

Can Yoga be an Effective Tool in Managing Psychological Stress?

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ABSTRACT

Today Medical science is giving more emphasis for prevention and maintenance of health. Man's strongest desire is to live a healthy, happy and an inspired life. Of these three, health is primary because without it, one cannot feel happy or inspired. Because of the competitive world, stressful jobs and other stressful works, man is affected with high stress and in turn this stress creates an imbalance at physical, psychological and social levels of the individual leading to various physical and psychological disorders. Yoga, an Ancient science offers an effective method of managing and reducing stress, anxiety and depression and numerous studies demonstrate the efficacy of yoga on mood related disorders. Yoga, a form of mind-body exercise, has become an increasingly widespread therapy used to maintain wellness, and alleviate a range of health problems and ailments.

Keywords- Stress, Yoga, Psychological disorders.

INTRODUCTION

In an age of highly dynamic and competitive world, man is exposed to all kinds of stressors that can affect him on all realms of life. Hans Selye first introduced the term stress into life science. The term stress is derived from the Latin word 'Stringere' which means to be drawn tight. Stress is a complex, dynamic process of interaction between a person and his or her life.¹ Stress can affect one's health, work performance, social life and the relationship

with family members. The stress response is a complex emotion that produces physiological changes to prepare us for fight or flight to defend ourselves from the threat or flee from it.² Eminent behavioral scientist Stephen³ defines stress as that arises from an opportunity, demand, constraint, threat or challenge, when the outcomes of the event are important and uncertain. Stress can also be defined as the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker. Job stress can lead to poor health

and even injury.⁴ Hence we can say that stress is a silent killer and prolonged exposure to stress may exert harmful effect on physical, Psychological and behavioral well being of an individual.² According to the National Institute for Occupational Safety and Health, 80 percent of workers experience job stress. Keeley and Harcourt in their study on 'Occupational Stress: A Study of the New Zealand and Reserve Bank' revealed that stress is caused by heavy work demands in the job itself, which the unskilled employee with little control over how the work is done, cannot adapt to or modify.⁵ Kulkarni in an article Burnout published in Indian Journal of Occupational and Environmental Medicine has said that the rapid change of the modern working life is associated with increasing demands of learning new skills, need to adopt to new types of work, pressure of higher productivity and quality of work, time pressure and hectic jobs are increasing stress among the workforce.⁶

IMPACT OF STRESS

In one of the study it has been quoted as that the stress-related disorders evolve gradually through four recognizable stages. Firstly psychological changes such as anxiety, irritability and insomnia arise due to over stimulation of the sympathetic nervous system. In the second stage symptoms such as high blood pressure, elevated heart rate and increased intestinal motility surface. In the third stage, a more profound physical or biochemical imbalance sets in, while in the final fourth stage, irreversible symptoms that often requires surgical or long term management appears.⁷ Increased sympathetic activation and the release of stress hormones, including adrenaline, lead to increases in heart rate, blood pressure, breathing, body temperature, and muscle tension. In contrast, the relaxation response has been proposed as an antidote to stress;

relaxation decreases heart rate, breathing, body temperature, and muscle tension.⁸ Stress is a common characteristic for a typical college student. Academic stress can result from many different imperative stressors, such as final grades, term papers, examinations, and excessive homework.⁹ Stress has also exhibited a negative correlation with cognitive performance, thus negatively impacting academic performance.¹⁰

YOGA

Rapidly emerging in the Western world as a discipline for integrating the mind and body into union and harmony, when adopted as a way of life, yoga improves physical, mental, intellectual and spiritual health. Yoga offers an effective method of managing and reducing stress, anxiety and depression and numerous studies demonstrate the efficacy of yoga on mood related disorders. Currently, treatment for anxiety and depression involves mostly psychological and pharmacological interventions; however, mind-body interventions are becoming increasingly popular as a means to reduce stress in individuals. Yoga, a form of mind-body exercise, has become an increasingly widespread therapy used to maintain wellness, and alleviate a range of health problems and ailments.¹¹ Although yoga has been practiced for over 5000years, it has only recently gained popularity in the United States and Europe. In America, the yoga market emerged as a 5.7 billion dollar industry in 2008, an increase of 87% from 2004. The practice originated in India and has been implemented to alleviate both mental and physical ailments including bronchitis, chronic pain, and symptoms of menopause.¹²

Yoga is an ancient discipline designed to bring balance and health to the physical, mental, emotional, and spiritual



dimensions of the individual. Yoga is often depicted metaphorically as a tree and comprises eight aspects, or limbs: yama (universal ethics), niyama (individual ethics), asana (physical postures), pranayama (breath control), pratyahara (control of the senses), dharana (concentration), dyana (meditation), and samadhi (bliss). Long a popular practice in India, yoga has become increasingly more common in Western society. In a national, population-based telephone survey (n=2055), 3.8% of respondents reported using yoga in the previous year and cited wellness (64%) and specific health conditions (48%) as the motivation for doing yoga.¹³ Yoga has also found its special existence in Japan by its peculiarities like asana and pranayama.¹⁴

