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Statistical inference and impact of daily yoga program for women health care

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Abstract
Twenty individuals participated in direct interviews after taking part in the yoga practising, which included semi-structured questions to elicit insights and impressions of their experience. Responses were systematically coded and themes identified. Certain Statistical inferences are analysed in this research work with using SPSS Statistical software. This paper discusses the benefits of daily Yoga practices for women and their health improvements.

Keywords: Simplified Kundalini yoga, correlation, t–test, yoga practices, women health care, diagrammatic representations

Introduction
Yogiraj Vethathiri Maharishi was born in the year 1911 in an indigent family of Guduvancheri, a small village near Chennai. Constrained to go even without the barest necessities of life, despite toiling at the loom from early morning to late night, his formal schooling stopped with standard. A diligent student, he educated himself to level of standard IX. He founded the world community service centre in 1958 and the organisation has branch centres all over India, in the USA, in Japan, in Korea and in Malayasia. Vethathiriyan Yogic 'Simplified Physical Exercises (SPE)' including neuro muscular breathing exercises.

1. Simplified Kundalini Yoga is including Naadi Suddhi Pranayama/Spinal Column Clearance Pranayama and Crown Centre (Thuriyam) Meditation

A system of Simple Physical Exercises, Simplified Kundalini Yoga and steady Introspection – a combined practise of these three would ennoble man and lead him to realisation, according to Yogiraj Vethathiri Maharishi. Yoga practice includes physical postures voluntarily regulated breathing, meditation, and specific metaphysical guiding principles. There are some types of voluntarily regulated yoga breathing techniques, all of which are considered to encouragement the mental state. Bellows-type of breathing involves a deep inhalation followed by a complete exhalation. This practice has consistently been found to influence the reaction time (RT).
A total of 20 women aged between 20 to 60 years, who had been trained in yoga for 3 months were assessed for the immediate effect of women contributors in our study noted benefits specifically from Naadi Suddhi Pranayama and Crown Centre (Thuriyam) Meditation, which have previously shown to improve cognition, anxiety, and increase parasympathetic activation. Participants noted stress reduction, in agreement with previous studies demonstrating that yoga reduces perceived stress with similar efficacy as other interventions such as relaxation, cognitive behavioural therapy, or dance. Participants reported an increase in self-confidence, as in a previous study. Behavioural interventions such as yoga may empower patients to take an active role in altering their lifestyle habits, and overall, engendering a greater sense of agency. Yoga has previously been shown to modulate personality traits and promote self-growth. The previous study indicates that moving one's body alongside others increases feelings of interpersonal connection.

Similarly, we found that connection to the group motivation and persistence, particularly in this group of people sharing the same diagnosis and yoga instructor, raising the possibility of normally limits participation in group exercise and activity. A relatively greater importance of group practice and social connectedness was alsoclear in the noted preference of group over solo home practice.

At the same time, the combination of online technology seemed to assist participants to adhere to the study involvement. The use of technical adjuvants is increasingly prevalent, with 8/15 studies using an online intervention in a recent review.

Simplified Kundalini Yoga

Man is an unique figure in the manifestation of the Universe. Man is supreme along all the living beings on Earth because he is gifted with the sixth sense, that is, the potential of Self-Realisation.

The collective function of the energy-particles within the physical body produces a characteristic magnetic wave which is called the bio-current. Life-force, soul, ethereal body, astral body or Kundalini Sakthi-these are but different names for the same phenomenon. The bio-current is a continuous wave generation by the self-rotative force of billions of energy-particles. One portion of the bio-current functions through the senses as the mind; and the other portion functions as all the physical actions and routines.

Data extraction

The RT, the number of correct and incorrect responses, and the number of anticipatory responses were directly obtained from the displayed in the google form excel sheet. Multiple sclerosis is known to reduce nerve conduction velocity. A combination of Simplified Kundalini Yoga practices including physical postures, voluntarily regulated Naadi Suddhi Pranayama, and Crown Centre (Thuriyam) Meditation attitude were given to 20 persons diagnosed with multiple sclerosis.

Assessment between participants who had experience in yoga and those who were naive-to-yoga was carried out on two groups of healthy females average age 35 years. The yoga group had been practicing yoga which included postures, breathing techniques, and meditation for an average of 3 months. The RT was assessed in two times. The yoga group had two experimental sessions as follows:

1. A session of Simplified Kundalini Yoga (SKY) includes Naadi Suddhi Pranayama (NSP), and Crown Centre (Thuriyam) Meditation (CCM) practiced for 18 min and
2. A session of breath awareness, as breath awareness is part of yoga practice and has been shown to influence attention. The control group was assessed after a comparable duration of time, seated comfortably, with their eyes closed.

