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Yoga for Depression and Anxiety: A SYSTEMATIC REVIEW

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Yoga for Depression and Anxiety: A SYSTEMATIC REVIEW

by

Rachel Hanson, MSW Candidate

MSW Clinical Research Paper

Presented to the Faculty of the
School of Social Work
St. Catherine University and the University of St. Thomas St. Paul, Minnesota
in Partial fulfillment of the Requirements for the Degree of

Master of Social Work

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The Clinical Research Project is a graduation requirement for MSW students at St. Catherine University/University of St. Thomas School of Social Work in St. Paul, Minnesota and is conducted within a nine-month time frame to demonstrate facility with basic social research methods. Students must independently conceptualize a research problem, formulate a research design that is approved by a research committee and the university Institutional Review Board, implement the project, and publicly present the findings of the study. This project is neither a Master's thesis nor a dissertation.

Abstract

Yoga is a 3,000 year-old practice that has evolved into a holistic approach to general wellness and healing. Yoga is beginning to be recognized by researchers and clinicians as a complementary therapy that encompasses multiple components of healing that are being singled out or used in pieces as parts of traditional treatment methods. The purpose of this research is to conduct an exhaustive review of the research that has been performed on using yoga or yoga therapy to alleviate symptoms of depression and anxiety disorders. This review will focus on how yoga is being used to address symptoms of depression and anxiety and the extent to which these ways are effective. Findings from this review will be used to determine areas of further study and implications for clinical social work practice.

Acknowledgments

This research is dedicated to the plethora of individuals who have motivated me since I began studying social work six years ago. First, I have been fortunate enough to have supportive family, friends, and co-workers and I want to thank them for being understanding of my dreams and encouraging me to pursue my passion of helping others. Second, I have been taught and inspired by many professors and supervisors whose knowledge and experience I look up to and strive to work towards. Thank you for sharing your time, wisdom, and compassion with me through this experience. Lastly, I want to thank all of the individuals I have worked with at work and internships over the past 6 years who have trusted me to be a part of their lives for a short time. I feel humbled and inspired to have been trusted with their stories of pain, healing, and resiliency.

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Background

In recent years, extensive research has been done to substantiate yoga as a credible and effective source of prevention and treatment for depression and anxiety. Recent research had demonstrated yoga to be a powerful means to reduce depression and anxiety (Weintraub, 2004). In a 12-month period approximately 9.5% of the United States adult population will experience some type of mood disorder (National Institute of Mental Health, 2015). Mood disorders are a category of mental illness in which the primary symptoms emotionally impair a person's functioning. Such disorders include Major Depression, Persistent Depression, Bipolar Disorders, and Unspecified depression.

Most mood disorders are characterized by experiences of depressive symptoms including: difficulties with sleep, decreased ability to function at home or at work; loss of interest; changes in appetite; and decreased pleasure in life. There are many circumstances when people experience these symptoms on a mild level where their functioning is impaired but they do not seek treatment, or necessarily meet criteria for Major Depressive Disorder. In fact, only 50.9% of people diagnosed with mood disorders receive any type of treatment for their symptoms (National Institute of Mental Health, 2015). Untreated depressive symptoms may lead individuals to struggle to lead emotionally fulfilling lives, and may often lead to increased symptoms or even decline in functioning.

In 2013, approximately 15.7 million adults aged 18 or older had at least one major depressive episode in the United States. This ends up being close to 7% of adults in the country (National Institute of Mental Health, 2015). Experiencing a major depressive episode or living with a depressive disorder significantly increases the risk of suicide for individuals (American Psychiatric Association, 2013). Suicide is the 10th leading cause of death overall in the United

States and ranks as the 2nd leading cause of death for people ages 15-24. It even ranks higher than homicide, which is the 16th leading cause of death (U.S.A. Suicide: 2013 Official Final Data, 2015). As outlined, experiencing depressive symptoms can decrease life satisfaction; untreated depressive symptoms may lead to a slippery slope of ongoing mental illness that may result in serious consequences. This is a concern that should be taken seriously by all professionals treating mental health disorders, because the current treatments being provided are not a cure-all method, and many individuals are still suffering.

There is a high probability that persons will experience depression and anxiety concurrently (Anxiety and Depression Association of American, 2014). Anxiety is even more common than depression; about 18.1% of adults in the United States have a diagnosable Anxiety Disorder (National Institute of Mental Health, 2015). Anxiety is a normal experience of stressful situations, however, symptoms of anxiety can begin to severely disrupt an individual's functioning and quality of life when exacerbated or experienced in excess. The most common and interfering symptoms of anxiety are experiences of irrational fear and dread (National Institute of Mental Health, 2015). When symptoms of anxiety increase it is important to receive proper treatment to enhance an individual's quality of life.

Some of the most common evidenced-based treatments for conditions like depression and anxiety are several types of psychotherapy and medications (Anxiety and Depression Association of America, 2014). The primary purposes of psychiatric medications are to alleviate anxiety symptoms and regulate brain chemicals that affect mood. This form of treatment is highly successful when individuals' difficulties are primarily biological. However, medications do not aid individuals in targeting social and environment stressors that exacerbate mental conditions.

Many forms of psychotherapy help individuals identify negative behaviors and thought patterns that contribute to depression and anxiety. One of the most recognized forms of psychotherapy is cognitive behavioral therapy, a therapy where individuals learn to replace negative thought patterns with more helpful and productive ways of thinking. It also works to create positive behavioral changes in depressed and anxious clients (Anxiety and Depression Association of America, 2014).

Some researchers have pointed out similarities between yoga and these types of therapies. Much like psychotherapy, yoga is a behavioral intervention that can be tailored to specific needs of individuals and can also be used to decrease rumination and activate behavioral change (Uebelacker et al., 2010). There are also practices of yoga where “observances” are analyzed by the individual to create deeper awareness into one’s wellbeing (Horovitz & Elgelid, 2015). This awareness is encouraged to be reflected upon in all areas of one’s life and can be developed and utilized at home. This is one of the distinguishing characteristics of yoga that sets it apart from traditional therapies. It is an intervention that can be self-administered at home as often as needed. Yoga’s availability makes it a unique therapy with potentially endless possibilities.

Additionally, none of the current treatments for anxiety or depression include physical movement. Much research has been done that evidences the effectiveness of physical activity for alleviating symptoms of depression and anxiety. Regular physical activity decreases stress levels, and tension. It also stabilizes mood, improves sleep, and elevates self-esteem (Anxiety and Depression Association of American, 2014). Although nearly every clinician “prescribes” exercise, neither of the primary treatments includes it as part of the package. This is a limitation to current treatments that should not be ignored, and hence, emphasizes the importance of further

studying the effectiveness of yoga as a supplementary form of treatment for depression and anxiety.

Yoga and Yoga Therapy

Yoga is a 3,000 year-old practice that has evolved into a holistic approach to general wellness and healing. The word “yoga” comes from the Sanskrit word “yuj”, which means to “yoke” or join in union (Woodyard, 2011). Modern yoga in the Western world typically consists of *asana* (movement), *pranayama* (controlled breathing), and *dhyana* (meditation) (Horovitz & Elgelid, 2015). When this combined yoga practices are used together they are aimed at attaining “enlightenment” or “self-awareness”. The goal is to join together the body, mind, and spirit for overall well-being. Although many core pieces are consistent, there are also many types of yoga (Hatha, Bikrim, Ashtanga, Iyengar, etc) that build on the core principles and have slightly different variations of practice (Sadji & Mills, 2013). As an increasing number of individuals have discovered the therapeutic benefits of these practices, the field of Yoga Therapy has recently emerged. This field consists of health professionals who are also yoga instructors. They have been working to change the way yoga is practiced as therapy through the creation of the theory and practice of “Yoga Therapy” (Horovitz & Elgelid, 2015).

The United States is host to the International Association of Yoga Therapists (IAYT). This organization has defined the first ethical guidelines for using yoga as a therapeutic intervention for a variety of conditions. The book, *Yoga Therapy: Theory and Practice*, (Horovitz & Elgelid, 2015) provides multiple definitions of what yoga therapy is and aims to achieve:

Yoga therapy, derived from the Yoga tradition of Patanjali and the Ayurvedic system of health care, refers to the adaptation and application of Yoga techniques and practice to help individuals facing health challenges at any level manage their condition, reduce symptoms, restore balance, increase vitality, and improve attitude.” (p. #19).

This definition may give health practitioners, yoga instructors, and individuals seeking to use yoga for healing, a deeper understanding of what Yoga Therapy is intended to do. It is not strictly meant to treat mental illness like depression and anxiety, but rather to alleviate symptoms and connect with the ‘whole being’ (Weintraub, 2004). In other words, yoga can be seen as a complementary therapy that targets specific areas of healing that are currently overlooked by traditional treatment modalities.

