

Prediction Of Cognitive Impact Of Yoga And Meditation On Psycho-Physiological Health For Students

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Abstract: Now a day, one can find most places of the world different types of yoga centers, meditation centers. Millions of people got benefited by practicing yoga. There is no doubt that in future for a healthy future generation and for a peaceful world, yoga is going to play a major role. Yoga increases blood flow and levels of hemoglobin and red blood cells which allow more oxygen to reach the body cells, enhancing their function. Yoga also thins the blood which can decrease the risk of heart attack and stroke, as they are often caused by blood clots. Hence, the objective of this research is to predict the effects of yoga and meditation on a variety of physical and mental health outcomes and health conditions. For experimental purpose, a total of 100 healthy students in the age group of 17–23 are considered for predicting the cognitive ability. The results have been shown that the proposed system accurately predicted the cognitive skill and its prevalently high compared to non-practicing yoga students.

Index Terms : data mining, Yoga, Prediction, Cognitive Science

1 INTRODUCTION

Yoga is one of the traditional method which helps to keep our body and soul effectively. It is an Indian system of thought as well as practice is very pertinent to the treatment and prevention of psychological disorders, as well as the maintenance and promotion of physical and psychological health. The main focus of Yoga is to retrain or educate the mental process. Meditation have been use in recent years to help people attain health, cure diseases, and useful in many kind of health related problems. Taken together, this system provides a way of life that enhances a sense of well-being in people. The present study is an attempt to explore impact of yoga and meditation on cognitive functions of students. The aim of this study is to evaluate the influence of yoga in attention, concentration, and memory of students. College students are vulnerable to a critical period in developmental maturation, facing rigorous academic work, and learning how to function independently. The aim of proposed investigation is to establish preliminary evidence for the psycho physiological effects of yoga on stress in young-adult college students. The objective of this research is to compare the effects of yoga and meditation on a variety of physical and mental health outcomes and health conditions. Yoga reduces stress, anxiety, depression, and chronic pains, improves sleep patterns, and enhances overall well-being and quality of life. Yoga increases the blood flow and levels of hemoglobin and red blood cells which allow more oxygen to reach the body cells, enhancing their function. Yoga also thins the blood which can decrease the risk of heart attack and stroke, as they are often caused by blood clots

2 LITERATURE REVIEW

Peng, et al. (2003) investigated about the merits and demerits of yoga practice and the different ways of breath controls. The breath (pranayama) leads the movements, or the asanas (postures) (Scott, 2000). The yoga practitioner is not focused on the asanas, but with their breath. They kept their focus on the spot in the middle of the brow (Peng et al., 2003), which in yoga is third eye chakra (Chaline, 2000). Participants in the last group practiced bilateral segmented breathing, which required them to divide both their inhale and their exhale into eight equal parts. Waelde et al.(2004) investigated the effectiveness of yoga and meditation techniques and also guide the practitioners to do yoga as a regular habit and workout in home daily. Moreover, caregivers in this program experienced an increase in perceived self-efficacy for controlling negative thoughts. Not surprisingly, the more the caregivers practiced, the more their depression decreased and their self-efficacy increased. Nowadays many researchers and psychologists have studied the effects of various relaxation techniques like progressive Muscle relaxation and Attentional behavioral cognitive theory. Smith (1999) suggested various relaxation theories and techniques which help to heal the body from pressure. Ghoncheh& Smith (2004) have presented catalogue to describe the methods in the theories.The constructs were developed from the words in this catalogue. Three constructs operating in this theory: 1) relaxation states (RStates), 2) relaxation beliefs (R-Beliefs), and 3) relaxation attitude (R-Attitude). See Table 3 for a summary of this lexicon.In a literature review by Noland, Price, Drake, and Telljohann (2009) it was found that stress, caffeine consumption, alcohol consumption, exercise, jobs, schoolwork, and time management skills are all factors that have been shown to affect the quality and quantity of sleep. Some of these factors have also been found to affect attention, such as stress (Braunstein-Bercovitz, 2003), alcohol consumption (Bartholow, Pearson, Sher, Wieman, Fabiani, &Gratton, et al. 2003), and exercise (Budde, et. al., 2008). As such, when someone has sleep deprivation, or has gotten less than 9 hours of sleep, they have been found to perform more negatively in school (Wolfson&Carskadon, 1998). More specifically, sleep deprived participants have reported

