



**Effectiveness of Ayurvedic Treatments for Enhancing the Life of Stroke Patients (With Special Reference to *Ballaketuwa* Rural Ayurveda Hospital in Badulla, Sri Lanka)**

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**Article Info**

Article History:

Received 13 Feb 2024

Accepted 30 June 2024

Issue Published Online

01 July 2024

**Key Words:**

Ayurvedic Treatments

Mental health

Physical health

Stroke patients

**ABSTRACT**

*Stroke is a consequence of modern lifestyle, ranks second in global mortality and is a primary cause of long-term disability, causing significant personal, social and economic burdens to the patient and patients' family. Despite various treatment methods, there remains no universally accepted approach. Thus, the present study aims to investigate the efficiency of Ayurveda medicine as a treatment for stroke patients. Utilizing purposive sampling, data was gathered from 55 participants, including 50 ongoing treatment recipients at the hospital during the research period and 5 discharged patients. Structured interviews and observation methods were employed for data collection. Qualitative data was analyzed using the thematic analysis method and quantitative data was presented using Excel software. Results indicated that the majority (89%) of stroke patients were over 40 years old, with 58% being male. Initially, all patients experienced psychological distress post-stroke, but Ayurvedic treatments fostered mental (100%) and physical health (100%), along with heightened self-confidence (89%). Factors including adequate treatments, supportive environment, staff assistance, and positive social interactions contributed to this improvement. Furthermore, Patients reported seeing similar symptoms in peers, gradually regaining independence in daily activities, increased new hopes and faith about life have improved their mental health which leads to increase in the overall confidence level of the patients. Accordingly, the research concludes that community awareness on Ayurvedic treatments and their inpatient facilities is crucial, as they offer superior outcomes for stroke patients' overall well-being.*

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Journal homepage:

<http://journals.sjp.ac.lk/index.php/vjhss>

<http://doi.org/10.31357/fhss/vjhss.v09i02.04>

VJHSS (2024), Vol. 09 (02),  
pp. 56-71

ISSN 1391-1937/ISSN  
2651-0367 (Online)



## 1. Introduction

People have been facing numerous problems and difficulties since ancient times. Suffering from diseases can be pointed out as a major obstacle faced by human beings. Accordingly, medical knowledge evolved in parallel with civilization and with changes in disease patterns (Narayanaswamy, 1981). Ayurveda which means “knowledge of life” (Lad, 1984) is considered one of the foundations of medicine (Martins, 2018). Ayurveda covers a range of remedies, including enemas, massages, ointments, douches, sweating, and surgery (Wujastyk, 1998). This medical approach emphasizes disease prevention and promotes health maintenance through nourishment, lifestyle, and the use of novel therapeutic methods. According to Ayurveda, the disease is caused by an imbalance of one or more *doshas* (three basic principles or humor that govern the psychophysiological response and pathological changes) (Lad, 1984).

A stroke also termed a “brain attack,” is a sudden interruption of continuous blood flow to the brain. It occurs when a blood vessel in the brain becomes blocked or narrowed, or when a blood vessel bursts and spills blood into the brain (Stroke, 2020, p.1). Strokes are causing significant personal, social and economic burdens (Kuriakose & Xiao, 2020). Stroke is described in Ayurvedic scriptures as *Pakshagatha* (hemiparesis). The terminology is made up of two words: ‘*Paksha*’, which refers to either side of the body, and ‘*Aghata*’, which refers to a blow or severe damage produced by sensory and motor system dysfunction and its controller, the brain (Rais et al., 2019). Therefore, *Pakshaghata* is a condition that affects half of the body. It is classified as *Duschikitsya* (difficult to cure) and is one of the eight *Ashtamahagada* (most dreadful diseases) (Baby et al., 2020). Lad (2002) in his book mentioned, that stroke paralysis begins in *pitta* and ends in *vata*. Furthermore, two types of *vata* called *Prana* and *vyana* are vitiated in this condition (Ranade et al., 1999).

According to the World Health Organization’s Global Health Estimates (2019), stroke is the second leading cause of global mortality and the third leading cause of disability worldwide. Also, according to the World Stroke Organization’s annual report (2019), 1 in 4 people over age 25 will have a stroke during their lifetime and 5.5M deaths occur due to stroke per year. The mortality rates after a stroke are 20-25 %, and 40% of survivors are dependent after 6 months (Feather et al., 2020).

In the Sri Lankan context, stroke is a primary cause of disability. According to the Annual Health Bulletin (2018) published by the Ministry of Health of Sri Lanka, stroke is the fifth leading cause of hospital deaths in 2018. Each year 1 in 110 people in Sri Lanka will suffer a stroke (Wijeratne et al., 2011). Stroke is commonly occurring among older age groups. Following a stroke, once patients are discharged from medical wards, they search for alternative treatment options. Here, Ayurveda acquires a significant position (Gunaratne, 2011).

