

EFFECT OF INTEGRATED APPROACH OF YOGA THERAPY (IAYT) ON MOTOR AND NON- MOTOR SYMPTOMS AMONG PARKINSON'S DISEASE PATIENTS - A PILOT STUDYNabaranjan Panda¹, Dr. Vijaya Kumar P.S.^{2*} and Sahana A.U.³¹Scholar Msc (Yoga), ²Associate Professor, BAMS, MD(Yoga & Rehab.), Msc(Psy), Phd(Yoga),³Clinical Psychologist, Msc (Clinical Psychology)

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ABSTRACT

Background: Parkinson's disease (PD) is one of the most common progressive neurodegenerative disorders and is characterized by various motor symptoms such as resting tremors, bradykinesia, rigidity, and imbalance. There is a compelling need for alternative therapies to improve function and QoL in persons with PD. Yoga may represent a particularly promising nonpharmacologic therapy for PD. The objective of this study was to determine whether IAYT intervention reduces the symptoms and medication requirement in PD patients. **Material & Methods:** Eighteen PD patients were recruited from the neurology section of arogyadhama, a holistic health home for IAYT program. Their ages ranged between 50 and 70 years both genders. Those who have fulfilled the inclusion criteria were included. IAYT program was given for two weeks. At baseline and following fifteen days, all participants were assessed using UPDRS. **Results:** After 15 days of integrated Yoga therapy program, it showed that significant reduction in ($P < 0.006$) in Behavior and Mood, Similarly, significant reduction in Daily Living ($P < 0.000$), significant reduction in Motor Examination ($P < 0.000$), significant reduction in Complication of Therapy ($P < 0.000$), significant reduction in Modified Hoehn and Yahr Scale ($P < 0.028$), significant reduction in Total UPDRS ($P < 0.000$) on UPDRS scores. **Conclusion:** 15 days IAYT program was able to significantly reduce symptoms of Parkinson's disease and medications requirement without any aggravation of symptoms.

KEYWORDS: Parkinson disease (PD), Integrated approach of yoga therapy (IAYT), Motor symptoms.**INTRODUCTION**

Parkinson's disease (PD) is a progressive neurodegenerative disorder. It mainly affects the motor system.^[1] PD is a widespread, with a prevalence estimated 10 million people in the world (i.e., approximately 0.3% of the world population) and 1% of those above 60 years are found to be affected with PD.^[2] Developing therapies to prevent PD, to suppress symptoms, to halt disease progression, and to repair damage are fundamental goals. There is no cure for PD to date. Current therapies help to improve motor symptoms, disability at present is mainly related to non-motor features of the disease.^[3] Nevertheless, the relationship between disease progression and disability is not linear. Initially disability is related to motor symptoms.^[4] As the disease advances, disability is more related to motor symptoms which do not respond adequately to medication, such as swallowing/speech difficulties, and gait/balance problems; and also, to levodopa-induced complications, which appear in up to 50% of individuals after 5 years of levodopa usage. Finally, after ten years with the disease most people get autonomic disturbances, sleep problems,

mood alterations and cognitive decline. All the symptoms, especially cognitive decline, greatly increase disability. Over time, the medication loses its effectiveness, and progressing motor complications precipitate functional dependence and impair QoL.^[5] Also, the side effects of pharmacotherapy include motor fluctuations, confusion, memory problems, and psychiatric complications.^[6] Given this, there is a compelling need for alternative therapies to improve function and QoL in persons with PD. Yoga is a mind-body intervention and comprises physical practices (asanas), breathing techniques (pranayama), and meditation and relaxation techniques. Yoga is a popular complementary and alternative medicine modality worldwide. Studies have reported several health benefits of yoga for clinical conditions. The practice of yoga improves the measures of gait, fatigue, quality of life, and physical function in several neurological conditions.^[7] In a RCT, Iyengar yoga daily for 12 weeks showed marked improvement in the United PD Rating Scale scores; motor performance; Berg Balance Scale scores; and gait, hip, knee, ankle, and shoulder range of motion.^[8] Similarly, Hatha Yoga weekly for 8 weeks,

showed a considerable improvement in anxiety, depression, functional strength, and leg flexibility.^[9] 10-week Iyengar yoga program showed marked improvements in walking speed, Short Physical Performance Battery scores, balance, and Falls Efficacy Scale scores.^[10] The current study examined whether fifteen days of IAYT would result in reduction in PD symptoms and medication requirement.