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lower grades, decreased alertness and academic performance and concentration, and depression (Taras& Potts-Datema, 2005; Curcio, Ferrara, &DeGennaro, 2006; Wolfson&Carskadon, 2003). Recent studies revealed that the yoga supports the students to get rid of stress and anxiety. Moreover yoga practice will effectively reduce stress and positively influence the mindfulness among young generations. However its effect on physiological stress was found inconsistent [Bamber MD, Kraenzle Schneider J, 2016]. This is in contrast to purely economic and material developmental goal of modern civilization, which has brought social unrest and ecological devastation [Taneja DK, 2014]. An analytical look at the rungs and the goal of yoga shows that it is a holistic way of life leading to a state of complete physical, social, mental, and spiritual well-being and harmony with nature.

3 PROBLEM DEFINITION

Nowadays the students are addicted by the mobile phones, Liquor, Internet and social media. Due to the above addiction, the student's mental and physical health is affected. They lost their happiness and peace; hence they are not able to concentrate on their studies and other academic and co-curricular works. The YOGA, the science of spirituality has been recognized as a science of health and healing for managing various psycho-physiological problems of man. It provides a systematic approach to understand the root causes of our psycho-physiological problems such as fickleness of mind, hatred, greed, anger, depression, tremor, breathing disturbances etc. It also provides healing and purifying techniques for such conditions in old age .It provides a permanent solution to overcome the disturbances in the mind. The main motivation of this paper is to prove yoga and meditation solve all the above problems of students to live happily and peacefully.

4 PROPOSED WORK

A total of 100 healthy students in the age group of 17–23 are considered for the experimental purpose. They are trained to practice yoga technique for 12 weeks, and their attention, concentration, and memory are assessed using Postgraduate Institute memory scale before and after intervention at Kongu Engineering College, Erode, Tamil Nadu, India. The students are randomly opting for in one of the three experimental groups: Yoga Nidra, seated meditation, and control group. Students are evaluating two times throughout the 3-month study period. Psychological variables included anxiety, stress, and depression. The work flow of proposed system is represented in the figure 1.

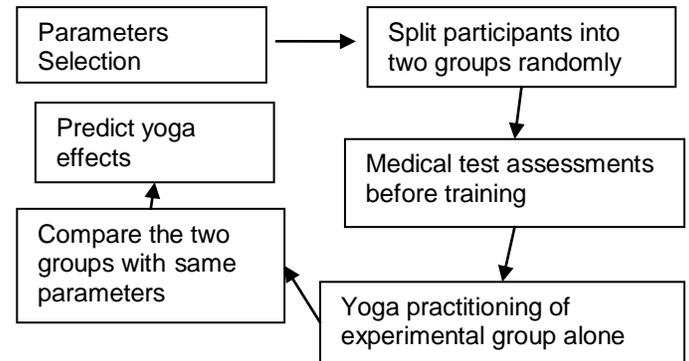


Fig. 1. Proposed Flow Diagram

This study used a quasi-experimental pre-test, post-test design, with nonequivalent groups. Participants were not randomly assigned to the intervention groups since they self-selected their instructional exercise classes. Participants were split into two groups: a yoga experimental group and a control group. The mind frequencies, body mass index (BMI), pulse rate, bold pressure (BP), depression, fatigue, stress, hypertension of the students of both groups will be measured by the medical officer for both the group of students. The experimental group alone will be trained by various physical postures and exercises (asanas), breathing techniques (pranayama), deep relaxation, and meditation practices for two years. Again after oneyears the same parameters will be measured for both the groups to investigate the effect of the yoga and meditation on physical and mental health. Phase I (Quantitative): During Phase I, participants will be asked to complete questionnaires electronically. Upon completion of the first set of questionnaires, participants will be asked to complete the questionnaires once in every two month. Phase II (Qualitative): After completing Phase I, participants will be invited to participate in yoga practices. Participation is strictly voluntary. All participants in Phase I will have an opportunity to participate in Phase II. The students are practiced with one of the efficient yoga techniques "KayaKalpa". Kayakalpa is one of the yoga techniques which provide physical, mental and spiritual benefits to well-beings. Moreover this technique helps to modify the work flow of body process in a natural way and produces good results for various types of chronic diseases. It helps to cure and prevent diseases and relieves the practitioner of many of the troubles of aging. Hence Kayakalpa is a good technique to supplement good health to overall function of body.