At present, global health concerns about effective therapeutic approaches and enhanced post-stroke management. Although stroke research has developed significantly in the previous 25 years in terms of animal experimental models, therapeutic medications, clinical trials, and post-stroke rehabilitation research, there are huge gaps in knowledge of stroke treatment (Kuriakose & Xiao, 2020). Therefore, there is not widely accepted, safe, and effective treatment for stroke (Zimmerman & Yarnell, 2018). Thus, the research problem of this study was how can Ayurvedic medicine be used to improve stroke patients’ life patterns? Accordingly, this study was conducted with the main objective to investigate the efficiency of Ayurveda medicine as a treatment for stroke patients. Also, specific objectives focused on identifying the experiences of stroke patients during the Ayurvedic treatment process, identifying the possible reasons for the

strokes, and increasing public awareness about Ayurvedic treatments for stroke.

## 2. Materials and Methods

### 2.1 Study Area

This descriptive study was conducted at Ballaketuwa rural Ayurveda hospital situated in Ballaketuwa Grama Niladhari division of Ella divisional secretariat in Badulla District of Uva province.

### 2.2 Population, Sample Size, and Sampling Technique

The purposive sampling method was used to select the sample because the sample selection was based on a particular set of conditions, especially, this study was based on a specific disease and treatment method. Data were obtained from the sample size of 55 participants including 50 stroke patients who were receiving treatments at the hospital during the study period and 05 completely recovered patients from the stroke, who have left the hospital within the last 10 months. Participants have fulfilled the following requirements.

- Experienced any type of stroke symptoms
- Receiving or received Ayurvedic treatment for stroke in the hospital
- Capable and consented to communicate with the researcher

### 2.3 Methods of Data Collection

Data for this study was collected through the structured interview method by using an interview schedule as the majority of stroke patients are incapable of writing or reading due to the disease. Details related to the effectiveness of the treatment, patients' attitudes, beliefs, and the other information regarding the stroke were obtained by using the structured interview method. Also, the observation method was used to get a better understanding of the treatment process,

patients' daily lifestyles and experiences they undergo, and the difficulties they are facing in day-to-day life. About 15 to 20-minute interviews were scheduled with patients to avoid interfering with their treatments at the inpatient facility. The interviews were conducted in the patients' wards or a secluded place for giving a chance to feel free to describe their emotional responses about surviving a stroke. Time duration taken for data collection was from June 2021 to October 2021. Therefore, all the interviews were conducted according to the Covid-19 health guidelines and social distancing was maintained with them.

The objective of the study was explained to all the participants orally and got a written informed consent before the interviews. Therefore, participation was entirely voluntary. Each conversation was audio recorded after informing the patients. Structured interviews with 05 completely recovered patients were also conducted. A total of 55 structured interviews were conducted at the end of this study.

### 2.4. Methods of Data Analysis

For this study, both qualitative and quantitative data was used. Qualitative data were the non-numeric, textual data such as interview records, observation notes, medical records, and audio footage of patients. Qualitative data obtained from the sample size of 55 were analyzed using thematic analysis method by focusing on the use of Ayurvedic medicine on stroke patients, experiences of stroke patients during the Ayurvedic treatment process, and patients' opinion about the treatment process in the Ayurveda Hospital.

Quantitative data was analyzed and presented considering their age group, gender, occupation, education level, first symptoms experienced by the patients, duration of treatment methods, and the time taken for full or partial recovery, by using statistical tables, graphs, and diagrams

applying simple statistical methods in Excel software.

### 3. Results and Discussion

The findings of this study include the information which was gathered from patients. The demographic data of the patients was shown in Table-1. Accordingly, stroke is most prevalent (89%) in adults over

the age of 40, particularly among males (58%). Most of the patients had a moderate level of education. Most patients were married (93%) and occupied in any type of occupation.

Headache and balance loss were the first symptoms that most of the patients experienced (Figure-1).

