



An Integrated Approach of Yoga and Ayurveda in Post-stroke Management - A Case Study

Neha Rani Saini¹, Alka Mishra^{2*}

¹Research Scholar, Dept of Yogic Science and Human Consciousness, Dev Sanskriti Vishwavidyalaya

²Assistant Professor, HOD Dept of Complementary and alternative medicine, Dev Sanskriti Vishwavidyalaya

Abstract. The World Health Organization defines stroke as the sudden onset of focal or global disturbance of cerebral function, lasting for more than 24 hours or resulting in death, with vascular origin. In India, population-based studies indicate that stroke prevalence ranges from 84 to 262 per 100,000 population in rural areas and from 334 to 424 per 100,000 population in urban areas. Stroke is the second-leading cause of death and the third-leading cause of disability worldwide. Yoga, as a Complementary therapy, has the potential to manage post-stroke complications. These approaches are drug-less and employ minimally invasive or non-invasive methods to bring about physiological modifications within the body, thereby aiding the recovery process. In addition, Ayurveda, the traditional system of Indian medicine, with its holistic approach to health and wellness, offers valuable strategies for post-stroke rehabilitation. The present study is a case report investigating the effect of yoga therapy in addition to Ayurvedic treatment on activities of daily living and the quality of life of a stroke patient. This is a single case study of a 61-year-old man diagnosed with ischemic stroke eight years prior, presenting with partial loss of function and pain in the right upper and lower limbs, difficulty in speech, and insomnia, with a history of hypertension for the past eight years. For better management of stroke and recovery, the patient attended the Panchakarma outpatient department of Rishikul Ayurveda College. An Integrated Yoga intervention along with Ayurvedic treatment was administered for one hour daily over a period of three months. The patient was assessed pre- and post-intervention using the Stroke-specific quality of life scale (SSQOL), Barthel index (BI), Depression Anxiety Stress Scale (DASS), and associated subjective parameters such as pain, strength, stiffness, speech, coordination, and shivering. After three months of yoga intervention, considerable improvement was observed in subjective parameters. The Barthel index improved from 90 to 95, SSQOL scores increased from 133 to 151, and DASS scores showed improvement across all three subscales, with Depression and Stress scores shifting from the severe to moderate category, and Anxiety scores shifting from the extremely severe to severe category. The findings suggest that integrating yoga therapy with Ayurvedic treatment may play a beneficial role in post-stroke recovery.

Keywords. Yoga, Ayurveda, Stroke, Quality of life, Activities of daily living, Rehabilitation

*CORRESPONDENCE

Dept. of Complementary and Alternative Medicine, Dev Sanskriti Vishwavidyalaya, Gayatrikunj-Shantikunj, Haridwar, Uttarakhand – 249411, India
Email: alka.mishra@dsvv.ac.in

PUBLISHED BY

Dev Sanskriti Vishwavidyalaya
Gayatrikunj-Shantikunj, Haridwar, India

OPEN ACCESS

Copyright © 2026 Saini & Mishra
Licensed under a Creative Commons Attribution 4.0 International License



Introduction

Stroke (cerebrovascular accident [CVA]) is the sudden loss of neurological function caused by an interruption of the blood flow to the brain [1]. According to the Global Burden of Disease study in 1990, stroke was the second leading cause of death and disability worldwide [2]. The cumulative incidence of stroke in India ranged from 105 to 152/100000 person per year [3]. The estimated adjusted prevalence of stroke in India ranges from 84 to 262 per 100,000 population in rural areas and 334 to 424 per 100,000 population in urban areas [4]. The most common symptoms of stroke are sudden weakness or numbness of the face, inability to move an arm or leg, usually on one side, confusion, difficulty in speaking, visual problems in one or both eyes, difficulty in walking, dizziness, loss of balance or coordination [5]. After a stroke, a survivor has to struggle with physical disability that hinders the ability to complete activities of daily living, in addition to a wide range of mental issues, such as post-stroke depression, anxiety, and fatigue, which are common in stroke survivors, and which have a negative impact on the quality of life of the patient and interfere with the stroke recovery process [6]. Over the past two decades, conventional medical treatments have not been very effective during the later stages of stroke recovery. As a result, stroke patients are often interested in exploring alternative medicine like Ayurveda thera-

