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Effectiveness of Integrative Yoga Therapy and Naturopathy on Psychological Well-Being among Stroke Survivors: A Case Study

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ABSTRACT:

Stroke (cerebrovascular accident—CVA) is a major cause of long-term physical disability and cognitive and psychological difficulties. Post-stroke psychological problems, including stress, anxiety, and depression, can adversely affect functional recovery and the quality of life of survivors. Yoga and Naturopathy may serve as complementary, non-pharmacological approaches that support the management of psychological difficulties and promote overall well-being among stroke survivors. However, evidence regarding their combined application for post-stroke recovery remains limited. The present case study is of a 42-year-old male with a history of hypertension who presented with left-sided weakness, pain, swelling, impaired gait, partial loss of limb function, and mild speech difficulty following an acute ischemic stroke. After receiving conventional medical treatment, the patient enrolled in a 10-day integrative yoga and naturopathy camp at Dev Sanskriti Vishwavidyalaya. Throughout the program, the patient was introduced to therapeutic yoga practices such as *Shatkarma* (yogic cleansing), *Asanas* (physical postures), *Pranayama* (yogic breathing), *Mudra* (hand gestures), and *Dhyana* (meditation) for 90 mins daily in the morning, along with Naturopathic therapies, including massage, mud packs, hydrotherapy, sun bath, and acupressure for 10 days. These interventions were complemented by a Sattvic diet and a supportive spiritual environment of daily *yagya* and *mantra* chantings. Following the 10-day therapy, the patient showed reductions in perceived stress, anxiety, and depressive symptoms, with PSS-10, GAD-7, and PHQ-9 scores decreasing from 12 to 6, 7 to 3, and 11 to 10, respectively. Overall, these findings suggest that integrated yoga and naturopathy may have a supportive role in promoting psychological well-being during post-stroke recovery.

KEYWORDS: Anxiety, Depression, Naturopathy, Post-Stroke Rehabilitation, Psychological Well-Being, Stroke, Stress, Yoga.

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INTRODUCTION:

Cerebrovascular accident, or stroke, is the third leading cause of death and disability, affecting approximately 93.8 million people worldwide. It is characterized by an interruption of blood flow to the brain, leading to brain damage. Projections show that the risk of having a stroke in a lifetime has increased by 50% in the past 20 years. The global burden of stroke has increased substantially, with disability-adjusted life years (DALYs) rising from 137 million in 2000 to 160 million in 2021. [1, 2] This burden is disproportionately high in low- and middle-income countries, including India, highlighting the growing public health challenge posed by stroke. [3] Ischemic stroke is the most common type of stroke and may lead to motor and communication difficulties, cognitive impairment, and long-term psychological complications. [4] Mental health symptoms, including depression, anxiety, and stress, are highly prevalent in post-stroke patients, which may adversely affect rehabilitation outcomes, recovery, and overall quality of life. [5] Post-stroke depression (PSD) is a prevalent psychological consequence of stroke, occurring in nearly one-third of affected individuals. It is associated with poorer functional outcomes, lower quality of life, and an elevated risk of recurrent vascular events and death. [6] Post-stroke depression (PSD) can emerge during the early recovery period, particularly within the first three months after stroke.[7] According to Shi et al. (2017), higher stroke severity and greater levels of physical impairment are significant factors associated with an increased risk of developing post-stroke depression (PSD). [8] Post-stroke anxiety (PSA) is also a frequently reported psychological consequence of stroke, with prevalence rates ranging from approximately 20% to 47%. It may manifest as generalized anxiety or anxiety specifically related to stroke. Changes in functional abilities, difficulties adapting to daily life, and fear of stroke recurrence may contribute to anxiety among stroke survivors. [9]

A systematic review by Zhang et al. (2022) [10] found that more than 33% of survivors experienced psychological stress. It may manifest as perceived psychological stress or post-traumatic stress symptoms associated with the experience of a serious, potentially life-threatening stroke event. This may develop after a stroke as survivors cope with sudden changes in physical functioning, reduced quality of life, and severe mental health problems like depression. Despite advances in traditional stroke treatment and rehabilitation, many stroke survivors continue to experience long-term physical, cognitive, and psychological challenges in recovery. Yoga and naturopathy have been explored as complementary approaches to post-stroke rehabilitation. [11] Yoga incorporates physical postures, breathing techniques, and meditation and may offer potential benefits for physical functioning and psychological well-being. [12]

