me. Andrea Murchison, my wonderful capstone advisor and DAOM program director, has provided me with her time, guidance, and understanding. Harley Ramsey, the research expert, who explained large concepts and processes in a way I could understand. She always had a helpful answer ready and an easy-going attitude that was very welcome. Julie Hong, our librarian, was so efficient and helped me locate obscure articles that I could not have found without her. Andrea Cabanayan and Penny Weinraub for making our residency weekends more enjoyable and pleasant. All of my instructors at Yo San University have aided in furthering my education and interest in topics in such great depth, and I have learned so much from them. My appreciation is strong for our patients who encouraged us and stood by us as we left our practice every month for two years to attain this degree. I am grateful for my fellow knowledge-seeking colleagues at this institute who have become wonderful resources and hold a special place in my heart. The expertise shared by my mentors will help me in assisting even more patients in my practice. And lastly, I know I would not have made it very far in my life without my loving and graceful God. I will be forever thankful to each and every individual who has impacted my life and contributed to this project.
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Chapter One: Introduction

Some mothers may experience emotional highs and lows such as joy and excitement swinging to fear, anxiety, and even depression following the birth of their baby. The milder form is called “baby blues”, and the more severe and longer lasting state is called Postpartum Depression (PPD). PPD affects mothers and infants the most profoundly, but it can negatively impact spouses, relationships, and other family members as well. Untreated PPD can leave a devastating aftermath which can impact the mental, physical, and emotional development of infants, as well as greatly increasing the risk of the child developing depression at some point in their lifetimes (Anderson & Maes, 2013; di Scalea & Wisner, 2009; Field, 2010; Patel, Murphy, & Peters, 2005; Pawlby et al., 2008; Pearlstein, Howard, Salisbury, & Zlotnick, 2008). A patient in my private practice sparked my interest in this topic, as she developed severe PPD after the birth of her third daughter, and her Western doctor did not offer her any options except to prescribe an anti-depressant medication. When my patient asked her doctor if the medication was safe to take while breastfeeding, the doctor replied it was the safest one available. After 2 weeks/6 treatments total of acupuncture and Chinese Herbal Medicine (CHM) she reported she had returned to her normal state of mind and health. I realized the importance for scientific data collection to back my personal opinions, beliefs, and results that Traditional Chinese Medicine (TCM) was effective and safe for women suffering from PPD just like my patient. For the purposes of this study, unless stated otherwise TCM refers to acupuncture and CHM.
Glossary of Relevant Terms

Abbreviations:

Acu: Acupuncture

ACTH: Adrenocorticotropic Hormone

CHM: Chinese Herbal Medicine

CRH: Corticotropin Releasing Hormone

Electro-acu: Electroacupuncture

EPDS: Edinburgh Postnatal Depression Scale

HPA: Hypothalamic-pituitary-adrenal axis

TCM: Traditional Chinese Medicine

Definitions:

Acupuncture: Traditional Acupuncture involves stimulation with very fine needles inserted into defined sites on the body, eliciting a composite of sensations (Hui et al., 2005)

Adrenocorticotropic hormone (ACTH): a hormone that is produced by the anterior lobe of the pituitary gland and that stimulates the secretion of cortisone, aldosterone, and other hormones by the adrenal cortex.

Anemia: reduction below normal of the number of erythrocytes, quantity of hemoglobin, or the volume of packed red cells in the blood; a symptom of various diseases and disorders.

Antinociceptive: reducing sensitivity to painful stimuli
**Autonomic Nervous System:** The part of the nervous system that supplies nerve endings in the blood vessels, heart, intestines, glands, and smooth muscles, and governs their involuntary functioning. The autonomic nervous system is responsible for the biochemical changes involved in experiences of anxiety.

**Codeine:** An alkaloid narcotic derived from opium or morphine and used as a cough suppressant, analgesic, and hypnotic.

**Corticotropin-Releasing Hormone (CRH):** A hormone produced by the hypothalamus that stimulates the anterior pituitary gland to release adrenocorticotropic hormone.

**Cortisol:** A the major natural glucocorticoid steroid hormone released by the cortex (outer portion) of the adrenal gland when a person is under stress.

**Dopamine:** A monoamine neurotransmitter made in the brain that is involved in many brain activities, including movement and emotion.

**Edinburgh Postnatal Depression Scale (EPDS):** The EPDS has a 10-item report scale, and the total points can range from 0-30 on the scale. A self-evaluation scale used for postpartum women to determine if a woman is experiencing postpartum depression. Answers are totaled and the higher the number, generally “high” is considered to be between nine to thirteen for a total score, the more likely the woman is experiencing PPD.

**Electroacupuncture (EAc):** Traditional Chinese medicinal practice which consists of passing an electrical current through needles inserted into either acupuncture or trigger points to alleviate pain (Chang, Tsai, Yu, Yi, & Lin, 2004)

**Epinephrine:** produced by the adrenal glands, arouses the sympathetic response. Also called adrenaline.
**Glucocorticoids:** A group of anti-inflammatory steroid-like compounds produced by adrenal cortex, involved in carbohydrate, protein, and fat metabolism, and are used as anti-inflammatory agents.

**Hypothalamic-pituitary-adrenal axis (HPA):** The combined system of neuroendocrine units that in a negative feedback network regulate the adrenal gland’s hormonal activities. A major component of the stress response system; the HPA axis regulates secretion of cortisol from the suprarenal gland in response to stress.

**Inflammation:** Physical, chemical and biological agents can invoke the inflammatory response. Inflammation is characterized by increased blood supply and activation of defense mechanisms. Some hormones, such as cortisol, have an anti-inflammatory action that limits inflammation to a local reaction while others are proinflammatory. Thus the endocrine system has a regulatory effect on the process of inflammation so that it can be balanced and beneficial in the attempts of the body to recover from injury.

**Negative Feedback Loop:** A process in which a change from the normal range of function elicits a response that opposes or resists that change.

**Nociceptive:** Caused by or responding to a painful stimulus.

**Norepinephrine:** A substance, both a hormone and neurotransmitter, secreted by the adrenal medulla and the nerve endings of the sympathetic nervous system to cause vasoconstriction and increases in heart rate, blood pressure, and the sugar level of the blood.

**Oxytocin:** A hormone that stimulates the uterus to contract during child birth and the breasts to release milk.

**Parturition:** The process of labor and delivery in the birth of a child.
Positive Feedback Loop: A process in which a change from the normal range of function elicits a response that amplifies or enhances that change.

Postpartum Depression: Postpartum depression is a mood disorder that begins after childbirth and usually lasts beyond six weeks.

Prolactin: a hormone produced and secreted into the bloodstream by the anterior pituitary gland. After parturition, prolactin, together with glucocorticoids, is essential for the initiation and maintenance of milk production. Prolactin synthesis and release from the pituitary are mediated by the central nervous system in response to suckling by the infant.

Qi: Is the life force that flows throughout the organ systems of the body, is responsible for maintaining proper physical and mental health (Maciocia, 1989).

Serotonin: neuroendocrine chemical responsible for reducing irritability, depression, and brain function. Produced by the brain and functions as a neurotransmitter. Low serotonin levels are associated with mood disorders, particularly depression. Medications known as selective serotonin reuptake inhibitors (SSRIs) are used to treat this imbalance.

Stein’s Self-rating Maternity Blues Scale: 13 item self-evaluation scale for maternity blues with 0-26 as the range. An overall severity score for each day and also an average for the week are used. Daily score of 0-2 indicates absence of maternity blues, 3-8 is mild to moderate blues, 9 or higher is severe maternity blues.

(Medical-dictionary.thefreedictionary.com)
Chapter Two: Literature Review

Postpartum period is the period of recovery for a mother following the delivery of her child and for up to one year after giving birth and is the timeframe in which a diagnosis of PPD is appropriate (Fritz & Speroff, 2011). PPD has been found to occur in approximately ten to fifteen percent of women worldwide (Cooper & Murray, 1998; di Scalea & Wisner, 2009; Etebary, Nikseresht, Sadeghipour, & Zarrindast, 2010; Patel, Murphy, & Peters, 2005). It was estimated by the United Nations that there are approximately seven billion people worldwide, and another source suggested approximately 3,523,843,881 are women. If twelve percent, a median number of the ten to fifteen percent previously mentioned to experience PPD, were calculated, this total number would be approximately 422,861,265 women experiencing PPD worldwide. In the United States, women who have a history of depression were found to have a 30% risk of PPD, and women who had a past history of PPD in particular were at a 70% risk of a subsequent episode (Weier & Beal, 2004). The population of the United States for 2014 was found to be 322,583,006, and approximately 50.8% are females or 161,291,503. Therefore, 30% of the female population, which was said to be at risk of PPD, is approximately 48,387,451.

PPD has serious consequences for both the mother and her infant as it has been associated with a decrease in breastfeeding duration. Ceasing breastfeeding too early can negatively impact the health and nutritional intake of the infant in addition to affecting the mother-infant interaction. Poorer cognitive and behavioral outcomes have been reported later in the lifespan (McClellan et al, 2012). The two mainstream treatment options for PPD are pharmaceuticals and/or psychotherapy. Studies on breastfeeding
while consuming antidepressants confirmed that certain selective serotonin reuptake inhibitors (the most commonly prescribed medications for PPD) do not increase to detectible levels in the bloodstream of infants, the findings are not definitive as they are derived from uncontrolled studies consisting of small sample sizes (Anderson & Maes, 2013; di Scalea & Wisner, 2009; Field, 2008).

One of the reasons mothers with PPD may not seek pharmaceutical treatment is due to the concern about potential side effects impacting their infants (Anderson & Maes, 2013; Field, 2008; di Scalea & Wisner, 2009). Psychotherapy has been demonstrated as effective for PPD, and is often preferred by breastfeeding women versus medication. Authors suggest psychotherapy is not very available and it may not be sufficient as a sole treatment modality for women who are severely depressed (di Scalea & Wisner, 2009; Pearlstein, Howard, Salisbury, & Zlotnick, 2008) PPD is an area in which there has not been an abundance of research pertaining to the effects of acupuncture and Chinese Herbal Medicine (CHM) on the treatment of this condition. “Acupuncture, a branch of Chinese medicine, is a potential alternative to the two standard treatments for depression during pregnancy [antidepressant medications and psychotherapy]. Chinese medicine provides a framework for understanding distinct symptom pictures and developing a treatment approach based on the nature of each individual’s particular symptom pattern,” (Schnyer, Manber, & Fitzcharles, 2003). The purpose of this research synthesis is to explore the correlations from studies regarding symptoms that are associated with PPD, both from a Western medicine and TCM perspective, which include, but are not limited to: mood disorders such as generalized depression/pre-existing and anxiety, inflammation, and pain. There was not an abundance of research found that linked TCM
treatments to the specific conditions of PPD. Due to the lack of specificity found in the studies related to PPD, the effectiveness of TCM treatments for general conditions experienced with PPD, may be inferred to be valuable for the treatment of PPD.

**Resources:**

Research Synthesis data was compiled through online searches of published research and medical journals through: Pubmed, EBSCO host, Yo San University online databases, and Google Scholar. Search words used included the following: acupuncture, acupuncture and depression, depression, postpartum depression, PPD, postpartum major depression, PMD, operative delivery and postnatal depression, Chinese herbs, TCM, Traditional Chinese Medicine, postnatal pain, mood disorders, anxiety, CAM, and adverse effects.

**PSYCHOSOCIAL RISK FACTORS**

Mood disorders are found to effect 154 million people worldwide. Major depression is the third leading cause of disability, and also has a higher incident rate in females who are unmarried, separated, divorced, and/or has a low education level (Qureshi & Al-Bedah, 2013). Psychosocial risk factors are a common topic of research with the goal of preventing PPD from occurring. Mari & Kyoko (2013) used predictors, listed, to determine total scores for evaluating risk factors for developing PPD which included: marital status (being single), low socioeconomic status, low self esteem, prenatal depression, prenatal anxiety, unintentional pregnancy, prior depression, lack of social support, marital dissatisfaction, life stress, childcare stress, infant temperament, and maternity blues (very mild form of depression after giving birth that usually involves crying easily and for long periods of time; which can last for up to six weeks after giving
birth). It is clear that there are overlaps between the psychosocial factors involved with mood disorders in the general population and mood disorders experienced with PPD in postpartum women. Women, who have cesarean surgery deliveries show signs of grief and loss similar to the mourning that occurs after the loss of a loved one. Up to one third of women who have given birth surgically suffer from Perinatal Mood Disorder (PMD); PMD is the time period that encompasses the entire pregnancy and up to one year after giving birth, including PPD as a subcategory (Haynes, 2007). This definition of PMD according to Hayes includes pregnancy, but generally PPD is defined as a more specific time period, which is the period after delivery and up to one year after giving birth.

**HERITABILITY OF PPD**

Corwin, Kohen, Jarrett, & Stafford (2010), studied PPD from a minimally researched but fascinating angle, the heritability factors of PPD and the possible role genetics (hereditary traits) and epigenetics (external factors that turn some genes “on” or “off”) may play in PPD. Their study reviewed three categories of genes known to code for proteins associated with depression in the general population and attempted to find a correlation to PPD. The genes they evaluated were related to the monoamine availability of pro-inflammatory cytokines and brain neuropeptides to the central nervous system. Monoamines are key regulators of the mood and include: norepinephrine, dopamine, and serotonin. Imbalances of these monoamines have already been linked to depression in past studies. Bair, Robinson, Katon, & Kroenke (2003), explained neurochemical imbalances of neurotransmitters including monoamines: serotonin, norepinephrine, and dopamine, as potentially biochemical contributors to depression. When there is an increasing level of serotonin and norepinephrine available to certain areas of the brain,
antidepressant medications have effects on pain signals as well as depression due to increasing the availability of serotonin and norepinephrine to the brain. Depression and pain share biological pathways and neurotransmitters. In a study evaluating the combination of pain in a sample of depression-only patients and depression in a sample of patients experiencing pain, a correlation between pain and depression was found to be higher with both conditions of pain and depression, versus patients only experiencing pain or only experiencing depression (Bair, Robinson, Katon, & Kroenke, 2003). “On average, 65% of patients with depression experience one or more pain complaints, and depression is present in 5% to 85% (depending on the study setting) of patients with pain conditions,” (Bair, Robinson, Katon, & Kroenke, 2003).

Although yet to be tested in postpartum women, the hypothesis that polymorphisms [differences in DNA sequences that are usually a benign and common variation, (Fritz & Speroff, 2011)] of candidate genes controlling pro- and anti-inflammatory cytokines or their receptors or receptor antagonists may be associated with PPD is based on research publications over the last 20 years, linking elevated levels of pro-inflammatory cytokines with depression in the general population...In mechanistic terms, it is suggested that pro-inflammatory cytokines contribute to depression via stimulation of the hypothalamic-adrenal-pituitary (HPA) axis leading to increased cortisol synthesis and/or via activation of the tryptophan- and serotonin... (Corwin et al., 2010).

It was reported by Stuebe, Grewen, Pedersen, Propper, & Brody (2012) that infants of mothers who were depressed during their pregnancy, have physiologic and biochemical profiles which mimic their mothers during pregnancy, including decreased dopamine
levels and serotonin, elevated norepinephrine and cortisol, and a greater relative right front electroencephalogram (EEG). All of these imbalances in neurotransmitters (dopamine and serotonin) and hormone levels (norepinephrine and cortisol) can potentiate at minimum health concerns or even diseases in the infants as they develop, and the relative enlargement of the right lobe has correlations to emotions. When any or all of these factors are not at normal levels, the individual is at risk for depression.

