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A Systematic and Scientific Impact of Varied Integrated Modules of Yogic Practices on Selected Resting Pulse Rate among Middle Aged Women

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ABSTRACT: This study was intended to identify the systematic and scientific impact of various unified meditations on specific biological factors in middle-aged women. In this study, only forty-five women were selected from the Sivagangai Municipality and its surroundings. Their ages varied from 35 years to 55 years. Three groups included: Asanas (n = 15), Surya Namaskar (n = 15), and the Controller Collection (n = 15). There were three equal groups containing fifteen participants each. For twelve weeks, the training program was accessible three days in a week. A one hour training period was enough for all three groups. No specific instructions were given to Group III, the controlling group. The resting pulse rate can be measured in beats per minute. The experiment and control groups provided the data. The Analysis of Covariance (ANCOVA) and conditional "t" test were used for the statistical analysis. The corrected post-test means 'F' ratio was considered statistically significant. A predetermined level of confidence of 0.05 was used for every case.

INTRODUCTION

The term yoga comes from "yuj," meaning "to yoke" and refers to the technique of bringing body and mind together for spiritual reasons.This method makes use of awareness through postures of the body (asanas), breath control (pranayama), meditation (dhyana), mantras, lifestyle modifications, and spirituality to bring relief to the restlessness of the mind. Yoga has evolved into yoga therapy, where different yogic practices are employed to address psychological and physiological disorders. Attempting to accommodate to different needs of practitioners, modern yoga has greatly changed from the conventional one. It is time to change the focus of yoga research, as the first scientific articles in the PubMed database go back to 1948. From 1948 to 2021, 6628 papers containing the keyword "yoga" have been published in PubMed, with 75.9% of them being published in the last ten years. There are many reasons for the recent dramatic rise in the number of yoga products:

- Its popularity as an effective and cheap tool for stress relaxation and health promotion;
- The shift in medicine on a global level towards integrative treatments and prevention;
- The interest in yoga as a means of creating inter-personal relationships; and
- The increased support of national

Interventions should be chosen carefully in view of the explosion of studies on yoga during the past decade. According to the authors' search in PubMed, 306 randomized controlled trials RCTs employed 52 styles of yoga, where Hatha Yoga, Iyengar

Yoga, and Integrative Approach to Yoga Therapy (IAYT) were the most common. Comparative research on yoga is a challenge. It is hard to tell which type of yoga is better because the majority of research on yoga has given good results. Popular yoga methods, standardization of its use, and transparency of the reporting can all help solve these concerns.

A yoga element is usually viewed as an array of yoga practices united in a certain way within a preplanned period of timefor a particular goal to be achieved. Opinions of the authors about creation and approval of yoga modules vary. Development of yoga modules usually starts from searching for relevant practices in both traditional and scientific literature. Validity of these practices is ensured by expert opinion and consensus. The created yoga module has often been validated using Lawshe's content validity ratio and the Delphi method. To prove feasibility of the module, its feasibility is assessed.

The possibility of replicability in yoga study is due to a scientific approach to the development of yoga modules, which may help in recognizing the exact constituents of yoga and its validity. The routine is done early in the morning facing the rising sun; however, the time of the day is not of importance. The poses in yoga involve stretching, bending or strengthening the different parts of the body.

"Asana" is a Sanskrit term that is often used in yoga. This refers to a bodily pose or position. In yoga practice, an asana is normally a posture of the body accompanied by breathing and meditation exercises. They differ in terms of difficulty and objectives, aiming at various physical aspects. Examples of Asanas are Mountain Pose (Tadasana) [[1]], Downward-Facing Dog (AdhoMukhaSvanasana), Warrior Pose (Virabhadrasana), and many others.

Hypertension is among the prevalent forms of cardiovascular diseases, which have become one of the most important health issues worldwide, particularly amongst middle-aged females. Alternative treatment methods including yoga have increasingly gained popularity as a potential therapy for hypertension. Originating from the ancient practices of India, yoga provides a holistic therapy of health through physical postures [[2]], breathing exercises, and meditation. Although research into the various benefits of yoga practice has been done, few of them focus on its impact on physiological aspects of middle-aged antihypertensive females.