**Table 01.** Demographic data

Serial No.	Variable	Number of patients	Percentage (%)	
1	Age group	11-20	1	2
		21-30	2	4
		31-40	3	5
		41-50	15	27
		51-60	16	29
		61-70	8	15
		71-80	9	16
2	Gender	81-90	1	2
		Male	32	58
3	Residential area	Female	23	42
		Badulla district	38	69
4	Education Level	Other districts	17	31
		No formal education	3	5.5
		Grade 1-5	3	5.5
		Grade 6-10	9	16
		Ordinary Level	15	27
		Advanced Level	19	35
5	Occupation	Higher Education	6	11
		Private sector	20	36.3
		Government sector	15	27.3
		Self-Employed	10	18.2
6	Marital status	Unemployed	10	18.2
		Married	51	93
		Unmarried	4	7

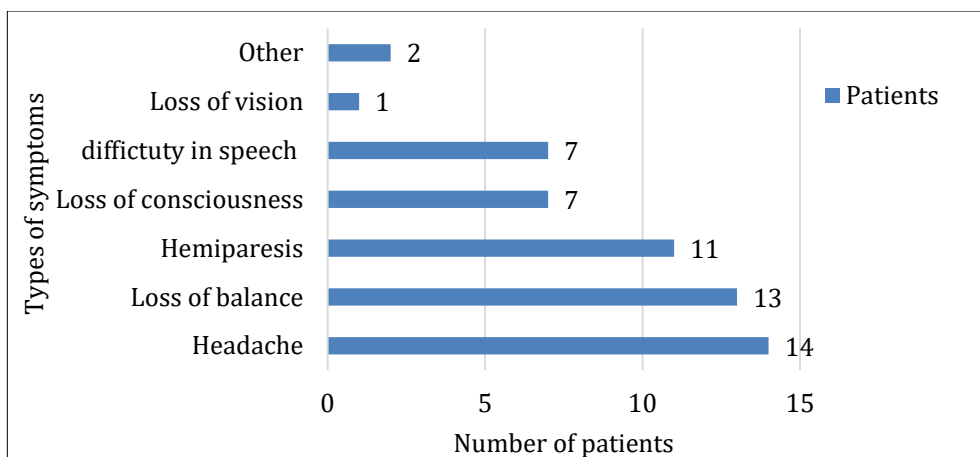
In considering the first symptom that occurred among patients, as Figure-1 depicts, the majority of 14 (25%) patients had a headache as the first symptom. Loss of

balance occurred among 13 (23%) patients and hemiparesis occurred in 11 (20%) patients. Seven patients (13%) experienced difficulty in speech as the first symptom. One

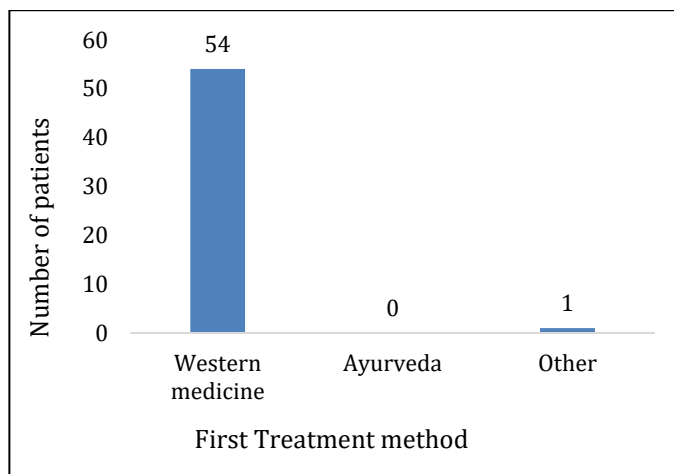
(2%) patient had vision loss and two (4%) patients had numbness and back pain as the first symptom of the stroke.

The method of treatment is also important when considering stroke symptoms. Figure-2 consists of information about the first treatment method for 55 patients that had

undergone immediate treatments for the first stroke symptoms. The majority of the patients (54 (98%)) have chosen western medicine as the first treatment method. A lower number was recorded (one (2%)) for another treatment method (practicing magic) to get recovery from the stroke as his first choice (Figure-2).



**Figure 01.** First symptom experienced by the patients



**Figure 02.** The first treatment method of the patients

Accordingly, many patients are admitted to a government or private western medical hospital for immediate treatment. The only patient who did not seek any formal

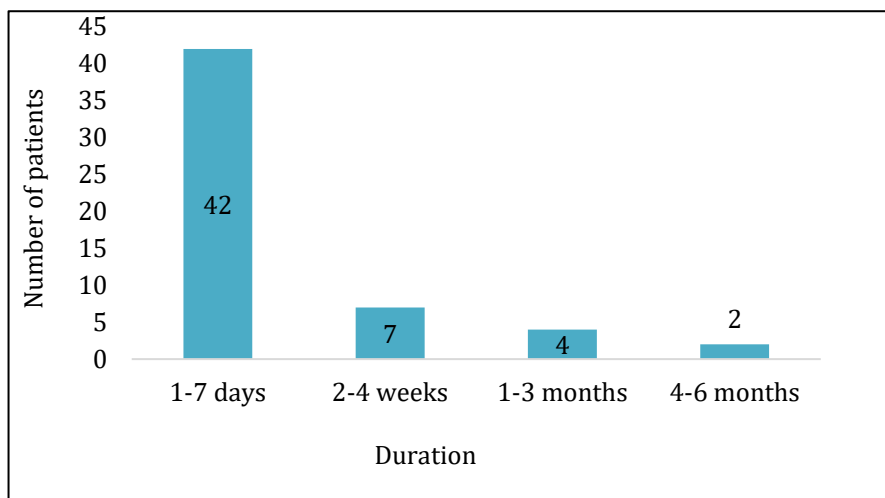
treatment method other than practicing magic was from a peasant area. Nobody selected Ayurveda medicine as their first treatment choice.