pies, yoga therapy, physical therapy, and acupuncture treatment approaches for post-stroke recovery [7]. Ayurveda, meaning "science of life," is an ancient traditional Indian medical system that originated in India over 5,000 years ago, based on a holistic health approach and management [8]. It believes that stroke can be correlated with the disease Pakshaghata, described under vatavyadhi. Pakshaghata results because of vatakopa affecting sira and snayu of the body and face. The main treatment includes Snehana, Swedana, Mridu virechana, Vasti, Nasya, Shirodhara, with selected Vata pacifying drugs that help in the management of Pakshaghata [9, 10]. Yoga is a mindful practice that encompasses a vast body of moral and ethical precepts, mental attitudes, and physical asanas, pranayama, mudra, and bandhas to imply the union of body, mind, soul, and senses. Yoga practices help in the holistic management of diseases and improve the quality of life in both physical and psychosocial domains [11]. There is growing evidence indicating the potential use of yoga in improving an individual's functional status, quality of life after stroke [12]. This indicates the need to integrate the conventional and traditional systems of medicine in the stroke recovery phase. The purpose of this case study is to investigate the effect of integrated Ayurveda and yoga therapy on the activity of daily living, mental health, and quality of life of a stroke patient.

Subject	Particulars
Age	61 years
Gender	Male
Occupation	Electrician
Socio-economic status	Middle class
Chief complaints with Duration	Difficulty in speech, Pain in the right side of the body, Partial loss of function, Insomnia, constipation (8 years)
Past History	Hypertension, Gastritis (8 years)
Addiction	Alcohol, tobacco
History of Present Illness	According to the patient's statement, he had gone to the washroom. He suddenly experienced weakness and difficulty in moving his right lower and upper limbs, along with difficulty in speaking and deviation of his face. He started falling, and his son rushed to lift him to bed. He was then admitted to BHEL hospital and diagnosed with an ischemic stroke. After a month of medication, he began to recover physically but lost his speech. For better recovery, the patient visited the Panchakarma outpatient department at Rishikul Ayurveda College in April 2024.
Physical Examination	B.P- 130/80 mmHg; Pulse 72 bpm
MRI (2016)	CVA (Right side MCA Ischemic Stroke)
Treatment History	Mashabaladi pachan Nasya (Mashabaladi Kashaya) + shirodhara (kshirbala Taila) For 7 days; Tb Mentat 2 BD; Cap Ashwajeet 2 BD; Trayodashang Guggulu 2 BD 250 mg; Tab Speech Care 2c BD and yoga therapy

Table 1: Subject details

Case Report

Subject and Methods

This is a single case study of a 61-year-old man diagnosed with ischemic stroke eight years ago, presenting with chief complaints of partial loss of function and pain in the right upper and lower limbs, difficulty in speech, and insomnia with a history of hypertension for the past eight years. For better management of stroke and recovery, the patient attended the Panchakarma outpatient department of Rishikul Ayurveda College. An Integrated Yoga intervention, along with Ayurvedic treatment, was administered

for one hour daily over a period of three months, as summarized in Table 1.

Written informed consent was obtained from the patient for the publication of this case report and any accompanying clinical images. This case report has been prepared in accordance with the CARE (Case Report) guidelines [13].

Table 2 summarizes the structure of the yoga therapy sessions delivered over the three-month intervention period (3 May 2024 to 21 August 2024), one hour daily.

The patient's progress under this integrated protocol is documented in Figure 1.

Mantra chanting (2-3 mins)	Om chanting three times and the Gayatri Mantra
Asanas (20 - 40 mins)	The patient was instructed joint movements and a variety of modified yoga postures related to the week's theme. Week 1-4 (20 mins): Pawanmuktasana series 1 (supported movements of the left side with the right side limbs). Week 5-8 (30 mins): Pawanmuktasana series 1 (without support); Tadasana (chair supported); Triyak Tadasana (chair supported); Katichakrasana (chair supported); Utkatasana Week 9-12 (40 mins): Pawanmuktasana series 1; Tadasana; Triyak Tadasana; Katichakrasana; marjariasana; Utkatasana; Vakrasana; Setubandhasana; Pawanmuktasana; Jathara Parivartanasana
Pranayama (15-20 mins)	Diaphragmatic breathing (2-3 mins); Anulom vilom (10-20 rounds); Sheetali (10 rounds); Sheetkari (10 rounds); Bhramari (10 rounds)
Mudra	Apana Vayu mudra
Relaxation	Yoga nidra (once in a week)
Meditation (10-15 mins)	Om meditation; Anahata chakra meditation

Table 2: Yoga therapy sessions format: 1 hour for 3 months (Intervention period from 3 May 2024 to 21 August 2024)

Methods

The patient was administered a yoga intervention along with ayurvedic treatment for three months. The patient was assessed at the start of the intervention using the Stroke-Specific Quality of Life Scale (SSQOL), Barthel Index (BI), Depression Anxiety Stress Scale (DASS), and subjective performance parameters. The changes in scores for each scale were recorded and observed after the intervention.