One difference between typical modern yoga and yoga therapy, is that the latter identifies using the *Eight Limbs of Yoga* in hopes to improve awareness of all aspects of life. The eight limbs of yoga are yamas (restraints), niyamas (observances), asana (mind-body postures), pranayama (breath control), pratayahara (sensory withdrawal), dharana (concentration), dhyana (meditation), and Samadhi (pure awareness) (Horovitz & Elgelid, 2015). In yoga therapy, it is the job of the yoga therapist to use the eight limbs of yoga to help individuals increase their awareness into what is causing them suffering. Through this awareness individuals may see how specific lifestyle choices add to their suffering, and consequently, awareness of what lifestyle choices would be helpful in their recovery. Overall, yoga is a tool that offers awareness, introspection, and a sense of wholeness.

Depression and Anxiety

Depression. The fifth edition of the diagnostic and statistical manual of mental disorders (DSM -5) made changes to its previous chapter “Bipolar and Related Disorders” and now has a new chapter, “Depressive Disorders.” This category includes disruptive mood dysregulation disorder, major depressive disorder, persistent depressive disorder (dysthymia), premenstrual dysphoric disorder, substance/medication-induced depressive disorder, depressive disorder due

to another medical condition, other specified depressive disorder, and unspecified depressive disorder (American Psychiatric Association, 2013). One of the most common mental health conditions is major depressive disorder (National Institute of Mental Health 2015). Individuals experiencing depressive symptoms do not always meet the criteria for Major Depressive Disorder but still experience difficulty managing their symptoms and would benefit from treatment.

Diagnosis of major depressive disorder starts by examining whether or not an individual has experienced a major depressive episode. A major depressive episode is marked as a two-week period of time in which an individual experiences depressed mood or loss of pleasure or interest, and at least four other symptoms are present that demonstrate a decline in functioning such as difficulties with energy, concentration, sleep, or eating (American Psychiatric Association, 2013). The DSM-5 identifies symptoms of depression as: poor appetite or overeating; insomnia or hypersomnia; low energy or fatigue; low self-esteem; poor concentration or difficulty making decisions; feeling hopeless or helpless; lack of interest in once pleasing activities; and thoughts of suicide. Throughout this research, studies examining both Major Depression and general depression will be included. General depression, or known in the DSM-5 as Unspecified Depression, is characterized by the experience of depressive symptoms but not meeting criteria for Major Depression.

Anxiety. Anxiety disorders come in many different forms and are often comorbid with one or more mental health diagnosis, most commonly, depression. Comorbidity refers to the experience of having more than one illness or disorder simultaneously. Primarily, anxiety disorders all share the common characteristics of experiencing excessive fear and anxiety. Fear is an emotion that functions to trigger the autonomic nervous system and prepares individuals to

fight or flight. Anxiety, on the other hand, causes individuals to become hypervigilant and prepared for perceived danger in the future (American Psychiatric Association, 2013). The DSM-5 identifies that anxiety becomes pathological when it is marked by becoming excessive, persistent, and functionally impairing. Symptoms of anxiety include: excessive anxiety and worry; difficulty coping with worry; restlessness or feeling keyed up or on edge; feeling easily fatigued; difficulty concentrating or mind going blank; irritability; muscle tension; and sleep disturbance. Individuals with either anxiety disorders or individuals with anxiety symptoms will be included in this research.

Common treatments. Finding the best treatment for each individual with depression or anxiety can be difficult. People come with different biology, social history, and economic resources, therefore creating a complex system for generalized treatments. Evidence-based treatments that are most often supported for treating depression and anxiety include medications, psychotherapy, treatment programs, and in some cases electroconvulsive therapy (ECT) and transcranial magnetic stimulation (TMS) (Mayo Clinic Staff, n.d). Although research has found these treatments to be effective, there are still individuals who suffer.

Yoga as Complementary Treatment

Although yoga is of Eastern origins, a reported 30 million people in western countries have a daily practice of yoga. With the rapid increase in westerners beginning the practice there has also been a large influx in research performed on the therapeutic benefit, most of which is dated 2000-present (McCall, 2014). Furthermore, research is finding yoga as credibly effective in reducing the symptoms of depression and anxiety. In a study done with active-duty soldiers returning from Iraq and Afghanistan, participants were asked to take part in a regular yoga practice while reintegrating back into the community. Participants reported an increased sense of

control in their lives and a decrease in symptoms of both depression and anxiety, as well as other mental health conditions (Novotney, 2009).

Similarly, a 2005 randomized controlled study in Germany of women presenting with depression and anxiety, researchers found that regular yoga led to decreased symptoms of depression and anxiety. At the end of the three-month trial, women who participated in two yoga classes per week for three months had depression scores that improved by 50% and anxiety scores that improved by 30% (Harvard Health Publications, 2009). Both studies' findings, among quite different populations, demonstrate that yoga may be a significant method to reduce depression and anxiety and perhaps even prevent it.

Yoga is described as being a safe and effective method to increase strength, flexibility, and balance that addresses a number of problematic health symptoms. It has been shown to be an effective treatment method for high blood pressure, heart disease, chronic pain, depression, and stress (McCall, 2014). Yoga affects the body's physiology and combats unmanaged stress by reducing the stress response activated by the autonomic nervous system. Studies also suggest that a one hour yoga session may increase levels of the neurotransmitter gamma-aminobutyric acid (GABA) which helps to reduce symptoms of depression (Novotney, 2009). GABA levels are often monitored through the use of medications; yoga may be a more holistic approach to increasing this neurotransmitter, as well as increasing other endorphins that are released during physical activity.

Although traditional methods for treating depression and anxiety are often very effective, there are some cases where additional or alternative methods may be helpful. Psychotherapy sessions are typically only 45 minutes once a week and psychiatric medication can take weeks or months to become effective. A study done in 2005 examined people's moods and stress levels on

an inpatient psychiatric unit after a single yoga class. The study found that after yoga the participants' levels of fatigue, anger, hostility, depression, and anxiety dropped significantly. Additionally, they found that patients who continued to participate in yoga experienced continued benefit from the practice (Harvard Health Publications, 2009). This research and much more points to yoga as an easily accessible technique for reducing uncomfortable symptoms of depression and anxiety with noticeable short-term and long-term benefits.

Yoga is continuing to rise in popularity and become more accessible in many versatile ways. Many organized efforts have been recognized as making yoga more readily available by creating donation based studios and providing free classes in the community (Schrank, 2014). Yoga is also a tool that can be learned and clients can use on their own outside of therapy to cope with stress and anxiety (Novotney, 2009). Furthermore, with a regular practice of yoga, individuals can create powerful changes within themselves that aid them in leading rich and fulfilling lives.

Research Question

There are a growing number of studies indicating that yoga is a therapeutic tool, however, many of these studies are missing a key factor in determining successful therapeutic outcomes: guidelines for implementation. Only recently have studies considered the practicalities or method of incorporating yoga, such as standardized approach, treatment manual, or measures of competence for instructors who are leading the yoga (Ubelelacker, Tremont, Epstein-Lubow, Gaudiano, Gillette, Kalibatseva, & Miller, 2010).

The purpose of this research is to conduct an exhaustive review of the research that has been performed on using yoga or yoga therapy to alleviate symptoms of depression and anxiety

disorders. This review will focus on how yoga is being used to address symptoms of depression and anxiety and the extent to which these ways are effective.

Methods

Research Concepts

Yoga has quickly become a popular form of exercise and relaxation in the United States. The benefits of yoga have also become more acknowledged and accepted by mental health clinicians. This connection has started the movement of “Yoga Therapy” and other forms of integrating yoga into more traditional therapeutic regimens to relieve symptoms of depression, anxiety, and other mental illnesses. The questions that this systematic literature review seeks to address are “How is yoga being integrated into therapy for depression and anxiety?” and additionally “How effective are these strategies?”

Some important concepts to understand the effectiveness of the intervention include symptoms for each of these illnesses. As defined in the DSM-5, depression symptoms are identified as: poor appetite or overeating; insomnia or hypersomnia; low energy or fatigue; low self-esteem; poor concentration or difficulty making decisions; feeling hopeless or helpless; lack of interest in once pleasing activities; and thoughts of suicide. Symptoms of anxiety are excessive anxiety and worry; difficulty coping with worry; restlessness or feeling keyed up or on edge; feeling easily fatigued; difficulty concentrating or mind going blank; irritability; muscle tension; and sleep disturbance.

It is also important to understand that yoga has a wide range of meanings depending on the specific type and underpinning beliefs of the style. It may be useful to identify the Eight Limbs of Yoga as a way to create a generalized definition. The eight limbs of yoga are yamas (restraints), niyamas (observances), asana (mind-body postures), pranayama (breath control),

pratyahara (sensory withdrawal), dharana (concentration), dhyana (meditation), and Samadhi (pure awareness) (Horovitz & Elgelid, 2015).