Naturopathy follows a drug-free therapeutic approach that focuses on natural treatments and lifestyle modifications, including dietary

management, hydrotherapy, mud therapy, massage, fasting, air baths, and chromotherapy. [13] These practices may serve as complementary approaches alongside conventional stroke rehabilitation. However, studies on the effectiveness of these methods, especially their combined use in post-stroke rehabilitation, are still scarce. Therefore, more research is needed to explore the possible advantages of integrative yoga and naturopathy in improving physical and psychological well-being in stroke survivors. The present study seeks to expand this emerging field by investigating the impact of a 10-day integrative yoga and naturopathy intervention complemented by a *sattvic* or pure vegetarian diet on psychological outcomes such as stress, anxiety, and depression in a stroke survivor.

CASE REPORT:

Patient Information: A 42-year-old male presented with complaints of pain and swelling on the left side of the body, partial loss of function, and weakness of the left upper and lower limbs, disturbed gait, and mild difficulty in speech.

Medical History: The patient has hypertension for the past 12 years, for which he is on medication like labetalol and apixaban. Family history revealed hypertension in his father. The patient also reported addiction to alcohol consumption.

History of Present Illness: According to the patient's statement, while taking food from a buffet, he suddenly experienced giddiness and weakness in the left upper and lower limbs, resulting in an inability to walk. A bystander helped him sit down. Shortly afterward, he developed slurring of speech and deviation of the face to the right side. He was immediately taken to the hospital on 4 December 2025, where he was diagnosed with an acute ischemic stroke. Subsequently, the patient received conventional medical management for five days. Following discharge, he continued allopathic medications and physiotherapy for approximately one month, after which gradual physical recovery was observed. On 27 April 2026, the patient reported to Dev Sanskriti Vishwavidyalaya (DSVV) and enrolled in a 10-day integrative yoga and naturopathy camp aimed at supporting post-stroke recovery and overall health management. The program provided an integrated approach focused on promoting physical and psychological well-being. Details of the treatment administered are presented in Tables 1 and 2.

MATERIALS AND METHODS:

The patient's psychological status was assessed on the first and last day of the 10-day integrative yoga and naturopathy camp using standardized assessment tools, including the Perceived Stress Scale-10 (PSS-10) for stress [14], GAD-**7** (Generalized Anxiety Disorder-7) to measure the severity of anxiety [15], and the Patient Health Questionnaire-9 (PHQ-9) for depressive symptoms [16]. Also, changes in subjective parameters such as pain, swelling, stiffness, heaviness, difficulty with movement, balance, and speech

were recorded based on patient feedback and the doctor's observations.

RESULTS:

Following completion of the 10-day Integrative Yoga and Naturopathy intervention, reductions were observed in the scores for perceived stress, anxiety, and depressive symptoms. Following the integrated Yoga and Naturopathy interventions, alongside improvements in psychological well-being, the patient also reported changes in post-stroke-related symptoms, particularly a reduction in pain and swelling on the affected side of the body, although other complaints persisted.

Table-1: Yoga Therapy Module (90 mins daily for 10 days)

Practices	**Description**	**Duration**
Shatkarma(*Yogic* Cleansing)	*Jalaneti,* *Trataka*	Alternate days Once in 9 day
Asanas (physical postures)	*Sukshma Vyayama, Tadasana, Triyaktadasana,katichakrasana, Trikonasana, Utkatasana, Virabhadrasana, Vrikshasana, Supta udrakarshana, Shavasana.*	45 mins
Pranayama(*Yogic* breathing)	*Anulome Vilome, Nadi Shodhana, Bhramari, Sheetali, Sheetakari, Pranakarshana.*	15 mins
Mudra(Hand Gestures)	*Gyana, Apana, Prana*	During meditation
Dhyana(Meditation)	*Om Dhyana and Gayatri mantra dhyana.* *Yoga Nidra*	10 mins Twice in 9 Days

