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RESEARCH ARTICLE

EXPLORING THE BENEFICIAL EFFECTS OF RAJYOGA MEDITATION ON A PHYSIOLOGICAL VARIABLE AND ITS ABILITY TO INCREASE QUALITY OF LIFE IN MEDICAL STUDENTS

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ABSTRACT

Introduction- Behavioral change and disease prevention are important at a time when many immediate threats of disease intrude into a young adult's life.
Methodology- In this convenient random sampling study, 28 subjects who satisfied the inclusion criteria were included in the study. Pulse rate was taken by manual method before and after the study. WHO QOL-BREF questionnaire was self administered before pretest and after post test and was conducted to evaluate the effect of two weeks Rajyoga meditation.
Result- Significant decrease in pulse rate was seen in post test and a significant increase in post test scores was seen in all the 4 domains of quality of life (QOL).
Conclusion- It can be concluded that short term practice of Rajyoga meditation dcreases pulse rate and brings an overall improvement in the health of individuals thus enhancing their quality of life.

INTRODUCTION

In high-tech, information –driven society, the adults are confronting with large reservoir of disease dysfunction commonly associated with adulthood, substance abuse, sexually transmitted diseases, unwanted pregnancy, HIV infection and suicide. Their medical needs, dictate a need for unique and sensitive health care services and it is through such services that our knowledge about adult medicine have been greatly expanded. So much of what is experienced in the years of decline are payments for the errors of our ways during the ascent of life. Additionally, behavioral change and disease prevention are also important at a time when many immediate threats of disease intrude into a young adult's life (Lawrence, 1991). Rajyoga meditation, with its holistic approach to improve overall quality of life, offers self regulatory practices that aim at correcting the psychological factors that contribute to low QOL. Also the medical students are under lot of stress which reflects through change in physiological variable namely pulse rate.There are hardly any studies showing the effects of Rajyoga meditation on Pulse Rate and QOL in normal adults. Hence, this study included first year MBBS students who are usually prone to stress of coping with friends, environment, examination. So the need was felt to take up this study.Our hypothesis is that Pulse rate and QOL after practice of short term Rajyoga meditation would be better than pretest, as Rajyoga meditation is a multidimensional treatment modality that caters to all the levels of human existence.

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Hence the study was planned with a objective to assess overall health with the help of standardized WHO questionnaire on Quality of life & Pulse rate.

METHODOLOGY

In this study a total of 28 subjects volunteered to participate in the research project. The subjects were first MBBS students and postgraduate students from Jawaharlal Nehru Medical College of Datta Meghe University, Wardha, Maharashtra. There were 9 males and 19 females participating in the study. A signed informed consent was obtained from all the subjects The study process was described in detail to the students.

Inclusion criteria- First MBBS students having no history of Diabetes, hypertension, or any other chronic illness were taken.

Exclusion criteria- Subjects having history of Diabetes, hypertension, any chronic illness and mental disorders, were excluded from the study.

Study design

In this convenient random sampling study, -- subjects who satisfied the inclusion criteria were included in the study. Data gathering instrument used was WHO QOL-BREF questionnaire. It was self administered before pretest and after post test and was conducted to evaluate the effect of two weeks Rajyoga meditation course on physical, psychological, social and environmental health of subjects. Pulse rate was taken by manual method before and after the study. The index, middle

and ring finger was used for measuring the pulse of the subject. Pulse rate was taken in the resting condition, in empty stomach and in supine position before the start of the study. The subjects were resting in an ambient atmosphere, 15 minutes prior to the measurement of pulse. In the post test, the pulse rate was taken just after the exercise in the supine posture in the same room where pre test evaluation of pulse was done.

WHO QOL-BREF QUESTIONNAIRE

The concise scale provides a measure of an individual's perception of quality of life for the four domains,

- Physical health (Two items)
- Psychosocial health (two items)
- Social relationships (two items)
- Environmental health (two items)

The domain scores are scaled in a positive direction (i.e. higher scores denote higher quality of life). The range of scores is 4-20 for each domain. The scale has been found to have good decriminant validity (WHOQOL, 1996; Padmini Tekur, 2010). It has good retest reliability and is recommended for use in health surveys and to assess the efficiency of any intervention at suitable intervals according to the need of the study.