INFLAMMATION AND PPD

The birthing process leading into the postpartum period is often a stressful situation for the mother. Her immune system is up-regulated which causes activation of the inflammatory responses. These responses may be significant in women who have a polymorphism and their body does not respond optimally under stressors which may lead to depression or PPD. “There is now evidence that activation of the inflammatory response system may be present in the pathophysiology of major depression. The postpartum period by itself is accompanied by an increased inflammatory capacity” (Etebary et al, 2010). Song, et al., (2009), found increased pro-inflammatory cytokines and decreased anti-inflammatory cytokines to be present and imbalanced in patients with depression. Kendall-Tackett (2007) conducted a study that focused on the shift from the “old” paradigm of belief that inflammation is only a risk factor of depression to the “new” paradigm that inflammation is the underlying risk factor of other symptoms. “Puerperal women are especially vulnerable because their inflammation levels rise significantly during the last trimester of pregnancy-a time when they are also at high risk for depression. Moreover, common experiences of new motherhood, such as sleep disturbance, postpartum pain, psychological stress, and trauma also increase
inflammation,” (Kendall-Tackett, 2007). Researchers, Maes et al. (2000), reported that activation of the inflammatory response system (IRS) has been associated with the pathophysiology of major depression, anxiety, and psychosis, and that the inflammatory response may be a contributing factor to postpartum mental disorders. In a study of 91 healthy pregnant females admitted to a hospital for delivery, and 22 non-pregnant healthy women, blood serum was collected to examine IRS activation and compare results (Maes et al, 2000). Interleukin-6 (IL-6), Interleukin antagonist (IL-1RA), and Leukemia inhibitory factor receptor (LIFR), which are factors related to the IRS, were all found to be “significantly” higher in the pregnant women versus nonpregnant women (Maes et al, 2000). Another important finding of this study was that there was an increase in the inflammatory response in the six weeks following childbirth when compared to the levels before giving birth. The authors Maes et al (2000) explained, “Although our findings did not prove that there is a causal relationship between activation of the IRS or a lowered anti-inflammatory capacity and postpartum blues, a causal relationship may be explained by the IRS activation model of affective disorders.”

**Inflammation’s Correspondence to General Depression**

A study of 72 women was divided into two groups. One group met the criteria to be diagnosed with clinical depression, and the other group of women had no history of any psychiatric illness (Miller, Rohleder, Stetler, & Kirschbaum, 2005). Blood was drawn to monitor immune parameters and included the following blood markers: leukocyte subsets: mobilization of monocytes, neutrophils, and C-reactive protein, interleukin-6 (IL-6), and tumor necrosis factor-alpha by white blood cells *in vitro*. Also salivary cortisol levels were monitored in the subjects. All subjects were put into a mock stressful
situation and then all levels were re-examined to compare and contrast pre and post stress levels. “Depressed subjects began the session with greater sensitivity to the anti-inflammatory properties of glucocorticoids than control. Following exposure to the stressor protocol, however, sensitivity decreased among depressed subjects and among controls…. these findings suggest that under acutely challenging conditions, depression is associated with greater resistance to molecules that normally terminate the inflammatory cascade,” Miller, Rohleder, Stetler, & Kirschbaum (2005). The control group in this study was healthy adults who matched the age and ethnicity of the depressed subjects, with the difference being no control subjects had a history of medical and psychiatric illness.

**PAIN’S ROLE IN PPD**

Pain in the general population, not specific to PPD patients, was reported to, “…interfere with daily activities, frequent pain episodes, diffuse pain, and pain that is refractory to treatment are all associated with more depressive symptoms and more severe depression…as pain severity worsens, other depression outcomes…are adversely affected,” by Bair, Robinson, Katon, & Kroenke (2003). A survey study was conducted on the topic of perinatal pain (pain related to giving birth), and the role that pain may play in leading to or exacerbating PPD. The researchers found that women experiencing perinatal pain which included: vaginal, cesarean section incision sites, breasts, back, and headaches were identified with an increased risk of developing PPD (Gaudet, Wen, & Walker 2013). A high occurrence of both acute and persistent perineal pain was reported with vaginal delivery cases (Soares et al., 2013). The perineal area may be swollen and tender from the head of the baby stretching the region during the birthing process.
Episiotomies, which are surgical procedures to cut the muscular area between the vagina and anus to enlarge the vaginal opening before delivery, tearing naturally during delivery, or swelling due to giving birth, were identified as causative factors of perineal and perinatal pain. “Pain is both a physiological and psychological stressor which when chronic is highly associated with depression…pain and depression share common neurotransmitter pathways and there is evidence linking inflammation with depression,” (McClellan et al, 2012). Wisner, Stika, & Clark (2014) found postpartum pain, acute or chronic, contributed to postpartum depression to such an extent that the study they conducted was focused on the necessity of managing pain during labor using epidural labor analgesia to decrease postpartum pain and thereby decrease the possibility of PPD. Wisner, Stika, & Clark (2014) summarized an observational study in China and reported, “The rate of postpartum depression (defined as an EPDS score of ≥10) was significantly lower in women who received epidural labor analgesia than women who did not (15 of 107 [14.0%] vs 37 of 107 [34.6%], P <0.001).” These aforementioned researchers touched on a topic related to the neurobiological processing of pain in patients with major depressive disorder (MDD). They stated, “The brain neural network activated during the experience of psychological pain overlaps with brain regions involved in physical pain. Emotions are often felt in the body (anxiety as stomach “butterflies,” grief as “heartache”), and somatic sensory feedback may trigger conscious emotional experience…cognitive processes contribute to pain perception. Childbirth pain, breast or nipple pain during breastfeeding, and depressive symptoms are associated with a cognitive style of catastrophization (ongoing view of pain as intolerable and not controllable). Women who catastrophize have more intense pain and slower physical
recovery than women who do not. Catastrophizing is significantly associated with increased activity in brain areas related to pain anticipation (medial frontal cortex, cerebellum), attention to pain (dorsal anterior cingulate cortex, dorsolateral prefrontal cortex), emotional aspects of pain (claustrum, closely connected to amygdala), and motor control.” Pain control during labor is not only important for the current state of the mother while delivering her baby, but also pain during delivery may extend to the postpartum period and has the unfortunate potential to affect the emotional state of the mother and it may lead to PPD.

C-Sections and PPD

Miovech et al (2013) conducted a study with 106 women with unplanned cesarean operations who delivered full-term babies. Their objective was “to identify women’s major physiologic, psychologic, and life-style concerns at 2 and 8 weeks after the cesarean deliveries”. At the two week point the majority of physiologic concerns were: pain, incisional problems (specifically itching, wound pulling, incisional dents, wound infection, staples, “hard incision”, and incisional numbness), fatigue, gastrointestinal issues, and activity intolerance, specifically getting in and out of bed, walking, bending, lifting, taking care of the newborn, inability to take a bath, and inability to do everything they wanted. At eight weeks it was reported that incisional problems, pain, and fatigue were the major physiologic concerns. The major “psychologic concerns” at two weeks included depression, activity changes, family relations; at eight weeks, body image, familial interactions and activity changes. Results stated, “Seven women reported no concerns at both data points. The number of physiologic concerns that the women
expressed decreased markedly from 2 to 8 weeks postdelivery, but the number of psychologic and life-style concerns did not,” (Miovech et al., 2013).

The Edinburgh Postnatal Depression Scale (EPDS) is a ten question self-evaluation used for postpartum women to determine if a woman is experiencing postpartum depression. Answers are totaled and the higher the number, generally “high” is considered to be between nine to thirteen for a total score, the more likely the woman is experiencing PPD. In a larger study that used EPDS scores, 14,663 women were recruited with due dates between April 1, 1991 and December 31, 1991. At eight weeks postnatal the study concluded an opposing result that, “Women who plan vaginal delivery and require emergency cesarean section or assisted vaginal delivery can be reassured that there is no reason to believe that they are at increased risk of postnatal depression,” (Patel, Murphy, & Peters, 2005). These researchers believed that because of the large cohort who participated in this study that it was more accurate than other, smaller studies which found conflicting evidence regarding operative deliveries as a causative factor of PPD. These differing opinions are both mirrored, and both are supported in numerous other studies. However, this researcher did find it interesting that the numerical value on the Edinburgh Postnatal Depression Scale (EDPDS) that qualified participants as “depressed” varied between some studies. One study conducted in the United Kingdom used a score of ≥ 13 at eight weeks to predict PPD (Patel, Murphy, & Peters, 2005); a longitudinal study in NC, USA & NY, USA defined a score > 12 on the EDPS to qualify for a diagnosis of PPD (Eisenach et al., 2009). This difference in value and coinciding diagnoses for PPD may be irrelevant as findings from both studies showed no correlation between cesarean operative delivery and PPD, but this widely accepted scale might be
more useful if the standards were equivalent universally. Anderson & Maes (2013) evaluated the psychoneuroimmunological [the study of the interaction between psychological processes and the nervous and immune systems of the human body] factors of cesarean deliveries and PPD and reported, “Changes in nociceptive processing locally and centrally may be relevant in PPD, indicated by the dramatic potentiation of pain reporting following cesarean section in mothers who had a depressive episode during pregnancy…The greater the severity of acute pain following parturition [childbirth], irrespective of mode of delivery, increases PPD risk.” Following pain due to trauma, damaged cells, and microbial products that are important to prevent infections and to promote the healing of wounds, trigger an immune response in the individual (McClellan et al, 2012).

**Nipple Pain and PPD**

Nipple pain is not only a reason that mothers may cease breastfeeding, but is also associated with risks such as infection and postnatal depression (McClellan et al, 2012). Stuebe et al (2012) reported that, “Breastfeeding-associated pain is a common reason for early weaning, affecting one third of mothers who discontinue breastfeeding before 1 month. We have found that early breastfeeding pain is associated with subsequent diagnosis of perinatal depression [PPD].” A study was conducted with 48 lactating women who were experiencing nipple pain. They completed mood scales during their initial visit and after the pain had resolved. Sixty-five women without nipple pain also completed a set of mood scales. The EPDS and Profile of Mood Scales (POMS) were both higher in women experiencing nipple pain showing a correlation between nipple pain and depression (Amir, Dennerstein, Garland, Fisher, & Farish, 1996). McClellan et
al (2012) noted, “Newton and Newton showed that pain also interferes with breastfeeding by disrupting the milk ejection reflex, leading to a reduction in the volume of milk transferred to the infant.” In a study comparing breastfeeding mothers experiencing persistent pain during feeding and a group of women with obvious nipple trauma, there were a higher number of women with visible trauma who experienced higher levels of pain. However, despite the lower intensity of pain in the group with persistent nipple pain, both groups had interference with breastfeeding, general mood, general activity, and sleep. These results depict how persistent nipple pain can be seen causing depression by looking at the elevated scores used to test for depression (McClellan et al, 2012).

**BREAST FEEDING AND PPD**

Women who did not experience as much pain during the delivery of their child were more likely to breastfeed (Wisner, Stika, & Clark 2014). The importance of breastfeeding is not only related to the health of the infant, such as fewer infections, lower risk of asthma, reduced risk of sudden infant death syndrome, and economic benefits, but also related to less cases of PPD in women who initiate and continue breastfeeding (Wisner, Stika, & Clark 2014). As humans, we are the only species who choose whether or not to breastfeed, and researchers Groer, Davis, & Hemphill (2001), emphasize the lack of differentiation in the field of research of postpartum mothers being lactating and non-lactating. The physiology of lactation itself has been found to decrease hormone biomarkers that have been correlated with stress levels, which can lead to depression. “The antistress nature of lactation may be governed, in part, by the hormone oxytocin, which is maintained at high levels throughout lactation. Oxytocin is also released upon HPA axis activation, particularly in response to emotional stress,” (Groer, Davis &
In addition to the action oxytocin suppressing stress responses, oxytocin has also been reported to reduce pain. Mothers who were experiencing debilitating pain noted pain relief only when breastfeeding due to the high levels of the hormone oxytocin (Groer, Davis & Hemphill, 2001). As one may infer, if a woman is experiencing PPD concurrently with chronic pain (of whatever nature i.e.: nipple pain, back pain, pain related to C-sections or episiotomies, etc.) and this discourages her from breastfeeding, this cessation can be of further detriment to her condition by reducing the levels of an intrinsic substance which the body utilizes to diminish pain levels during the postpartum period. Lastly, higher levels of oxytocin which naturally occur in women who are breastfeeding is important because it stimulates contraction of the uterus to decrease postpartum hemorrhaging, which will be mentioned in a later section as a contributing factor to PPD.

“The pathway to failed lactation and postpartum depression has overlapping mechanisms, such as altered lactogenic and stress hormones, stress reactivity systems, pain perception, and thyroid homeostasis. Breastfeeding is also associated with higher sustained oxytocin (and prolactin) levels across the period of lactation,” Wisner, Stika, & Clark (2014).

Fifteen years ago the Journal of the American Academy of Pediatrics had no reported cases of adverse side effects, either short or long term, in infants whose mothers were taking antidepressants, antianxiety, and antipsychotic medications. However, the Journal expressed concern for mothers taking the psychotropic classes of medications for extended periods of time due to the potential negative effects on nervous system function in breast-feeding infants (1994). The Journal urged readers to ask whether or not drug therapy prescription was necessary for lactating mothers or could be avoided. Weier &
Beal (2004), found that a reason women with PPD may seek Complimentary Alternative Medicine (CAM) treatments is due to concerns about the effects of pharmacological constituents in breast milk secretions. Many factors can potentially affect breast milk and the plasma levels in infants of antidepressants ingested by the mothers including: protein binding, CYP2D6, polymorphisms, lipophilicity, and the presence of other drugs, even herbs (Weissman et al, 2004). They reported, “All psychotropic medications are secreted into breast milk. Unfortunately, there is a striking lack of clinical evidence about the safety of psychotropic medications in breastfeeding.” In a review of 337 research cases including measurements for 238 infants, drug levels for 15 antidepressants and their major active metabolites concluded that drug levels were detected in the breast milk of all the antidepressants studied (Weissman et al, 2004). In the Pearlstein, Howard, Salisbury, & Zlotnick (2008) review it was noted that all psychotropic medications pass into the breast milk, and the infant exposure does exist with each medication; although there may be no adverse reactions or short-term effects. Short-term, but potentially serious adverse effects, of exposure to antidepressants such as fluoxetine and citalopram have been seen as withdrawal and reexposure symptoms to the breast milk (Weissman et al, 2004). This study did not specify what the specific withdrawal and reexposure symptoms. However in studies conducted with infants exposed to SSRI, anti-depressant medications, in utero, withdrawal and reexposure symptoms were reported to include: tremor, hypertonnia (increased muscle tone), sleep disruption, gastrointestinal disturbance and high-pitched crying (Rudy, 2002). The possibility of long-term effects on the behavior, cognitive, motor, and neurological development in children are undetermined (Pearlstein, Howard, Salisbury, & Zlotnick, 2008; Weissman et al, 2004). Steube, Grewen, Pedersen, Propper,
& Meltzer-Brody (2012) reported SSRI, fluoxetine, in a rodent model or animal study caused local involution of lactating mammary glands. Involution of mammary glands at a premature time is a negative process. In a normal physiologic progression involution should not happen until weaning is occurring, as involution is the removal of the milk-producing cells. Another study reported seven out of eight women taking SSRIs were reported to have delayed secretion of lactation (Stuebe et al, 2012). Weissman et al (2004) found 57 cases (subjects and study details were not expounded on) in an electronic bibliographic search from 1966 to 2002 that out of the 13% of women experiencing PPD, 50% of them were treated with antidepressant medications. Sixty percent of mothers in the general population initiate breast-feeding (Weissman et al, 2004). This high number of women diagnosed with PPD or pre-existing depression and the high number of women who are breast-feeding and may be taking antidepressant medication, and the safety of the infant is a great concern with the lack of information available regarding which medications are safe (Weissman et al, 2004). In the 2010 Current Medical Diagnosis and Treatment edition authors McPhee and Papadakis warn that careful assessment of risk should be completed before prescribing fluoxetine, doxepin, & lithium from the antidepressant drug category and also meperidin and oxycodone of the analgesic drugs to breastfeeding mothers. Lithium is contraindicated for breastfeeding mothers according to the American Academy of Pediatrics (McPhee & Papadakis, 2010).