The review aims to find clinical studies on how yoga can be included as an intervention in conjunction with other therapeutic techniques and the efficacy of the integration. Once data was extracted the studies were analyzed to glean which ways of integrating yoga are most successful. The study used thematic analysis to then develop an overall analysis of findings.

Study Types

This review is an extensive study of the ways yoga and yoga therapy are being used to reduce symptoms of depression and anxiety among many populations, and furthermore, how effective the strategies are. The studies examined included empirical studies – experimental studies in which data were collected. The study types include randomized, controlled studies; cohort studies; case-control studies; case studies; and meta-analyses. Quantitative, qualitative, and mixed-methods studies were examined. Both definitive and suggestive studies were included as well. The studies contained a focus of yoga or yoga therapy as conjunctive treatment for managing symptoms of depression and anxiety. The studies were also examined for some measure of effectiveness as well. Effectiveness studies were closely examined and proved to be helpful in determining the impact of specific techniques used to integrate yoga into a treatment regimen.

Level of Publication

This study includes peer-reviewed journal articles and dissertations. The purpose of only including peer-reviewed articles, specifically, is due to the higher level of assurance regarding trust in the findings due to the associated research review process. Each source used specifically described the specific form of yoga, or the pieces of yoga (i.e. meditation or physical postures),

used in the study and the effectiveness of the integration on both depression and anxiety symptoms.

Review Protocol

Using the St. Thomas library website the search was conducted by using specific search terms to retrieve articles from online academic journals. Articles were retrieved from ScienceDirect, PsychoInfo, SocIndex, and PubMed databases. Preliminary sensitivity and specificity searches were conducted prior to completing the search. All articles were limited to full text articles dated between 2000- 2016. The included search terms used on each database were “yoga,” “treatment,” “depression,” and “anxiety.” These terms were searched individually and together in effort to grasp all relevant articles.

Inclusion Criteria

Search terms for all of the databases included were summoned using the following combination: “yoga” AND “treatment” AND “depression” AND “anxiety.” All articles the presented were published after January 1st, 2000. In ScienceDirect 95 articles satisfied the search criteria. The PubMed search produced 140 results. PsychInfo and SocIndex were search in the same fashion: PsychInfo presented 12 results and SocIndex generated four preliminary articles.

Articles were cross-checked to ensure no duplications. Articles were chosen if the content of the abstract outlined that they included empirical research and information regarding yoga being used to alleviate symptoms of depression and anxiety. Articles needed to discuss how the integration is done; present effectiveness of the integration; or outline both concepts were used for the overall analysis. Some articles contained Mindfulness based interventions that included yoga, these articles were included in the final review as long as they contained descriptors of what kind of yoga, or how it was being performed.

Exclusion Criteria

Out of the 251 articles that satisfied preliminary search criteria, further exploration of the article abstracts determined that 35 articles met criteria to be included in this review. Reasons articles were excluded from the review included: no relevant subject matter; addressing only depression or only anxiety; not outlining the specific ways yoga was being used as an intervention; exercise or other relaxation methods being the primary intervention instead of yoga; and focusing on other mental health disorders and not addressing depression or anxiety in enough relevant detail.

Initial inclusion and exclusion decisions were made by examination of titles and abstracts of articles. Through further examination and thorough reading of the initial 35 articles, 12 more articles were ruled out due to: not being accessible through interlibrary loan or PDF form; focusing on another disorder and not including enough relevant detail about depression and anxiety; and not providing any outline to the implementation of yoga as an intervention. One article was excluded due to it being a survey about individuals' perspectives of whether or not they think yoga would be an effective adjunctive treatment. This was ruled out as it did not present any information on how to implement yoga or how effective yoga actually is. The final analysis included 22, peer-reviewed, full text articles.

Synthesis of the Literature

The purpose of this systematic literature review was to find research relevant to the questions: "How is yoga being integrated into therapy for depression and anxiety?" and additionally "How effective are these strategies?" The databases ScienceDirect, PsychInfo, SocIndex, and PubMed were used to summon relevant articles to explore these questions. Using the keywords "yoga", "treatment", "depression", and "anxiety", 251 articles met the preliminary

search criteria. Through additional exclusion process, 22 peer-reviewed were analyzed to obtain these data.

Articles were chosen specifically to examine symptoms of depression and anxiety, but most studies were conducted on other specific populations of individuals with depression and anxiety. Of the 22 articles examined, 11 sub-types of populations were included in the data apart from the population's experience of depression and anxiety. These sub-categories included: mixed gender adults ages 18-65; adolescents; incarcerated women; incarcerated men; a 50 year old male; adult women; student musicians; psychiatric inpatients; women who were pregnant; veterans; and individuals who abuse substances.

A majority of the articles displayed similar themes but with slight variations of focus on either breathing exercises; meditation or mindfulness practices; physical movements; and yogic philosophy. Of the articles examined, yoga interventions ranged from one session up to 12 week interventions. Many articles were reviews of previous research focusing on the potential of using yoga as an intervention for depression and anxiety, however, were not looking to answer "how" yoga is being used, as this systematic review is. These articles were examined in effort to find the types of research designs. The search obtained articles of the following methodologies: review of clinical studies (n=9); randomized controlled trials (n=4); pre-post test group designs (n=3); experimental studies (n=2); repeated measures design (n=1); case study (n=1); and a clinical trial (n=1).

Thematic Analysis

Through the use of thematic analysis, seven themes emerged from the peer-reviewed articles that addressed the ways in which yoga was being incorporated into therapy for depression and anxiety. The themes represent both the questions the research was aiming to explore, as well as themes that were identified through the synthesis of the articles. Themes include: 1) focus on the breath; 2) physical movement; 3) meditation and mindfulness practice; 4) mind body intervention; 5) types of yoga; 6) guidelines for using yoga with clients; and 7) effectiveness of yoga as an intervention for depression and anxiety.

Focus on the breath. Many of the articles outlined yoga interventions that either focused on or incorporated an intensive focus on breath. Out of 22 articles, 13 of them discussed focusing on the breathing aspect of yoga or *pranayama*. One type of breathing called *Ujjayi* breath or “ocean breath” (Brown & Gerbarg, 2005) was discussed in six articles (Blom, Duncan, Ho, Connolly, LeWinn, Chesney, & Yang, 2014; Brown & Gerbarg, 2005a; Brown & Gerbarg, 2005b; Forfylyow, 2011; Kozasa, Santos, Rueda, Benedito-Silva, De Ornellas, & Leite, 2008; Sureka, Govil, Dash, D., Dash, C., Kumar, & Singhal, 2014). Brown and Gerbarg wrote three of 22 articles examined and all three outlined four specific types of yogic breath including: *Ujjayi* “Ocean breath;” *Bhastrika* “Bellows breath;” chanting “*Om*;” and *Sudarshan Kriya* which means “proper vision by purifying action”. The authors of these articles propose using *Ujjayi* breath as a skill to use with individuals amidst the experience of anxiety in order to restore a sense of control in their body. Brown and Gerbarg also suggest that yogic breathing can be used to balance the autonomic nervous system, which is often over-activated in individuals who experience intense anxiety. Other articles that described focusing on the breath did not outline or recommend specific breathing techniques; rather, they highlighted the breath as being an

important foundation of yoga practice (Brown & Gerbarg, 2009; Khalsa, Shorter, Cope, Wyshak, & Sklar, 2009; Klainin-Yobas, Oo, Suzanne Yew, & Lau, 2015; Lavey, Sherman, Mueser, Osborne, Currier, & Wolfe, 2005; Marefat, Peymanzad, & Alikhajeh, 2011; Newham, Wittkowski, Hurley, Aplin, & Westwood, 2014; and Satyapriya, Nagarathna, Padmalatha, & Nagendra, 2013).

Meditation and mindfulness practice. The articles analyzed included 13 studies that focused on or used some form of meditation or mindfulness practice as part of their yoga intervention. Two of the articles used Mindfulness-Based Stress Reduction (MBSR) methods as their interventions and included yoga as a form of mindfulness. These studies included yoga as well as other types of meditations or *dyana* as a primary focus (Hazlett-Stevens, 2012; Serpa, Taylor, & Tillisch, 2014). In a case study done with a 50-year old male the MBSR intervention included body scans, yoga, and meditation practices (Hazlett-Stevens, 2012). This study attributed the effectiveness of the intervention on the mindfulness practices in general, rather than on the practice of yoga itself.