MATERIAL AND METHODS

A total of 18 Patients who are admitting Arogyadhama Neurology department were recruited for the study using purposive sampling. The approval from Institutional Ethics Committee of Swami Vivekananda Yoga Anusandhana Samasthana (SVYASA) was obtained. This is an open clinical study with pre-test and post-test design where patients diagnosed as Parkinson of either sex with the age range from 40 to 70 years, who are graded 1-2 in Hoen & Yahr Classification, who could Ambulate with or without an Assistive Device for at least 50 feet and were able to get up and down from the floor with minimal assist were included in the study. All the patients fulfilling the inclusion criteria were subjected to Integrated approach of Yoga therapy (IAYT). Written informed consent was taken from all 18 subjects. Those who have practiced Yoga for the last 3 months and those who are on psychiatric medications were excluded from the study. Participant of age more than 70 years of either Sex, those crossing 3 on the Hoen & Yahr Classification of Disability, those with decline in Immune function Such as Pneumonia or Systemic Infection, Progressive

degenerative Disease accompanying PD, Spinal Fusion or Other Orthopaedic Surgery in the past 6 months, PD associated with Mental Disease/Psychosis/Dementia, Participant who is Practicing or received Yoga therapy elsewhere within one year were excluded from the study.

Outcome measures

Unified Parkinson's Disease Rating Scale (UPDRS).

Unified Parkinson's Disease Rating Scale (UPDRS) is a rating tool used to gauge the the severity and progression of Parkinson's disease in patients.^[11] The UPDRS scale consists of the following six segments: 1) Mentation, Behavior, and Mood, 2) ADL, 3) Motor sections, 4) Complications of Therapy (in the past week) 5) Modified Hoehn and Yahr Scale, and 6) Schwab and England ADL scale. The first four segments are made up of 42 items grouped into four subscales. The UPDRS was developed in 1987 as a gold standard by neurologists for monitoring the response to medications used to decrease the signs and symptoms of Parkinson's.

Intervention

The subjects in the experimental group were undergone through lifestyle change in the intervention form of integrated approach of yoga therapy (IAYT), which includes understanding the philosophy of yoga with the help of lectures, and it also incorporates yogic practices like om meditation, asana and pranayama, yogic kriyas, yogic counselling advanced techniques advanced techniques (MSRT, PET etc.) and devotional sessions, Table. 1 show the detailed interventional schedule.

Table 1: Integrated approach of Yoga therapy intervention details.

Posture	Name of the practice	Time duration
Standing	Breathing	
	Hands in & out breathing (with "OM" kara chanting)	10 rounds
	Hand stretch breathing (with "A", "U", "M" kara chanting)	Each 10 rounds
	Ankle stretch breathing ("AUM" kara chanting)	10 rounds
	Loosening	
	Hands in & out breathing (with "OM" kara chanting)	10 rounds
	Hand stretch breathing (with "A", "U", "M" kara chanting)	Each 10 rounds
	Ankle stretch breathing ("AUM" kara chanting)	10 rounds
	Hands in & out breathing (with "OM" kara chanting)	10 rounds
	Hand stretch breathing (with "A", "U", "M" kara chanting)	Each 10 rounds
	Ankle stretch breathing ("AUM" kara chanting)	10 rounds
	Hands in & out breathing (with "OM" kara chanting)	10 rounds
	Hand stretch breathing (with "A", "U", "M" kara chanting)	Each 10 rounds
	Ankle stretch breathing ("AUM" kara chanting)	10 rounds
	Hands in & out breathing (with "OM" kara chanting)	10 rounds
	Asanas	
	Vrikshasana.	Maintaining for 1min.
Garudasana	Maintaining for 1min.	
Sitting	Breathing	
	Sasankasana breathing ("M" kara chanting)	10 rounds
	Tiger breathing	10 rounds