Following 20 min of yoga, there was a substantial reduction in the number of defensive responses.

A total of 20 female volunteers with ages between 20 to 60 years (group mean ± standard deviation, 35 ± 4.5 years) contributed in the trial. The sample size was gritty using female participants alone were selected as a previous study reported the effects of yoga bellows-type breathing (pranayama) on RT in male participants exclusively. The participants were completing a residential course in yoga in Tamil Nadu, India, and all of them had between 3 to 12 months of experience in yoga practice.

The participants were excluded from the trial if they had any physical or psychological illness, were on medication, or on any supplements which could alter the mental state. None of the participants had to be excluded for these reasons. Enrolment was by flyers placed on the notice board of the yoga centre. The participation in the trial was voluntary, and there was no incentive to take part.

Study design

The participants were assessed in three different sessions conducted on separate days at the same time of the day. The sessions were as follow:

- Simplified Kundalini Yoga (SKY)

A control session of sitting quietly. The order of the sessions was randomized for the 20 participants using a standard randomizer

Each session consisted of three times

1. SPE (30 min),
2. SKY (30 min).

During this Simplified Kundalini Yoga includes Naadi Suddhi pranayama, and Crown centre (Thuriyam) Meditation, the participant was seated with eyes closed. The participants inhaled deeply and fully so that breathing was diaphragmatic while also increasing the chest during inhalation. Exhalation was also complete with a full out-breath. Inhalation and exhalation were through the nose. The breath rate was kept at 12 ± 2 breaths per min throughout the practice. The participants would be seated with their eyes closed. They would be asked to be aware of the measure of air through the nasal passages. The participants were instructed to bring their attention back to their breath if it rambled.

Statistical Analysis

Pareto chart, diagrammatic representation, t test and Correlation analysis are analysed with SPSS Statistical software