Intervention

Rajyoga meditation involves 4 steps they are

- Initiation- training the mind to be detached.
- Meditation- consider the self to be a soul and experience from the ocean of all virtues and power.
- Concentration- soar in the flight of spiritual thoughts.
- Realization- in this stage, thought can be maintained easily for 10-15 minutes. This is the deepest level. As one progresses, the realization continues and the soul undergoes real and permanent change.

Analysis

After scoring, the mean values for total and individual domains were computed. These were multiplied by four to obtain the final score comparable to WHO QOL 100 as indicated in the manual. The data was then analyzed using SPSS version for windows 17.0. Higher scores meant better understanding and better effective coping of stress. Statistical analysis was done using the Wilcoxan Sign Rank Test.

OBSERVATIONS AND RESULTS

Pre Test and Post Test Evaluation

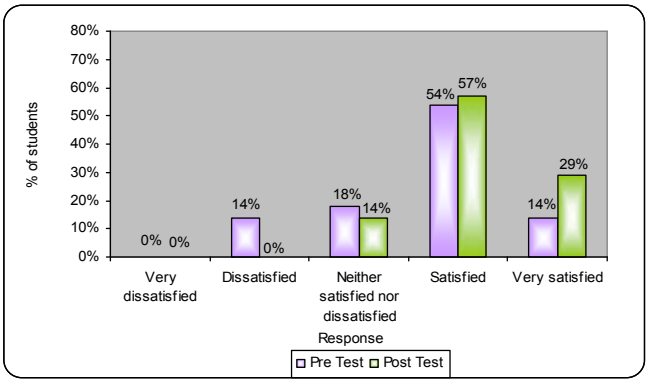
Question 1: How would you rate your quality of life?

Table 1

Response	Pre Test	Post Test	2ℵ-value	p-value
Very Poor	0%	0%	27.33	P<0.0001
Poor	0%	0%		Significant
Neither poor nor good	29%	3%		
Good	57%	68%		
Very Good	14%	29%		

Quality of life showed significant improvement in post test.

Question 2: How satisfied are you with your health?



Graph 2.

Significant satisfaction is seen with health in post test

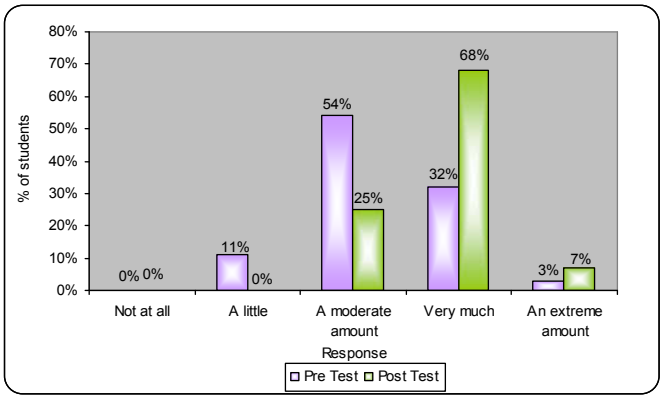
Question 3: How safe do you take in your daily life?

Table 3.

Response	Pre Test	Post Test	2ℵ-value	p-value
Not at all	0%	0%	16.90	0.0007
A little	4%	0%		Significant
A moderate amount	43%	21%		P<0.05
Very much	39%	61%		
An extreme amount	14%	18%		

There was significant feeling of safety in daily life as seen from post test

Question 4: How healthy is your physical environment?



Graph 4.

There was significant increase in the feeling of healthy environment.