The Stroke Specific Quality of Life scale (SSQOL)

The Stroke Specific Quality of Life scale (SSQOL) provides an assessment of health-related quality of life (HRQOL) specific to patients with stroke. It is a self-report scale containing 49 items in 12 domains: Mobility (6 items), Energy (3 items), Upper extremity function (5 items), Work/productivity (3 items), Mood (5 items), Self-care (5 items), Social roles (5 items), Family roles (3 items), Vision (3 items), Language (5 items), Thinking (3 items), Personality (3 items). The Stroke Specific Quality of Life (SS-QOL) scale has an overall score range of 49 to 245, with higher scores indicating a better quality of life [14].

The Barthel index

The Barthel index is a 10-item scale used to measure an individual's performance in personal activities of daily living (ADL) to assess their level of functional independence. It evaluates tasks such as feeding, bathing, dressing, and toileting. The Barthel index has a score range of 0-100, where higher scores indicate greater functional independence. Scores are categorized to represent levels of dependency: 0-20 for total dependence, 21-60 for severe dependence, 61-90 for moderate dependence, and 91-99 for slight dependence, with 100 representing complete independence [15].

The DASS-42

The DASS-42 is a 42-item self-report scale designed to measure the negative emotional states of depression, anxiety, and stress. The DASS-42 scale ranges from 0 to 126, with scores for each subscale (Depression, Anxiety, and Stress) falling into severity categories from normal to extremely severe, shown in Figure 2 [16].



Figure 1: Subject following yogic intervention

Level	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely severe	28+	20+	34+

Figure 2: DASS-42 severity categories for the Depression, Anxiety, and Stress subscales

Subjective Parameters

After a stroke, people can experience a wide range of physical problems like difficulty in movement, pain, heaviness on the affected side, stiffness, and weakness, etc. The grading of these parameters was done on a 5-point Likert scale, ranging from 0 to 4, where Score 0 = No difficulty, 1 = Mild difficulty, 2 = Moderate difficulty, 3 = High difficulty, 4 = Extreme difficulty,

as shown in Table 3.

Changes in depression, anxiety, and stress scores are presented in Table 4.

Figures 3-6 present the improvement observed in the Barthel Index and Stroke-Specific Quality of Life scores, item-wise and overall, before and after the intervention.

S.NO	Symptoms	BI	AI
1.	Pain	2	1
2.	Difficulty in movement	1	0
3.	Loss of strength on affected side	3	2
4.	Heaviness on affected side	2	1
5.	Stiffness	2	1

Table 3: DASS-42 severity categories for the Depression, Anxiety, and Stress subscales

Score	BI	AI
Depression	22	19
Anxiety	22	19
Stress	26	23

Table 4: Subjective Parameters. Note: Score: 0 = No, 1 = Mild, 2 = Moderate, 3 = High, 4 = Extreme. BI = Before intervention, AI = After Intervention