Another study considered 79 veterans experiencing depression, anxiety, and suicidal ideation. The veterans participated in a nine week MBSR course that included seated and walking meditations, gentle yoga, body scans, group discussions, and mindfulness exercises (Serpa et al., 2014). Again, this study focused on the mindfulness aspect of yoga, and less so on the physical postures, breath, or yogic philosophy. All of the 13 articles represented meditation or mindfulness practice as a core element of yoga's therapeutic capacity (Blom et al., 2014; Brown & Gerbarg, 2005a; Forfylow, 2011; Hazlett-Stevens, 2012; Khalsa et al., 2009; Klainin-Yobas et al., 2015; Kozasa et al., 2008; Lavey et al., 2005; Marefat et al., 2011; Newham et al.,

2014; Saeed, Antonacci, & Bloch, 2010; Satyapriya et al., 2013; Serpa et al., 2014; Shannahoff-Khalsa, 2004).

Physical movement. Over half of the articles examined (n=13) discussed or focused on the physical movements, or *asanas*, of yoga practice. One literature review actually found that yoga, specifically Iyengar yoga which focuses on postural alignment, is more effective for treating depression and anxiety than meditation alone, tai chi, or qigong (Saeed et al., 2012). Nine of the articles identified physical movement as the component of yoga that was of focus in the research (Blom et al., 2014; Brown & Gerbarg, 2005a; Brown & Gerbarg, 2005b; Field, 2011; Khalsa et al., 2009; Klainin-Yobas et al., 2015; Lavey et al., 2005; Marefat et al., 2011; Newham et al., 2014; Satyapriya et al., 2013).

Other articles that focused on the physical aspects of yoga outlined specific poses that were more effective for targeting symptoms of depression and anxiety. Specific postures were shown to increase body awareness and foster a sense of self confidence and overall increase of control over one's body. These poses included: back bends; standing poses; inversions (poses where one's head is below one's heart); and poses that lift and open one's chest, often called "heart-openers" (Forfylyow, 2011). Another study done with incarcerated women outlined using strengthening poses, balancing poses, and relaxation techniques common to an Iyengar style of yoga. Women in this study identified the practice of doing back bends was associated with a positive change in mood and depressive symptoms (Harner, Hanlon, & Garfinkel, 2010).

Mind-body intervention. Multiple studies highlighted yoga as a practice that integrates the mind-body-and spirit into a single intervention. Six of the 22 articles distinguished the mind-body connection as one of the primary reasons for yoga's increasing popularity and noteworthy effectiveness (Boynton, 2014; Brown & Gerbarg, 2005b; Brown & Gerbarg, 2009; Khalsa et al.,

2009; Klainin-Yobas et al., 2015; Marefat et al., 2011). The mind-body, and some say spiritual, element of yoga encourages focus on the whole person and addresses what other therapeutic approaches are missing (Boynton, 2014). The multiple elements of yoga are what set it apart from other forms of exercise or meditation alone. Some yoga practitioners believe there is a relationship between the mind and breath, and furthermore, that one can affect the mind and consciousness through the manipulation of their breath (Brown & Gerberg, 2009). In this way, being mindful of one's breath and body may have positive effects on conditions of the mind.

Types of yoga. In effort to answer the research question of how yoga is being used to address depression and anxiety, the specific style of yoga was an important piece of this analysis. Of the 22 articles examined, 18 articles identified at least one or more specific styles of yoga that were studied. The following styles were included in order of most frequent to least: Sudarshan Kriya yoga (n=6)(Brown & Gerbarg, 2005a; Brown & Gerbarg, 2005b; Brown & Gerbarg, 2009; Forfylow, 2011; Saeed, et al., 2010, Sureka et al., 2014); Iyengar yoga (n=3)(Forfylow, 2011; Harner et al., 2010; Saeed et al., 2010); Kundalini yoga (n=2)(Boynton, 2014; Shannahoff-Khalsa, 2004); Vinyasa yoga (n=1)(Field, 2011); Ashtanga yoga (n=1)(Javnbakht; Hejazi Kenari, & Ghasemi, 2009); Kripalu yoga (n=1)(Khalsa et al., 2009); Siddhi Samadhi yoga (n=1)(Kozasa et al., 2008); Hatha yoga (n=1)(Lavey et al., 2005); Antenatal yoga (n=1)(Newham et al., 2014); and Integrated yoga (n=1)(Satyapriya et al., 2013).

Below is a table of the different yoga styles that were found in this research and short descriptions of each style. See Table 1.

Table 1: Forms of Yoga

Sudarshan Kriya	6	A series of breathing techniques with differing rates and levels of airway resistance that practitioners claim can balance the autonomic nervous system.
Iyengar	3	Style known for emphasis on props to maintain proper body alignment even in less flexible students. Accessible to anyone. Training for teachers is more formal and rigorous than with other disciplines.
Kundalini	2	Flowing style of yoga with emphasis on breathing techniques. May have more spiritual aspects than other styles. Probably for more physically fit students.
Vinyasa	1	Fluid, flowing style wherein students move continuously between postures with coordinated breathing. Most classes are geared towards fit, physically able students.
Ashtanga	1	Vigorous school of yoga where students move rapidly and smoothly from one posture to the next. Recommended for more athletic students.
Kripalu	1	Incorporates emotional and spiritual aspects similar to psychotherapy. Breathing and postures are combined in classes, which can be physically challenging.
Siddhi Samadhi yoga	1	Style that combines meditation and breathing techniques in brief sequences. Less physically focused.
Hatha	1	General term for yoga incorporating postures, as opposed to breathing or meditation exercises. Also used to describe a basic, beginner style with less challenging postures.
Antenatal	1	Based on the mild, Hatha, form of yoga. Includes postures and relaxation/breathing techniques.
Integrated	1	Combination of physical postures, breathing exercises, and meditation.

(Verrastro, 2014; Kozasa et al., 2008; Newham et al., 2014; Satyapriya et al., 2013)

Of the 10 specified styles in this research, Sudarshan Kriya yoga (SKY) was the most studied form of yoga - identified in five studies. These studies also focused on the breathing aspects of yoga more than other components. Two of the studies identified using Mindfulness Based Stress Reduction programs and provided some type of description of the yoga used (Hazlett-Stevens, 2012; Serpa et al., 2014). One article included defined the yoga techniques by the “limbs” of yoga used, such as “postures” or “meditation” (Serpa et al., 2014).

Guidelines for using yoga with clients. The research included 12 articles that discussed practice guidelines for using yoga with depression and anxiety (Blom, et al., 2014; Boynton, 2014; Brown & Gerbarg, 2005a; Harner et al., 2010; Javnbakht et al., 2009; Khalsa et al., 2009; Klainin-Yobas et al., 2015; Kozasa et al., 2008; Newham et al., 2014; Satyapriya et al., 2013; Serpa et al., 2014; Sureka et al., 2014). Most articles included minimal information in respect to setting up a standardized intervention approach. Eight of the articles did mention the yoga interventions being provided by experienced yoga instructors. One article specifically suggests the use of experienced instructors with specific training for working with individuals with mental health concerns, specifically a common certification body for yoga instructors such as the Yoga Alliance (Verrastro, 2014). The article, “*Yoga as Therapy, When is it Helpful?*” written by Verrastro (2014), introduced the title “Yoga therapist”. Yoga therapists are regulated by the International Association of Yoga Therapists and are required to complete 800 hours of advanced yoga study that prepares yoga instructors to work with individuals with more complex physical or mental health conditions.

Another guideline that was specified in 6 different articles was the implementation of a daily yoga practice (Blom et al., 2014; Boynton, 2014; Brown & Gerbarg, 2005a; Kozasa et al., 2008; Satyapriya et al., 2013; Sureka et al., 2014). Authors state that daily practice can be used

as a way to integrate yoga as a foundation for life (Blom et al., 2014). Kripalu yoga encourages becoming more connected with one's own sensations and breath, with the aim of turning daily life into an "off the mat" continual practice of yogic teachings (Khalsa et al., 2009).

The other important theme within guidelines for use was the emphasis of modifying yoga practices for individuals. Five of the articles encouraged the use of modifications for various reasons including: modifying for anxious patients (Brown & Gerbarg, 2005a); pregnant women (Brown & Gerbarg, 2005b; Newham et al., 2014; Satyapriya et al., 2013), varying body types (Khalsa et al., 2009); and varying physical abilities (Khalsa et al., 2009). One of the studies pointed out their choice to study Iyengar yoga was due to its reinforcement of props that can be used to make poses more comfortable for individuals including mats, blankets, blocks, and belts. This helps individuals perform poses effectively, reduces fear of injury, and reduces the actual probability of injury (Harner et al., 2010).

Effectiveness. All of the studies included in the systematic review discussed effectiveness of using yoga for depression and anxiety in some regard. The extent of the effectiveness discussion ranged, however, from general reports of effectiveness, to more in-depth explanations of what was effective and why. Many physical improvements of depression and anxiety were identified including: reduced muscle tension; increased vagal tone; balance of the autonomic nervous system (ANS); neuroendocrine release; and changes in neurophysiology.