Literature Review. The objective of this research is to assess the approaches followed by various researchers in the creation and validation process and develop a model for future research that are similar to it. From what we know, there is no research which has done an extensive review of the literature on development of yoga modules [[3]]. There is, however, research which has provided an approach to developing a yoga RCT, but it does not focus on the process of validating yoga modules. It would be helpful to have a systematic approach to creation of yoga modules.

It should be remembered that the main purpose of the MBBS course is to form the primary physician for the first contact. Also, it demonstrates the student as a prospective researcher, scientist, specialist, and scholar [[4]]. It is essential to give the opportunity to investigate and try the different spheres of medicine to the competence-based undergraduate MBBS course. The opportunity to "work" in clinical, laboratory, research, and community settings or to work in a team at the beginning of their professional life is invaluable for students as it is going to affect their career permanently. An elective not only creates a base for the further career paths but also stimulates creative thinking of students.

Urological quality of life could be affected due to the key roles that PFMs, the ANS, and the CNS have on the maintenance of urine continence. Knowledge about how yoga could be used as a therapy for lower urinary tract symptoms (LUTS) might enable patients with such symptoms to have better quality of life. This scoping review was performed with the aim of systematically mapping literature to identify research gaps regarding the association between yoga and LUTS. Lower Urinary Tract Symptoms include stress UI [[5]], frequency, nocturia, and urgency irrespective of the reason behind the incontinence, which is caused by weak PFMs and dysfunction of the ANS and CNS.

The principles of yoga stress on attaining balance among the mind, breath and the physical body. In yoga, there are five sheaths of the physical body, breath, emotion, intellect and blissfulness of the human being. The ancient work called the Taittiriya Upanishad offers an in-depth explanation of the philosophy of human existence, and this philosophy of human existence is referred to as the pancha-kosha theory. The human existence is also explained by way of five koshas (sheaths) of human existence that are mentioned in the Brahmananda Valli and Brugu Valli of this work; these are the energetic sheath (Pranamaya kosha), the emotional sheath (Moomaya kosha), the intellectual sheath (Vijnanamaya kosha), the bliss sheath (Anan damaya kosha), and the gross sheath (Annamaya kosha) [[6]].

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METHODOLOGY

The objective of this study was to find the systematic influence of several elements of meditation on some selected behavioural traits of middle-aged women [[7]]. Stopwatch measured resting heart rate in beats per minute.

Different koshas as detailed below

An integrated approach makes provision for all types of yoga practice that can be done in order to ensure good health at each of the five sheaths. Also [[8]], this approach has a high correlation with the definition of health according to the World Health Organization (WHO). The World Health Organization defines health not as mere lack of disease or disability but as a complete state of being healthy in all dimensions, namely physical, psychological, social, and spiritual.

In order to provide an adequate understanding of the range of yogic practice, experts have come up with an elaborate methodology called the Integrated Approach to Yoga Therapy (IAYT) or Integrated Yoga Module (IYM). Based on the notion of pancha-kosha, IYM includes yogic practices of all types of yoga to remedy specific medical conditions. Based on qualitative data, IAYT module was deciphered to give recommendations on doing different poses of yoga for different koshas.

Annamaya Kosha. Annamaya Kosha can be influenced by Yogic Diet, loosening exercises, yogic asanas and kriyas (cleaning processes). In terms of Yogic Diet, the musculoskeletal system gets involved in a relaxed and safe position. Also, asanas massage the internal organs and therefore relax them thoroughly. In accordance with Patanjali, practice of asanas leads to relaxation and expansion of the mind [[9]]. Moreover, he claims that asanas result in disappearance of both sides of the mind. Physical endurance increases, joint stiffness decreases and muscle strength develops owing to loosening exercises. Cleaning processes not only clean the body but also provide many unstated benefits. Balanced diet results in maintenance of mental and physical equilibrium.

Kosha of Prana. The practice of pranayama leads to the slowing of the breath and attainment of balance in the autonomic system, resulting in a calm mindset and unobstructed flow of energy through the body, allowing the mind to get ready for higher practices. Breathing techniques also enhance awareness of the body as well as improve the function of the lungs and their capacity.