	Dog breathing	10 rounds
	Rabit breathing	10 rounds
	Loosening	
	Sasankasana breathing ("M' kara chanting)	10 rounds
	Tiger breathing	10 rounds
	Dog breathing	10 rounds
	Rabit breathing	10 rounds
	Sasankasana breathing ("M' kara chanting)	10 rounds
	Tiger breathing	10 rounds
Supine	Breathing practices	
	Alternate straight leg rising breathing (with "A" kara chanting)	10 rounds
	Side leg rising (with "A" kara chanting)	10 rounds
	Setubandhsa breathing (with "U" kara chanting)	10 rounds
	Pavana muktasana breathing	10 rounds
	DRT	15 minutes
Sitting	PRANAYAMA	
	Sectional Breathing (Vibhagiya Pranayam)	9 rounds
	Nadi Suddhi (4 times a day)	9 rounds
	Cooling Pranayama (Shitali, Shitkari, Shadanta)	Each 9 rounds
	KRIYAS	
	Jala Neti	Both nostril two times in a week
	Sutra Neti	Both sides two times in a week
	Vaman Dhouti	Once in a week
	Laghu Sankhprakasalana	Once in a week
	Trataka	Every day for 30 min

Data Collection

Data were collected fixing particular environment and particular time, before intervention UPDRS scale and other data were collected on day first. The participants gave their data before joining the yoga practice and before leaving the prashanti kuttiram, between Friday 3 pm to 5 pm and Thursday 9 am to 11 am, timing was kept fixed for all the participants for the whole duration of study, all the participants practiced yoga therapy under the section- A therapist as per their time schedule. The participants reported twice for giving their data which is based on before and after the yoga practice module.

Data Analysis

All variables were as a mean \pm standard deviation. Statistical significance was set up at $p < 0.05$, and all the analysis was performed using R-Studio.

RESULTS

A total of 18 subjects were participated in the study 18 subjects completed the study, which was conducted at the end of fifteen days program; Mean values and standard deviation for UPDRS scores were calculated. After 15 days of integrated Yoga therapy program, it showed that significant reduction in ($P < 0.006$) in Behavior and Mood, Similarly, significant reduction in Daily Living ($P < 0.000$), significant reduction in Motor Examination ($P < 0.000$), significant reduction in Complication of Therapy ($P < 0.000$), significant reduction in Modified Hoehn and Yahr Scale ($P < 0.028$), significant reduction in Total UPDRS ($P < 0.000$) on UPDRS scores. [Table 2].