The duration of the treatment is also important when selecting a method for recovery. All 55 patients had spent some time on their first treatment method (Figure-3).

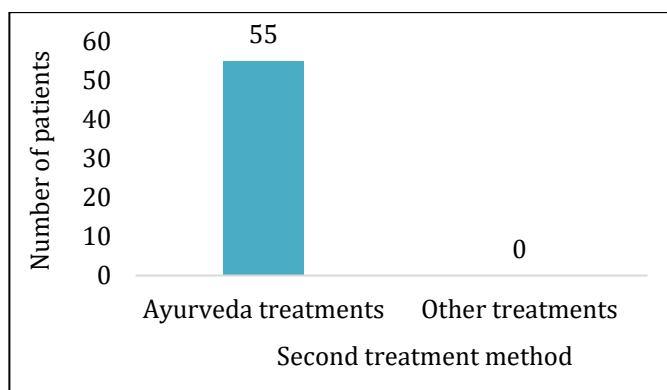
Accordingly, the majority of 42 (76%) patients had a 1–7-day treatment duration for their first treatment methods. All of them had a 1–7-day hospital stays in a western medical hospital. Treatment duration was extended more than one week for the patients who were in severe stages of stroke or accidents or unidentified causes of stroke.

The patient who practiced magic as the first treatment method had a 1–3-month treatment duration.

According to these 55 patients, the first treatment methods yielded both positive and negative results. However, this method was not sufficient to recover from the symptoms. Therefore, after receiving the first treatment method for a considerable duration, patients have chosen Ayurveda treatments as the second treatment option (Figure-4).



**Figure 03.** Duration taken for the first treatment method



**Figure 04.** Second treatment method of the patients

According to Figure-4, all 55 (100%) patients have selected the Ayurveda treatment as their second option for stroke recovery. All the patients who received their first treatment in a western medical hospital were admitted to the Ayurveda hospital as soon as they were discharged from the hospital. The only patient who practiced magic as the first treatment method sought Ayurveda treatments because he didn't get any progress other than severing the condition.

Duration of treatments is important to examine the efficiency of Ayurveda treatment for stroke. Patients revealed that they had improvements from Ayurveda treatments. Five patients recovered completely within one year with their Ayurveda treatment process. Figure-5 shows the duration of Ayurveda treatments of the patients that had undergone the present study.

According to Figure-5, the majority of 29 patients were receiving treatments for 1-4 months. Six patients who were in severe conditions during the admission to the Ayurveda hospital, continued the treatment for 9-12 months. However, regarding 5 completely recovered patients, 3 patients completely recovered within 1-4 months and the rest 2 patients recovered within 5 to 12 months.

Several factors could be identified as the risk factors for stroke in the studied population. All 55 patients revealed their family histories, medical complications, mental stresses, and food & substance use habits, which might be a causative factor for them to get the stroke (Table-2).