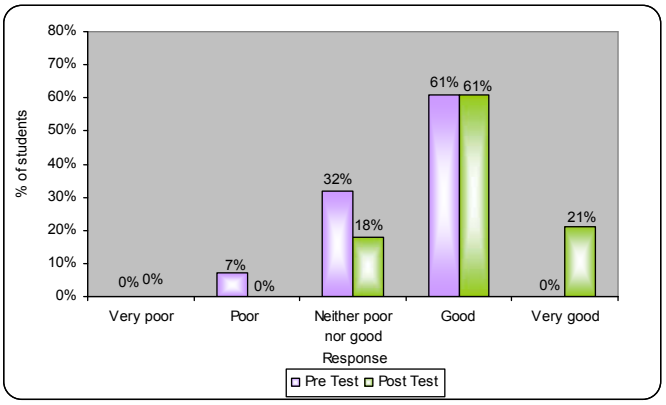
Question 5: To what extent do you have the opportunity for leisure activities?

Table 5.

Response	Pre Test	Post Test	2ℵ-value	p-value
Not at all	3%	0%	24.22	P<0.0001
A little	11%	11%		Significant
A moderate amount	64%	36%		
Very much	11%	32%		
An extreme amount	11%	21%		

Post test shows significant increase in extent of oppurtunities for leisure activities.

Question 6: How well are you able to get around?



Graph 6.

Post test shows significant increase in the feeling to get around.

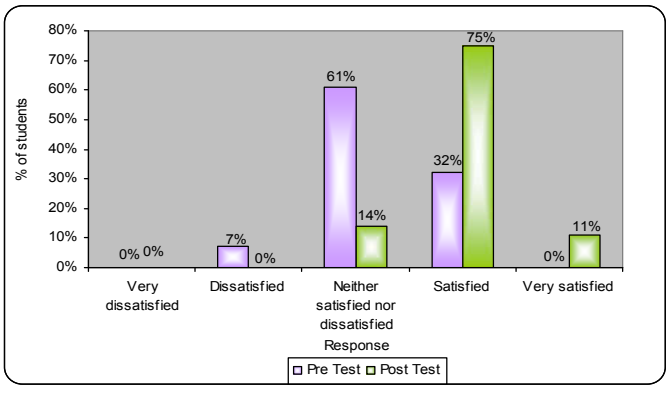
Question 7: How satisfied are you with your ability to perform your daily living activities?

Table 7.

Response	Pre Test	Post Test	2ᵡ-value	p-value
Very dissatisfied	0%	0%	57.98	P<0.0001
Dissatisfied	10%	0%		Significant
Neither satisfied nor dissatisfied	54%	21%		
Satisfied	36%	47%		
Very satisfied	0%	32%		

There was significant increase in satisfaction with their ability to perform daily living activities.

Question 8: How satisfied are you with your capacity for work?

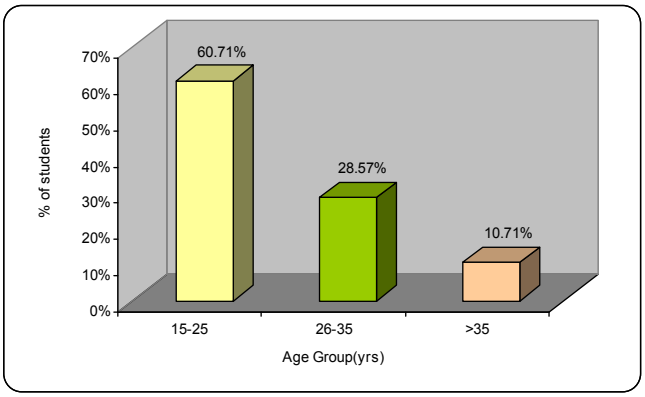


Graph 8.

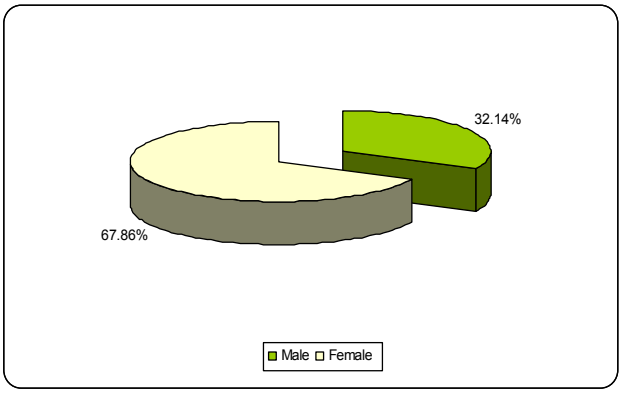
There was significant increase in their satisfaction with capacity for work.