Stuebe et al (2012), reported that although all major medical organizations recommend breastfeeding exclusively for the first six months, only 13% of women in the United States actually do. An estimated $13 billion dollars in expenses related to infection-related infant morbidity and mortality because of the small percentage of babies who are
breastfed (Weissman et al, 2004). These researchers hypothesized that failed lactation and perinatal depression [PPD] are correlated and can be due to shared neuroendocrine malfunction of both the HPA axis and also the autonomic nervous system. Kendall-Tackett (2007) reported, “Breastfeeding appears to attenuate these effects [the cycle of inflammation triggering the Hypothalamic-Pituitary-Adrenal axis to release cortisol and other proinflammatory substances] by lowering cortisol, ACTH, epinephrine and norepinephrine.” Birth related stressors, such as an emergency cesarean delivery has also been associated with a low amount of the hormone, oxytocin, which is needed for normal lactation, and low oxytocin during pregnancy has been associated with PPD (Steube, Grewen, Pedersen, Propper, & Meltzer-Brody, 2012). The Federal Drug Administration released information in 2007 regarding a rare reaction in nursing infants whose mothers were taking codeine. Codeine is in prescription pain relievers and some over the counter cough syrups had previously been prescribed to treat nursing mothers. However, it was determined that not all women metabolized codeine the same way. Some women may put their infants at risk of morphine overdose if they are taking codeine and are considered an “ultra-rapid metabolizer of codeine” which converts in the body to morphine to relieve pain. The FDA cautioned that although the estimated number of people who are an ultra-rapid metabolizer varies between population groups, they estimated between one to twenty-eight per 100 people and that anyone may be an ultra-rapid metabolizer and not know it unless they have genetic testing profiles completed to determine if they are. Genetic testing alone may not predict if the breast milk will have excess morphine levels from the mother ingesting codeine. This can be life threatening and possibly fatal to the infant; the FDA referred to a case reported in 2006 about the death of a 13 day old baby
whose mother was an ultra-metabolizer and had been taking codeine for episiotomy related pain. The mother was taking less than what was considered “normal” dosage to be prescribed for episiotomy pain. This devastating case with the use of medication, which was prescribed, alludes to the question is there a safe and effective mode to treat pain in mothers who are breast-feeding?

**TCM PERSPECTIVE ON PPD**

**Blood deficiency and depression**

“[PPD] Seen from a Chinese perspective, it is obvious that the depleted state of qi and blood after childbirth may have its correspondence on the mental level with some depression,” Maciocia (1998). It is common for women, 60-70% of women, to suffer from a mild form of depression following childbirth on the third to fifth day as a result of fatigue, feeding difficulties, and perineal pain (Maciocia, 1998). Author, Clavey (2013), wrote about the difficulty of locating information on treating PPD. He stated, “One problem is that the biomedical disease label ‘postnatal depression [PPD]’ does not have a direct equivalent in Chinese medicine, which can make it difficult to locate information on treatment of the condition. In Chinese medicine ‘postnatal depression’ is traditionally broken down into its various clinical manifestations including: postnatal aphia (difficulty speaking), postnatal palpitations (including panic attacks), postnatal hysteria (delirious speech & hallucinations), postnatal attention deficit (forgetfulness), postnatal deficient flushing (heat rushing up into the chest), postnatal insanity (frank psychotic behavior).” Maciocia (1998) reported the same information. Clavey (2013) noted that the Chinese medical text, *Ji Yin Gang Mu* (Compendium of Benefits to Women, 1620, by Wu Zhi-Wang), included over 50 herbal formulas listed for the aforementioned
conditions as well as other conditions potentially associated with a biomedical diagnosis of postnatal depression; the author considered mood swings and inappropriate emotions to be two of the more common symptoms of PPD and these two symptoms in particular to be most closely associated to the Chinese diagnoses of ‘postnatal intemperate speech and delirium’. Clavey (2013) reported after reviewing literature from classic Chinese texts in regards to PPD, “Chinese herbal medicine seems to be the primary medicine of choice with postnatal conditions….the primary pathology involved with post-parturition conditions is blood deficiency, and the speedy restoration of deficiency of a substance like blood usually requires herbs (whereas a deficiency of qi, which is insubstantial and non-material, might be more quickly rectified with acupuncture).” The reason blood is so vital in relation to mood disorders is because the shen or spirit or emotional stability must have a sufficient amount of blood to stay stable (Clavey, 2013). Maciocia (1998) found that although the Chinese books of modern day do not mention post-natal depression, the older gynecology and obstetrics books did; this author also agreed that, “Postnatal depression is easily explained in Chinese medicine: the exertion and loss of blood occurring at childbirth induce a state of blood deficiency; since the Heart houses the mind and governs blood, heart-blood becomes deficient, the mind has no residence and it becomes depressed and anxious,” (Maciocia, 1998). Maciocia (1998) wrote that in addition to depression and anxiety, insomnia, fatigue, inability to cope, tearfulness, low libido, anger, and guilt could occur due to blood loss and the effects of it. There are more severe stages that may develop if blood deficiency endures without successful treatments. For example, if a woman is already blood deficient prior to or during pregnancy, even a small amount of blood loss during childbirth can greatly impact lead to more severe
blood deficiency; blood is the contributing factor to the pathology of PPD (Maciocia, 1998).

Postpartum complications can include: bleeding, qi and blood deficiency, and disharmony of the Liver, Spleen, and Stomach. As a result of postpartum bleeding and disharmonies, patients are likely to have signs and symptoms including: dizziness, dry mouth, spontaneous perspiration, light-headedness, tinnitus, emotional instability, irritability, abdominal pain, aversion to cold, fever, and poor appetite (Chen & Chen, 2009). “Blood deficiency, which usually manifests in the areas of menstruation and pregnancy in women, may also manifest in other aspects. A pale face, pale lips, pale fingernails and a sallow appearance are the results of the blood’s inability to nourish the skin,” (Chen & Chen, 2009) Blood deficiency patients in general will also typically have a pale tongue with a white coat. Scheid, Bensky, Ellis, & Barolet (1990), “Common indicators of blood deficiency include dizziness, vertigo, a pale and lusterless complexion, a pale tongue and lips, dry and cracked nails, palpitations, dry and itchy skin, insomnia, constipation, long menstrual cycles with scanty pale flow, and a thin pulse.” Blood deficiency in the form of low hemoglobin or iron deficiency anemia is the correlate diagnoses in biomedicine. Observational data has found an association between maternal anemia and depressive disorders, specific studies reported higher depressive symptoms in anemic women on day 28 postpartum, when compared with nonanemic women (Bodnar, Cogswell, & McDonald, 2005; Corwin, Kolb, & Beard, 2003). Iron deficiency is a common cause of anemia and postpartum fatigue which is often a symptom experienced by patients with iron deficiency and/or anemia (Corwin, Kolb, & Beard, 2003). Corwin, Kolb, & Beard (2003) conducted a study and reported, “The
results of this study suggest that early postpartum anemia, as indicated by low hemoglobin concentration, is a significant risk factor for PPD. Although low hemoglobin levels are normal during a healthy pregnancy and the first 3–4 days postpartum, hemoglobin levels are expected to rise and because of volume contraction, even exceed the normal range by day 7 postpartum. For 8 women [37 participants] in this study, a return to normal hemoglobin levels by day 7 did not occur, and for all except one of these 8, symptoms of depression were soon apparent.” Out of 22% of the women (approximately) who experienced postpartum anemia, 88% who experienced anemia were then diagnosed as having PPD. In a healthy individual, iron losses should not be a concern due to postpartum amenorrhea and the small amount of iron lost through breast milk. However, postpartum iron deficiency and anemia were seen to have a higher prevalence in ethnically diverse low-income populations in the US (Bodnar, Cogswell, & McDonald, 2005).

TREATING PPD SYMPTOMOLOGY WITH CHM

CHM and PPD

In Japan traditional herbal medicine is “…highly valued by the Japanese people because of its safety, absence of side effects, wide range of applicable diseases/conditions, [and] favorable treatment outcomes…” (Ushiroyama, Sakuma, & Ueki, 2005). In a study by some of the same authors, Ushiroyama et al, in 2007, they stated, “Various studies have shown that CAM (Complementary and Alternative Medicine), especially in the form of herbal remedies is commonly used for young women and pregnant women in Japan and the US.” Bensky, Clavey, & Stoger (2004), reported that during the time period immediately following childbirth, qi and blood will be
deficient and will require nourishment and tonification to supplement these deficiencies. Chen & Chen (2009) found the following formulas to be beneficial for PPD patients:

*Sheng Hua Tang* for retention of lochia, *Ba Zhen Tang* for qi and blood deficiency, *Tong Ru Wan* for insufficient lactation, *Bu Zhong Yi Qi Tang* modified with adding Qian Shi and Wu Wei Zi or by modifying the formula *Jia Wei Xiao Yao San* with Mu Li and Xia Ku Cao for excessive lactation, and Mai Ya to terminate lactation. *Sheng Hua Tang* is contraindicated in postpartum patients who are experiencing hemorrhaging because the nature of the ingredients can exacerbate and prolong hemorrhaging (Schied, Bensky, Ellis, & Barolet, 2009). The following list of single herbs were cross referenced based on Western Medical Diagnoses and then compiled as effective substances for lactation difficulties, the appropriate use and selection of incorporating these into another formula or creating one would be dependent upon the diagnosis of the patient pattern causing lactation difficulties: Ba Ji Li, Chuan Mu Tong, Chuan Shan Jia, Dong Kui Zi, Lou Lu, Lu Lu Tong, SI Gua Luo, Tong Cao, & Wang Bu Liu Xing (Chen & Chen, 2001).

*Xiong Gui Tiao Xue Yin* is used to treat, “…various types of postpartum complications, such as anemia, retention of lochia, irregular menstruation, insufficient lactation, functional uterine bleeding, nausea, vomiting, and erratic behavior,” (Chen & Chen, 2009). In a study that compared the effects of Chinese herbs and pharmaceutical drugs for postpartum recovery and healing, 171 women who had normal deliveries they were randomly assigned into 2 groups. One group of 85 women received 6.0 g/day of *Xiong Gui Tiao Xue Yin* and the second group of 86 women received 0.375 mg/day of the drug ergometrine. Ergometrine will be discussed later. The bio pharmacological properties, which are the cause of effectiveness for herbal formulas, are still unknown, however this
study reported marked beneficial effects in the group who took the herbal formula for physical recovery during the postpartum period (Chen & Chen, 2009).

Ushiroyama, Sakuma, & Ueki (2005) did an efficacy study on maternity blues syndrome in the postpartum period, which according to these researchers is a, “mild, transient and very common disturbance of postnatal mood.” The three psychological conditions that they found to be associated with childbirth include: maternity blues, postnatal depression, and the most severe being postpartum psychosis. The study they conducted included 268 female subjects who had normal deliveries without complications. The researchers found beneficial clinical efficacy of the Japanese herbal formula Xiong-gui-tiao-xue-yin. Prior to their study, Ushiroyama, Sakuma, & Ueki (2005) were unable to locate studies testing the evidence relating specifically to the efficacy of this formula for PPD patients. The application for this formula had been recommended in Wan Bing Hui Chun to be used for general psychological conditions due to Qi and Blood deficiency syndromes. These psychological symptoms specifically include the following: crying, depressed mood, unstable mental condition, and increased irritability. “Illnesses with these symptoms have often been described variously as postpartum depression, psychosis or maternity blues.

To our knowledge, however, such effects have not shown the evidences in the clinical settings,” (Ushiroyama, Sakuma, & Ueki 2005). One hundred and thirty four of the women were randomly assigned to a group that received herbal treatment at a dose of 6.0 g/day, and the other 134 women received no herbal treatment. The ingredients and dosages used were: Dang Gui 2g, Chuan Xiong 2g, Sheng Di Huang 2g, Bai Zhu 2g, Fu Ling 2g, Chen Pi 2g, Xiang Fu 2g, Mu Dan Pi 2 g, Wu Yao 2g, Da Zao 1.5g, Yi Mu Cao 1.5g, Sheng Jiang 1 g, and Zhi Gan Cao 1g. The psychological conditions of subjects
were evaluated in both early (within three weeks after delivery) and late postpartum (from three to six weeks after delivery) using the Edinburgh Postnatal Depression Scale and the Stein’s Self-rating Maternity Blues Scale. The highest number generally accepted for Japanese women to be diagnosed with maternity blues (milder form, not PPD) is a sum score > 8 on the 13 item scale with 0-26 being the range possible for a sum total. The EPDS has a 10-item report scale, and the total points can range from 0-30 on the scale. A total score of above 8 using the EPDS as a guideline has been established as a “cut-off point” for Japanese women to be diagnosed with PPD. The researchers concluded that, “Xiong-gui-tiao-xue-yin was found to have favorable clinic effects on women after delivery, by promoting physical recovery and regulating or stabilizing the woman’s psychological state. This herbal medicine was found to be particularly effective during the early postpartum period. Because of these features and the absence of adverse effects, it seems likely that the use of this herbal medicine during perinatal management, particularly for promotion of physical and mental stabilization after delivery, will improve the quality of life among postpartum women,” Ushiroyama, Sakuma, & Ueki (2005). The researchers in this study did not identify which biological mechanism alleviated maternity blues. Xiong gui tiao xue yin is used for many postpartum disorders characterized by qi and blood deficiency including: prolonged lochia, excessive postpartum bleeding, fever, spontaneous sweating, dry mouth, irritability, abdominal pain, dizziness, blurry vision, and tinnitus (Schied, Bensky, Ellis, & Barolet, 2009). Authors, Schied, Bensky, Ellis, & Barolet (2009), noted there are approximately 30 modifications for the formula Xiong Gui Tiao Xue Yin to treat varying symptoms related to postpartum conditions including: diarrhea, fever, aversion to cold, incessant
postpartum bleeding from blood deficiency, blood heat, postpartum headaches, body aches and fever, and aversion to cold listed in a source text (not clear what the name of the ‘source’ text is). This same formula, *Xiong-gui-tiao-xue-yin*, was researched again in 2007 by Ushiroyama et al, looking at the efficacy of the formula in stimulating lactation in the postpartum period. Eighty-two women were enrolled in the study; 41 women were assigned to Group X and received 6 g/day of the herbal formula, and 41 women were assigned to Group E and received ergometrine at a dose of 0.375 g/day. Ergometrine is a synthetic form of oxytocin, which is a naturally occurring hormone which stimulates lactation; this medication is commonly given to postpartum women (unless the patient has a history of heart disease). Side effects include: hypertension, nausea/vomiting, and a feeling of chest compression (Ushiroyama et al, 2007). Plasma prolactin levels were “significantly” higher in Group X (herbal group) than Group E (ergometrine group) on days one and six postpartum, and between days four and 6 of the postpartum period, the women taking the herbal formula had “significantly larger volume of lactation” than the ones on ergometrine. These results indicate that the formula, *Xiong-gui-tiao-xue-yin*, showed no adverse drug reactions and may be used with or in place of ergots (i.e. ergometrine) as the formula was found to promote lactation in postpartum women and as plasma prolactin concentration was higher in the herbal group it may be, “…related to induction of adequate production and secretion of breast milk in postpartum women. These findings suggest the possibility that this herbal regimen may aid lactation in puerperal women by inducing adequate prolactin secretion,” (Ushiroyama et al, 2007). “One study reported marked results using modified Du Huo Ji Sheng Tang to treat 80 women with aches and pains after labor. Modifications were made to this formula by
adding Fu Zi, larger doses of Gui Zhi, and Fang Ji for wind-cold; Mu Gua and Cang Zhu for dampness, Sang Zhi and Jiang Huang for pain in the arms and shoulders; and Niu Xi for pain in the lower body. Of 80 patients, this study reported complete recovery in 58 cases, significant improvement in 14 cases, moderate improvement in 6 cases, and no effect in 2 cases,” (Chen & Chen, 2009). The previous study did not have information available to Chen & Chen (2009) regarding whether the postpartum mothers were nursing while on the herbal treatment protocol.