One study done with 65 women concluded that yoga was helpful in raising awareness of the tension held in one's body and provided a means to reduce tension (Javnbakht et al., 2009). The three articles written by R. P. Brown and P. L. Gerbarg discuss more in depth yoga's impact on the endocrine glands that release such hormones as cortisol and may be over activated when the autonomic nervous system is unbalanced. Their studies outline how the breathing techniques

of Sudarshan Kriya yoga help to regulate the ANS and actually increase hormones associated with positive mood such as Prolactin and Oxytocin (Brown & Gerbarg, 2005b).

Other areas that were impacted by the benefits of yoga included: increased connection with spirituality (Boynton, 2014); gaining mastery (Boynton, 2014); increased self-confidence (Forfyflow, 2001); increased self-awareness (Javnbakht et al., 2009); increased sense of control (Forfyflow, 2011); increased life-satisfaction (Khalsa et al., 2009); and overall improved quality of life (Khalsa et al., 2009). In an article performed on 45 student musicians with performance anxiety, the teachings of Kripalu yoga helped to empower individuals to seek psychological growth and meet the challenges of life with self-acceptance, strength, and openness to change (Khalsa et al., 2009).

Some studies also declared that yoga could be a source of prevention for the development of certain health conditions. A review done on yoga's effectiveness of depression and anxiety with older adults (60 years and above) determined yoga to be an intervention that may counteract negative effects of aging; improve physical functioning; stimulate the mind; increase hope; and reduce the risk of anxiety and depression (Klainin-Yobas et al., 2015). There was also a trend in the research that focused on the "whole person." One study of Siddha Samadhi yoga that encouraged daily practice found that there was a significant reduction in scores on depression and anxiety scales, as well as a significant increase in individuals' overall wellbeing (Kozasa et al., 2008).

Of the 22 articles analyzed, one study that used an Ashtanga style of yoga for a two month period of time suggested that treatment for depression using yoga may need a longer therapeutic time period (Javnbakht et al., 2009). Another author discussed the absence of standardized approach when it comes to using yoga as a therapeutic intervention (Saeed, et al.,

2010). On one hand, this can be positive when it allows instructors the flexibility to modify yoga to be effective for specific individuals, but can become problematic and confusing for professionals when trying to present a common set of core principles and practices (Saeed, et al., 2010.)

Discussion

This systematic literature review was conducted to examine the entire relevant peer-reviewed body of literature on the topic of how yoga is being used as a treatment or adjunctive intervention with the conditions of depression and anxiety. Many mental health professionals recognize the beneficial potential of supplementing yoga to psychotherapy but are not informed about how or why the integration will help (Forylow, 2011). The goal of this review was to synthesize the literature of this topic in effort to inform the working knowledge of mental health professionals and enhance their understanding of yoga and how it may be helpful to their clients. The review was performed using inclusion and exclusion criteria to narrow the focus to articles containing information specifically on how yoga was being used as an intervention, and how effective the integration was. The findings suggest that overall, yoga is a flexible intervention that can be performed using many different styles and techniques; and also demonstrates varying levels of effectiveness over different dimensions for alleviating anxiety, depression, and increasing overall wellbeing.

Summary findings and areas for future research. Thematic analysis was used to extract information regarding the research question, as well as to identify themes that appeared in the literature. Three of the themes that emerged were directly related to the research question of “How is yoga being used to treat depression and anxiety?” One of the themes was the focus on the breath or *pranayama*. Twelve of 22 articles outlined that the yoga being researched had

intentional focus on the breath or included specific types of breathing exercises that were found to be helpful for conditions like depression and anxiety. It was also noted that yogic breathing aids in balancing the autonomic nervous system (Brown & Gerbarg, 2005b). Brown and Gerbarg (2005b) propose a neurophysiologic theory around the benefits of Sudarshan Kriya Yoga based on elements of polyvagal theory and vagal nerve stimulation. This study acknowledges that although it appears that SKY helps to balance the autonomic nervous system, it is still somewhat unclear exactly how these mechanisms in the brain work. Brown and Gerbarg's (2005a&b) work proposes the neurophysiologic theory with the intent that additional quantitative data may be performed for testing.

Another theme was the meditation or mindfulness practices of yoga. Out of the 22 articles analyzed, 13 studies concentrated on using meditation or mindfulness aspects of yoga as the focus of yoga as an intervention. Concentrated breath work was said to reduce anxiety significantly by decreasing arousal of the autonomic nervous system (Forylow, 2011). This data was primarily qualitative in nature and based on self-reports of individuals, however, this article contained theoretical information as well. In the future there needs to be more work done to build up the theory being identified within yoga as an intervention. Further qualitative and theoretical data is needed before moving into testing stages.

The third theme focused on the physical movement and postures involved in yoga practice. Much research has found physical exercise to be effective in treating both depression and anxiety, but the yoga research concentrated on specific postures, such as opening the chest or proper body alignment, that may counteract depressed or anxious postures (Harner, Hanlon, & Garfinkel, 2010). In this particular study, changes were measured using the Beck Depression Inventory, Beck Anxiety Inventory, and a Perceived Stress Scale. There was also the

mentionable theme of connecting the breath with body movement in a mindful practice that sets yoga apart as a unique intervention (Brown & Gerbarg, 2009). Most often the research pointed towards using the body as a tool to begin gaining a sense of awareness and the development of a deeper mind body connection. Mind body connection is a phenomenon that requires extensive qualitative data because of its relative nature and vast difference from most medical model interventions. It is possible that some studies focus more on the physical aspects of yoga because there are concrete ways to test physical changes. Future researchers should focus on how the physical changes relate to the psychological and emotional improvements.

Yoga as many diverse methods. Throughout the study much intention was placed on identifying the specific styles of yoga that have been researched in effort to gain insight into which forms of yoga providers may want to learn more about or recommend to clients. In the extracted data, 18 articles identified 10 different styles of yoga that were researched. Two of the studies identified using Mindfulness Based Stress Reduction Programs that included yoga as one of the components. The most commonly researched yoga styles were Sudarshan Kriya yoga (SKY), Iyengar yoga, and Kundalini yoga. Both the SKY and Kundalini techniques are styles of yoga that emphasize breathing techniques and incorporating focusing on the breath to gain conscious control over body and mind (Verrastro, 2014). Iyengar yoga places more emphasis on using props to maintain proper body alignment and using the techniques to promote healing in the body (Verrastro, 2014). Given the information provided by this body of research, it appears that when yoga is broken down and tested “limb by limb”, all aspects seem effective. At this point breath work may be seen as a primary piece of yoga that helps depression and anxiety. It has been necessary to start with the basics when it comes to yoga research, however, this body of

research only scratches the surface of the yoga experience. It would be helpful to have more information about the yoga experience as a whole: research that encompasses all pieces of yoga.

Integration of yoga and therapy. The research was thoroughly analyzed for guidelines for using yoga with clients. Although yoga is an ancient Eastern practice, most research examining the therapeutic benefit of yoga is dated within the past 16 years (McCall, 2014). The majority of the articles examined did not contain detailed information or guidelines to illustrate how yoga should be provided or used as an intervention. It is possible that the lack of standardized approach is due to the many different types of yoga and the many different practices involved in yoga. For example, in some studies the yoga focused more on breathing and other studies focused primarily on body alignment. Yoga is an intervention with multiple components, and therefore becomes difficult to standardize. It is necessary that further research be done on the different components that make up yoga practice, however, the lack of standardization and focus on individualization may also be one of the reasons yoga as an intervention can be successful in helping diverse populations.

Eight articles noted that experienced yoga instructors should provide interventions, and one article specifically suggests yoga instructors be certified by the Yoga Alliance or another certification body (Verrastro, 2014). These findings suggest that the training and experience of a yoga instructor is an important factor in helping individuals who are seeking healing through yoga.

Interestingly, six articles in the study also recommended that participants develop a daily or regular yoga practice. This suggests that learning from an experienced instructor would be recommended first, then going on to practice at home at one's own pace. In some ways, yoga can be seen as a behavioral intervention as well as spiritual intervention. Daily yoga practice often

involves components of yoga-like postures, breathing, and meditation; but deeper yoga practice may also include contemporary spiritual teachings or yogic philosophy that are meant to aid individuals in developing an “off the mat” practice (Khalsa, et al., 2009). It may be helpful for future researchers to gather more qualitative data about individuals’ perspectives of the spiritual teachings involved in many yoga practices.

Another theme surrounding guidelines to implementing yoga was the emphasis of modifying yoga practice for each individual person. This may be another reason the learning of practices is best left to a trained instructor who can help each individual by suggesting alternative poses or modifications of poses and allowing the individual to discover what feels right for them.