Pareto Chart

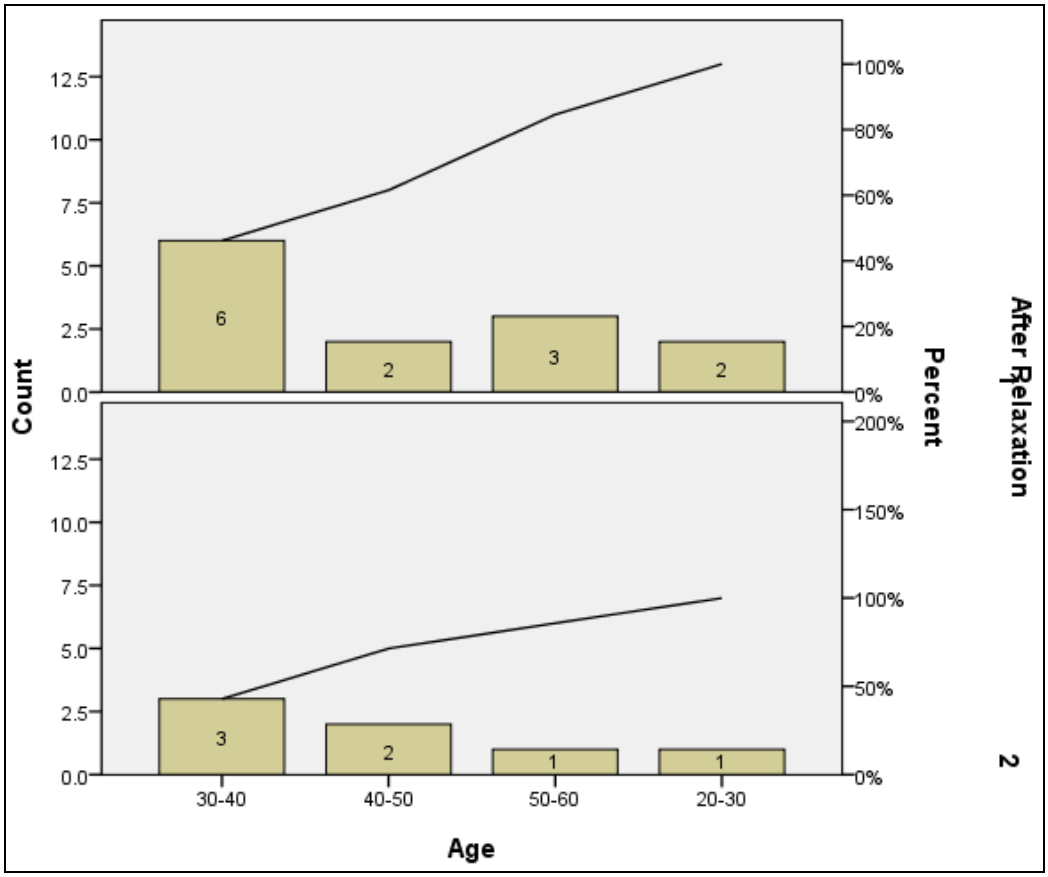

Fig 1: Pareto Chart for before and after Relaxation

The variables are considered before and after relaxation with the various age group of participants who were analysed. In the Pareto chart before taking Yoga with quiet sitting, the relaxation level is lower. After taking Yoga with quite sitting from 10 minutes to 30 minutes, the level is higher.

Diagrammatic Representation

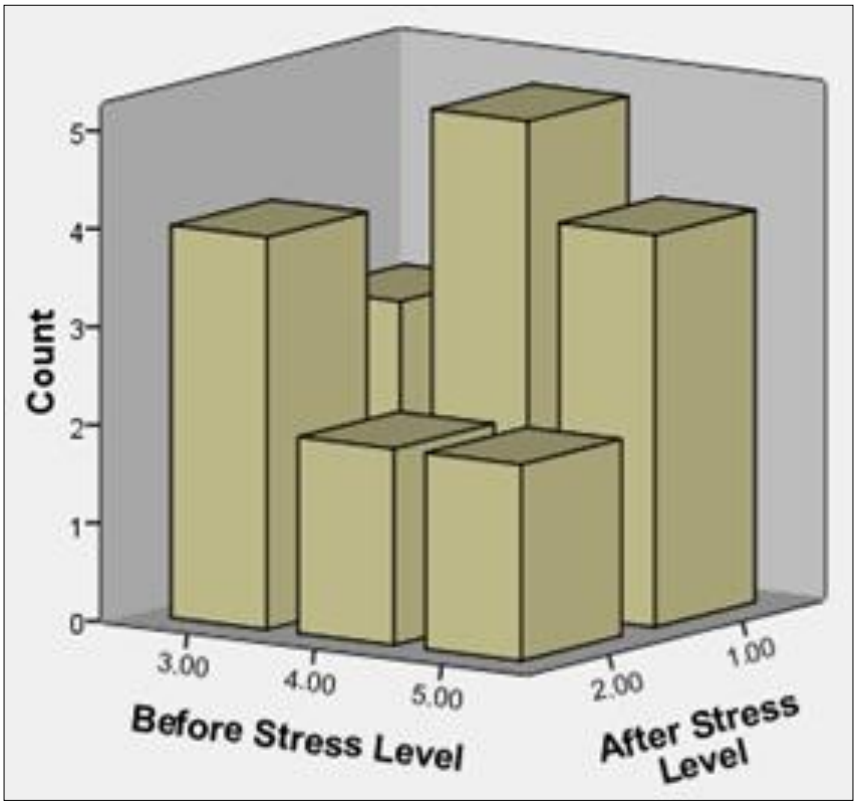

Fig 2: Bar Diagram for for before and after Stress Level

In the diagrammatic representation the stress levels are minimized after practising Yoga.

Paired t Test

In the paired t test the twenty participants were considered before and after practising yoga. Null Hypothesis1: There is no significant differences between the stress levels before and after practising yoga.

Alternative Hypothesis 1: There is significant difference between the stress levels before and after practising yoga

Null Hypothesis 2: There is no significant differences between the relaxation levels before and after practising yoga.

Alternative Hypothesis 2: There is significant difference between the relaxation levels before and after practising yoga

Null Hypothesis 3: There is no significant differences between the anxiety levels before and after practising yoga.

Alternative Hypothesis 3: There is significant difference between the anxiety levels before and after practising yoga

The output is given in the following table.

Table 1: Paired Samples Test

Paired Differences									
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
Pair 1	Before Stress Level - After Stress Level	2.55000	1.05006	.23480	2.05856	3.04144	10.860	19	.000
Pair 2	Before Relaxation - After Relaxation	2.60000	1.09545	.24495	2.08732	3.11268	10.614	19	.000
Pair 3	Before Anxiety - After Anxiety	4.00000	1.37649	30779	3.35578	4.64422	12.996	19	.000

Table 2: Paired Samples Statistics

	Mean		N	Std. Deviation	Std. Error Mean
Pair 1	Before Stress Level	3.9500	20	.82558	.18460
	After Stress Level	1.4000	20	.50262	.11239
Pair 2	Before Relaxation	3.9500	20	1.09904	.24575
	After Relaxation	1.3500	20	.48936	.10942
Pair 3	Before Anxiety	4.5500	20	.99868	.22331
	After Anxiety	.5500	20	.75915	.16975

The inference of the paired t tests is alternative hypothesises are accepted. There are significant differences between before and after practising yoga.