Kosha of Anoma. During meditation, puja rituals, and bhakti yoga, the mind receives waves of stimulation and support in emotional maturation.

Kosha of Vijnana. The experience of yoga, listening to lectures and participating in consultations and satsang make it possible for people to boost their intellect and break ignorance.

Anandamaya Kosha. A state of joy, peace with consciousness, perfect balance, and freedom of choice can be achieved by practicing Karma Yoga (selfless service), in which the mind does not have anxious thoughts and worries [10].

The concept of anger management is derived from the ancient texts to make a complete yoga module dealing with anger.

According to ancient texts, anger is a natural feeling that arises from manomaya kosha. The feeling of rage takes place throughout the body and affects everything in life (koshas). The feeling of rage leads to sympathetic arousal, affecting the physiological functioning of the body (annamaya kosha). It causes temporary loss of memory (manomaya kosha) and a different breathing style (pranamaya kosha). It also causes separation from happiness (anandamaya kosha) and absence of discrimination (vijnanamaya kosha). Several anger management strategies have been demonstrated in various traditional literature, which includes Patanjali Yoga Sutras (PYS), Yoga Vasista, Bhagavad-Gita (BG), and Upanishads. The Yama-Niyama philosophy in PYS serves as a good basis for mastering over rage. Yoga Vasista is proof that mind and body are connected in the definition, diagnosis, and treatment of different illnesses. The causes, effects, and strategies to cope with anger are discussed in several verses in BG. Yoga Vasista talks about sublimation of thoughts (Mana Prashamana), while PYS advises physical exercises (Asanas), breath control (Pranayama), and distraction (Pratipaksha Bhavana). The practice of developing patience, forgiveness, and Ahimsa in BG can help cope with anger.

Yoga is widely recognized as having beneficial effects on improving mental well-being in schools; however, current available research suffers from a number of limitations, such as sample size, methodology, consistency of yoga module, lack of control group, and research design. Conducting literature review on the topic of yoga at school and proposing a standard yoga module.

The present study aims at developing a holistic and integrated yoga programme for managing anger owing to the lack of research on yoga modules to manage anger. An integration of various yoga practices that are suitable for all forms of existence and consideration of the different types of yoga such as Raja Yoga, Bhakti Yoga and Jnana Yoga has helped to develop a holistic approach.

Methodology. In the present study, a sample of 45 female participants from Karaikudi of Sivagangai district was selected. The participants were divided into three similar groups of fifteen participants each based on the topic. Group III comprised the untreated group, Surya Namaskar in Group II and Asana in Group I [[11]]. Training was provided to the participants for a period of twelve weeks, thrice in a week. All the training sessions were of 45 minutes duration.

Integral yoga on psychological and health variables. The capacity of the mind to sustain its concentration on a task for an adequate duration is referred to as sustained attention. This capability could have some connection with concentration stability, which acts as an indicator of mental stability. As such, emotionality could be crucial to sustained attention.

A total of twenty male participants took part in a self-controlled experiment aimed at investigating the effects of practicing three kinds of yoga breathing techniques on the subjects' performance of a letter cancellation test (LCT). The performance of the task was improved through practice of right nostril yoga breathing (Surya anuloma pranayama) and alternative nostril yoga breathing (Nadi siddhi pranayama). No change was noted during simple breath awareness or left nostril breathing. The researchers believed that as LCT requires selective attention, the stress reduction effect of pranayama could help bring about improvement in performance.

Evaluated the effect of two yoga relaxation techniques on the six-letter cancellation test (SLC), which measures one's ability to perform repetitive motor responses, selective attention, focusing, and visual scanning. Anxiety reduction was indicated by the fact that the cyclic meditation technique yielded more improvement compared to the supine resting technique. Two control groups evaluated independently the immediate effect of the two relaxation techniques, as well as the immediate effect of breath awareness and Kapalabhati techniques on healthy subjects' performance on the SLC and double letter span tasks [[12]]. They found out that all the four interventions had a significant effect on subjects' attention spans on the two tasks.