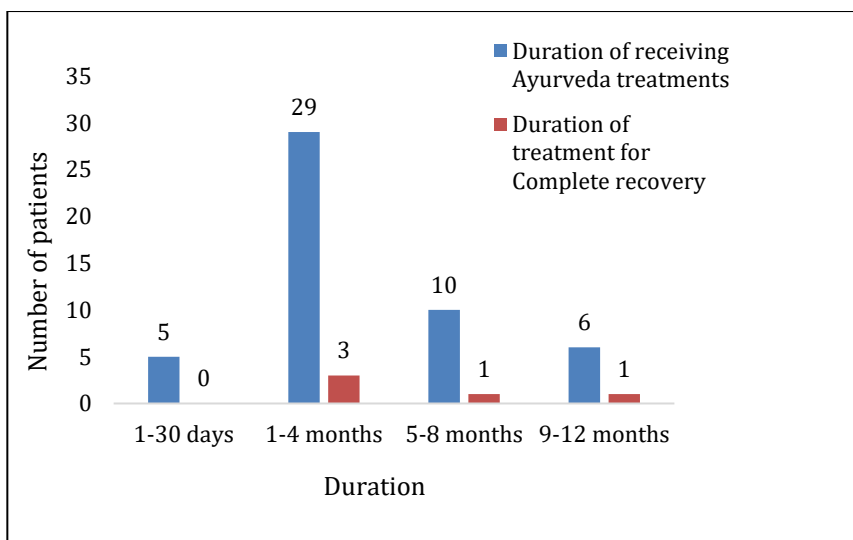
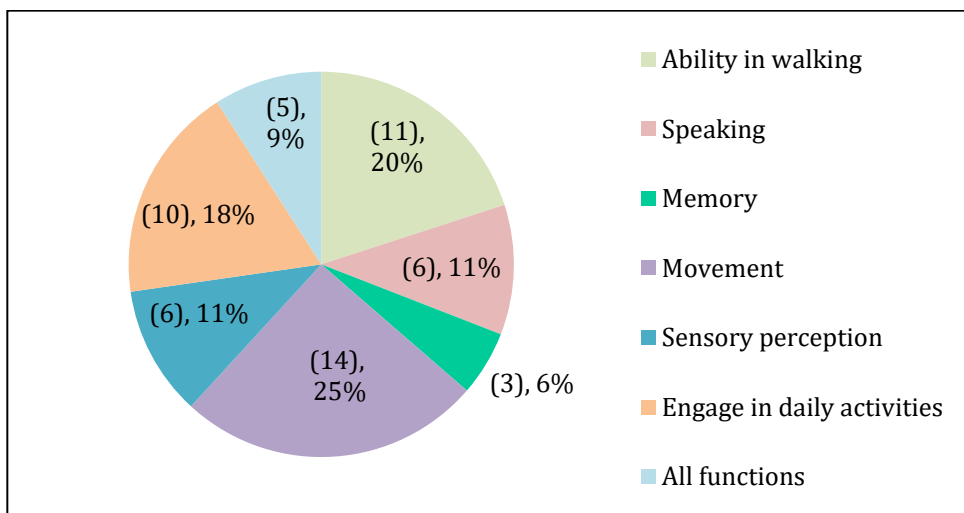


Figure 05. Duration of Ayurveda treatments

Table 02. Possible causative factors for the stroke symptoms

Serial No.	Variable		Number of patients	Percentage (%)
1	Family history of stroke	Family history	6	11
		No family history	49	89
2		Diabetes	12	22

	Presence of other medical complications	Stress/ depression	2	4
		High blood pressure	19	34
		Cholesterol	9	16
		Cardiac diseases	2	4
		No medical complications	11	20
3	Presence of mental stress/ depression before the stroke	Yes	11	20
		No	44	80
4	Food habits	Normal diet	41	75
		Unhealthy diet	14	25
5	Substance use	Yes	26	47
		No	29	53



**Figure 06.** Improvement in Patients' Physical Functions Following Ayurveda Treatments

According to Table-2, substance use such as alcohol, smoking, and drugs including Cannabis sativa (Kansa) (47%), high blood pressure (34%), unhealthy diets (25%), diabetes (22%), mental stresses (20%), cholesterol (16%), and family history (11%) were mentioned as the possible factors for them to have stroke condition.

All the patients mentioned that they had acquired gradual progress following

Ayurveda treatments (Figure-6). Accordingly, all 55 patients acquired positive progress in their physical functions.

As Figure-6 revealed, majority of patients (25%) could move their appendages and 20% got walking ability. Ten (18%) patients got the ability in engaging daily activities, 11% of patients acquired sensory perception and speaking ability, and 6% of patients gained lost memory. Five (9%) patients have completely recovered and improved all body



functions almost to the normal level after getting 1-12 months of Ayurveda treatments.

There are possibilities for the occurrence of side effects through any kind of medication. In Ayurveda, there is a possibility of occurring side effects due to stroke patients' disease conditions and other medical complications in the body. Figure-7 depicts the information about the occurrence of side effects while undergoing Ayurveda treatment among 55 patients.

Accordingly, 96% of patients including totally recovered patients didn't have any side effects but the rest of the 2 patients complained about some side effects.

The findings of this study included the information gathered from patients, which is particularly focused on their perceptions of Ayurveda treatment processes in the hospital and their effectiveness as well as other factors related to stroke patients and stroke treatments. Analyzed data are discussed to get a sound understanding to critique the Ayurvedic treatments for stroke recovery.