The following report summaries on herbal formulas were taken from Chen & Chen (2009) unless otherwise stated. These reports were found in the “Pharmacological Effects” and “Clinical Studies and Research” sections following the herbal formulas, and the references were primarily from journals, which this researcher was unable to locate these original full texts of the studies in English. Due to the reports in this textbook not being all inclusive and only used as summaries, not all reports included details about the studies being reviewed for example: animal or human studies, pre and post-plasma levels, dosage of herbs, form of herbs - raw, pills, granular, or tincture, number of subjects, or time frame of study. This researcher did not want to exclude these reports, as the partial data available in the reports were still applicable to the topic being researched. Unless otherwise specified, all single herbs and herbal formulas were cross-referenced to determine safety for breast-feeding mothers. This researcher did not find many herbs for the symptoms discussed in this review to be cautioned or contraindicated if the diagnoses made are appropriate based on the patient presentation (Bensky, Clavey, & Stoger, 2004; Chen & Chen, 2009; Scheid, Bensky, Ellis, & Barolet, 2009). However, it is common for drug concentrations in blood serum levels of the mother, to peak approximately 45-90
minutes after ingestion and then to peak in the breast milk about 15 minutes later. It is therefore advised for cautious lactating mothers to consume Chinese herbs or drugs immediately after breastfeeding to minimize the concentration of either substance in the breast milk when the infant ingests it at their next feeding.

**CHM & Depression**

“Traditional Chinese medicine has a good effect in the treatment of depression. An increasing use of traditional Chinese medicine for depression treatment showed that traditional prescription drugs exhibited certain clinical efficacy, enhanced efficacy, and reduced dosages and side effects of common medicines, in combination with other antidepressants,” Chen et al (2012). In a study reported by Chen & Chen (2009), three herbal formulas showed both antidepressive and antinociceptive (reducing sensitivity to painful stimuli) properties after administration to mice for 14 days. The formulas were: *Bu Zhong Yi Qi Tang, Chai Hu Jia Long Gu Mu Li Tang*, and *Yi Gan San*. *Bu Zhong Yi Qi Tang* was used in one study with 50 subjects who had been diagnosed with depression. It was used with patients with a Chinese diagnosis of qi deficiency and was modified based on the specific patient needs. Results reported showed from this study indicated that: 28 patients recovered, marked improvement was seen in 17, and slight improvement in five patients. In a different study results reported showed the following formula to have an effect on the endocrine system, “*Chai Hu Jia Long Gu Mu Li Tang* in mice successfully treated depression induced by chronic stress, by restoring the normal functioning of the hypothalamo-pituitary-adrenal system and the prefrontal cortex. Furthermore, studies have demonstrated that *Chai Hu Jia Long Gu Mu Li Tang* significantly prevented chronic stress-induced decreases in extracellular concentrations of
dopamine and serotonin in the prefrontal cortex.” (Chen & Chen, 2009). *Chai Hu Jia Long Gu Mu Li Tang* would require modifications to exclude the herb, Da Huang, which needs to be, “Used with great caution and only when absolutely necessary, during menstruation, pregnancy and lactation,” (Bensky, Clavey, Stoger, 2004). This herb is in the “Downward Draining Purgatives” category, and it is cautioned when a mother is breast feeding as it may enter the milk; it may turn the milk yellow and can cause diarrhea in an infant (Bensky, Clavey, Stoger, 2004). Both formulas mentioned above, *Bu Zhong Yi Qi Tang* and *Yi Gan San*, are not cautioned for lactating women. The ingredients would only need to be modified to fit her symptom presentation more precisely, but not because of cautions or safety concerns. In a study investigating three herbal formulas, *Liu Jun Zi Tang, Ban Xia Xie Xin Tang*, and *Ban Xia Hou Po Tang*, and the effect these formulas had on stress-related-depression, it was found that these three formulas did have a modulatory effect on the hypothalamus-pituitary-adrenal axis and autonomic nervous system functions. These three formulas were also found to affect plasma adrenocorticotropic hormone (ACTH) and cortisol levels under stress. The formula *Xiao Yao San* was modified and used in conjunction with counseling to treat depression in 60 patients. The type of counseling was not specified in the text, however it was assumed to be psychological counseling. The treatment was found to have a 93.3% effective rate: complete recovery in 32 patients, significant improvement in 16 patients, and no improvement in 4 patients (Chen & Chen, 2009). *Yue Ju Wan* was found to be 94.4% effective in treating psychiatric disorders, including depression, schizophrenia, and neurosis. Seventy-two patients were involved in the study reported by Chen & Chen (2009), and if the patients did not respond to the initial treatment, the herbal formula was
given in decoction form (raw herbs cooked, instead of pills) and was modified per patient symptoms/conditions. The results showed complete recovery in 51 patients, 17 patients improved, and four patients without any benefit. Chen et al (2012) studied the formula Shuyusan and its efficacy in treating depression in 70 male rats, compared to rats treated with Prozac, and a control group without treatment. The formula was randomly assigned to high-dose, medium-dose, and low-dose treatments containing the following herbs: Chai Hu, Yu Jin, Bo He, Zhi Zi, Fu Ling, Yuan Zhi, Shi Chang Pu, Suan Zao Ren, and He Huan Pi. The formula was evaluated in this study using methods engaged for testing the effectiveness of antidepressant drugs including the Forced Swimming Test (FST) and Tail Suspension Test (TST). The duration of immobility time in rats mimics despair seen in humans with depression (longer immobility equaled greater depressive states). Serum level contents of CRH (corticotropin-releasing factor), ACTH (adrenocorticotropic hormone), and CORT (corticosterone) were taken pre-treatment and post-treatment. After 3 weeks of ingesting the herbs, the serum levels in the high-dose herbal group were significantly decreased, compared to the control group (saline only), which indicates reduced levels of stress and depression. Luo, Wang, Kong, Jiang, & Tan (2000) researched the administration of the herbal formula Ban Xia Hou Po Tang in mice and evaluated the effect of the formula as an anti-depressant. Although this herbal formula consisting of these single herbs: Ban Xia, Hou Po, Fu Ling, Zi Su Ye, and Sheng Jiang, has been used in Chinese hospitals for over 1,000 years to effectively treat depression, its use was empirically based and the efficacy had not been evaluated in a scientific research study (Luo et al, 2000). When the seven mice in the control group, six in the Prozac group, and eight in the herbal formula group, were tested with the TST it showed, “…the
total extract shortened remarkably the duration of immobility. This efficacy was very similar to that of Prozac,” (Luo et al, 2000). The active constituents attributing to successful treatment were identified in Ban Xia Hou Po Tang to be polar and lipophobic metabolites (Luo et al, 2000).

Jia Wei Xiao Yao San was reported by researchers, Ushiroyama, Sakuma, & Ueki (2005), to have, “…improved depressed mood associated with a reduction in the blood interleukin-6 and soluble interleukin-6 receptor concentrations in perimenopausal women.”

CHM & Inflammation

Gui Zhi Tang was injected intraperitoneally (7.5g/kg) and demonstrated, “marked anti-inflammatory effect in mice with swollen feet. The onset of effect began one hour after the injection, and lasted for approximately 24 hours. According to another study in mice, the anti-inflammatory effect of Gui Zhi Tang (25.32 g/kg) was stronger than aspirin,” (Chen & Chen, 2009). Xiao Chai Hu Tang was administered via intraperitoneal injection at 200 mg/kg and inflammation was decreased for up to 4 hours. A combination of these two formulas, Chai Hu Gui Zhi Tang, also showed marked anti-inflammatory effect in rats with both acute and chronic inflammation. Sang Ju Yin was also associated with marked anti-inflammatory effects in mice with swelling and inflammation. “The mechanism of action [of Sang Ju Yin] is attributed to reversal of the increased capillary permeability. The minimum effective dose for anti-inflammatory effects was 0.307 g/kg. The pharmacokinetic parameters of Sang Ju Yin are: 4.83 hours for half life, 3.1 hours for time to reach peak concentrations, and 24.48 hours for duration of action,” (Chen & Chen, 2009). Even though the formula Ma Huang Fu Zi Xi Xin Tang was shown to have
anti-inflammatory effects by preventing mediator release from mast cells and macrophages, it is contraindicated if a woman is nursing (Chen & Chen, 2009). *Shao Yao Tang* was found to be effective in reducing swelling and inflammation in mice when injected into the intraperitoneal, this formula, also contains Da Huang which is not used for lactating mothers and would require modification to remove this Da Huang even if the symptoms of the patient would otherwise be appropriate for this formula. *Huang Lian Jie Du Tang* is for excess heat, fire, and toxins. If a woman has a more acute inflammatory condition after giving birth, this formula may be appropriate as the water extract was found to, “…reduce pain and inflammation in mice. The anti-inflammatory effects were exerted mainly in the early stages of inflammation, where increased capillary permeability and migration of leucocytes occurred,” (Chen & Chen, 2009). *Wen Qing Tang* is believed to exert an anti-inflammatory effect in the same process; it is more effective during early stages of inflammation when increased capillary permeability and leucocytes occur. The therapeutic effect was noted within 30 minutes and lasted for two to four hours; it was administered in both decoction and capsule form showing its use to be effective in reducing inflammation and decreasing pain. If a patient has been diagnosed as yin or blood deficient in the postpartum period, the following formula would be cautioned and would not be appropriate for an extended period of time. *Long Dan Xie Gan Tang*, when administered orally in decoction (raw) form, was associated with marked anti-inflammatory effects in mice, and the maximum time of the effectiveness was found to be between 4-6 hours after intake. The mechanism of action was attributed to “an inhibitive effect on blood vessel permeability;” (Chen & Chen, 2009). The herb, Mu Tong, found in this formula, is a single herb that can aid in
facilitating lactation if the mother has had difficulty with lactation. Mu Tong may also benefit the mother by decreasing inflammation (Bensky, Clavey, & Stoger, 2004). *Sheng Mai San* was found to reduce swelling and inflammation in rats, “The effect was attributed to the increased glucocorticoids production, because the formula had no benefit in subjects whose adrenal glands had been removed,” (Chen & Chen, 2009). The same anti-inflammatory results were demonstrated in mice and rats when using the formula, *Chuan Xiong Cha Tiao San*. This formula also appeared to only be effective by acting on the adrenal cortex and not useful on subjects who did not have any adrenal glands.

Gui Zhi Fu Ling Wan did have an anti-inflammatory effect even in subjects whose adrenal glands had been surgically removed. A dose was given to mice and the onset of decreasing inflammation began at approximately 30 minutes post-administration, and lasted for up to 72 hours. “It was proposed that the mechanism of this anti-inflammatory action is not related to the adrenal glands or glucocorticoids, because long-term use of this formula did not contribute to increased adrenal gland weight,” (Chen & Chen, 2009). *Gui Zhi Fu Ling Wan* should not be administered to pregnant or postpartum patients who do not have the correct diagnosis including blood stasis, even in these cases it is advised to use with “extreme caution,” Bensky, Clavey, & Stoger (2004). *Si Wu Tang* was reported in one study to have an anti-inflammatory effect on chronic inflammation due to the inhibition of histamine release from mast cells in a concentration-dependent way (Chen & Chen, 2009). When *Tao Hong Si Wu Tang*, a modification of *Si Wu Tang*, was orally administered to in an *in vitro* study in rats (8 g/kg and 16 g/kg) was associated with marked anti-inflammatory effects shown similar to 50 mg/kg of hydrocortisone even though the mechanisms of action of the herbs and drugs were different; the herbal
formula, “…does not contribute to the negative feedback inhibition or the atrophy of the thymus or adrenal glands,” (Chen & Chen, 2009).

*Shao Fu Zhu Yu Tang* in an *in vitro* study in rats at doses of 8g/kg or 16 g/kg was found to possess anti-inflammatory properties. This formula was compared to hydrocortisone. The herbal formula did not have side effects, however hydrocortisone was found to have various side effects associated with corticosteroid drugs. *Shao Fu Zhu Yu Tang* contains the single herb Yan Hu Suo which is in the “Regulate Blood” category. Yan Hu Suo was noted by, Bensky, Clavey, & Stoger (2004) to be described in the classic text *Rectification of the Meaning of Materia Medica* as a very inappropriate choice for pain in postpartum blood and/or qi deficiency cases. These authors also included a quote from the text *Harm and Benefit in the Materia Medica* regarding the need to avoid Yan Hu Suo in postpartum deficiency cases as well. Unless the patient presents with an excess condition instead of a deficient condition, or the formulas that include Yan Hu Suo are modified, for example *Shao Fu Zhu Yu Tang*, it would not be appropriate for PPD treatment. Wu Ling Zhi a single herb, also in the formula *Shao Fu Zhu Yu Tang*, should also be avoided in postpartum cases if a patient experienced excessive blood loss during the delivery of her child, or has strictly blood deficiency without stasis (Bensky, Clavey, & Stoger, 2004).

Women often experience changes in bowel habits during pregnancy and may become constipated after childbirth due to blood deficiency and dryness following excessive blood loss during labor (Maciocia, 1998). “From a Western perspective, constipation after childbirth may be due to a combination of factors including a smaller food intake, dehydration during labor, laxity of the abdominal muscles or perineal lacerations that
make defecation painful,” Maciocia (1998). The single herbs, Bai Zi Ren and Huo Ma Ren, moisten the intestines, unblocks the bowels and are safe and effective for constipation in postpartum women when due to blood or yin deficiency (Bensky, Clavey, & Stoger, 2004). Zeng Ye Tang is used to treat constipation due to yin deficiency or fluid deficiency and the heat that can arise from insufficient fluids. If the patient is feeling constipated in the postpartum period, and also experiences inflammation, this would be useful for both conditions; this formula was found to reduce inflammation in rats and mice when given intravenously at 25-30 mL/kg for two to three days only (Chen & Chen, 2009). Both acupuncture and herbs used in conjunction were found by author, Maciocia (1998) to be an excellent and effective form of medicine to treat postpartum related constipation with results in approximately one week.