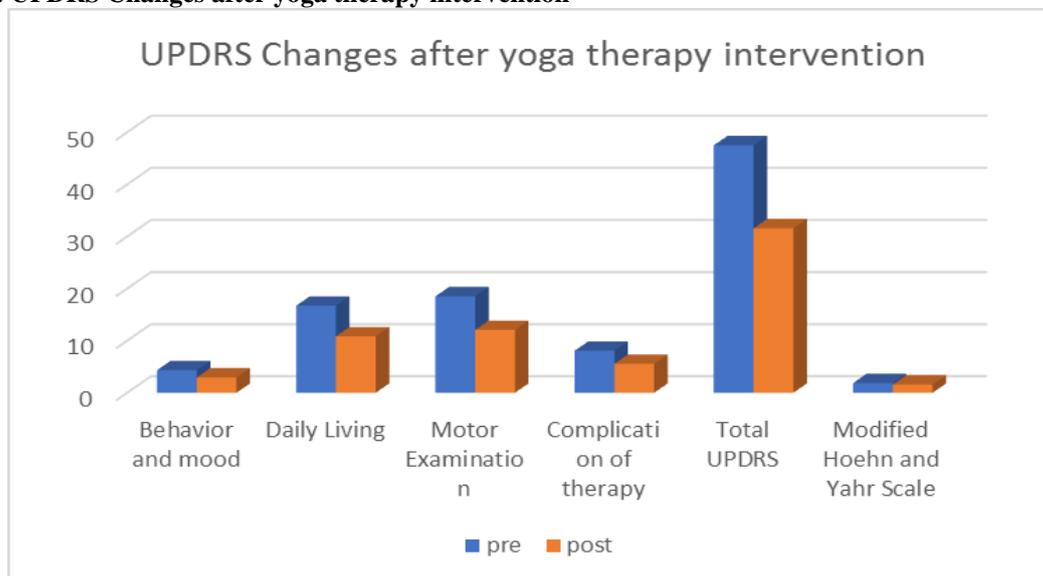
Table 2: UPDRS Changes after yoga therapy intervention.

Variables	Paired Differences					t-value	df	P-Value
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Behaviour and Mood	1.38	± 1.94	.446	.450	2.327	3.108	18	.006**
Daily Living	5.88	± 3.36	.771	4.267	7.510	7.629	18	.000***
Motor Examination	6.44	± 4.80	1.103	4.126	8.762	5.840	18	.000***
Complication of Therapy	2.0	± 2.29	.525	1.395	3.604	4.756	18	.000***
Modified Hoehn and	.277	$\pm .50$.116	.0338	.521	2.392	18	.028*

Yahr Scale								
Total UPDRS	16.55	±8.43	1.934	12.491	20.619	8.559	18	.000***

*significant at $P < 0.05$, ** significant at $P < 0.01$, ***significant at $P < 0.00$ (paired sample test and Wilcoxon Signed Ranks Test)

Graph- 1: UPDRS Changes after yoga therapy intervention



DISCUSSION

The purpose of this study was to investigate the efficacy of fifteen days IAYT program for improving symptoms of PD. Completion of this program was associated with overall significant improvement in measures of behaviour, mood, Daily Living, Motor Examination, Complication of Therapy, Modified Hoehn and Yahr Scale, Total UPDRS scores of PD patients. The loosening practices (Shithilikarna Vyayamas) helped in loosening the joints and reducing the stiffness, which consequently helped in easy mobility. The standing yoga asanas helped in improving balance and strengthened the hip extensor, quadriceps, hamstring, and calf muscles. Other supine and prone postures helped in improving flexibility and strength and reducing the stiffness in the back, hip, and lower limb muscles, thereby aiding mobility.^[12] All the relaxation techniques and breathing techniques helped in reducing stress and anxiety and improving the relaxation of the body and mind. This facilitated the improvement of anxiety, depression, and stress caused by PD.^[15] The integrated yoga therapy program helped in reducing the symptoms of PD along with a roll back in the dosage of medications. Despite major advances in disease management and symptomatic therapy for PD, no treatment is neuroprotective. Over time, the medication loses its effectiveness, and progressing motor complications precipitate functional dependence and impair QoL.^[13] Also, the side effects of pharmacotherapy include motor fluctuations, confusion, memory problems, and psychiatric complications.^[14] This is a pilot study, which helps to understand the effectiveness of IAYT in reducing the complication of conventional therapy and increases the effectiveness of medication.

CONCLUSION

The integrated Approach of Yoga therapy was able to significantly reduce symptoms of Parkinson's disease and medications requirement without any aggravation of symptoms. Accordingly, the integrated approach of Yoga therapy can play a significant complimentary role in treating PD along with conventional therapy.

Source of funding

None

Conflict of interest

None

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