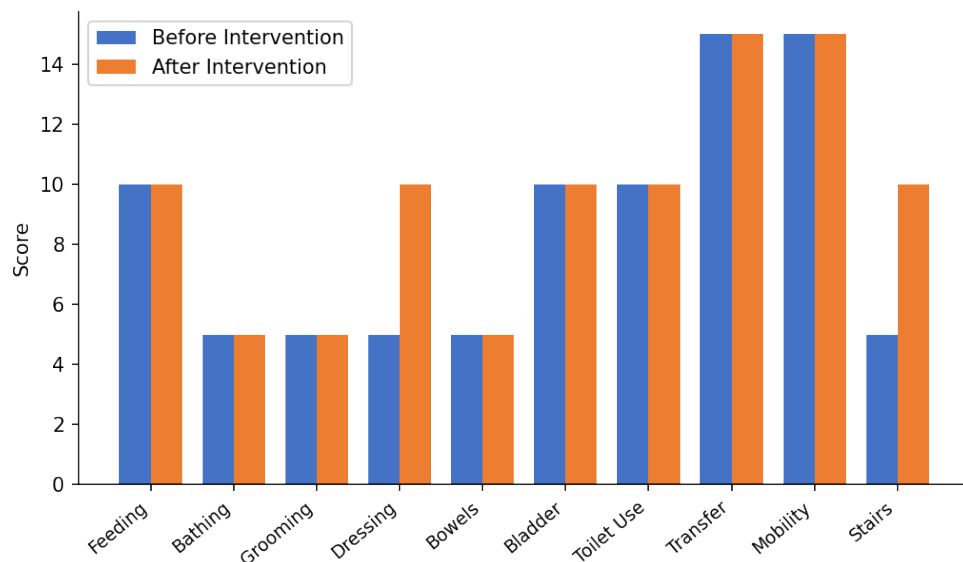


Figure 3: Barthel Index scores improvement in each item

Results

Results show that after three months of yoga intervention, considerable improvement was observed

in subjective parameters. The Barthel index improved from 90 to 95, SSQOL scores increased from 133 to 151, and DASS scores showed improvement

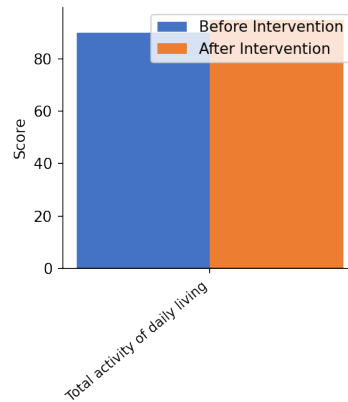


Figure 4: Overall improvement in Barthel Index scores

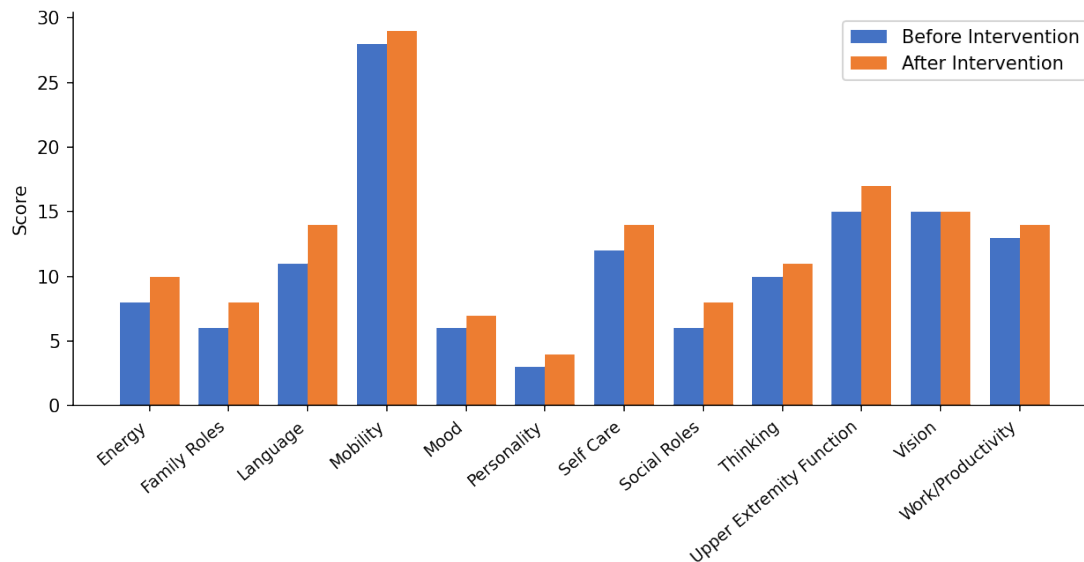


Figure 5: Stroke Specific Quality of Life scores (improvement in each domain)

across all three subscales, with Depression and Stress scores shifting from the severe to moderate category, and Anxiety scores shifting from the extremely severe to severe category. The findings suggest that integrating Yoga therapy with Ayurvedic treatment may play a role in post-stroke recovery.