Table- 2: Naturopathy treatment

Practices	**Day1**	**Day2**	**Day3**	**Day4**	**Day5**	**Day6**	**Day7**	**Day8**	**Day9**
Full Body Mud Pack							✔		
Abdomen Massage	✔	✔							
Hand massage				✔	✔				✔
Leg Massage									
Head Massage				✔					
Full Body steam bath+Massage			✔		✔	✔			
Local Steam Bath									✔
Foot Bath			✔						

Arm Bath			✔						
Hip Bath	✔	✔							
Knee Pack				✔					
Back Pack	✔	✔		✔		✔			
Abd Mud Pack	✔	✔	✔	✔					
Eye Mud Pack	✔	✔	✔	✔					
Enema	✔	✔	✔	✔		✔	✔		
Fomentation	✔	✔	✔	✔	✔		✔		
Sun Bath								✔	

Table -3: Questionnaires used for assessment

SNO	**Questionnaire**	**Pretest**	**Post-test**	**Score**
1.	Perceived Stress Scale (PSS-10)	12	6	Range (0–40) 0–13: (Low stress) 14–26: (Moderate stress) 27–40: (High perceived stress) [14]
*Stress score reduced by 6 points				
2.	Generalized Anxiety Disorder-7 (GAD-7)	7	3	Range (0 to 21) 0–4: (Minimal Anxiety) 5–9: (Mild Anxiety) 10–14: (Moderate Anxiety) 15–21: (Severe Anxiety) [15]
*Anxiety score reduced by 4 points				
3.	Patient Health Questionnaire (PHQ-9)	11	10	Range from 0 to 27 0–4: (Minimal or no depression) 5–9: (Mild depression) 10–14: (Moderate depression) 15–19: (Moderately severe depression) [16]
*Depression score reduced by 1 point				

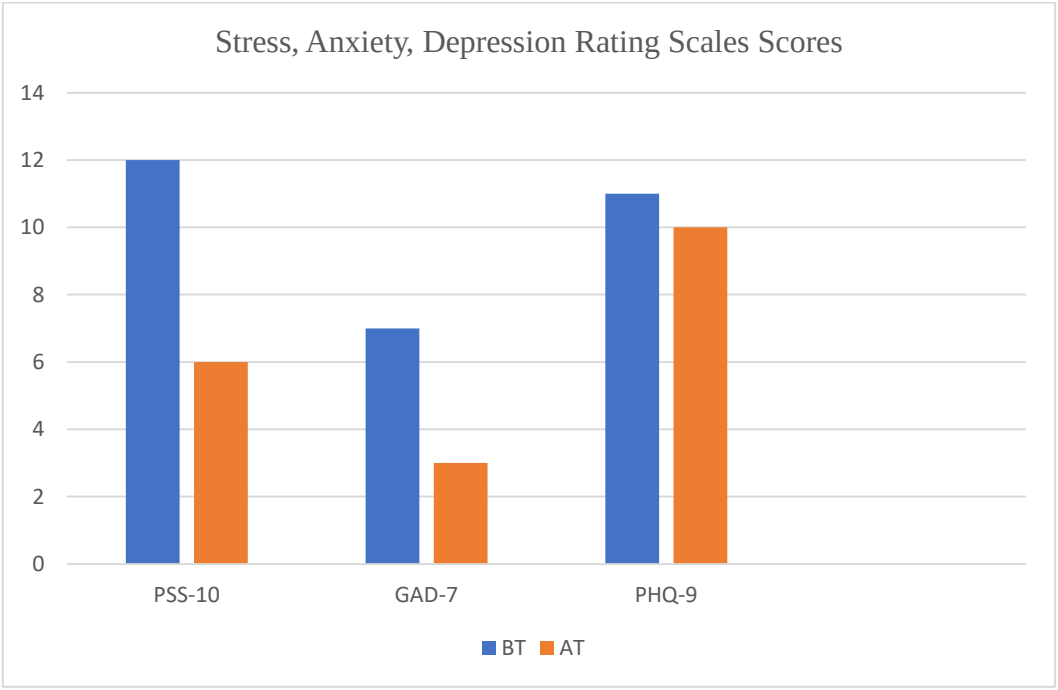
Table- 4: Pre-Post Stroke-Related Subjective Symptoms Scores