Each year, almost 60% of all strokes occur in people globally under 70 years of age (WSO, 2019). In a study conducted by Konduru et al., in 2017, the occurrence of stroke is maximum in the age group around 50-70 years which comprised 60% of the patients. However, in this study, the highest amount of stroke patients were analyzed at 41-60 years which comprised 56% of the patients. The present result also shows that stroke can be mostly seen among people over the age of 40, as 89% of patients reported at age of 41-90 (Table-1). According to a study by Mamidi & Gupta (2014), 60% of males and 40% of females were victimized by a stroke. Similarly, in this study, males comprised 58% and 42% were females. Accordingly, men are more victims of stroke than females because females are protected by endogenous estrogens but males are more prone to hypertension and diabetes mellitus than females (Konduru et al., 2017). In the present study, there was a

moderate level of education as 94.5% of patients attended Primary, Secondary, and Tertiary education. This may later cause strokes because of the physical inactivity and stresses they face during their studies. Patients with less education started to work hard and were prone to substance use at an early age. Moreover, being a victim of stroke can be negatively impacted by patients' family life because a few patients among 93% of married patients were neglected by their families. Occupation of the patients is one of the significant factors related to strokes as 81.8% of patients were engaged in any type of occupation which can be stressful, exhausting, rigid, or physically inactive.

A study by Konduru et al. (2017) shows several patterns of symptoms were identified among 80 stroke patients. Among them, 18% had weakness of the upper limb, 16% with dysarthria (difficulty speaking), left and right hemiparesis in 11%, and headache in 3%. The present study also categorized the first occurred symptoms into 7 types (Figure-1). Accordingly, 25% of patients had a headache as the first symptom, the sudden loss of balance was 23%, hemiparesis was 20%, difficulty in the speech was 13%, loss of consciousness was 13%, other symptoms including knee pains, and back pains were 4%, and loss of vision was 2% respectively.

When considering the first treatment method after the onset of stroke symptoms, all 55 patients have undergone 2 types of medications as their first treatment method (Figure-2). Accordingly, 98% of patients have chosen western medicine (allopathy) as their first treatment method for different reasons such as; having a stroke injection, the first symptom being misinterpreted as another disease, due to not knowing the exact reason for the disease as well as having no confidence in Ayurveda because of the extended duration of the procedure. Only one (2%) patient (Male, 42-year-old) has chosen practicing magic as another treatment method because his family members believed

that he had an impact of some form of evil power.

After choosing a treatment method, patients have undergone their first treatment method for a considerable duration (Figure-3). As Mamidi & Gupta (2014) mentioned, the mean duration of hospital stay for stroke patients was 19 days in their study. In this study, 76% of patients had 1-7 day hospital stays in western medical hospitals, and then they were discharged. However, the majority of the patients mentioned that there wasn't progress from their first treatment method due to a lack of proper treatments. But, in case of accidents, unidentified causes of stroke, and several deep-stage strokes, patients had 2-4 weeks or extended hospital stays and they regained their consciousness through allopathy treatments. Though some patients had positive results including speaking ability through their first treatment methods, several other patients had negative results because their symptoms became more severe such as complete loss of the walking ability.

According to several studies, many patients are forced to discharge too early before they are fit and turn to alternative medicine (Wijeratne et al., 2011). The type of alternative treatment pursued by the majority is Ayurveda among more than 90% of patients who are discharged from the hospital (Mamidi & Gupta, 2014). The reason is that patients are optimistic about the effects of being treated in an Ayurveda rehabilitation facility. And, previous unsuccessful treatment efforts had considerably reduced their hopes and confidence in progress (Baby et al., 2020). According to the present study, all (55 (100%)) patients sought Ayurveda treatments as their second treatment or alternative treatment option for the betterment of stroke recovery (Figure-4). There were several reasons for patients turning to Ayurveda medicine. Most of the patients sought Ayurveda because there was no result in western medicine; they were discharged from the hospital after just

prescribing blood pressure and cholesterol medications as well as physiotherapy. Also, some patients were fed up with the careless attitude of allopathy staff towards stroke patients, and therefore, there was skepticism toward allopathy medicine. The patients who were cured to some extent through allopathy sought Ayurveda medicine to get a more effective and complete cure such as getting the ability to move limbs, get rid of numbness and pains, etc.

In the present study, 53% of patients were receiving Ayurveda treatments (Figure-5) for 1-4 months after admission to the Ayurvedic inpatient facility. 11% of patients who were continuing the treatment for 9-12 months, were in the critical stages of the stroke or the people who were delayed receiving Ayurveda treatments after the onset of stroke. The reason for delaying treatments is not having much faith in Ayurveda medicine before undergoing treatments. As a result, their progress was slower than other patients. All Five completely recovered patients recovered within one year because they were hospitalized in the Ayurveda hospital as soon as they were discharged from western medical hospitals and had proper treatments as prescribed in their clinical sessions. Therefore, they could acquire maximum results in a short period and completely recovered almost within one year. However, they still have oil treatments for their betterment and to avoid the occurrence of a second stroke. Also, they have western medications for their blood pressure, diabetes, and cholesterol. It should be noted that the average duration of recovery for stroke patients depends on the stage of the disease when the patient is hospitalized and his/her condition.