Discussion and Conclusion

This case study's findings support the growing evidence that yoga therapy and ayurveda treatment help in post-stroke management. Results show that after three months of yoga, there was a considerable change in subjective parameters such as reduction in pain, difficulty in movement, improved strength, reduced heaviness and stiffness, improvement in scores

of the Barthel Index and SSQOL, along with DASS scores shifting from the severe to moderate category for Depression and Stress, and from the extremely severe to severe category for Anxiety. These results are supported by a pilot study that demonstrated substantial improvement in pain, range of motion at neck and hip, upper limb strength, and six-minute walk scores in patients with chronic stroke with an 8-week Yoga intervention [17]. Another study exploring a wide array of symptoms in stroke patients has displayed improvement in quality of life associated with memory, perceived motor function, and perceived recovery [18]. There was a study that showed a significant effect of yoga therapy on balance in post-stroke hemiplegic patients. The yoga group

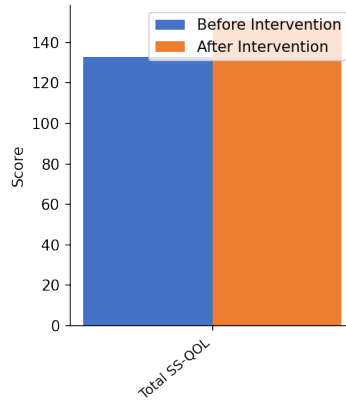


Figure 6: Overall in Stroke Specific Quality of Life scores

received intervention, including asanas for 40 minutes, four times a week for three weeks. Asanas involving muscle work required for improving balance, in an individual with a stroke, were included: Ek-padahastasana, Utkatasana, Virasana, Trikonasana, Tadasana, and Vrikshasana. The results show improvement in the Berg balance scale (BBS) and the Fullerton advanced balance scale (FAB) [19]. One study included Uni-nostril yogic breathing alongside traditional speech therapy has been found beneficial in improving the affect and language abilities of stroke patients [20]. A systematic review on the effectiveness of yoga therapy on an adult, post-stroke population, including nine studies, shows that Yoga can have a positive effect on improvements in balance, independence, endurance, trait anxiety, fear of falling, self-efficacy, pain, strength, range of motion (ROM), activity, participation, and quality of life (QoL) [21]. Yoga enhances the endurance of the anti-gravity muscles, which serve as the primary support system for maintaining postures, as well as the strength of functional postures. Asanas facilitate the accessory movements of glide and roll of the joints, enabling an effective full range of angular motion [22]. In Ayurveda, stroke, commonly correlated as pakshaghata considered under vata vyadhis, primarily attributed to an imbalance of the vata dosha, which governs the nervous system and motor functions. Vata dosha gets vitiated due to the indulgence of various diets and regimens and occupies in rikta strotas; this vata kopa affects sira, snayu, and causes pakshaghata [23]. A case report published recently in the International Journal of Research in Medical Sciences followed a patient with ischemic stroke. After 14 days of integrative Ayurvedic treatment, shows improvement in NIHSS score, motor function, and Pain [23]. Most trials conclude that Ayurvedic protocols, including

Basti, Virechana, and Nasya, are beneficial in the management of pakshaghata [24, 25]. These findings indicate that integrating yoga therapy with ayurvedic treatment into patient care plans may improve health outcomes. Although the outcomes of this case study are encouraging, it is essential to acknowledge that these findings are derived from a single case, needing further research studies with larger samples and control subjects to offer more conclusive evidence of the benefits of yoga and ayurvedic therapy for post-stroke rehabilitation.

COMPLIANCE Not required.

CONFLICT OF INTEREST None.

References

- [1] Johnson W, Onuma O, Owolabi M, Sachdev S. Stroke: a global response is needed. *Bull World Health Organ.* 2016;94:634.
- [2] Murray CJ. *Global health statistics: a compendium of incidence, prevalence and mortality estimates for over 200 conditions.* Cambridge (MA): Harvard University Press; 2012.
- [3] Kamalakannan S, Gudlavalleti ASV, Gudlavalleti VSM, Goenka S, Kuper H. Incidence & prevalence of stroke in India: a systematic review. *Indian J Med Res.* 2017;146(2):175-185. doi:10.4103/ijmr.IJMR_516_15. PMID: 29265018.
- [4] Pandian JD, Sudhan P. Stroke epidemiology and stroke care services in India. *J Stroke.* 2013;15(3):128-134. doi:10.5853/jos.2013.15.3.128. PMID: 24396806.
- [5] Andersson J, Rejnö Å, Jakobsson S, Hansson PO, Nielsen SJ, Björck L. Symptoms at stroke onset as described by patients: a qualitative study. *BMC Neurol.* 2024;24(1):150. doi:10.1186/s12883-024-03658-4