S.NO	**Symptoms**	**BI**	**AI**	**Score difficulty level**
1.	Pain	4	3	0=No
2.	Difficulty in movement	2	2	1=Mild
3.	Loss of strength on the affected side	2	2	2=Moderate
4.	Heaviness on the affected side	1	1	3=High

5.	Stiffness	1	1	4 = Extreme
6.	Shivering	0	0	
7.	Difficulty in Balance	2	2	
8.	Difficulty in speech	1	1	
9.	Swelling	3	2	



Figure 1: Patient performing Yoga practice and Naturopathy



Graph 1: Pre-Post Questionnaire Scores

DISCUSSION:

The present case shows improvements in psychological well-being indicated by a reduction in perceived stress, anxiety, and depressive symptoms following a 10-day integrative yoga and naturopathy camp. Similar improvements in functional recovery are reported by Hussain et al. (2024) [17] in a stroke survivor following a four-month program combining yoga , naturopathy, and electroacupuncture. Likewise , Mishra et al. (2024) [18] described improvements in physical functioning, joint range of motion, handgrip strength, gait, cognitive performance, and quality of life in a stroke survivor. following a 90-day integrative yoga and naturopathy program that incorporated various yoga postures, breathing practices, meditation, neutral arm baths, and partial massage. From the yogic perspective, stroke is considered an *Adhija Vyadhi*, traditionally associated with stress-related origin. The maladaptive thoughts and emotions initiate turbulence in the *Manomaya kosha* (Mental body) and *Pranamaya kosha* (Energy body).These disturbances may affect cellular, hemodynamic, and homeostatic functions, contributing to vascular changes associated with stroke . [19] Furthermore, *yoga* may support recovery by enhancing neuroplasticity, autonomic regulation, relaxation, coping abilities, and gray matter density in brain regions involved in memory and self-awareness, thereby improving quality of life. [20]

From the naturopathic perspective, disease is traditionally viewed as arising from the accumulation of toxins within the body. [21] Naturopathic massage may contribute to rehabilitation by promoting circulation and parasympathetic activity, enhancing sensorimotor function, and alleviating muscle tension, pain, anxiety, and physiological stress. [22, 23] Research suggests that a supportive spiritual environment may contribute to patients' psychological and emotional well-being. Nature-based interventions may improve anxiety, depressive symptoms, and overall mental health, while evidence for stress reduction remains inconclusive. [24] Additionally, spiritual and social support may foster connectedness, hope, and positive coping. [25] Supporting this, Dewi et al. (2020) [26] reported significant improvements in stroke-specific quality of life following a seven-day intervention combining *Gayatri Mantra* chanting and Emotional Freedom Technique (EFT), highlighting their potential as complementary approaches to stroke rehabilitation.

A *Sattvic* diet, based on fresh, wholesome, and balanced vegetarian foods, is traditionally associated with mental clarity and emotional well-being, as reflected in the *Chandogya Upanishad* 6.5.1 [27]. Nancy et al. (2025) [28] pointed out the possible benefits of combining a *Sattvic* diet with *yogic* practices for emotional stability and psychological well-being. Similarly, Jacka et al. (2017) [29] demonstrated that dietary improvement was associated with greater reductions in depressive symptoms among adults with major depression. Collectively, these findings suggest that multimodal integrative

interventions may offer supportive benefits across psychological and functional domains during post-stroke recovery.

CONCLUSION:

The present case suggests that Integrative Yoga and Naturopathy may serve as a supportive approach to stroke rehabilitation, particularly in improving psychological well-being by reducing anxiety, depression, and perceived stress

Patient Consent:

Written informed consent was obtained from the patient for publication of clinical information while maintaining confidentiality.

Conflict of interest: The author declares that there is no conflict of interest.

Guarantor*:* The corresponding author is the guarantor of this article and its contents.

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