Amongst many other definitions of emotional intelligence is the following one: "The capacity to control one's own emotions and feelings and that of others, to discriminate amongst them, and to use this information to direct thinking and actions." In other words, emotional intelligence is the capacity to recognize our own feelings as well as those of other people, to be motivated by oneself and manage feelings and emotions both of ourselves and in our relationships. According to Goleman, EQ measures emotional capacities that make up about 80% of our success in life. There was a study done to examine the effect of the six-week SMET program for managers on the emotional wellbeing of 170 participants. EQ scores rose significantly in four out of the five subscales.

General health is characterized not only by the lack of disease but also includes physical, psychological, and social well-being. Practice of yoga has been found effective in several scientific studies. One randomized controlled study has investigated the effect of Sahaja yoga on depression. Participants that practiced yoga had a larger reduction of anxiety and depression scores. In the study that studied the effects of yoga on self-perceived levels of fear, anxiety, and depression of the tsunami survivors in 2005, the heart rate, breathing, and sleep disturbance of Indigenous people significantly dropped. The technique positively influences mood, well-being, attention, mental focus, and stress resistance, as was shown in the academic review of Sudarshan Singh Kriya Vinyasa for anxiety, depression, and stress. It is also shown to be a low-risk, inexpensive supplement to the therapy of many diseases and rehabilitation of criminals. 107 adults, participating in the study on the benefits of hatha yoga, felt healthier physically and emotionally.

A study carried out in controlled pilot research on the benefits of yogic breathing exercises found that the experiment group had increased positive attitudes and reduced stress, anxiety, and sadness. Reduced anxiety and depression were also reported in an RCT that compared educational programs and meditation stress management programs to the use of medication for treating anxiety disorders [13]. Yoga exercise programs carried out by professionals have shown improvement in a number of health aspects based on these findings.

The three personality categories in the Vedas that are called sattva, rajas, and tamas are referred to as guna characteristics. Whereby rajas have a greater tendency to act compulsively and are egoistic, hence causing them pain and restlessness, tamas

appear as laziness, fatigue or drowsiness blocks, and stagnation. Sattva brings about peace of mind, lightness, light, control, and the beginning of generosity, all of which initiate good action [[14]]. Through the Vedic concept of psychology, these gunas constantly influence one's nature: "the gunas uncontrollably force everyone to act."

Associations between the self and the ideal person were found for the yoga category but not for the control in studying the effect of yoga practice on the gunas and self-ideal discrepancy. Tamas was associated with the discrepancy between one's actual and ideal self. According to another research, Hare Krishna chanting reduced rajas and tamas and increased sattva. In general, yoga aims to improve guna until sattva dominates all the time.

There are some correlations between gunas and attention since gunas have correlations with intelligence, memory, attention, sensory acuteness, and field independence, as well as cognitive attributes. In particular, it was mentioned that there are positive correlations of sattva with general intelligence, short-term memory, and attention concentration, and negative correlations of tamas with field independence, short-term memory, intelligence, and attention concentration. Attention concentration is negatively correlated with tamas and positively correlated with sattva.

Health correlations with gunas: In the experiment concerning the effect of rajas and tamas painting on psychological disorders in patients, the two important components were observed in the patients' body, showing that mental disease is due to a large presence of rajas and tamas in the body. Psychological disturbances are usually due to the presence of rajas and tamas in excess. On the other hand, sattva guna helps in healthy living and good mental well-being. It is believed that it transcends the limits of mental problems because of its spiritual nature.

Those who have more rajas and tamas tend to develop cancer, according to a research conducted among 100 people with cancer. However, it was observed that there was a higher level of sattva in the people who did yoga than those who didn't (control). In the people who took physical exercise (control), the presence of rajas was drastically reduced. The health conditions of both the groups improved, and this is consistent with the idea that rajas have a negative correlation with health and sattva has a positive correlation. Details of various tests are presented below.