Correlation Analysis

a) Yoga practising is X variable, Relaxation level is Y variable.

Table 3: Correlations analysis for Quiet Sitting

	Quiet sitting Yoga		After Relaxation
Quiet sitting Yoga	Pearson Correlation	1	.200
	Sig. (2-tailed)		.398
	N	20	20
After Relaxation	Pearson Correlation	.200	1
	Sig. (2-tailed)	.398	
	N	20	20

There is a positive relationship between yoga practising and relaxation level.

b) Yoga practising is a x variable and stress level is Y variable.

Table 4: Correlation analysis for Stress Level

Correlations			
	After Stress Level		Quiet sitting Yoga
After Stress Level	Pearson Correlation	1	-.059
	Sig. (2-tailed)		.804
	N	20	20
Quiet sitting Yoga	Pearson Correlation	-.059	1
	Sig. (2-tailed)	.804	
	N	20	20

There is a negative relationship between yoga practising and stress level.

a) Yoga practising is a X variable and Anxiety is a Y variable.

Table 5: Correlation analysis for anxiety

Correlations			
	Quiet sitting Yoga		After Anxiety
Quiet sitting Yoga	Pearson Correlation	1	-.819**
	Sig. (2-tailed)		.000
	N	20	20
After Anxiety	Pearson Correlation	-.819**	1
	Sig. (2-tailed)	.000	
	N	20	20

**. Correlation is significant at the 0.01 level (2-tailed).

There is a strong negative correlation between yoga practising and anxiety.

Control (Seated quietly)

During the control phase, the members were asked to adopt the same posture. Participants were not given specific directions about how to direct their thoughts. A probable explanation may be found based on considerate how yoga may have reduced RT in earlier studies. Reduction which occurs during the exhalation phase of yoga may play a role in this. The link between lung deflation and attention follows. Devotion is closely related to stimulation of the neurons within the brainstem Reticulate Activating System (RAS). Hence, the level of respiratory muscle tension could impact the response to the RT task. RT is known to be optimal with an intermediate level of respiratory and skeletal muscle tension and deteriorates when the levels are too low or too high.

It is possible that the level of breathing muscle tension required for forced exhalation was higher in females, during yoga. In contrast, it is possible that without any respiratory exercise, the participants were more relaxed and hence better able to respond to the RT task. Females show a heightened response to stress. Hence, equally, in the absence of a

respiratory task Naadi Suddhi Pranayama, and Crown Centre (Thuriyam) Meditation considered to be stimulating, the female participants may have achieved an optimal level of provocation following breath alertness or quiet sitting. This speculation could be tested by having a population female participant performs the RT task after Naadi Suddhi Pranayama, and Crown Centre (Thuriyam) Meditation, breath awareness, and quiet sitting, while simultaneously assessing the strain in the intercostal muscles through an electromyography recording. The present study is limited by the fact that the level of stress or relaxation was measured after the sessions. Hence, it is a mere speculation that the female participants found more exertional than breath awareness or quiet sitting. Contempt these restrictions, the present study unlike several previous studies showed that no decrease in RT after yoga. The results suggest that different interventions may optimize performance in tasks requiring attention in females.

Discussion

The themes that emerged from participants' individual responses to this pilot survey combination group daily yoga interference were wide ranging, and cantered around important aspects of the lives of patients who suffer from FM, but also included information that addressed the actual practical uptake of this therapy in their lives.

A total of 20 healthy female volunteers showed a significant reduction in RT after a breath awareness session and after a session of quiet sitting. Contrary to the hypothesis, there was no change in RT after yoga Naadi Suddhi Pranayama, and Crown Centre (Thuriyam) Meditation. In previous studies, volunteers showed a decrease in RT as an acute response to yoga.

The five key themes as a result of our analysis

1. Physical/body perceptual changes,
2. Practices affecting pain,
3. Emotional changes,
4. Practice motivators and barriers, and
5. Group effect.

Future research should focus on influential and predicting which participants are more likely to benefit from corresponding therapies such as yoga, by using careful patient psychosocial and demographic phenotyping. Future larger-scale studies with such robust phenotyping of patients will help determine the probable of yoga to be implemented in a more extensive manner, which could also be personalized to meet patients' individual needs, as a safe and cost-effective intrusion for chronic pain.

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