- [6] Swartz RH, Bayley M, Lanctot KL, et al. Post-stroke depression, obstructive sleep apnea, and cognitive impairment: rationale for, and barriers to, routine screening. *Int J Stroke*. 2016. doi:10.1177/1747493016641968.
- [7] Pandian JD, Toor G, Arora R, Kaur P, Dheeraj KV, Bhullar RS, Sylaja PN. Complementary and alternative medicine treatments among stroke patients in India. *Top Stroke Rehabil*. 2012;19(5):384-394. doi:10.1310/tsr1905-384
- [8] Mishra LC, Singh BB, Dagenais S. Ayurveda: a historical perspective and principles of the traditional healthcare system in India. *Altern Ther Health Med*. 2001;7(2):36-42. PMID: 11253415.
- [9] Biju ER. An ayurvedic view and management of stroke. *Indian J Res*. 2020;9(10):48-50. doi:10.36106
- [10] Kajaria D, Tripathi JS, Tiwari SK. Utilization of panchakarma in health care: preventive, nutritive and curative treatment of disease. *J Pharm Sci Innov*. 2013;2:1-5. doi:10.7897/2277-4572.02564
- [11] Ross R. Yoga as a therapeutic modality. In: Weintraub MI, editor. *Alternative and complementary treatment in neurological illness*. Philadelphia (PA): Churchill Livingstone; 2001. p. 75-92.
- [12] Jasti N, Reddy AV, Ramakrishna KK, Bhargav H, Kulkarni GB. Role of yoga in stroke management: current evidence and future directions. In: *The principles and practice of yoga in cardiovascular medicine*. Singapore: Springer Nature; 2022. p. 253-265. doi:10.1007/978-981-16-6913-2_20
- [13] Gagnier JJ, Kienle G, Altman DG, Moher D, Sox H, Riley D; CARE Group. The CARE guidelines: consensus-based clinical case report guideline development. *J Clin Epidemiol*. 2014;67(1):46-51. doi:10.1016/j.jclinepi.2013.08.003
- [14] Williams LS, Weinberger M, Harris LE, Clark DO, Biller J. Development of a stroke-specific quality of life scale. *Stroke*. 1999;30(7):1362-1369. doi:10.1161/01.str.30.7.1362. PMID: 10390308.
- [15] Mahoney FI, Barthel D. Functional evaluation: the Barthel Index. *Md State Med J*. 1965;14:56-61.
- [16] Lovibond SH, Lovibond PF. Depression anxiety stress scales [Dataset]. In: *PsycTESTS Dataset*; 1995. doi:10.1037/t01004-000
- [17] Schmid AA, Miller KK, Van Puymbroeck M, DeBaun-Sprague E. Yoga leads to multiple physical improvements after stroke, a pilot study. *Complement Ther Med*. 2014;22(6):994-1000.
- [18] Immink MA, Hillier S, Petkov J. Randomized controlled trial of yoga for chronic poststroke hemiparesis: motor function, mental health, and quality of life outcomes. *Top Stroke Rehabil*. 2014;21(3):256-271.
- [19] Paranjape AA, Gore A. To study effects of yoga therapy on balance in post stroke hemiplegic patients. *Int J Health Sci Res*. 2019;9(7):135-143.
- [20] Marshall RS, Basilakos A, Williams T, Love-Myers K. Exploring the benefits of unilateral nostril breathing practice post-stroke: attention, language, spatial abilities, depression, and anxiety. *J Altern Complement Med*. 2013;20(3):185-189.
- [21] Hogan BE. The effectiveness of yoga therapy on an adult, post-stroke population: a systematic review. Kevin and Tam Ross Undergraduate Research Prize; 2016. Available from: digitalcommons.chapman.edu
- [22] Taylor M. Yoga therapeutics in neurologic physical therapy practice: application to a patient with Parkinson's disease. *Neurol Rep*. 2001;25(2):55-62.
- [23] Jestas A, N NK. Integrative ayurvedic approach in post-ischemic stroke rehabilitation with special reference to Pakshaghata: a case report. *Int J Res Med Sci*. 2025;13(10):4383-4390. doi:10.18203/2320-6012.ijrms20253195
- [24] Ediriweera ERHSS, Perera MSS. Clinical study on the efficacy of Chandra kalka with mahadalu anupana in the management of pakshaghata (Hemiplegia). *AYU*. 2011;32:25-29. doi:10.4103/0974-8520.85720
- [25] Akashlal M, Nair PP, Nair DR, Ahmad A, Chandrasekhararao B, Sudhakar D, Narayanam S, Acharya R. A Systematic Review on Safety and Efficacy of Ayurvedic Interventions in Hemiplegia (Pakshaghata). *J Evid Based Integr Med*. 2025;30:2515690X241304523. doi:10.1177/2515690X241304523. PMID: 39763345.