**CHM and Pain**

*Gui Zhi Tang* was given via intraperitoneal injection to mice at doses of 7.5 g/kg and 15 g/kg and demonstrated marked analgesic and sedative effects, but with a delayed onset of up to 120 minutes (Chen & Chen, 2009). When mice were given 10 g/kg of an alcohol extract of the formula *Ban Xia Xie Xin Tang*, it was associated with an analgesic effect.

“In animal studies, *Shao Yao Gan Cao Tang* was very effective in relieving pain. In human studies, the formula was only slightly effective in relieving pain. The effectiveness increased significantly, however, when combined with acupuncture,” (Chen & Chen, 2009). Although *Shen Tong Zhu Yu Tang* is contraindicated during pregnancy, it was found in one *in vitro* study that the tincture form was effective in relieving pain and decreasing inflammation (Chen & Chen, 2009). Most formulas reviewed with an
analgesic property/function were also anti-inflammatory. *Qi Li San*, not to be used when pregnant or breast feeding due to potentially toxic effects and herbs that strongly invigorate the blood may enter the breast milk, was shown to reduce inflammation and swelling in rats, but it did not have a significant pain-relieving effect in mice (Chen & Chen, 2009).

**CHM and Anemia**

In a study comparing the following formulas and their effectiveness from strongest/most effective to less effective for treating anemia in mice, the results were the following: *Shi Quan Da Bu Tang* was the strongest, followed by *Si Wu Tang* & *Si Jun Zi Tang*. “The mechanism of action was attributed to increased activity of CSF [Cerebrospinal Fluid],” (Chen & Chen, 2009). In one study, *Shi Quan Da Bu Tang* was given for “up to 10 days” (this researcher is assuming the time varied per patient as it was not specified in the report) and was reported to effectively treat mice with anemia due to blood loss; it was associated with an increase in hemoglobin and red blood cells in the mice. *Si Jun Zi Tang*, in a separate study conducted on rats, was found to increase both white and red blood cells after one week of administering the decocted form. *Si Wu Tang*, is clinically used to treat: “postpartum uterine bleeding with lower abdominal pain, anemia, and postpartum anemia” (Chen & Chen, 2009).

*Ba Zhen Tang* is a formula that is comprised of two separate formulas, *Si Jun Zi Tang* and *Si Wu Tang*. When these two formulas were combined into *Ba Zhen Tang*, it was determined to have a positive effect in treating anemia in mice when it was due to profuse loss of blood. A placebo group did not receive herbs, and it was documented that, “…the mice that received herbs for 10 days showed a significant increase of red blood cells. The
study also noted that in normal subjects, use of *Ba Zhen Tang* caused only minor changes to the red blood cells and white blood cells,” (Chen & Chen, 2009). This same formula was used in a clinical study of 102 patients with anemia and a TCM diagnosis of qi and blood deficiencies, which is a common TCM diagnosis for postpartum women, and recovery was seen in 8 women, marked improvement in 45 women, moderate improvement in 42 women, and no change in seven women. Overall effectiveness of this formula for treating anemia was 93.1%. “The evaluation of effectiveness [of *Ba Zhen Tang* for anemia] was based on both subjective and objective findings,” (Chen & Chen, 2009).

*Dang Gui Bu Xue Tang* is comprised of two single herbs: Dang Gui and Huang Qi. “In experiments in mice, administration of *Dang Gui Bu Xue Tang* was associated with an increased red blood cell count. It was noted that the formula was more effective than administering Huang Qi and Dang Gui individually at the same dose, implying that the herbs have a synergistic effect. Also, it was found that the herbs were more effective in increasing red blood cell count (but not white blood cells) when decocted for 90 minutes in comparison to 45 minutes,” (Chen & Chen, 2009). In addition to treating anemia, *Dang Gui Bu Xue Tang* also treats insufficient lactation and would be appropriate for a patient who is experiencing difficulty with lactation in addition to anemia. In one study the results of 19 iron deficient anemic patients, who were treated with *Gui Pi Tang* for one month, showed a 79% improvement. The specifics of “effectiveness” in these 19 patients were not given, but this researcher is assuming blood panels testing iron deficiency anemia were taken before and after administration and that improvement was seen in these biomarkers. In a different study using the same formula, *Gui Pi Tang*, 20
patients who had anemia due to hemorrhage were treated for an average of 24 doses (5-49 was the range) of decocted herbs with “good results” and it has been documented as an effective treatment for patients who have compromised kidney function with anemia and leucopenia (Chen & Chen, 2009). The classic textbook *Wan Bing Hui Chun* suggests that *Xiong-gui-tiao-xue-yin* improves anemia, enhances uterine contractions, stimulates lactation and alleviates psychological disorders (Ushiroyama, Sakuma, & Ueki 2005). In a clinical study, “*Xiong-gui-tiao-xue-yin* has been demonstrated to enhance restoration of certain physical conditions and variables to normal such as involution of the uterus, blood hemoglobin concentration and C-reactive protein concentration in puerperal women after delivery,” Ushiroyama, Sakuma, & Ueki (2005).

**TREATING PPD SYMPTOMATOLOGY WITH ACUPUNCTURE**

Clavey (2013) determined there to be a lack of information in historical Chinese literature regarding acupuncture treatments for PPD. He stated, “There is quite a bit of information listed under ‘Delirium and Mania’ [in *Zhen Jiu Jia Yi Jing*, The Great Compendium of Acupuncture and Moxibustion] which may be relevant in this regard, but nothing that is specific for postnatal conditions. It is therefore fairly safe to suggest that the treatment of postnatal depression (even when split into its various symptomatic categories) was not traditionally considered the province of acupuncture.” He reported the acupuncture point Liver 14 was the primary point for postnatal conditions listed in 8 Chinese medical texts. Clavey (2013) quoted the Yang and Chace translation of the *Zhen Jiu Jia Yi Jing* (The Great Compendium of Acupuncture and Moxibustion) p. 710, “For women with postpartum disorders, such as inability to ingest food or drink, stuffing fullness in the chest and lateral, costal region, visual dizziness, cold feet, difficult
urination, lancinating heart pain, frequent retching, sour foul smell, bi aching (of the limbs), and abdominal fullness which is more conspicuous in the lower abdomen, Cycle Gat (Liver 14) is the ruling point.” Maciocia (1998) wrote that post-natal depression responds very well to acupuncture and Chinese herbs, and that the majority of PPD cases are resolved in just a few months. The efficacy of acupuncture has been evaluated in clinical settings for a variety of conditions over the past 40 years and it has been shown to possess broad therapeutic benefits (Zhang, Wang, McAlonan, 2011). The theory of TCM is summarized to be that acupuncture points are not the “skin, muscles, connective tissues, or bones, but local sites where the meridian energy effuses onto the superficial tissues and infuses into the deep tissues and visceral organs” (Zhang, Wang, McAlonan, 2011). Animal and human studies have determined that many acupuncture points have dense neural components, especially nerve fibers, at a ratio of 1.4:1 compared to non-acupuncture point regions which may be one of the main biochemical reasons for acupuncture as an effective therapy for many conditions (Zhang, Wang, McAlonan, 2011). Effectiveness of acupuncture was measured in one study electrodermally, and the measures showed that acupuncture treatments for patients with chronic pelvic pain were effective (Zhang, Wang, McAlonan, 2011).

The National Institute of Health (NIH) reported in 2008 that over a five year period, from 2002-2007, there was an increase of approximately 1 million people receiving acupuncture and to that date 3.1 million American adults and 150,000 children used acupuncture (Xu et al, 2013). With such a large number of Americans using acupuncture the question of safety and adverse effects becomes a topic that should be examined. Xu et al (2013) performed a systematic review to determine statistical significance as well as
reported adverse effects. Syncope, nausea or immune reactions were classified as adverse reactions. Examining only the numbers and incidences, which occurred in the US, the following numbers were associated with acupuncture: Infections, 4; Pneumothorax, 3; Peripheral nerve injury, 1. Cases of syncope were reported, a total of 10, however it was not specified which country this was in relation to. The authors Xu et al (2013) noted, “Four recent surveys of acupuncture safety among regulated qualified practitioners, two conducted in Germany, and two in the United Kingdom, confirm that serious adverse events after receiving acupuncture are uncommon. Indeed, of these surveys, covering more than 3 million acupuncture treatments total there were no deaths or permanent disabilities, and all those with adverse effects fully recovered. It can be concluded that acupuncture has a very low rate of adverse effects, when conducted among licensed, qualified practitioners in the West.” The United States previously had higher incidences of adverse events until Clean Needle Technique certification was required by state acupuncture licensing boards. This movement to require more regulations for safety led to adverse effects decreasing drastically to almost becoming rare in the US (Xu et al, 2013).

“Because maternal depression can have a detrimental effect during the formative life of an infant, the role of acupuncture in preventing and treating postpartum depression should be further investigated,” (Schnyer, Manber, & Fitzcharles, 2003). In 2012, researchers Chung et al conducted the first randomized controlled study on the feasibility, tolerability, and efficacy of acupuncture for PPD. It was a very small sample size, 20 participants, randomly assigned to either receive electroacupuncture or sham acupuncture
twice weekly for four weeks. The points used were: Du 20, Yintang, Sishencong, GB8, Taiyang, ST8, SP 6, LV 3, HT 7, & PC 6. The electroacupuncture group was connected to a 2 Hz frequency stimulator and the needles were retained for 30 minutes. The sham acupuncture group was treated at the same points using Streitberger placebo needles, which are blunt needles creating a pricking sensation but not penetrating the skin. There was “significant” reduction in the severity of depression and anxiety when the scales used to determine PPD were re-evaluated post-treatment in both the electroacupuncture and sham acupuncture groups. The main limitation of the study was, “Despite a large effect size of electroacupuncture and sham acupuncture for depressive symptoms in the postpartum period, due to the lack of a waiting list group, it was difficult to determine whether the significant improvement was a placebo response or a natural course of mild postpartum depression,” reported Chung et al (2012). The reason a waiting list group to observe was not included was because the researchers determined untreated maternal depression to be unfair to participants, however, the researchers also admitted that sham acupuncture is not completely inert and that this is another limitation to their study (Chung et al, 2012). Mackenzie et al (2011) summarized similar findings about the need to question sham acupuncture and the validity in clinical settings. The initial use of sham acupuncture was to reduce or neutralize the ‘placebo effect’ or the perceived effect of a treatment by participants due to their belief in the substance or methods being used. Mackenzie et al (2011) reported, “…arguments have been advanced suggesting sham treatment may stimulate opioid production, or diffuse noxious inhibitory control (DNIC), similar to that following conventional acupuncture, and thereby influence analgesic requirement [in relation to pain control during labor]. This could mitigate the impact of
such treatment as a control group.” Mackenzie et al (2011) found that the protocols studied in a 3.5 year randomized double-blind study of manual, electro, and sham acupuncture and a single-blind study comparing acupuncture with a control group for analgesia for labor induction were not effective, and that acupuncture was not beneficial as an analgesic for pain relief during induced labor. However, the study did identify a trend towards lower analgesic requirement and cesarean section with acupuncture, but the data were not statistically significant. PPD studies may not have been conducted comparing wait listing subjects more avidly as this may be viewed as unethical to “deny” a patient in need the proper treatment. This complication, in addition to limitations of sham acupuncture and the possible effectiveness of if, definitely contributes to a heightened difficulty in conducting studies effectively for this condition.

**Acupuncture and Depression**

Studies have found acupuncture to be effective in reversing and even normalizing abnormal neuroimaging activity in patients with chronic pain and major depressive disorder as well as a reducing pain and depression symptomology (Zhang, Wang, McAlonan, 2011). There are different neuroimaging modalities, which are used to observe the structure and/or function within the brain. Functional magnetic resonance imaging (fMRI) which uses Magnetic Resonance Imaging (MRI) has a subcategory to assess which areas of the brain are active while being minimally invasive, Positron Emission Tomography (PET is similar to the fMRI by monitoring brain function and blood flow). Electroencephalogy (EEG) and Magnetoencephalography (MEG) map the electrical activity of the brain to determine “when” activity occurred. These modalities are very insightful regarding the effects of acupuncture on the brain (Dhond, Kettner, &
Napadow, 2007). Zhang, Wang, McAlonan (2011) wrote, “Similar effects have been observed in normalizing neurochemical abnormalities in depressive conditions, showing that electroacupuncture treatments protects against decreased 5-HT and catecholamine in depressed patients, and in animal models of depression.” The anterior cingulate cortex is a region of the brain that is linked to the limbic system, amygdala, and periaqueductal gray matter. Not only does it play a role in regulating autonomic and endocrine functions, modulating the internal emotional response to pain, but also the anterior cingulate cortex is involved with maternal-infant interactions and emotional function (Devinsky, Morrell, & Vogt, 1995; Wu et al, 1999; Dhond, Kettner, & Napado, 2007). A positron emission tomography (PET scan) study of healthy women showed the transient emotions, sadness or happiness, were correlated to an elevated blood flow in the anterior cingulate cortex (Devinsky, Morrell, & Vogt, 1995). Other neuroimaging studies have found the anterior cingulate cortex to be related to transient mood changes, depression, anxiety, and the perception of pain (Luu & Posner, 2003). Authors Bair, Robinson, Katon, & Kroenke (2003), wrote a review article examining pain and depression, and stated, “Perhaps these experiments [regarding pain signals and perception], suggest how depression, which is associated with negative expectancies, may amplify pain signals by activating brain structures such as the anterior cingulate gyrus.” A study was conducted using acupoints ST 36 and LI 4, demonstrated that the rostral region of the anterior cingulate cortex is a key modulator to the internal response to pain and that the limbic system was deactivated in the real acupuncture group versus the minimal stimulation group, demonstrating the interplay of the limbic system with pain perception (Wu et al, 1999). “Collectively, neuroimaging studies demonstrate that acupuncture modulates a widely distributed
network of brain areas including limbic, prefrontal, and brainstem regions,” Dhond, Kettner, & Napadow (2007). It is estimated that between 3.5-11% of pregnant women meet the criteria to be diagnosed with a major depressive disorder and a portion of these women will then continue to experience depression postpartum (Shnyer, Manber, & Fitzcharles, 2003). Sixty-one pregnant women with nonpsychotic major depressive disorder were randomly assigned to one of three groups (Manber, Schnyer, Allen, Rush & Blasey, 2004). Group 1 was an active acupuncture group that specifically treated the symptoms of depression, Group 2 was a valid control acupuncture group that was non-specific and unrelated to depression, and Group 3 received massage to help with stress and relaxation. Neither acupuncture group received cautioned or contraindicated acupoints during pregnancy. The acupuncture protocols varied; treatments in the specific Group 1, received customized treatments, which were tailored for the patterns of the female patients according the Traditional Chinese Medicine. Group 2, the nonspecific acupuncture group received the same number of acupuncture points in the same region, but the points were not specific to treating depression. The study does not specify if traditional point location was used for this group and if the points were actual acupuncture points or if they were random locations that are not even acupuncture points. The reduction of depression response rate for the acupuncture group specific to depression was 69%, the non-specific acupuncture group was 47%, and the massage group 32%. Although the specific and non-specific groups were not drastically different in percent reduction, a postpartum data survey found that even after the participants were not receiving acupuncture after childbirth, the specific acupuncture group had long-term
results and a larger portion was in full remission of depression at 10 weeks postpartum (Manber, Schnyer, Allen, Rush & Blasey, 2004).

