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Review Article

Yoga Can Reduces the Symptoms of Depression and Depression Associated Complications in Women

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Abstract

The most prevalent global mental ailment, which primarily affects young women, is depression. Women are more sensitive to interpersonal interactions, hormonal changes before and during pregnancy, and menstrual periods each month. Women are more likely to develop a few conditions linked to depression than men, including autoimmunity, dysmenorrhea, CVD, and amenorrhea. Yoga is a form of alternative therapy that boosts mental ability by calming the mind and increasing physical activity. Yoga asana along with meditation may also create an equilibrium in the production of female sex hormones and maintain the immune system by bringing the body and mind into harmony.

Keywords: Depression; Yoga; CVD; Autoimmunity; Dysmenorrhea

Introduction

Among all mental illnesses, depression is one of the most prevalent. Globally, 350 million people are thought to be suffering from depression in some capacity [1]. When suicide and stroke deaths resulting from depression are taken into account, depression ranks third among all diseases in terms of the global illness burden [2]. Major depression affects more women than males [3,4], who are more likely to experience it. When comparing young adults (age 14–25), women experience depression more than twice as often as young adults (men), however this ratio falls as people get older [5,6]. Patients with depression may have weight loss or increase, low energy, sleeplessness, excessive sleeping, difficulty focusing, psychomotor agitation, or slowness. They may also experience low self-esteem, a sense of worthlessness, or repeated thoughts of death. The ancient Indian philosophy and practice of yoga encourages the connection between the mind, body, and spirit. Patients, physicians, researchers, and yoga practitioners have all expressed growing interest in using yoga as a management tool for treating depression and anxiety during the past few years. For a variety of reasons, yoga may be intriguing to those who battle despair and anxiety. In many places, it is reasonably priced and easily accessible [7]. The factors of self-description, psychological status, and quality of life were all enhanced by yoga exercise [8]. Yoga is recommended by researchers as a form of mental and intellectual exercise that enhances wellbeing [9]. Yoga can boost pleasant emotions, help with mental balance, and improve the psychological circumstances for recognizing and managing stress and negative emotions []. We shall look at the effects of yoga on depression and depression-associated condition in women in this review article.

Methodology

Studies were found through electronic database searches in Google Scholar, PubMed, and Web of Sciences by putting the key

words Yoga for depression, depression in women, and depression associated disease in women. A thorough literature search was done to gather studies for inclusion in this review. In our review section, we incorporated the pertinent studies. The study was conducted during the years 1993 and 2023.

Depression is more prevalent among women

Men showed greater sensitivity to outside professional and goal-oriented elements than women did, according to one study [11]. Additionally, women are more likely than men to have specific types of depression that are linked to sickness, such as premenstrual dysphoric disorder, postpartum depression, and postmenopausal sadness and anxiety. These conditions are linked to changes in ovarian hormone levels and may explain why women encounter more cases of depression than men. Given that hormonal changes in women, notably during adolescence, before menstruation, after pregnancy, and during perimenopause, are associated with an increased prevalence of depression, it is possible that these variations in female hormone levels serve as a precipitating factor for depression [12]. The effects of estradiol and progesterone on peripheral blood mononuclear cells' release of proinflammatory cytokines (TNF alpha, IL-1, and IL-8) were described by Yuan and colleagues [13]. According to their research, progesterone encourages oxidative stress, which ultimately leads to an increase in inflammation, while estradiol attenuates the generation of cytokines [14].

Depression associated disease in women

Depression and CVD

Another two of the top five global causes of disability-adjusted life years in women are depression and ischemic heart disease [15]. People who have experienced depression are more likely to acquire CVD [16,17], and up to 35% of those who do develop CVD also have depressive symptoms, which are linked to an elevated risk of cardiac morbidity and mortality [18]. Patients with depression have also been found to have elevated levels of systemic inflammation [19]. Chronic HPA axis activation in depression causes excessive cortisol secretion, which can worsen depressive symptoms and cause memory problems [20]. Increased production of stress hormones has also been observed in response to an increase in IL-6 and tumor necrosis factor-alpha, two other proinflammatory cytokines [21,22]. Angiotensin-II and ACE levels may be abnormally elevated due to systemic inflammation [23]. Angiotensin ii receptor density is also increased by proinflammatory cytokines [24]. TNF alpha and IL-6 are produced more actively when angiotensin II levels are high [25]. According to a different study, IL-6 and IL-8 are increased when angiotensin II is administered.

Depression and auto immune disease

Numerous investigations into the aetiology of major depressive disorder have suggested that cytokine production and immunological activation may play a role in depression [26,27]. T reg cells are created during inflammation to control the release of cytokines that promote inflammation. Additionally, it has been noted that circulating T lymphocytes are present at lower numbers in human patients with major depressive illness [28]. Women are more susceptible to developing autoimmune diseases than men because they have lower levels of circulating T reg than men [14]. An autoimmune condition called myasthenia gravis (MG) is characterized by particular autoantibodies that attack the acetylcholine receptor on the post synaptic membrane of the neuromuscular junction. The depressive disorder, with a prevalence of depressive disorders ranging from 17 to 50% [29,30], appears to be the most common mental presentation in MG. The central nervous system (CNS) illness known as multiple sclerosis (MS) is brought on by an autoimmune reaction. It has long been recognized that MS and depression are related [31]. Transverse myelitis (TM) and neuromyelitis optica (NMO) are two distinct autoimmune inflammatory kinds of demyelinating illnesses of the central nervous system (CNS), and they are both characterized by a predominance of spinal cord involvement without any cerebral or solely optic nerve lesions [32]. In fact, 17% of TM patients experience depression, making depressive morbidity a relatively common occurrence in these diseases [33].