Table 26. Distribution of students according to their demographic characteristics

Demographic characteristics	No. of students	Percentage (%)
Age(yrs)		
15-25	17	60.71
26-35	8	28.57
>35	3	10.71
Mean Age(yrs)	24.35 ± 7.49	
Gender		
Male	9	32.14
Female	19	67.86



Graph 26 (a): Distribution of students according to their age(yrs)



Graph 26(b): Distribution of students according to their gender

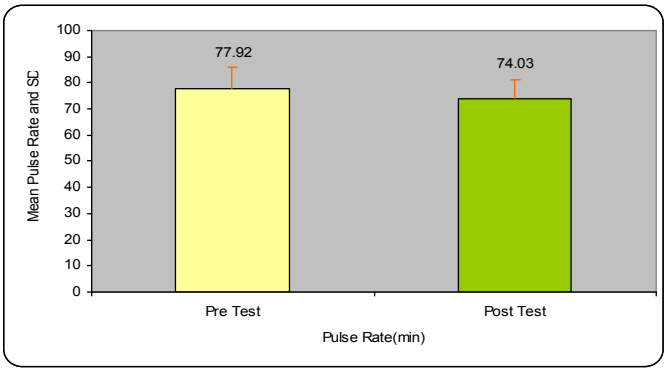
Table 27. Comparison of Pulse Rate (min) pre and post test
Descriptive Statistics

Pulse Rate	Mean	n	Std. Deviation	Std. Error Mean
Pre Test	77.92	28	8.09	1.53
Post Test	74.03	28	7.22	1.36

Student's paired t test

	Paired Differences					t	df	p-value
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pre – post test	-3.89	4.67	0.88	-2.07	-5.70	4.40	27	0.000 S,p<0.05

Post test showed significant decrease in pulse rate.



Graph 27(a). Comparison of Pulse Rate (min) pre and post test

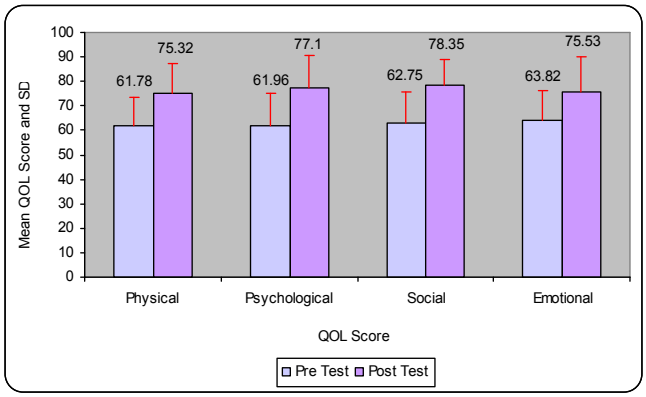
Table 28. Comparison of QOL score pre and post test
Descriptive Statistics

Domain	QOL Score	Mean	n	Std. Deviation	Std. Error Mean
Physical	Pre Test	61.78	28	11.45	2.16
	Post Test	75.32	28	12.02	2.27
Psychological	Pre Test	61.96	28	13.17	2.48
	Post Test	77.10	28	13.63	2.57
Social	Pre Test	62.75	28	12.70	2.40
	Post Test	78.35	28	10.39	1.96
Environmental	Pre Test	63.82	28	12.43	2.34
	Post Test	75.53	28	14.71	2.78

Student's paired t test

	Paired Differences					t	df	p-value
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Upper	Lower			
Physical	13.53	12.18	2.30	18.25	8.81	5.87	27	0.000 S,p<0.05
Psychological	15.14	14.07	2.65	20.59	9.68	5.69	27	0.000 S,p<0.05
Social	15.60	12.86	2.43	20.59	10.61	6.41	27	0.000 S,p<0.05
Environmental	11.71	12.51	2.36	16.56	6.86	4.95	27	0.000 S,p<0.05

Significant increase in post test scores was seen in all the 4 domains.