**Acupuncture and Insufficient Lactation**

Lixin, Hongcai, Ying, & Cafin (2008) conducted a study involving 92 women with postpartum insufficient lactation. Forty-six cases were randomly chosen for the treatment group, and 46 cases were randomly chosen for the control group. The treatment group received bilateral electroacupuncture at SI 1, and the control group received bilateral electroacupuncture at LI 1. Both groups received a total of 10 treatments. The effective rate for the treatment group and increasing postpartum lactation was 100%; the effective rate of the control group was 69% (Lixin, Hongcai, Ying, & Cafin, 2008). Normal levels of the hormone oxytocin are necessary for sufficient lactation. Authors Andersson & Lundeberg (1995) reported that both acupuncture and exercise cause the release of endogenous opioids, which are: Enkephalin, Beta-Endorphin, Dynorphin, and Endomorphin, as well as oxytocin to induce functional changes in different organ systems (Lin & Chen, 2009).

**Acupuncture and Inflammation**

Acupuncture was determined to be effective in balancing the pro- and anti-inflammatory factors in patients with depression, suggesting that acupuncture stimulation improves pathophysiology by balancing peripheral neuroactive mediators and modulating neural signals which in TCM is balancing the yin and yang (Zhang, Wang, McAlonan, 2011). Pro- and anti-inflammatory factors have been linked to the following disorders: pain, neuroendocrine, anxiety, sleep, and depression (Zhang, Wang, McAlonan, 2011). “Acupuncture has broad effects of normalizing neuroimaging, neurochemical, and
behavioral abnormalities in neuropsychiatric disorders as well as regulating autonomic activities in visceral disorders,” Zhang, Wang, McAlonan (2011).

**Acupuncture and Pain**

A study was conducted comparing “real acupuncture” versus “minimal acupuncture” or superficial pricking in the control group, with acupoints ST 36 and LI 4 being tested for their analgesic effectiveness. The “real” acupuncture group was found to be significantly different, the stimulation was less painful and slowed the heart rate more significantly. Bradycardia due to the acupuncture may be indicative of a decrease in the nervous system response and a higher state of relaxation. A different study found positive analgesic effects from electroacupuncture treatments in both human and animal studies at acupoints ST 36 and SP 6, which are muscle spindle-dense neural regions and are closely associated with enhanced release of endogenous opiate peptides in the Central Nervous System. Functional MR imaging used during this study showed ST 36 activated the hypothalamus as well (Wu et al, 1999). “Results from human and animal studies suggest that acupuncture acts as a neuromodulating input into the central nervous system that can activate multiple analgesia and stimulate pain modulation systems to release neurotransmitters such as endogenous opioids,” Wu et al (1999). Dopamine is a neuromodulator that is in the highest concentration in the limbic system; animal data compiled from different experiments indicate that acupuncture suppressed the synthesis and/or release of dopamine induced by pain (Hui et al, 2005). Dopamine has an influence not only with the brain regions associated with pain processing, but also with the cognitive and affective functions, such as symptoms associated with depression and
anxiety, that influence the subjective perception of pain (Jarcho, Mayer, Jiang, Feier, & London, 2012).

A review of the efficacy of acupuncture analgesia, or pain alleviation, reported that acupuncture and electrical nerve stimulation at certain points were valid for postoperative analgesia and found electroacupuncture, the two combined techniques of electrostimulation and acupuncture to have a synergistic effect (Lin & Chen, 2009). Based on this study, the relation to pain after a C-section may be inferred as a condition in which acupuncture would be effective at reducing pain if electroacupuncture was given at an optimal time immediately after an operation (Lin & Chen, 2009). It was determined based on other postoperative electroacupuncture studies to have a lasting effect of decreased pain for approximately one week (Lin & Chen, 2009). Some hospitals have used acupuncture for anesthesia during surgeries in China for procedures such as removing the thyroid gland and oral surgeries (Lin & Chen, 2009). Future research should examine the analgesic effects of acupuncture during a cesarean procedure and immediately following to determine if the pain levels of patients were lower when the anesthesia wore off, versus a control group who did not receive acupuncture or electroacupuncture. One study of 60 women who had spinal anesthesia during cesarean sections at a hospital in China were assigned randomly to a control group, an acupuncture group, or an electro-acupuncture group. Both groups received bilateral needles (although the difference being one of the groups also received electrical stimulation) at the acupoint Spleen 6 and the patients controlled the frequency of morphine administered for pain relief. During the first 24 hour period the results showed both the acupuncture and
electro-acu groups to have lower pain scores, less side-effects related to opioids such as
dizziness, and to have used 30-35% less morphine to control the pain (Wu et al, 2009).
In a non-surgical birth, acupuncture has been found to be effective for inducing
anesthesia for normal delivery that further supports the effectiveness of acupuncture
analgesia (Lin & Chen, 2009). A randomized controlled trial investigating acupuncture
treatment during labor to decrease pain and increase relaxation was conducted on 90
women between 1999 and 2000 in Sweden (Ramnero, Hanson, & Kihlgren, 2002).
Results of this study showed that acupuncture during labor “significantly reduced the
need of epidural analgesia” and “a significantly better degree of relaxation” when
compared with the control group. The original researchers echoed the only issue this
researcher had with this acupuncture study which was that the midwives who were the
acupuncture providers only had a small amount of experience needling and had only
participated in a four-day course in basic concepts of acupuncture for labor pain. This
short period of time would expose the midwives to helpful information; however, due to
time constraints it would seem impossible to have differential diagnoses based on each
patient covered sufficiently. Thus, the acupoints chosen to decrease pain and increase
relaxation were helpful and indicated for the patients, but may not have been as
appropriate as individualized points chosen based on a differential diagnosis. The points
needled in this study included the following: Lu 7, GB 25, 26, 27, 28, 29, 41, BL 25-36,
54, 60, Ren 2, 3, Yintang, SP 6, LV 3, and KD 3. Seven years after this study another
Scandinavian study was conducted in Denmark with 600 women. To this researcher’s
knowledge this was the largest randomized controlled study to examine the effect of
acupuncture on labor pain to this date. Three groups: a traditional treatment group, an
acupuncture group, and a TENS unit group, were utilized to collect the data. The statistics in brackets within the following quote are the results from the TENS group so that a comparison between that group and the acupuncture group can be easily established. “In the acupuncture group, 59 percent of the women thought that acupuncture gave some or substantial pain relief [34 percent of the women reported that TENS gave some or substantial pain relief], 55 percent that it had a somewhat or very calming effect [23 percent TENS group found calming effect], and 86 percent that it had no side effects [84 percent TENS group no side effects]. Asked if they would want to use acupuncture again in connection with a future delivery, 53 percent answered positively [18 percent TENS], 18 percent negatively [66 percent TENS], and 29 percent did not know [16 percent TENS],” (Borup, Wurlitzer, Hedegaard, Kesmodel, & Hvidman, 2009). Based on the results from this study, acupuncture is effective in reducing the need for pharmacological intervention to reduce pain during labor. When labor pain is decreased, the risk of acute or chronic pain is decreased, and when a new mother is not experiencing pain there is a greatly decreased risk of PPD. Acupuncture stimulation has also been determined to increase extracellular concentration of ATP and its metabolite and antinociceptive agent, adenosine, in mice while decreasing pain. Acupuncture eliciting an increase in ATP and adenosine in local acupoint tissues is suggested to block impulses from sites distal to the point being needled (Zhang, Wang, McAlonan, 2011). “Both acupuncture and herbs are very effective for treating abdominal pain after childbirth. In fact, provided that infection as a cause of the pain can be excluded, Chinese medicine probably offers the best chance of curing this problem as Western medicine would have very little to offer [if infection is ruled out],” (Maciocia, 1998).
Literature Review Integration

Many studies have been conducted regarding the etiologies of PPD. Selective Serotonin Reuptake Inhibitors (SSRI’s) are the current mode of medications used for treatment. In some studies, SSRI’s were found in the breast milk of medicated, breastfeeding mothers, and these medications may be harmful to infants. Also, there are studies that have been conducted on the effectiveness of TCM for treating pain, anxiety, and pre-existing depression, but there have not been many conducted in regards to PPD. The purpose of this research synthesis is to determine the effectiveness and safety of TCM, specifically acupuncture treatments and Chinese herbal medicine, and how they affect postpartum depression and the many etiologies related to it. There is a gap in the research, and the goal of this research is to bridge that gap and unite the information by utilizing human and animal studies that have already been conducted on the proverbial leaves of the branch to match their relationship to the root of issue.

Chapter Three: Methodology

Introduction

The purpose of this study was to explore the evidence regarding the effectiveness of acupuncture and CHM, two components of TCM, which have been shown in previous studies to improve depression, and to specifically investigate the area of postpartum depression. Through this literature synthesis linking relevant factors of mood disorders, pain, and depression to postpartum depression the researcher endeavored to identify what causes and effects interplay with each other. The researcher identified areas in which TCM can provide effective and safe treatments for women diagnosed with postpartum
depression. As many women suffering from PPD may be breastfeeding, safety issues regarding infants and CHM were also investigated.

**General Statement of Methodology**

The literature research synthesis method was chosen due to the nature of the topic. The qualitative approach and inductive reasoning were determined to be the most appropriate methods for this study to allow for the channeling of a broad scope of information, to a specific topic of PPD. Lakshman et al. (2000), wrote of the comparison of quantitative versus qualitative, “…the extent of biological abnormality, severity, consequences and the impact of illness cannot be satisfactorily captured and answered by the quantitative research alone. In such situations qualitative methods takes a holistic perspective preserving the complexities of human behavior by addressing the ‘why’ and ‘how’ questions.” As the effectiveness of acupuncture and CHM for PPD have not been researched to a great extent, this study was designed to explore previous studies regarding the effectiveness of TCM treatments for symptoms associated with PPD, and synthesized pertinent data to subsequently be applied to TCM treatments for PPD.

**Procedures**

The researcher extracted symptomatic data and performed data analysis after compiling the most relevant studies into charts and tables. The lack of information on the topic of TCM and PPD in research papers was a possible perceived threat of validity. Studies are typically either focused on acupuncture or CHM exclusively. There are not many studies that combine both modalities for PPD treatments, even though in clinical practice both are often used together and may potentiate faster and more effective results.
Research Synthesis data were compiled through online searches of published books and medical journals through: Pubmed, EBSCO host, Yo San University online databases, and Google Scholar.

Search words used: acupuncture, acupuncture and depression, depression, postpartum depression, PPD, postpartum major depression, PMD, Chinese herbs, TCM, Traditional Chinese Medicine, postnatal pain, mood disorders, anxiety, CAM, and adverse effects.

**Inclusion/Exclusion Criteria**

Articles in English were used. Both female and male human studies, as well as animal studies were included. Male subjects were included due to the research studies used, which included males for symptoms/conditions such as: general pain, general depression, and inflammation.

Children were excluded from this study.

**Human Subjects Research Ethical Considerations**

No informed consent was needed for this as no human subjects participated.

There were no risks regarding participant identity, because the author who conducted the study only used de-identified data.

**Chapter Four: Results**

This study was a research synthesis of 56 articles in English, and 26 summarized clinical results that are discussed separately below. The articles used included a variety of study types: 25 literature reviews, 11 clinical trials, 7 randomized controlled clinical trials, 4 longitudinal cohort studies, 4 case studies, 3 observational, 1 secondary data analysis, & 1 synthesis. Thirty-one articles were related to postpartum depression, baby blues, or the postpartum period. Number of participants in PPD studies: Longitudinal
Reviews Total: 16,133, Clinical Trials: 862, Observational: 244, Case Studies: 4, and Literature Reviews: one study reviewed 31 papers and another study reviewed 57 studies on breastfeeding while taking antidepressants. Twenty-six articles were not related to PPD, but eleven of these twenty-six were related to general depression. Fifteen of the 25 literature reviews were discussing some aspect of postpartum depression. Five literature reviews were focused on acupuncture not related specifically to PPD. Three literature reviews were discussing antidepressants and breastfeeding safety. Two literature reviews were in regards to the role of the brain in pain processing and one of the two was more specific to depression and pain and the role the brain may have in the processes of these conditions. One of the literature reviews not related to PPD specifically discussed the link of chronic pain to depression. Of the 11 clinical trials five were related to PPD, maternity blues, or insufficient lactation. The following is the number and research areas of the clinical trials: 4-acupuncture, 4-Chinese herbs, 2-inflammation, and 1-anemia. Six of the seven randomized controlled clinical trials were researching acupuncture and one of these six acupuncture studies were researching acupuncture for depression in pregnancy to reduce probability of PPD and one researched acupuncture for PPD treatments (#8 &32). The seventh RCCT appeared to be more of an observational study that the authors conducting the study were observing and recording postpartum concerns including depression (#37). The four longitudinal studies were related to PPD. The three observational studies were related to PPD. See Table 1.
### Article Summaries: Table 1

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<th>Literature Review</th>
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<th>Randomized Controlled Clinical Trial</th>
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<th>Case Studies</th>
<th>Observational Data Analysis</th>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td># related to herbs</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td># related to breast feeding</td>
<td>9</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td># related to pain</td>
<td>10</td>
<td>0</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td># related to delivery</td>
<td>2</td>
<td>0</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

*1 RCCT seemed to be an observational study (article 37) but was left in original RCCT category as determined by original authors.

Sixteen of the nineteen acupuncture studies concluded with positive results. Two studies found acupuncture to have the same effect as the control groups, but one of these did find the use of pharmacological and invasive methods to be lower in the acupuncture group versus traditional analgesics. One study found there to be no difference between acupuncture and sham acupuncture for pain relief during an induced labor. Seven studies were related to depression, three studies were related to pain, two studies were related to inflammation, two studies were related to labor, and two studies were related to the
postpartum period. Three studies were related to acupuncture and the effect it may potentiate on the limbic system. One study conducted found acupuncture released endogenous opioids and oxytocin in addition to affecting the hypothalamic and brainstem systems. See Table 2.