Depression associated with dysmenorrhea and amenorrhea

One of the most common gynecological diseases that causes discomfort and affects women's social interactions and quality of life is dysmenorrhea [34]. Dysmenorrhea may be inversely related to psychological illnesses as depression, anxiety, and stress. Dysmenorrhea combined with depression may increase the impression of pain intensity and decrease the responsiveness to painkillers [35,36]. Idiopathic pain disorders can be brought on by physical distress and heightened pain sensitivity [37]. Functional hypothalamic amenorrhea (FHA) is a reversible nonorganic condition that causes the menses to stop [38]. Hypothalamic function Amenorrhea is frequently referred to as stress-induced anovulation, and FHA has a strong psych neuroendocrine basis, with disruptions in the hypothalamic-pituitary-adrenal (HPA) and hypothalamic

pituitary gonadal (HPG) axes, which reflect the body's allostatic reaction to chronic stress [39]. We recently discovered that the development of menstruation illness is linked to a psychological or social stressor that was noted as a life event in nearly half of the patients with hypothalamic secondary amenorrhea [40].

Effects of Yoga on depression

According to one study, yoga can effectively help women who are stressed, anxious, or depressed [41]. According to a different study, aerobic exercise and Bikram yoga both had a significant impact on the symptoms of depression in women [42]. Laughter yoga may be a useful strategy for lowering anxiety and depression in retired women [43]. Yoga can be thought of as a helpful method in treating depression condition in females with multiple sclerosis, it has been determined [9]. Hata yoga techniques dramatically lessen the signs of anxiety and despair in Shirazian women who were volunteers and were 34 years old [44]. In women with an average age of 34.2+-4.7 years [45], practicing asana, pranayama, and relaxation techniques for three months also decreased depression, sTSHs, BMI, exhaustion, anxiety, lipid profile indices, and stress levels.The quality of life and depression are improved by yoga as a complementary therapy [46]. Prenatal yoga was determined to be a practical and palatable intervention and was linked to a decrease in anxiety and depressive symptoms throughout pregnancy [47]. After an eight-week mild yoga intervention, 12 women reported less depressive symptoms and improved self-care for their stress and ruminative symptoms of depression [48]. One study found that both aerobic exercise and yoga significantly reduced the signs of anxiety and depression in primiparous women in both groups [49].

Mechanism by which Yoga can reduces the symptoms of depression

There is an activation of the HPA axis in depressed patients. A psychological stressor sets off a chain of events that releases cortisol and catecholamines by activating the HPA axis and the sympathetic nervous system. Yoga has been shown in numerous studies to have a downregulating effect on the HPA axis and SNS, according to Rose and Thomas (2010) [42]. Yoga may help with depression, according to a theory put forth by Streeter, Gerbarg, Saper, Ciraulo, and Brown (2012), by lowering the allostatic load during the stress reaction. In those who are depressed, the content of gamma-amino butyric acid (GABA) is frequently low [50]. According to Streeter and colleagues (2012), yoga induces parasympathetic activity, which in turn activates the inhibitory GABA neurotransmitter system and has a calming effect on the central nervous system. According to a 2007 study by Streeter and colleagues, practicing yoga poses raises GABA levels in the brain by 27%. By reducing the amygdala's grey matter density, mindfulness meditation produces long-lasting changes in the brain [50]. This, in turn, lowers the concentration of chemicals that signify stress and raises dopamine levels [25,51]. Yoga can also reduce the inflammation by reducing proinflammatory cytokines like (IL-6, TNF alpha, hs-CRP protein) [52]. In yoga group showed increased numbers of circulating CD4+, CD8+ T cell and increased Fc receptors in natural killer cells [53].

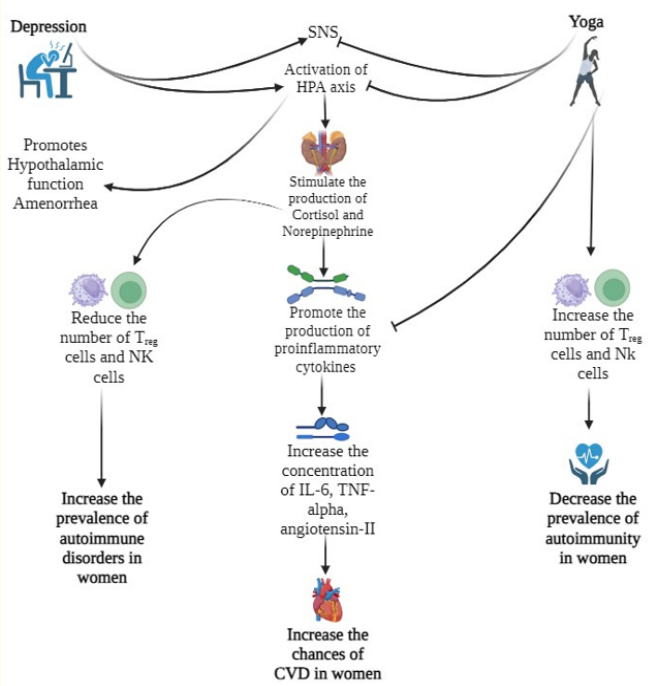

Figure 1: Yoga reduces the symptoms of depression and associated health complication in women.

Conclusion

Numerous studies have demonstrated that yoga helps women live better lives and lessens the symptoms of depression. Depression, along with a few other health issues, primarily affects women. We've come to the conclusion in this review paper that yoga may boost mental acuity and self-assurance while also easing symptoms. Numerous studies on yoga and depression in women have

been conducted, but they have not been able to pinpoint the precise mechanism through which it lessens depressive symptoms. Studies on depression-related difficulties in women are few, making it challenging to determine whether they are unique to women or share characteristics with men. Additional studies in this field will shed more information.

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