One article in the research identified Yoga Therapy as its own format for implementing yoga. The International Association of Yoga Therapists (IYAT) is the first governing body to begin establishing guidelines and a curriculum for yoga instructors to obtain additional training in order to use yoga as therapy for various conditions, including depression and anxiety. IYAT was founded in 1989 and published suggested curricula for yoga therapists, which requires 800 hours of study (Verrastro, 2014). Yoga Therapy is still a developing field that mental health professionals can expect to see growth from in upcoming years of practice. This is a promising development for both instructors and individuals seeking the therapeutic side of yoga as it ensures that there is a common training and mission for all yoga therapists. This will also streamline referrals that mental health professionals might make when their clients are asking for therapeutic yoga. It seems promising that yoga therapists will hold certifications proving their deeper experience in yoga practice.

Measuring effectiveness. Finally, data of effectiveness was extracted from all articles in this review. Effectiveness reports ranges for general reports of effectiveness to in-depth

explanations of body systems and brain mechanisms that were affected by yoga. It was also suggested that yoga may be used to prevent development of depression and anxiety in some cases. This study found yoga to effectively treat or manage depression and anxiety in the following ways: reduced muscle tension; increased vagal tone; balance of the autonomic nervous system; neuroendocrine release; changes in neurophysiology; increased awareness of the body; increased spiritual connection; gaining mastery; increased self-confidence and self-awareness; increased life-satisfaction; and overall improved quality of life. In order to establish additional evidence of effectiveness, additional research should be performed to further support these findings.

Limitations

Although this study was designed to include all relevant research that addressed how yoga is being used to treat depression and anxiety, and how effective it is, there were still some limitations to this review. First, most research on this topic has been performed in the last 16 years and includes minimal description of the types of yoga being researched. Therefore, this review was performed on the small sample of available articles that obtained limited information describing the styles of yoga. Additionally, this review only contained peer-reviewed, published articles. Therefore gray literature, or literature not formally published, was not included in the study. Due to yoga being a recent subject of research, there is potentially gray literature that could inform more formalized studies in the future. Within the published articles, there are few randomized controlled trials, and the existing RCTs often contain flaws such as small study samples or limited timeframes (Javnbakht, Hejazi Kenari, & Ghasemi, 2009).

It may also be important to recognize that yoga is an Eastern practice that is much older than the Western empirical research of its therapeutic effectiveness. It is possibly that the lack of

research on yoga's effectiveness is due to the fact that the Western worldview of "outcomes" is contradictory with the intention of yoga, which focuses on "process." Yoga is a practice that individuals are encouraged to develop and individualize over time, it is a progression that is difficult to standardize and measure.

Further Research and Implications

It is apparent that yoga is increasingly gaining popularity in the Western world, and even more recently, in the Western Medical world. But for yoga to be recognized as an evidenced-based treatment intervention, it will require more rigorous testing. Specifically, more randomized controlled trials with larger sample sizes and extended therapeutic timeframes. It may also be helpful for additional research to be performed to aid professionals in determining what types of yoga interventions would be most helpful for their clients. Future research on yoga should include additional qualitative research to find out why each component of yoga feels helpful to individuals. Additional qualitative data may help build theory around the therapeutic aspects of yoga. Once there is more theory built around yoga then research should move to more quantitative studies to test theory.

One of the benefits of yoga as an intervention may be that it can be tailored to individual needs, but this also has the possibility of being detrimental if yoga instructors are uninformed about some type of standardized approach or methodology. The field of yoga therapy appears to be a promising entity for the further development of yoga as a therapeutic intervention. Although it was mentioned in just one study in this review, it has only been four years since the development of their curriculum for training of yoga therapists. As the field of yoga therapy advances, there will be supplementary data available for additional necessary research.

Conclusion

Due to the diverse nature of the styles researched, and the overall effectiveness that was observed, it may be inferred that it is not one specific piece of yogic teachings that are helpful in treating depression and anxiety. Rather, the blending of each beneficial part may make yoga a diverse intervention that can reach clients on many levels. The effectiveness of yoga as an intervention alleviates symptoms; addresses spirituality; increases self-confidence and self-worth; and reaches the whole being of an individual. Yoga has shown to be effective among diverse populations of varying physical capabilities, and can be tailored to individualized needs. Although the field of using yoga therapeutically in Western society is relatively new, it seems promising that yoga may be a mind-body-spirit intervention that is both comforting and healing for individuals with depression and anxiety.

References

- Anxiety and Depression Association of American. (2014). Facts & Statistics. Retrieved September 21, 2015. <http://www.adaa.org/about-adaa/press-room/facts-statistics>.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5* (5th ed.). Arlington, VA: American Psychiatric Publishing.
- Blom, E. H., Duncan, L. G., Ho, T. C., Connolly, C. G., LeWinn, K. Z., Chesney, M., Yang, T. T. (2014). The development of an RDoC-based treatment program for adolescent depression: “Training for awareness, resilience, and action” (TARA). *Frontiers in Human Neuroscience*, 8
- Boynton, H. M. (2014). The HEALTHY group: A Mind–Body–Spirit approach for treating anxiety and depression in youth. *Journal of Religion & Spirituality in Social Work*, 33(3), 236-253. doi:10.1080/15426432.2014.930629
- Brown, R. P., & Gerbarg, P. L. (2005). Sudarshan kriya yogic breathing in the treatment of stress, anxiety, and depression. part II--clinical applications and guidelines. *Journal of Alternative and Complementary Medicine (New York, N.Y.)*, 11(4), 711-717.
doi:10.1089/acm.2005.11.711 [doi]
- Brown, R. P., & Gerbarg, P. L. (2005). Sudarshan kriya yogic breathing in the treatment of stress, anxiety, and depression: Part I-neurophysiologic model. *Journal of Alternative and Complementary Medicine (New York, N.Y.)*, 11(1), 189-201. doi:10.1089/acm.2005.11.189
[doi]

- Brown, R. P., & Gerbarg, P. L. (2009). Yoga breathing, meditation, and longevity. *Annals of the New York Academy of Sciences*, 1172, 54-62. doi:10.1111/j.1749-6632.2009.04394.x [doi]
- Field, T. (2011). Yoga clinical research review. *Complementary Therapies in Clinical Practice*, 17(1), 1-8. doi:10.1016/j.ctcp.2010.09.007 [doi]
- Forfylyow, A. L. (2011). Integrating yoga with psychotherapy: A complementary treatment for anxiety and depression. *Canadian Journal of Counselling and Psychotherapy*, 45(2), 132-150.
- Harner, H., Hanlon, A. L., & Garfinkel, M. (2010). Effect of iyengar yoga on mental health of incarcerated women: A feasibility study. *Nursing Research*, 59(6), 389-399. doi:10.1097/NNR.0b013e3181f2e6ff [doi]
- Hazlett-Stevens, H. (2012). Mindfulness-based stress reduction for comorbid anxiety and depression: Case report and clinical considerations. *Journal of Nervous and Mental Disease*, 200(11), 999-1003. doi:10.1097/NMD.0b013e3182718a61
- Horovitz, E., & Elgelid, S. (2015). *Yoga therapy: Theory and practice*. New York, NY: Routledge.
- Javnbakht, M., Hejazi Kenari, R., & Ghasemi, M. (2009). Effects of yoga on depression and anxiety of women. *Complementary Therapies in Clinical Practice*, 15(2), 102-104. doi:10.1016/j.ctcp.2009.01.003 [doi]

- Khalsa, S. B., Shorter, S. M., Cope, S., Wyshak, G., & Sklar, E. (2009). Yoga ameliorates performance anxiety and mood disturbance in young professional musicians. *Applied Psychophysiology and Biofeedback, 34*(4), 279-289. doi:10.1007/s10484-009-9103-4 [doi]
- Klainin-Yobas, P., Oo, W. N., Suzanne Yew, P. Y., & Lau, Y. (2015). Effects of relaxation interventions on depression and anxiety among older adults: A systematic review. *Aging & Mental Health, 19*(12), 1043-1055. doi:10.1080/13607863.2014.997191
- Kozasa, E. H., Santos, R. F., Rueda, A. D., Benedito-Silva, A. A., De Ornellas, F. L., & Leite, J. R. (2008). Evaluation of siddha samadhi yoga for anxiety and depression symptoms: A preliminary study. *Psychological Reports, 103*(1), 271-274. doi:10.2466/pr0.103.1.271-274 [doi]
- Lavey, R., Sherman, T., Mueser, K. T., Osborne, D. D., Currier, M., & Wolfe, R. (2005). The effects of yoga on mood in psychiatric inpatients. *Psychiatric Rehabilitation Journal, 28*(4), 399-402.
- Marefat, M., Peymanzad, H., & Alikhajeh, Y. (2011). The study of the effects of yoga exercises on addicts' depression and anxiety in rehabilitation period. *Procedia - Social and Behavioral Sciences, 30*, 1494-1498.
doi:<http://dx.doi.org.ezproxy.stthomas.edu/10.1016/j.sbspro.2011.10.289>
- Mayo Clinic Staff. (n.d).Treatments and drugs. *Depression (major depressive disorder)*. Retrieved September 23, 2015. <http://www.mayoclinic.org/diseases/conditions/depression/basics/treatment/con-20032977>

McCall, Marcy C., (2014). In search of yoga: Research trends in a western medical database.