**Acupuncture Study Results: Table 2**

<table>
<thead>
<tr>
<th>Article #, Study Type</th>
<th>Positive Results</th>
<th>Same as Control</th>
<th>No Results</th>
<th>Additional Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>51, Lit Review</td>
<td>X</td>
<td></td>
<td></td>
<td>Acu found to decrease anxiety and depression after 1 mo of tx in 68 subjects</td>
</tr>
<tr>
<td>27, Lit Review</td>
<td>X</td>
<td></td>
<td></td>
<td>Acu found to relieve pain</td>
</tr>
<tr>
<td>42, Lit Review</td>
<td>X</td>
<td></td>
<td></td>
<td>Acu on 30 PT resistant to anti-depressants showed sign. improvement for depression</td>
</tr>
<tr>
<td>3, Lit Review</td>
<td>X</td>
<td></td>
<td></td>
<td>Acu released endogenous opioids &amp; oxytocin. Affected hypothalamic &amp; brainstem systems.</td>
</tr>
<tr>
<td>14, Lit Review</td>
<td>X</td>
<td></td>
<td></td>
<td>Acu found to modulate wide distributed network of brain including limbic, prefrontal &amp; brainstem</td>
</tr>
<tr>
<td>57, Lit Review</td>
<td>X</td>
<td></td>
<td></td>
<td>Acu found to rebalance inflammatory factors, reverse abnormal neuroimaging in PT w/ chronic pain and Major Depressive D/O</td>
</tr>
<tr>
<td>47, Clinical Trial</td>
<td>X</td>
<td></td>
<td></td>
<td>Electro-acu found to rebalance inflammatory factors in Major Depressive D/O</td>
</tr>
<tr>
<td>28, Clinical Trial</td>
<td>X</td>
<td></td>
<td></td>
<td>SI 1 for insufficient lactation 100% response rate vs.</td>
</tr>
<tr>
<td>Article #, Study Type</td>
<td>Positive Results</td>
<td>Same as Control</td>
<td>No Results</td>
<td>Additional Notes</td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------------</td>
<td>-----------------</td>
<td>-----------</td>
<td>------------------</td>
</tr>
<tr>
<td>23, Clinical Trial</td>
<td>X</td>
<td></td>
<td></td>
<td>69% control group</td>
</tr>
<tr>
<td>55, Clinical Trial</td>
<td>X</td>
<td></td>
<td></td>
<td>MRI Preliminary evidence of response in cerebrocerebellar and limbic system to acu at ST36</td>
</tr>
<tr>
<td>6, RCCT</td>
<td>X</td>
<td></td>
<td></td>
<td>Real acu vs. minimal acu and pricking found to cause less pain, higher De-Qi, and more severe bradycardia</td>
</tr>
<tr>
<td>31, RCCT</td>
<td></td>
<td>X</td>
<td></td>
<td>Use of pharmacological &amp; invasive methods was lower in acu group (acu vs. traditional analgesics)</td>
</tr>
<tr>
<td>32, RCCT</td>
<td>X</td>
<td></td>
<td></td>
<td>No difference between acu and sham acu for pain relief during induced labor</td>
</tr>
<tr>
<td>8, RCCT</td>
<td>X</td>
<td></td>
<td></td>
<td>EA &amp; sham acu effective for PPD</td>
</tr>
<tr>
<td>43, RCCT</td>
<td>X</td>
<td></td>
<td></td>
<td>Acu during labor decreased need of epidural analgesia, no AE, &amp; greater relaxation</td>
</tr>
<tr>
<td>45, Case Study</td>
<td>X</td>
<td></td>
<td></td>
<td>Dose of morphine 30-35% less in acu and EA vs. control and not as many opioid related side effects</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Response rates for tx of depression during pregnancy: Spec. Acu 69%, Non-specific acu 47%, &amp; massage 32%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>HRSD score 19 before tx, 11 after 8 acu sessions, &amp; in remission after 12 tx at HRSD score of 5.</td>
</tr>
<tr>
<td>Article #, Study Type</td>
<td>Positive Results</td>
<td>Same as Control</td>
<td>No Results</td>
<td>Additional Notes</td>
</tr>
<tr>
<td>----------------------</td>
<td>------------------</td>
<td>----------------</td>
<td>-----------</td>
<td>------------------</td>
</tr>
<tr>
<td>45, Case Study (2nd)</td>
<td>X</td>
<td></td>
<td></td>
<td>HRSD score 23 before tx, 11 after 8 acu tx, in remission after 12 at HRSD score of 6</td>
</tr>
<tr>
<td>56, Case Study</td>
<td>X</td>
<td></td>
<td></td>
<td>Low Rates of AE w/ acu tx</td>
</tr>
</tbody>
</table>

Six herbal formulas from five articles were used in this research synthesis. Three of these six were related to the postpartum period, one was related to breastfeeding and therefore the postpartum period, two were related to general depression, and one to breastfeeding. All six of the herbal formulas had positive results for treatment. Two of the six were case studies and had no control groups. One study found an herbal formula to have an antidepressant effect similar to Prozac. A different study comparing a different formula to the effectiveness of Prozac reported both the herb group and the Prozac group to have increased immobility time in the subjects, however, only the high dose herb group led to decreased serum CRH, ACTH, & cortisol. The Prozac did not lower these levels in that particular study. Another study found the herb group to have a lower incidence of maternity blues than the control group. The formula that was related to the postpartum period and breastfeeding reported that the herb group increased the level of plasma prolactin levels and lactation, but had no effect on oxytocin; the comparison group used ergometrine and there was not an increase in plasma prolactin or lactation, but it did increase plasma oxytocin for one day. See Table 3.
## Chinese Herbal Formulas (Articles) Table 3:

<table>
<thead>
<tr>
<th>Article #, Formula Name</th>
<th>Related to Postpartum Period</th>
<th>Related to General Depression</th>
<th>Related to Breastfeeding</th>
<th>Positive Results</th>
<th>Same as Control</th>
<th>No Results</th>
<th>Additional Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>29, Ban Xia Huo Po Tang</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>Antidepressant effect similar to Prozac</td>
</tr>
<tr>
<td>7, Shuyusan</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>Both the herb group and Prozac group found increased immobility time in subjects, only the high dose herb group led to ↓serum CRH, ACTH, &amp; CORT</td>
</tr>
<tr>
<td>49, Xiong Gui Tiao Xue Yin</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>Herb group ↑level of lactation and plasma prolactin levels but not oxytocin. Ergometrine group did not ↑plasma prolactin as much as herb group, but did ↑plasma oxytocin for 1 day.</td>
</tr>
<tr>
<td>50, Xiong Gui Tiao Xue Yin</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>Herb group (134 females) vs control group (134 F) had lower incidence rate of maternity blues. Herb group: 21 subjects/134. Control: 43 subjects/134 had maternity blues.</td>
</tr>
<tr>
<td>9, Mod. Gui Pi Tang</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>Case study. Had no control group.</td>
</tr>
<tr>
<td>Article #, Formula Name</td>
<td>Related to Postpartum Period</td>
<td>Related to General Depression</td>
<td>Related to Breastfeeding</td>
<td>Positive Results</td>
<td>Same as Control</td>
<td>No Results</td>
<td>Additional Notes</td>
</tr>
<tr>
<td>-------------------------</td>
<td>------------------------------</td>
<td>------------------------------</td>
<td>--------------------------</td>
<td>------------------</td>
<td>----------------</td>
<td>-----------</td>
<td>-----------------</td>
</tr>
<tr>
<td>9, Mod. Shi Quan Da Bu Tang</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Case study. Had no control group.</td>
</tr>
</tbody>
</table>

The twenty-six summarized clinical results included were on the topic of Chinese herbal formulas. Except for the results portions included as a summary on various formulas in the textbook by authors Chen & Chen (2009) from Chinese studies, the full articles were unavailable, as they have not been translated into English. There was an overlap between conditions affected by these formulas and the specific breakdown may be viewed in Table 4. Thirteen studies were regarding inflammation, eight studies concerning pain, six studies about general depression, three studies related to anemia, two studies connected to the postpartum period, and one study was related to breastfeeding. Twelve of the studies were animal studies, nine were human, one was both animal and human studies, and three studies were unspecified. Eight of the human studies included the number of participants and the total number of subjects was 672. Not all of these eight studies were detailed about the specific results of subject improvements. Four hundred and sixty subjects were totaled in the studies that had specific subject results reported in detail: 245/460 or 53% had complete recovery, 191/460 or 42% had improvement (included significant and moderate results in this category), and 24/460 or 5% had no improvement from the herbal formula they were treated with for their condition. Two hundred and twelve subjects were from the two studies that were human studies and did have the number of participants but not specific reports of results. One of these non-specific studies reported postpartum physical recovery to have been observed.
in the Xiong Gui Tiao Xue Yin herb group (85/171 subjects were in herbal group, 86/171 in ergometrine group), but no other details were included. The other non-specific result study stated improvement in 41/41 subjects with post-surgical proteinemia, the subjects had increased hemoglobin, RBC, & platelets after treatment with the herbal formula Shi Quan Da Bu Tang. See Table 4.

**Chinese Herbal Formulas (Summaries) Table 4:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Related to Postpartum Period</th>
<th>Related to General Depression</th>
<th>Related to Breast feeding</th>
<th>Related to Pain</th>
<th>Related to Anemia</th>
<th>Related to Inflammation</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gui Zhi Tang</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Anti-inflammatory: Inflammation: Intraperitoneal injection showed anti-inflammatory effect in mice w/ swollen feet after 1 hour and lasted 24. Another study, GZT showed stronger than aspirin for inflammation. Analgesic: Intraperitoneal injection showed marked analgesic effect delayed onset of effect 120 min.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chai Hu</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Anti-inflammatory: decreased inflammation in acute and chronic inflammation in rats.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gui Zhi Tang</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>60 human subjects: 32 complete recovery, 16 significant, 8 moderate, 4 none.</td>
</tr>
<tr>
<td>Xiao Yao San</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50 human subjects: 26 marked improvement, 17 some, 7 none.</td>
</tr>
<tr>
<td>Jia Wei</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Found to be effective on plasma ACTH &amp; cortisol under stress.</td>
</tr>
<tr>
<td>Xiao Yao San</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 study found it to have anti-depressant &amp; antinociceptive properties</td>
</tr>
<tr>
<td>Huang Lian Jie Du Tang</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Reduced pain &amp; inflammation, exerted effect mainly in early stages of inflammation where increased capillary permeability &amp; migration of leucocytes occurred.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long Dan Xie Gan Tang</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>Mechanism attributed to inhibitive effect on blood vessel permeability. Max. effect after 4-6 hrs of ingestion.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bu Zhong Yi Qi Tang</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>Administration for 14 days showed antidepressive &amp; antinociceptive properties.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Si Wu</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>1 study found it to have</td>
</tr>
<tr>
<td>Name</td>
<td>Related to Postpartum Period</td>
<td>Related to General Depression</td>
<td>Related to Breastfeeding</td>
<td>Related to Pain</td>
<td>Related to Anemia</td>
<td>Related to Inflammation</td>
<td>Results</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------------------------</td>
<td>-------------------------------</td>
<td>--------------------------</td>
<td>----------------</td>
<td>-------------------</td>
<td>------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Tang</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>“marked” anti-inflammatory effect for chronic inflammation by inhibiting histamine release from mast cells in a concentration dependent fashion</td>
</tr>
<tr>
<td>Tao Hong Si Wu Tang</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>In vitro study assoc. w/ marked anti-inflammatory effect similar to hydrocortisone. Mechanism of herbs does not contribute to negative feedback inhibition or atrophy of thymus or adrenal glands like hydrocortisone does.</td>
</tr>
<tr>
<td>Wen Qing Yin</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Believed to exert anti-inflammatory effect on early stages of inflammation when increased capillary permeability &amp; migration of leucocytes occur</td>
</tr>
<tr>
<td>Dang Gui Bu Xue Tang</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Treatment of Insufficient Lactation: 100% success in 96 women w/in 3 mo after delivery. Best success when tx began w/in 1 mo. After delivery.</td>
</tr>
<tr>
<td>Gui Pi Tang</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2 studies: 19 Patients w/ iron deficiency anemia tx w/ 79% effectiveness w/in 1 month. 20 Patients who took decoction had “good results”. Not specific.</td>
</tr>
<tr>
<td>Shao Yao Gan Cao Tang</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Animal studies: very effective in relieving pain. Human: slightly effective, but effectiveness increased significantly when combined w/ acupuncture.</td>
</tr>
<tr>
<td>Ba Zhen Tang</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>102 Human Subjects: Qi &amp; blood deficiency pattern: 93.1% success: full recovery in 8, marked recovery in 45, moderate recovery in 42, no change in 7.</td>
</tr>
<tr>
<td>Shi Quan Da Bu Tang</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>41 Human Subjects w/ post-surgical proteinemia: Increased hemoglobin, RBC, platelets in 41 pt.</td>
</tr>
<tr>
<td>Xiong Gui Tiao Xue Yin</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>171 women with normal deliveries. 85 in herb group and 86 in ergometrine group. Study reported “marked beneficial effects” of formula on physical recovery in postpartum period. Reason unknown.</td>
</tr>
<tr>
<td>Name</td>
<td>Related to Postpartum Period</td>
<td>Related to General Depression</td>
<td>Related to Breastfeeding</td>
<td>Related to Pain</td>
<td>Related to Anemia</td>
<td>Related to Inflammation</td>
<td>Results</td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------------------------</td>
<td>-------------------------------</td>
<td>--------------------------</td>
<td>----------------</td>
<td>------------------</td>
<td>------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Chai Hu Jia Long Gu Mu Li Tang</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Tx depression induced by chronic stress successfully by restoring HPA system and prefrontal cortex. Demonstrated to prevent chronic stress induced decreases in extracellular concentrations of dopamine &amp; serotonin found in prefrontal cortex. Given w/ Yi Gan San &amp; BZYQT for 14 days showed antidepressive &amp; antinociceptive properties.</td>
</tr>
<tr>
<td>Yue Ju Wan</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>72 human subjects: 94.4% effective rate of formula. Complete recovery in 51, 17 improved, 4 no benefit.</td>
</tr>
<tr>
<td>Shao Fu Zhu Yu Tang</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>In vitro rat study assoc. w/ marked anti-inflammatory effect similar to hydrocortisone. Hydrocortisone had side effects &amp; herbs did not.</td>
</tr>
<tr>
<td>Shen Tong Zhu Yu Tang</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>Effective in reducing pain &amp; inflammation. No other details given.</td>
</tr>
<tr>
<td>Qi Li San</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>1 study showed formula to reduce inflammation and swelling, another did not show these same results.</td>
</tr>
<tr>
<td>Gui Zhi Fu Ling Wan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>Anti-inflammatory action began 30 mins after administration in mice subjects, lasted up to 72 hours. Anti-inflammatory action found to be unrelated to adrenal glands or glucocorticoids because long-term use did not contribute to increased adrenal gland weight and even worked in subjects who did not have adrenal glands.</td>
</tr>
<tr>
<td>Chuan Xiong Cha Tiao San</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>Anti-inflammatory effect in mice &amp; rats, but mechanism is related to adrenal glands as no effect on subjects w/o them. Analgesic onset 15 mins after ingestion, lasting 3 hrs.</td>
</tr>
<tr>
<td>Zeng Ye Tang</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>Anti-inflammatory in mice and rats for 2-3 days.</td>
</tr>
<tr>
<td>Du Huo Ji Sheng Tang</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>80 human subjects with postpartum pain: complete recovery, significant in 14, moderate in 6, no effect 2 cases.</td>
</tr>
</tbody>
</table>
Chapter Five: Discussion

Summary of Findings

A number of study types were included in this synthesis, and there was also significant variation in topics, participants (if any), methodology, results reported, and outcomes. A wide range of information was included in order to interpret similarities among conditions that had been more researched in the areas of: risk factors, pathophysiology, diagnoses, and treatments. This information was gathered to be applied to the specific, lesser-researched condition of PPD. Thirty-one of the fifty-six articles were conducted on the focal topic of the postpartum period.

The data from the studies were organized into charts to easily display patterns and results. Eighty-four percent of the acupuncture studies reviewed reported positive reactions or results in the subjects. Of the four hundred and sixty subjects with results reported in CHM research: 53% demonstrated complete recovery, 42% improved, and 5% had no improvement. These significant findings support the hypothesis that TCM treatments are effective for multiple conditions that fall under the causal factors and/or symptomology categories associated with the pathophysiology of PPD.

Implications for Theory

This research synthesis was intended to explore how probable the efficacy of TCM treatments could be through inductive reasoning. By examining the success of acupuncture and Chinese herbs used in treating general conditions with related symptomology (pain, inflammation, depression, delivery, and breastfeeding), the prospect of receiving positive results from TCM treatments for the individual instance of PPD is implied.
Depression, pain and inflammation may independently or cohesively affect new mothers. Depression and pain were found to share biological pathways and a correlation was reported that either of these conditions led to a higher prevalence of the other condition (Bair, Robinson, Katon, & Kroenke, 2003). Chronic pain has been related to depression, as pain and depression share common neurotransmitter pathways this alludes to evidence of the role of inflammation in some cases of depression (McClellan et al, 2012). As the last trimester of pregnancy and the six weeks following childbirth in the postpartum period have both been found to include an increased state of inflammation in the body, one can surmise that women who have a polymorphism and an inhibited ability to respond to inflammation optimally would be at even greater risk of developing PPD (Etebary et al, 2010; Kendall-Tackett, 2007; Maes et al, 2000). In a study comparing women who had minimal pain during childbirth because they received an epidural analgesic versus a group who had higher pain levels during delivery, 70.1% of the women with lower pain levels breastfed, and only 49.5% who did not receive an epidural breastfed (Wisner, Stika, & Clark, 2014).