Graph 28. Comparison of QOL score pre and post test

DISCUSSION

Several non- pharmacological intervention including mindfulness based meditation (Carmody, 2008), cognitive behavior modification (Williams *et al.,* 1993) and multidisciplinary program (Sjestrom,2007), have been showed to be effective in reducing pain disability and improving quality of life in CLBP (effect of yoga and CLBP patients). But there are no data as per our searches on the effect of Rajyoga Meditation on QOL. This randomized control study on 28 patients using a self administered questionnaire namely WHO QOL-BREF for 2 weeks showed that there was significantly better($P<0.01$) improvement in quality of life on all domains of WHO QOL and pulse rate in the post intervention group of all the subjects

Physical health / Domain 1

The pretest value was 61.78 and reached a higher score of 75.32 in the post test. This finding shows that meditation has positive effect on physical QOL.

This domain of WHO QOL-BREF deals with features such as mobility, fatigue, pain, sleep, work capacity etc (WHOQOL, 1996). Other studies on integrated yoga in healthy children and adults have showed better physical stamina (Schipper, 1990), dexterity and left hand coordination (Telles, 2006). Better quality and duration of sleep after yoga has been reported in the elderly (Manjunath, 2005).

Psychological health/Domain 2

There was a significant improvement in the findings of domain 2 in the post test value (77.10) as compared to pretest values (61.96). These domains deals with question related to feeling, self-esteem, spirituality, thinking, learning, memory etc (WHOQOL, 1996). The improvement found in this domain may be attributed to reduction in anxiety and depression. Several studies have showed the effect of yoga in reducing anxiety (Michalsen, 2005), depression (Sharma, 2005) and stress (Carmody, 2008) with enhanced mental perceptual sharpness (Telles, 1975), memory (Naveen, 1997) and better information processing at the thalamic level (Telles *et al.,* 1993).

Social health /Domain 3

The domain had question related to problems in interpersonal relationship, social support etc (WHO, 1996). In our study we found higher score of 78.35 as compared to pretest value of 62.75. Our study finding is in line with findings like Nagaethna R, Nagendra HR who had find that yoga promotes positive health (Nagarathana, 2000). Therefore even short term meditation shows improvement in social health of the subjects.

Environmental Health/ Domain 4

This domain has question that deals with problem related to finance resource, physical safety, physical environment such as pollution, noise climate etc. In our study we found that the mean value was higher in post test group i.e. 75.53 as compared to pretest group of 62.71, which indicated that meditation by bringing about calmness of mind, increases our adaptability and response to stress thus improving environmental health. This finding were in line with different studies on yoga which had showed that yoga changes the physiological response to stressors by improving autonomic stability with better parasympathetic tone in normal adults and reducing sympathetic arousal with improved performance in congenitally blind children (Telles, 1999).

General Health

General health was assessed by Q1 and Q2 which showed improvement in the same in the post test group. Studies of Kabat Zinn (Kabat-Zinn, 1982) also showed similar findings and suggested that with meditation there occur mastery over emotional surges leading to controlled and need based physiological responses to stressfully demanding situation instead of uncontrolled overtone of HPA axis(WHO, 1996).

Physiological variable

Pulse rate - the mean pulse rate value which was 75.10 in the pretest group fell to value of 74.03.

Though this finding was not statistically significant but it indicate that there was a shift of autonomic balance from sympathetic dominant to parasympathetic dominant, with even short term practice of meditation.

Summary and conclusion

A total of 28 subjects which included first MBBS students volunteered for the study. There were 9 males and 19 females participating in the study. Mean age of the subject were 24.35 ± 7.49 . They were subjected to two week Rajyoga meditation intervention. Pre test and post test findings were manual evaluation of Pulse rate and QOL assessment using a WHOQOL-BREF Questionnaire. It was found that there was a significant improvement in pulse rate and QOL in the entire four domains pertaining to physical, psychological, social and environmental health of an individual. It can be concluded that Rajyoga meditation for two weeks, brings an improvement in physiological variable and the health of individuals thus enhancing their quality of life.

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