EFFECT OF YOGA IN STRESS

A growing body of research evidence supports the belief that certain yoga techniques may improve physical and mental health through down-regulation of the hypothalamic–pituitary–adrenal (HPA) axis and the sympathetic nervous system (SNS). The HPA axis and SNS are triggered as a response to a physical or psychologic demand (stressor), leading to a cascade of physiologic, behavioral, and psychologic effects, primarily as a result of the release of cortisol and catecholamines (epinephrine and norepinephrine). This response leads to the mobilization of energy needed to combat the stressor through the classic “fight or flight” syndrome. Over time, the constant state of hypervigilance resulting from repeated firing of the HPA axis and SNS can lead to dysregulation of the system and ultimately diseases such as obesity, diabetes, autoimmune disorders, depression, substance abuse, and cardiovascular disease. Studies also show that the yoga decreases the levels of salivary cortisol, blood glucose, as well as plasma rennin levels, and 24-hour

urine norepinephrine and epinephrine levels. Yoga significantly decreases heart rate and systolic and diastolic blood pressure. Studies suggest that yoga reverses the negative impact of stress on the immune system by increasing levels of immunoglobulin A¹² as well as natural killer cells. Yoga has been found to decrease markers of inflammation such as high sensitivity C-reactive protein as well as inflammatory cytokines such as interleukin-6¹⁴ and lymphocyte-1B. These studies suggest that yoga has an immediate quieting effect on the SNS=HPA axis response to stress. While the precise mechanism of action has not been determined, it has been hypothesized that some yoga exercises cause a shift toward parasympathetic nervous system dominance, possibly via direct vagal stimulation. Shapiro *et al* noted significant reductions in low-frequency heart rate variability (HRV) a sign of sympathetic nervous system activation in depressed patients following an 8-week yoga intervention. Regardless of the pathophysiologic pathway, yoga has been shown to have immediate psychologic effects: decreasing anxiety and increasing feelings of emotional, social, and spiritual well-being. Several literature reviews have been conducted that examined the impact of yoga on specific health conditions including cardiovascular disease, metabolic syndrome, diabetes, cancer, and anxiety.¹³

A study has shown to improve the mental health of both the young and seniors by reducing stress through yoga. Yoga can be wisely applied in welfare programs to improve the Quality of Life in all age groups. In this study sAA level decreased after yoga practice in both the groups. When compared between the groups there was no difference in effect. In seniors sAA level was higher; this may be due to stress or increased sympathetic activity or increased epinephrine levels compared to the young. In two senior subjects in the initial two to



three classes the sAA increased after yoga, this might be due to pain after practicing asana or failure to relax during meditation or anxiety about yoga. However, after a few classes, once they got accustomed to yoga, sAA levels came down. Decreased sympathetic activity signifies a decrease in stress level. In young individuals the sAA level was low compared to seniors and it reduced after yoga practice. This signifies that yoga helps to improve mental health and to overcome routine stress. Both state anxiety and trait anxiety scores decreased after yoga practice in both the groups. There was no difference in response between the groups. Both the young and seniors showed a decrease in their anxiety scores. Participants felt better and relaxed after practicing yoga. Response was more for state anxiety compared to trait anxiety. Thus yoga has both an immediate as well as long-term effect on anxiety reduction and helps to bring even behavior changes or controlled response to any type of stress if practiced regularly. It has been observed that yoga-based relaxation technique decreases state anxiety more in comparison to supine rest.¹⁴

EFFECT OF YOGA ON POSITIVE HEALTH

Study of Galantino *et al*; published a systematic review of the effects of yoga on children. These reviews have contributed to the large body of research evidence attesting to the positive health benefits of yoga. Many of the studies compared yoga to other treatment modalities, most commonly to exercise, meditation, and traditional medicine. However, little has been written about what distinguishes yoga from other treatment modalities. Yoga has recently been found to have beneficial effects on blood glucose levels in individuals with diabetes and other chronic health conditions. Yoga has been shown to be effective in relieving symptoms of mental illness

including depression, anxiety, obsessive-compulsive disorder and schizophrenia. Overall, the studies comparing the effects of yoga and exercise seem to indicate that, in both healthy and diseased populations, yoga may be effective or better than exercise at improving a variety of health-related outcome measures including HRV, blood glucose, blood lipids, salivary cortisol, and oxidative stress. Furthermore, yoga appears to improve subjective measures of fatigue, pain, and sleep in healthy and ill populations.¹³