The different physiological functions of oxytocin and the role of this hormone in PPD were investigated. Even though mode of delivery, vaginal or cesarean, were not found to have a causal relationship with PPD by authors Patel, Murphy, & Peters (2005) in a longitudinal study with a large cohort, a more recent study reported oxytocin production in emergent cesarean birth to be diminished compared to vaginal births (Stuebe et al, 2012). In a vaginal birth, as the baby is leaving the uterus and descending, stretch receptors feedback to the pituitary to release oxytocin to aid in delivery. A cesarean birth interrupts the natural feedback for oxytocin to increase and this may lead to higher stress
levels in the mother’s body. Oxytocin should remain high throughout lactation and suppress stress responses and has also been reported to reduce pain (Groer, Davis, & Hemphill, 2001). The lack of this process may then cause PPD. Breastfeeding may seem only important to the health and immunity of the baby, however it is also related to fewer cases of PPD as the hormones involved in the process of lactation reduce stress levels that can cause PPD if a hormonal imbalance occurs. Having sufficient lactation is necessary for a healthier postpartum period for the mother and her infant, and when this is not the case, exogenous treatment may be indicated.

Several non-randomized population studies were included in this synthesis. Mothers from different cultures included in this study came from societies with greatly differing views on post-partum care and treatment. In many Asian cultures, relatives prepare meals for new mothers that include foods and herbs based on TCM principles that are often unknown and underutilized in the US. Theoretically this may lead Asian participants in studies conducted in China and Japan to have more positive results to acupuncture and herbal formulas in PPD studies than those from Western countries as those two forms of treatment are not the only ones they are receiving.

Implications for Practice

In terms of clinical applications, midwives would be anticipated to be more supportive of patients seeking TCM as a form of treatment for PPD since both midwifery and TCM are often viewed as “alternative options”, even though in reality both have been utilized for longer than “traditional” or Western care. So it may be inferred that women who are using a midwife for delivery would already be more open to what acupuncture and Chinese herbs have to offer for post-natal care.
Pain management during labor using traditional epidural analgesia was studied to investigate how pain during labor may lead to postpartum pain which can then potentially cause a new mother to develop PPD. Women who received epidural analgesia had lower EPDS scores than those who did not receive pain management (Wisner, Stika, & Clark 2014). Acupuncture was found to decrease pain and increase relaxation as well as reducing the need for epidural analgesia (Ramnero, Hanson, & Kihlgren, 2002). Effectiveness of acupuncture to treat labor pain was reported in the largest randomized controlled study to date (600 subjects) to have given substantial relief to 59% of the women and to have had no side effects in 84% of the women (Borup, Wurlitzer, Hedegaard, Kesmodel, & Hvidman, 2009).

Benefits of herbal formulas have been reported for higher rates of physical recovery during the postpartum period and PPD specifically (Ushiroyama, Sakuma, & Ueki, 2005). An herbal formula increased lactation significantly more when compared to a group taking ergometrine to artificially increase oxytocin to improve lactation (Ushiroyama et al, 2007). Insufficient lactation was resolved in 100% of subjects using acupuncture versus 69% in the non-treatment control group (Lixin, Hongcai, Ying, & Cafin, 2008).

Combining acupuncture and herbs for treatment to increase lactation have been indicated as effective treatments of this postpartum condition, and together would likely cause a more rapid effect and even greater results. Employing acupuncture pre-emptively during delivery to decrease pain and the risk of postpartum pain leading to PPD, and herbal formulas after delivery to nourish the mother and decrease propensity of PPD
should be an important birth plan option that midwives, obstetricians, acupuncturists, doulas, and mother’s-to-be are made aware of to utilize if it seems appropriate for their cases.

**Limitations of Current Study**

Due to the nature of a research synthesis, it is often difficult to find previous studies that include all relevant data. For example, the first RCCT on efficacy of acupuncture for PPD was small, with only 20 participants (Chung et al, 2012). This clinical trial compared electroacupuncture to sham acupuncture with equal results, both groups did experience significant reduction in depression and anxiety when re-evaluated post-treatment. There was no wait-list group to observe and the sham acupuncture group may have been experiencing results similar to conventional acupuncture or the subjects may have had resolution of symptoms without any treatment as time allowed their bodies to rebalance naturally, but without the ability to compare all three groups it is impossible to do anything except assume. Unfortunately, the mixed data of pharmacological effect and research topics from the twenty-six herbal formula summaries (Chen & Chen, 2009) were not accessible in English and there was only a brief paragraph on these formulas which were not always detailed about methodology of research and specific results of the participants. No research found, except for a few case studies, included treatments utilizing both acupuncture and CHM. The hypothesis of this synthesis was on the effectiveness of both acupuncture and CHM together in the treatment of PPD. Although data were evaluated in both acupuncture and CHM separately, there was an insufficient amount of information available which incorporated both modalities together. This
researcher was then required to surmise positive outcomes after assimilating the evidence of efficacy for both instead of finding evidence supporting the two together.

This researcher, as a practitioner of TCM, may have personal biases about the medicine that may have directed research to include articles in support of said hypotheses. However, by using an article abstraction form and applying research methodology including data from different medical disciplines, the threat of this as a possible issue with validity were diminished or removed. By its nature, TCM is less standardized clinically than Western medicine, so results may have significant deviations depending upon the researcher and the theory these individuals practice. Different patterns in TCM require different treatment principles. Training within TCM dictates how practitioners diagnose. There is often disagreement within this field in regards to treatment principles and the primary focus. For example, five different licensed acupuncturists may apply their own clinical experience to the same patient and have five different diagnoses. There are many varying schools of thought such as when to address excess patterns first and then deficiencies if a patient presents with a mixed pattern. In PPD cases, this may be seen as blood stasis from retention of lochia, but the patient may have also hemorrhaged excessively during labor and lost a lot of blood leading to blood deficiency. So the question presents itself, does one treat one or both of these conditions, and for how long? Unanimous agreement is not easy to find, even among TCM practitioners. However, it is still important in clinical trial settings to differentiate patterns to the best of our abilities so the treatment can be customized as much as possible leading to higher results. Levels of acupuncture training varied among studies, as mentioned some individuals were only trained for a couple days and were then performing
acupuncture in the studies. This disparity is not ideal, and may have threatened the validity of those results, as they were not of the same level of expertise as practitioners who conducted other studies.

Due to environmental and climate factors, herbs grown in various regions within the same country with the same regulations of quality and safety of herbs can influence strength and effectiveness. It would be inequitable to suggest that all Chinese herbal formulas compared were “created equally” as the ingredients preferably would be subject to the same standards. Raw herbs, granular herbs, and patent pills are subsequently differing in strength as well. It would be beneficial to have all studies utilizing the same form of formulas (i.e. all studies use granular) to compare results more easily because the strength of the herbs would then be non-variant.

Factors such as animal studies (which were included) versus human studies are obviously not as pertinent for PPD as these subjects cannot complete subjective scales such as EPDS, but these studies were included for general conditions. Every individual has a different perception of pain and depression, so even when studies utilized different pain or depression scales for patients to self-evaluate, aligning these numbers is still a limitation as what may be considered minimal pain or blues to one participant may be viewed as immense pain and severe depression by another. First time mothers were not always an inclusion/exclusion criteria for PPD, and comparing them to mothers with multiple children is definitely a compounding factor. If a mother has multiple children she is often able to recall that feeling these symptoms of PPD is different in comparison to prior experiences, whereas a first time mother has nothing to compare to and she may think that her state of mind is “normal”. Patients who have multiple children are often
more fatigued as they are caring for others in addition to their infants. Mothers are often considered to be depleted of “qi and blood” in Chinese medicine or substance, after giving birth multiple times. This deficiency can cause these women to be more susceptible to PPD versus a first time mother.

**Recommendations for Future Research**

A longitudinal study overseen by licensed acupuncturists investigating acupuncture during delivery to decrease labor pain and postpartum pain, using customized acupoint prescriptions and customized Chinese herbal formulas based on the differential diagnosis of a large cohort would aid greatly in this topic. The ability to compare the EPDS scores of the TCM group to an observation group, and a third group receiving conventional medical treatment would be very insightful for a future area of research to truly evaluate effectiveness of TCM in treating PPD as this is how it is used in practice. By having symptoms recorded of each group at specific postpartum intervals such as serum levels of inflammation measured, pain scales completed by patients, EPDS scales completed by patients, and lactation difficulties to compare and contrast as treatments were dispensed would give a broader scientific look into TCM and PPD. TCM is not performed with a few points and formulas that are used universally for all patients with PPD. When treatment methods or research methods used in a study are more generic and basic for either convenience of the researcher and ease of recording information, lack of diversity in diagnosed patterns of subjects for the study, or a combination, this may decrease the probability of more statistically significant clinical results for PPD patients. Acupuncture and CHM is tailored to patient needs at the time they are seeking treatment, and by conducting a study that has a setting more aligned with treatments in the “real world” it
would be helpful in ascertaining more information about the value of TCM treatments for PPD. Additionally, translating the Chinese articles that are only partially available as summaries or conducting new studies using these formulas, which already were shown to have results in a laboratory setting, would be beneficial to the field of research.

**Conclusion**

The anticipated purpose of this research synthesis was to evaluate TCM as a safe and effective treatment for PPD. Treatment during pregnancy appears to be warranted to decrease risk factors for issues later in the postpartum period, and although delivery type does not seem to have an impact directly on PPD concerning the surgical procedure, the interruption of the natural delivery process may cause a divergence of the expected hormone levels and this may then lead to PPD indirectly.

Women who sought acupuncture treatments to aide in delivery found that this can decrease the pain during labor and also postpartum which can decrease the risk of pain leading to PPD. Acupuncture was also noted to decrease the quantity needed of morphine and epidural analgesia without having any side effects that these opioids sometimes cause. Depressed patients who had high numbers on scales used to evaluate the severity of depression were observed to have decreased severity and numbers on the scales after TCM treatments.

When compared to antidepressant medications, CHM was found to have comparable positive results. TCM treatments are concluded to be safe when used by competent practitioners and effective for PPD patients. Acupuncture and CHM treatments for conditions that lead to postpartum depression or exacerbate PPD were found to have
good success rates and should be further researched and used for patients immediately following delivery, if not before, to reduce the risk of developing postpartum depression.

Patient education needs to be increased significantly to pregnant women especially so they can prepare for their post-natal care and hopefully realize the value TCM can offer them in dealing with re-balancing their bodies to diminish or avoid PPD altogether. Challenges around the pre-conceived concepts of TCM need to be addressed using scientific data to encourage patients to examine all treatment options for PPD thoroughly. Breaking the pattern of only speaking in terms of our medicine’s language to other practitioners is important to open up communication to other medical disciplines and allowing them to understand what conditions we can treat effectively. Supporting existing patients and informing new patients is necessary if this medicine is going to be applied practically to its full potential.
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EDINBURGH POSTNATAL DEPRESSION SCALE (EPDS)

The EPDS was developed for screening postpartum women in outpatient, home visiting settings, or at the 6–8 week postpartum examination. It has been utilized among numerous populations including U.S. women and Spanish speaking women in other countries. The EPDS consists of 10 questions. The test can usually be completed in less than 5 minutes. Responses are scored 0, 1, 2, or 3 according to increased severity of the symptom. Items marked with an asterisk (*) are reverse scored (i.e., 3, 2, 1, and 0). The total score is determined by adding together the scores for each of the 10 items. Validation studies have utilized various threshold scores in determining which women were positive and in need of referral. Cut-off scores ranged from 9 to 13 points. Therefore, to err on safety’s side, a woman scoring 9 or more points or indicating any suicidal ideation – that is she scores 1 or higher on question #10 – should be referred immediately for follow-up. Even if a woman scores less than 9, if the clinician feels the client is suffering from depression, an appropriate referral should be made. The EPDS is only a screening tool. It does not diagnose depression – that is done by appropriately licensed health care personnel. Users may reproduce the scale without permission providing the copyright is respected by quoting the names of the authors, title and the source of the paper in all reproduced copies.

**Instructions for Users**

1. The mother is asked to underline 1 of 4 possible responses that comes the closest to how she has been feeling the previous 7 days.
2. All 10 items must be completed.
3. Care should be taken to avoid the possibility of the mother discussing her answers with others.
4. The mother should complete the scale herself, unless she has limited English or has difficulty with reading.

Name:
Date:
Address:
Baby’s Age:

As you have recently had a baby, we would like to know how you are feeling. Please UNDERLINE the answer which comes closest to how you have felt IN THE PAST 7 DAYS, not just how you feel today.

Here is an example, already completed.

I have felt happy:
  Yes, all the time
  Yes, most of the time
  No, not very often
  No, not at all

This would mean: “I have felt happy most of the time” during the past week. Please complete the other questions in the same way.
**In the past 7 days:**

1. I have been able to laugh and see the funny side of things  
   - As much as I always could  
   - Not quite so much now  
   - Definitely not so much now  
   - Not at all

2. I have looked forward with enjoyment to things  
   - As much as I ever did  
   - Rather less than I used to  
   - Definitely less than I used to  
   - Hardly at all

*3. I have blamed myself unnecessarily when things went wrong*  
   - Yes, most of the time  
   - Yes, some of the time  
   - Not very often  
   - No, never

4. I have been anxious or worried for no good reason  
   - No, not at all  
   - Hardly ever  
   - Yes, sometimes  
   - Yes, very often

*5. I have felt scared or panicky for no very good reason*  
   - Yes, quite a lot  
   - Yes, sometimes  
   - No, not much  
   - No, not at all

*6. Things have been getting on top of me*  
   - Yes, most of the time I haven’t been able to cope at all  
   - Yes, sometimes I haven’t been coping as well as usual  
   - No, most of the time I have coped quite well  
   - No, have been coping as well as ever

*7. I have been so unhappy that I have had difficulty sleeping*  
   - Yes, most of the time  
   - Yes, sometimes  
   - Not very often  
   - No, not at all
*8. I have felt sad or miserable
   Yes, most of the time
   Yes, quite often
   Not very often
   No, not at all
*9. I have been so unhappy that I have been crying
   Yes, most of the time
   Yes, quite often
   Only occasionally
   No, never
*10. The thought of harming myself has occurred to me
    Yes, quite often
    Sometimes
    Hardly ever
    Never

EDINBURGH POSTNATAL DEPRESSION SCALE (EPDS)
J. L. Cox, J.M. Holden, R. Sagovsky
March 28th, 2014

April Frerking, L.Ac., MSTOM  
1082 Buena Vista Rd.  
Branson, MO 65616

Dear April,

Your revised research proposal has been approved, with no additional recommendations effective through March 31, 2015.

Should there be any significant changes that need to be made which would alter the research procedures that you have explained in your proposal, please consult with the IRB coordinator prior to making those changes.

Sincerely,

Penny Weinraub, L.Ac.  
Penny Weinraub, L.Ac.  
IRB Coordinator