RESULTS

Table I. Mean resting heart rate

Group	Pre-test	Post-test	Mean difference	't' ratio
Asana Group I	78.06	71.25	6.81	15.89
Surya namaskar. Group II	76.70	72.89	3.81	6.19
Control Group Group -III	77.26	76.10	1.16	0.93

Table I shows the mean resting heart rate (beats per minute) values for both the control and experimental populations. 't' values of groups I and II, as well as the control group, have been shown to be 15.89, 6.19, and 0.93 in Table I. These 't' values are greater than 0.05 critical value from table of confidence at 2.15, degrees of freedom 14. This shows there is significant difference between pre-test and post-test average for resting heart rate.

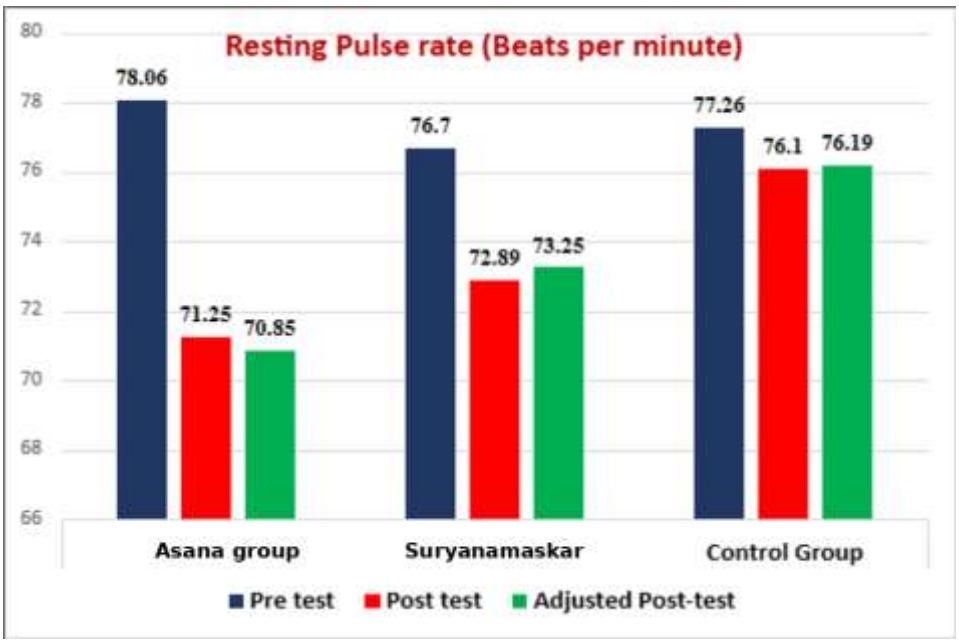
Table II. Calculation of the stationary pulse rate comparison of correlation (beats per minute)

	Group I	Group II	Group III	Spring of difference	Figure of Fair	df	Malicious honest	'F' quotient
Attuned Post-test	70.85	73.25	76.19	B	213.03	2	106.53	17.94*

				W	243.32	41	5.93	

Table II shows that the adjusted post-test means of resting pulse rate for Group I, Group II, and Group III were 70.85, 73.25, and 76.19 beats per minute, respectively. The calculated 'F' ratio of 17.94 was greater than the table value of 3.23 at the 0.05 level of confidence with df 2 and 41. It is therefore concluded that there was a significant difference in resting pulse rate among the adjusted post-test means of the three groups.

Figure 1. Resting Pulse Rate



DISCUSSIONS

The present study examined the effect of two integrated modules of yogic practice, Surya Namaskar and selected Asanas, on the resting pulse rate of middle-aged women from Sivagangai Municipality and its surroundings. Forty-five women were divided equally into a Surya Namaskar group, an Asanas group, and a control group, and the experimental groups trained for 45 minutes per session, while the control group received no specific instruction. The dependent "t" test showed a significant reduction in resting pulse rate from pre-test to post-test in the Asana experimental group, whereas the control group showed no significant change. The analysis of covariance yielded an "F" ratio of 17.94 for the adjusted post-test means, which exceeded the table value of 3.23 at the 0.05 level of confidence. The groups therefore differed significantly in resting pulse rate after the training period.

CONCLUSION.

It is concluded that the Asanas module was effective in lowering the resting pulse rate of middle-aged women compared with other groups. The study supports the inclusion of such module in community health and wellness programs for this age group. Further research with larger samples, longer durations, and additional physiological variables is recommended.

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