When considering the possible reasons for stroke, family history is a key risk factor for stroke. As Bross & Campbell (2005) mentioned, Stroke risk is further increased by a family history of stroke. In this study (Table-2) 11% had a family history and the rest of the 89% of patients had no family history of

stroke. But it was noted that some of the patients had a family history of other medical complications which are related to stroke including high blood pressure, cholesterol, and diabetes. There is a direct connection between blood pressure and stroke risk (Feather et al., 2020), and CHF (congestive heart failure), diabetes, and coronary artery disease increase the risk (Brunton, 2005). According to Konduru et al study (2017), the most common risk factors of stroke were hypertension (27%) and diabetes (25%). According to the present study (Table-2), high blood pressure/hypertension (34%), diabetes (22%), and cholesterol (16%) are significant risk factors for stroke. It was also noted that patients weren't aware of their medical complications until they had strokes. Therefore, adults should have regular medical checkups to detect their health condition and risk for stroke and other diseases after 40 years of age.

As Excessive stress might increase blood pressure (De Silva et al., 2014), stress or mental pressure is a strong risk factor for stroke. In the present study, 80% didn't have any mental stress/pressure before the stroke. Twenty percent of patients had some kind of mental stress including work pressure, losing family members, and family responsibilities. Unhealthy food habits and substance use are other causes of strokes. As Mamidi & Gupta (2014) mentioned, addictions like smoking, and tobacco chewing was observed in 60% of stroke patients in their study. In this study, 47% of patients used to smoke, and consume alcohol and drugs like *Kansa*. It seems that unhealthy food patterns including oily and salty food, especially non-vegetarian (meat varieties) food contributed much to increase the risk of stroke as 25% of patients said they continuously consumed those kinds of food before strokes.

According to Harrison et al (2017), psychological distress following a stroke is common as all patients explained the psychological distress caused by their stroke. More than half of the patients had times of

low mood and most patients were denoted as being 'down'. Similarly, in the present study, almost all patients had a low mental condition following their strokes because, patients felt helpless, dependent, felt lonely, and in a few cases most pathetically they were abandoned by their family members. Most of the patients were extremely emotional when they recounted their feelings. The following statement of the 76-year-old male patient reveals the pathetic situation of stroke patients.

*"I was a very active person. Most of the daily work was done by me, even drawing water from the well. When I got ill, only my 2 daughters took care of me while my son abandoned me. I had to seek help from my daughters, even going to the toilet. Sometimes, I defecate in the bed without my control. As a father, I felt shame and sad when my daughters had to clean me. At that time I often asked gods to take my life quickly"* (Personal communication).

Therefore, families of patients, caretakers, and medical staff have a responsibility to treat them openhandedly. Also, non-physical needs including couple counseling and psychological support (Peoples et al., 2011) are essential.

There are two main Ayurvedic principles for stroke. They are, *Sodhana* (purificatory) and *Shamana* (palliative) treatments (Baby et al., 2020). Also, several other associated treatments come together alongside five major *panchakarma* procedures including *snehan*, *swedan*, etc. Furthermore, several factors influence treatment, including the patient's age, gender, stroke duration, the prevalence of other diseases, body composition in terms of *Vata*, *Pitta*, and *Kapha*, and climate (Mamidi & Gupta, 2014). In considering the Ayurveda treatments in the present study similar treatments are performed by doctors. According to them, the disease should be diagnosed with the *nadhi* to recognize which one in *vata*, *pita* or *kappa* has

the problem. Treatments can be changed according to the patient's condition. Then a stroke can be mainly treated through internal treatments along with external treatments which consist of *Panchakarma* treatments. *Sodhana*, *Sodhana Shamana*, *Shamana*, and *Tharpana* treatments were performed in the treatment process.

As this hospital was a government hospital, medical expenses are usually free for patients. However, due to the rareness of Ayurveda medicine, sometimes patients have to get them from medical shops or homes. Both patients and medical staff faced different difficulties during the treatment process, particularly during Covid 19 pandemic period. Also, scarcity of availability and high cost of original medicine and drugs, lack of manpower to prepare medicines, the negative impact of climate change on medication, and missed correlation of the doctors, patients, staff, and medicine could cause problems in recovery progress. Moreover, the lack of experience of medical assistants may negatively affect effective *Panchakarma* treatments. Also, a few older patients explained a low appetite due to dietary restrictions.