Yoga is an increasingly popular therapy, used to maintain wellness and assist with the management of a range of health complaints. A review of the literature identified two trials evaluating the effects of yoga on reducing anxiety and stress. In a trial of 114 subjects by Khasky and Smith, yoga and imagery were found to be more effective at increasing a relaxed state compared to the control group ($p < 0.003$) and guided Imagery was more effective than yoga in reducing negative thoughts ($p < 0.03$). Malathi and Damodaran randomised 50 stressed medical students to yoga or to a nonintervention control group.7 a reduction in stress, improved sense of well-being and confidence was found in the yoga group ($p < 0.001$).¹⁵

Another Yoga-based program that has been widely studied in the use of stress reduction is the mindfulness-based stress reduction program (MBSR), which is taught, studied and popularized by Jon Kabat-Zinn and the Center for Mindfulness in Medicine, Healthcare and Society at the University of Massachusetts Medical School. The mindfulness-based stress reduction program includes guided instruction in mindfulness meditation practices, yoga and gentle stretching, inquiry exercises to enhance awareness, individual instruction, group dialogue and home assignments.¹⁶

Reibel, D. K., J. M. Greeson, G. C. Brainard, and S. Rosenzweig (2001)

conducted a study which examined the effects of mindfulness-based stress reduction (MBSR) on health-related quality of life and physical and psychological symptomatology in a heterogeneous patient population. Patients participated in an 8-week MBSR program and were required to practice 20 min. of meditation daily. Pre- and post-intervention data were collected and after One-year follow-up revealed maintenance of initial improvements on several outcome parameters. The author concluded that a group mindfulness meditation training program can enhance functional status and well-being and reduce physical symptoms and psychological distress in a heterogeneous patient population and that the intervention may have long-term beneficial effects.¹⁷

Campbell, Debra Elise, and Kathleen A. Moore (2004) With the dual aims of better understanding the contribution of Yoga to positive mental health and exploring links between yogic philosophy and psychological theory, researchers at Deakin University in Melbourne, Australia, conducted a study on Yoga as a preventative and treatment for symptoms of mental illness. The Yoga classes were designed as a six-week program incorporating breathing techniques (prānāyāma), exercises for strength, vitality, and flexibility (āsanas), guided relaxation (yoga-nidrā), and meditation. Psychometric testing was carried out to assess symptoms of stress, anxiety, and depression across three groups: regular Yoga practitioners, beginners entering the program, and people who did not practice Yoga and these tests were re-administered after six weeks. At the end of six weeks, the Yoga beginners group showed lower average levels of symptoms of depression, anxiety, and stress than at commencement, but levels were stable for regular Yoga practitioners and people who did not practice Yoga.¹⁸

EFFECT OF YOGA IN OCCUPATIONAL HEALTH

In a study of Rudra Bhandari *et al*, the yogic intervention was comprised of selected yogic postures, breathing mechanics (Pranayama), gestures, psychic locks, concentrations, and meditations that was given for one month among 50 corporate personnel (25 male & 25 female) from Indian Telephone Industry, Raebrali, India. The result met showed significant effect of the yogic intervention to manage distress and enhance work performance at $p < 0.01$ and favored the efficacy of corporate yoga to boost health, harmony, morale, work motivation, commitment, performance and productivity at individual and organizational levels.¹⁶

BIOCHEMICAL MARKERS OF STRESS

Advanced research is also been carried out in yoga wherein the cortisol levels were assessed in multiple independent trials. However, the results were inconsistent, with the majority of the studies showing no effect of yoga practice on cortisol concentrations. Conversely, vadiraja and colleagues reported significant decreases in 6. a.m. and pooled diurnal salivary cortisol concentrations in 42 breast cancer patients after a 6-week yoga intervention compared to 33 breast cancer patients in the control group. Similarly West *et al* reported a significant decrease in salivary cortisol in 18 undergraduate students after a semester-long Hatha yoga course. 44 decreased serum cortisol concentrations were also found in 8 yoga instructors after 1 hour of yoga practice as compared to before practice.¹²



CONCLUSION

Yoga is said to be a complete science as it fulfills the definition of WHO of health by addressing the individual at all physical, psychological and social levels. Stress affects individuals of all age groups including children and aged, people of all sectors and occupations including doctors. Though many modalities of treatments are available for reducing stress, people are trying to find out some alternative to be relieved from stress without medications. Yogic science persisting since 5000 yrs and known to be spiritual for many years is now being proved through scientific studies its enormous benefits on health. Yogic science includes yogasanas (postures), pranayama (breathing practices), dhyana (meditation) and relaxation techniques that tackles human beings at all the levels. Through research studies yoga has been proved to be effective in many of the physical and psychological ailments. Apart from the management of diseased condition, it also has been proved to improve the positive health and quality of life of the healthy. Most importantly, Yoga is also a strong practice for the prevention against painful ailments.

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