Internal Journal of Yoga, (7).

National Institute of Mental Health. (2015). Retrieved September 20, 2015, from

<http://www.nimh.nih.gov/health/statistics/prevalence/major-depression-amongadults.shtml>

Newham, J. J., Wittkowski, A., Hurley, J., Aplin, J. D., & Westwood, M. (2014). Effects of antenatal yoga on maternal anxiety and depression: A randomized controlled trial.

Depression and Anxiety, 31(8), 631-640. doi:10.1002/da.22268 [doi]

Novotney, Amy. (2009). Yoga as a practice tool. *November 2009 Monitor on Psychology*, 40(10), pp 38. American Psychological Association. Retrieved September 21, 2015, from <http://www.apa.org/monitor/2009/11/yoga.aspx>.

Sadji, J., & Mills, Paul J., (2013). Effects of yoga interventions on fatigue in cancer patient and survivors: A systematic review of randomized controlled trials. *EXPLORE: The Journal of Science and Healing*, 9(4), pp. 232-243.

Saeed, S. A., Antonacci, D. J., & Bloch, R. M. (2010). Exercise, yoga, and meditation for depressive and anxiety disorders. *American Family Physician*, 81(8), 981-986.

Satyapriya, M., Nagarathna, R., Padmalatha, V., & Nagendra, H. R. (2013). Effect of integrated yoga on anxiety, depression & well being in normal pregnancy. *Complementary Therapies in Clinical Practice*, 19(4), 230-236. doi:10.1016/j.ctcp.2013.06.003 [doi]

Schrank, S., (2014). American Yoga: The shaping of modern body culture in the United States. *American Studies*, 53(1), pp 169-181.

Serpa, J. G., Taylor, S. L., & Tillisch, K. (2014). Mindfulness-based stress reduction (MBSR) reduces anxiety, depression, and suicidal ideation in veterans. *Medical Care*, 52(12 Suppl 5), S19-24. doi:10.1097/MLR.0000000000000202 [doi]

Shannahoff-Khalsa, D. S. (2004). An introduction to kundalini yoga meditation techniques that are specific for the treatment of psychiatric disorders. *Journal of Alternative and Complementary Medicine (New York, N.Y.)*, 10(1), 91-101. doi:10.1089/107555304322849011 [doi]

Sureka, P., Govil, S., Dash, D., Dash, C., Kumar, M., & Singhal, V. (2014). Effect of sudarshan kriya on male prisoners with non psychotic psychiatric disorders: A randomized control trial. *Asian Journal of Psychiatry*, 12, 43-49. doi:10.1016/j.ajp.2014.06.010 [doi]

Uebelacker, Lisa A., Tremont, Geoffrey., Epstein-Lubow, Gary., Gaudiano, Brandon A., Gillette, Tom., Kalibatseva, Zornitsa., and Miller, Ivan W., (2010). Open trial of vinyasa yoga for persistently depressed individuals: Evidence of feasibility and acceptability. *Behavior Modification*, 34(3), pp 247-264.

U.S.A. Suicide: 2013 Official Final Data. (2015, January 22). Retrieved September 20, 2015, from <http://www.suicidology.org/Portals/14/docs/Resources/FactSheets/2013datapgsv2>

U.S. Department of Health and Human Services. (1999). *Mental Health: A Report of the Surgeon General*. Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, National Institute of Mental Health. Retrieved September 20, 2015, from <http://profiles.nlm.nih.gov/ps/access/NNBBJC.pdf>

Verrastro, G. (2014). Yoga as therapy: When is it helpful? *The Journal of Family Practice*, 63(9), E1-6. doi:jfp_6309e [pii]

Weintraub, A. (2004). *Yoga for depression: A compassionate guide to relieve suffering through Yoga*. New York: Broadway Books.

Woodyard, Catherine. (2011). Exploring the therapeutic effects of yoga and its ability to increase quality of life. *International Journal of Yoga*, 4(2), pp 49-54.

Yoga for anxiety and depression. (2009, April 1). *Harvard Mental Health Letter*.

Appendix A

Article	Sample	Design/Method	Type of yoga	Effectiveness
Blom, E. H., Duncan, L. G., Ho, T. C., Connolly, C. G., LeWinn, K. Z., Chesney, M., Yang, T. T. (2014). The development of an RDoC-based treatment program for adolescent depression: “Training for awareness, resilience, and action” (TARA).	Adolescents	12 week group program 4 modules Homework assignments instructions to practice at home	Yogic breathing, Ujjayi breath Asanas Synchronizing breath with movement Grounding Noted that instructors should be experienced in leading adolescent group processes and committed to personal contemplative practice.	-Breathing strategies can lessen the tension of “holding” emotional pain; stress; or anxiety. -Regular, brief, practice is recommending for changing pathophysiological mechanisms. -Personalized, daily practices, are recommended as a foundation for life.
Boynton, H. M. (2014). The HEALTHY group: A Mind–Body–Spirit approach for treating anxiety and depression in youth.	Adolescents experiencing clinical levels of anxiety and depression.	-8 week holistic mind-body-spirit intervention program, implemented 5 times from 2009-2011	-Kundalini Yoga, psychoeducation -home practice and self-monitoring charts -develop individualized wellness plan	-53% of youth identified spirituality as influencing their wellness, and youth who had stronger spiritual beliefs had higher levels of wellness.
Brown, R. P., & Gerbarg, P. L. (2005). Sudarshan kriya yogic breathing in the treatment of stress, anxiety, and depression. part II--clinical applications and guidelines.	Past clinical studies	Review of clinical studies; Clinical observations Guidelines for safe and effective use of techniques	Sudarshan Kriya Yoga (SKY) includes pranayama, asanas, meditations, group processes,, and basic yogic knowledge -Taught by a skilled yoga teacher -Recommend 30 minutes of practice per day -Focus of different types of yogic breathing used for practice. Ujjayi (Ocean breathe); Bhastrika (Bellows breath); “Om”; and Sudarshan	-3 studies have found SKY to be effective in the treatment of depression. -Insomnia is one of the first symptoms to respond to daily SKY practice -SKY also proves to overall reduce anxiety symptoms, authors also suggest using Ujjayi as a skill to restore a sense of control in the midst of experiencing anxiety.

			Kriya (proper vision by purifying action)	
Brown, R. P., & Gerbarg, P. L. (2005). Sudarshan kriya yogic breathing in the treatment of stress, anxiety, and depression: Part I-neurophysiologic model.	Past clinical studies	Individuals with depression and anxiety	Sudarshan Kriya -Four breathing techniques, asanas, and meditation	-Proposed use for children, ADHD, violence, alcoholism, and rehab of prisoners and terrorists. -Ujjayi breath enhances parasympathetic activity and increases indicators of vagal tones: respiratory sinus arrhythmia and heart rate variability. -Research has shown after 3 weeks of SKY cortisol levels were reduced. Increase in prolactin, may even increase oxytocin.
Brown, R. P., & Gerbarg, P. L. (2009). Yoga breathing, meditation, and longevity.	Past clinical studies	6 million people in 150 countries have participated in SKY program.	-Tibetan Buddhist and yoga breath -pranayama	-same as above
Field, T. (2011). Yoga clinical research review.	Research review on effectiveness of yoga on multiple conditions, more focused on poses, rather than breathing		-Focus on asanas, physical posed -2, 90 minute sessions per week(anxiety) -2 months of vinyasa flow	-Effective for reducing anxiety -2 months of vinyasa decreased depression -also outlines effectiveness of yoga for: mindfulness, job stress, depression, anxiety, sleep, pain syndromes, cardiovascular conditions, autoimmune conditions (asthma, diabetes, multiple sclerosis, immune conditions, pregnancy conditions, blood pressure, weight loss, and muscle strength.
Forfylow, A. L. (2011). Integrating yoga with psychotherapy: A complementary treatment	Past Research	Empirical research review	-Iyengar yoga -Breath work, physical postures, meditation,	-Focus on breath and physical postures aid in alleviating anxiety

for anxiety and depression.			yoga theory and philosophy. -Sudarshan Kriya Yoga -Ujjayi breath	-Specific postures to alleviate depression -2 studies identified iyengar yoga as effective for dep and anxiety -Yoga creates change in the neurophysiology of the body. -positively alters brain neurochemistry and counteracts stress, balance ANS -decreased cortisol levels reduce anxiety -increase GABA levels were found after 1 hour of yoga.
Harner, H., Hanlon, A. L., & Garfinkel, M. (2010). Effect of iyengar yoga on mental health of incarcerated women: A feasibility study	17 incarcerated women with depression and anxiety symptoms	Repeated measures design- each individual served as their own control. Beck dep inventory, beck anxiety inventory, and perceived stress scale	12 week intervention of Iyengar yoga, twice weekly -Iyengar is focused on correct postural alignment, precision of movement, and correct range of motion in joints. -Iyengar was chosen specifically for its encouragement of props (mats, blankets, blocks, and belts) to perform poses effectively. This reduces fear of injury, and the actual chance of injury. -Experienced instructor	-women who participated experienced fewer symptoms of depression and anxiety over time. -practice of backbends helpful for depression
Hazlett-Stevens, H. (2012). Mindfulness-based stress reduction for comorbid anxiety and depression: Case report and clinical considerations.	1 50 yr old male accountant, self-referred for symptoms of depression and anxiety	Case Report	Mindfulness Based Stress Reduction- focus on yoga Mindfulness Based Cognitive Therapy Body scan, yoga, meditation	-Self report packet of questionnaires, individual in the case report identified having no notable sx of depression or anxiety at his exit interview