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5 RESULTS AND DISCUSSIONS

The proposed study show better performance with practice of yoga and meditation in tangibly enhancing cognitive performance pertaining to higher level cognitive skills of: sustained and divided attention and concentration, short term memory, visual information processing and working memory, and complex cognitive speed and flexibility over that of non-practicing students The research data analysis will show that the relaxation group presented better intra-group results in the anxiety levels whereas meditation group

produced good results in physical component alone. As well as intergroup results have been shown that the depression levels reduced compared to control group in all aspects. The following diagram represents the Kayakalpa yoga technique done by participants.

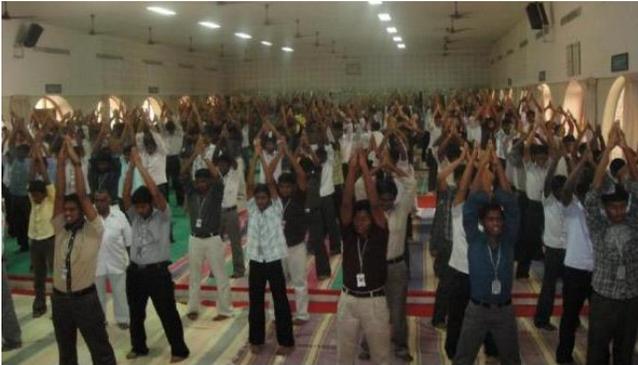


Fig. 2. Kayakalpa Technique

The students are randomly opting for in one of the three experimental groups: Yoga Nidra, seated meditation, and control group. Students are evaluating two times

6 CONCLUSION

In summary, stress has a negative impact on the immune system and prolonged exposure increases susceptibility to disease and leads to physical and mental health problems such as anxiety and depression. Practicing yoga and meditation as a means to manage and relieve both acute and chronic stress helps individuals overcome other co-morbidities associated with diseases and leads to increased quality of life. As a non-pharmacological form of treatment, yoga based interventions are an alternative option for the treatment of mood disorders. Further investigation of yoga as a therapeutic intervention in depressive disorders is needed and future studies should seek to identify which of the yoga-based interventions is most effective and what levels of severity of depression are more likely to respond to this approach.

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throughout the 3-month study period. The system measures the psychological variables included anxiety, stress, and depression. The following graph measures the variables for both the groups and proved that the kayakalpa technique works better and reduces psychological variables of experimental group students.

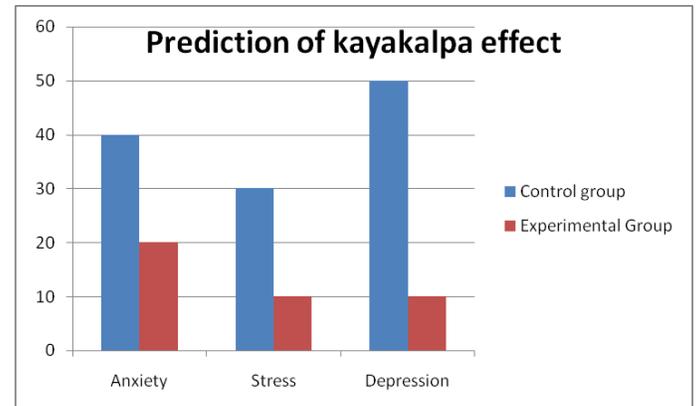


Fig. 3 Prediction of variables

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