				-MBCT significantly reduced risk of depressive relapses and led to clinical improvement in symptoms -In this study the effectiveness is attributed to Mindfulness practice, rather than solely on yoga practice
Javnbakht, M., Hejazi Kenari, R., & Ghasemi, M. (2009). Effects of yoga on depression and anxiety of women.	65 women	Convenience sample, RCT	-Twice weekly 90 minute classes of Ashtanga yoga (Iyengar method) for a two month period	-Significant decrease in anxiety
Khalsa, S. B., Shorter, S. M., Cope, S., Wyshak, G., & Sklar, E. (2009). Yoga ameliorates performance anxiety and mood disturbance in young professional musicians.	45 students, musicians with performance anxiety Measured anxiety, performance anxiety, mood, and depression	Volunteer, RCT	-Kripalu yoga 3x per w. Kripalu style of yoga emphasizes introspective focus while coordinating breath and physical postures as a meditation in motion. Kripalu Yoga instructors emphasize the rich experience of internal physical sensations and tend to offer less anatomical alignment cues than yoga instructors.	
Klainin-Yobas, P., Oo, W. N., Suzanne Yew, P. Y., & Lau, Y. (2015). Effects of relaxation interventions on depression and anxiety among older adults: A systematic review.	15 published and non-published studies 12 RCT 3NRCT Older adults(>60yrs)	Systematic review of empirical evidence	-Relaxation therapy -PMR, Yoga, and music are most effective with older adults -Yoga, breath control during body movements (Yoga involved breathing exercises, stretching exercises, physical activity, meditation, and yoga-based guided relaxation)	-Older adults who received relaxation interventions experienced greater improvements in depression and anxiety -Yoga was included as one of the most effective techniques for both depression and anxiety, effectiveness was also shown to be sustained 14-24 weeks after the interventions

<p>Kozasa, E. H., Santos, R. F., Rueda, A. D., Benedito-Silva, A. A., De Ornellas, F. L., & Leite, J. R. (2008). Evaluation of siddha samadhi yoga for anxiety and depression symptoms: A preliminary study.</p>	<p>22 individuals with anxiety complaints (19-61yoa)</p> <p>-no dx, no prior treatment</p> <p>-examining yoga as a stand alone tx</p>	<p>Preliminary study</p>	<p>-Siddha Samadhi yoga -yoga program that combines meditation and pranayama in a brief sequence</p> <p>-2 weeks</p> <p>-performed 11 pranayama, including ujjayi breath, 20 min. Then 20 minutes of meditation using a mantra</p> <p>-members encouraged to practice twice per day</p>	<p>-Significant reduction in scores on anxiety, depression, and tension were found among the yoga group, as well as an increase in overall well-being</p>
<p>Lavey, R., Sherman, T., Mueser, K. T., Osborne, D. D., Currier, M., & Wolfe, R. (2005). The effects of yoga on mood in psychiatric inpatients.</p>	<p>113 psychiatric inpatients, range of diagnosis</p>	<p>-Changes in mood after 1 yoga session were measured using the Profile of Mood states</p>	<p>-Hatha yoga program, modeled after the program created by Kabat-Zinn</p> <p>-1x per week, 45 minutes</p> <p>-Yoga classes consist of gentle stretching and strengthening exercises done slowly with the attention focused on breathing and sensations that are experienced as the participants assume various yoga postures.</p>	<p>-Statistically significant improvements in tension-anxiety; depression-dejection; anger-hostility; fatigue-inertia; and confusion-bewilderment.</p> <p>-Findings support the use of yoga on inpatient psychiatric settings for symptom management and improvement</p>
<p>Marefat, M., Peymanzad, H., & Alikhajeh, Y. (2011). The study of the effects of yoga exercises on addicts' depression and anxiety in rehabilitation period</p>	<p>24 individuals with substance addiction</p>	<p>Semi-experimental study</p>	<p>-Three 60 min sessions per week, 5 weeks.</p> <p>-breathing exercises, meditation, relaxation exercises, and physical exercises</p>	<p>-Significant differences in depression and state anxiety levels of individuals with substance addiction during rehabilitation period</p>
<p>Newham, J. J., Wittkowski, A., Hurley, J., Aplin, J. D., & Westwood, M. (2014). Effects of antenatal yoga on maternal anxiety and</p>	<p>59 low risk pregnant women, first pregnancy</p>	<p>Clinical trial</p>	<p>-Antenatal yoga, 8 weeks, 1 x per week, 90 minutes</p> <p>-Trained antenatal yoga teacher</p>	<p>-A single session of yoga reduced both subjective and physiological measures of state anxiety, this also carried into the final session of yoga</p>

depression: A randomized controlled trial.			-Antenatal is based on the mild, Hatha, form of yoga. Exercises, postures, and relaxation/breathing techniques	-Antenatal yoga also prevented further development of depressive symptoms in pregnant women, whereas the TAU group experienced elevated depression scores at follow up -Antenatal yoga proved to have significant reductions in fear and anxiety surrounding childbirth
Saeed, S. A., Antonacci, D. J., & Bloch, R. M. (2010). Exercise, yoga, and meditation for depressive and anxiety disorders	Past articles	Literature review of exercise vs. yoga vs. tai chi and qigong	-yoga -shavasana -SKY yoga -SKY yoga -Iyengar -yoga and psychoed -mindful exercise	-This review reports yoga and exercise are more effective at treating depression and anxiety than meditation alone, tai chi, or qigong.
Satyapriya, M., Nagarathna, R., Padmalatha, V., & Nagendra, H. R. (2013). Effect of integrated yoga on anxiety, depression & well being in normal pregnancy.	96 pregnant women, normal pregnancies	Prospective RCT	Integrated yoga 2 h/day 3 days per week, 1 month Integrated approach of yoga therapy (Table of physical postures) physical postures, pranayama, and meditation Encouraged home practice	-Anxiety and depression significantly decreased within improvement in pregnancy after yoga.
Serpa, J. G., Taylor, S. L., & Tillisch, K. (2014). Mindfulness-based stress reduction (MBSR) reduces anxiety, depression, and suicidal ideation in veterans	79 Veterans	Longitudinal study	MBSR The MBSR course had 9 weekly 2h sessions that included seated and walking meditations, gentle yoga, body scans, and discussions of pain, stress, and mindfulness. Certified MBSR teacher	-Significant reductions in anxiety, depression, and suicidal ideation were observed after MBSR training in veterans

			MBSR standardized approach Suicidal ideation decreased by almost half	
Shannahoff-Khalsa, D. S. (2004). An introduction to kundalini yoga meditation techniques that are specific for the treatment of psychiatric disorders		Paper outlining Kundalini techniques for psychiatric disorders	Kundalini meditation techniques 2 specific meditations for depression 1 meditation for treating phobias, fear, or anxiety disorders	Focused on treatment for OCD, additional info on depression and anxiety
Sureka, P., Govil, S., Dash, D., Dash, C., Kumar, M., & Singhal, V. (2014). Effect of sudarshan kriya on male prisoners with non-psychotic psychiatric disorders: A randomized control trial.	230 male prisoners with non-psychotic psychiatric disorders India	6 month RCT	Sudarshan Kriya -daily program for 6 weeks In Study participants SK&P components were applied in order of (1) three staged Ujjayi breathing, (2) bellows breath (Bhastrika), (3) om chant, (4) SK and (5) ANB. The breathing practices were done in a sitting posture on the floor. Eyes and mouth were kept closed while breathing through the nose throughout the sessions. Certified SK&P teachers	-Overall improvement in GAF, anxiety, and depressed mood. -Increase in positive well-being, general health, self control, and vitality.
Verrastro, G. (2014). Yoga as therapy: When is it helpful?		Review of practice recommendations for using Yoga as therapy	See types of yoga chart	-Back pain, depression, and anxiety, asthma, menopause, hypertension