Apart from the main treatments, exercises are important for stroke patients. Dietary restrictions are also a part of the Ayurveda treatment process. Therefore, Table-3 shows the details about Exercises or meditation and prescribed dietary plans for all 55 patients other than the main treatments.

As exercises are an essential part of treatments in both western medicine (physiotherapy) and Ayurveda, all 55 patients (100%) had exercises and meditations (Table-3). They were prescribed to practice several exercises such as stretching exercises, walking on the sand floor without foot wares, holding little weights, raising hands while sitting on a chair, pressing a rubber ball, or using a stretching tool. Most of the patients also engaged in religious meditations including *ana pana*

*sathi bhavana* and Hindu patients performed their religious meditation to gain spirituality. Exercises are essential for a speedy recovery and meditations are useful for mental relaxation, emotion regulation, and controlling stress because mental health is important in recovery.

**Table 03.** Exercises or meditation and Prescribed Dietary plans

Variable		Number of patients	Percentage (%)
Exercises or meditation	Yes	55	100
	No	0	0
Prescribed Dietary plans	Dietary plans	47	85
	No dietary plans	5	15

Diet modification which is known as *pathya* in Ayurveda is one of the procedures of *panchakarma* treatment modality (Baby et al., 2020). According to study findings (Table-3), 85% of patients were restricted to consuming several foods such as oily food, vegetables including manioc leaves, brinjal, young jack fruit (*polos*), jack fruit, breadfruit (*del*), long beans, tomato, vegetable hummingbird, cereals including green gram, chickpea, and *kurakkan*, and tuna fish, pickle, etc. They were allowed to consume red rice, compulsorily green leaves, eggs, healthy varieties of fish, meat, garlic, and essentially moringa leaves. But, very few patients were only allowed to eat vegetarian food. Patients with diabetes had to consume food to control their sugar levels also. These diet restrictions are compulsory during the treatment process and diet plans vary according to the patient's *dosha* condition.

When considering the progress in patients, Mamidi & Gupta (2014) mentioned, a

maximum number of 53.33% of patients acquired moderate progress. In this study (Figure-6), all the patients acquired improvements in any type of physical functions after Ayurveda treatments such as; the ability to move their appendages (25%), walking ability (20%), ability in engaging daily activities (18%), etc. Completely recovered patients (9%) improved all physical functions. Accordingly, the majority of patients had good progress after treatments when compared to their initial condition. By analyzing the above information, it was proven that Ayurveda medicine is effective in uplifting the quality of life of stroke patients if they have a proper treatment process.

The majority of patients were in good mental condition after the treatment process in the hospital due to the pleasant environment, supportive staff, and new social interactions, similar to the other studies. Patients' opportunity to compare themselves and share feelings and experiences with peers was an important aspect of empowerment (Peoples et al., 2011, p.169). According to Baby et al (2020), a few themes emerged from the experiences of patients including perceived social support, self-reliance, meaning in life, spirituality, and therapeutic milieu. Also, in the present study, patients mentioned that seeing and understanding peers with a similar condition, increased spirituality (as it is compulsory to engage in daily religious rituals in the hospital), new hopes/faith about life and destiny, and the ability to perform daily activities independently improved their mental health.

Patients expressed that not only physical treatments but also mental treatments were also given to improve their mentality during the treatment process. This would help to increase the mental and physical condition of the patients and that has led to the upliftment of their self-confidence. Therefore, the majority of patients (89%) including completely recovered patients have increased their self-confidence after

Ayurveda treatments because of the positive progress. The self-confidence of 11% of patients, who have undergone Ayurveda treatment recently, grew to some extent.

In considering the side effects (Figure-7), 96% including completely recovered patients didn't have any side effects. However, 4% had side effects while undergoing Ayurveda treatments including increased phlegm level and slight itchiness after receiving *paththu* treatments. Although stroke treatments do not cause side effects, there is a possibility of side effects due to stroke patients' disease conditions and other medical complications in the body. But, doctors use remedies to avoid these side effects.

In summary, the majority of patients including completely recovered patients were satisfied with Ayurvedic treatments because they made them feel better and raised their physical and mental health. Similarly, Fox et al (2006) reported that according to all the participant patients, Ayurveda therapy was helpful and they would use it again. Baby et al., (2020) mentioned that patients reported increased strength, improved health habits, and optimism for the future. The present study also supports the perception of the effectiveness of Ayurvedic medicine for stroke recovery. Results revealed that the Ayurvedic treatment methods are the best treatment for recovery from stroke complications.

#### 4. Conclusion and Recommendation

Stroke is a health and social problem because it is one of the leading causes of death, dependency, and long-term disability in adults and it makes challenges for patients, their families, healthcare providers, and the general public. This study demonstrated the effectiveness of Ayurveda treatments for stroke patients to increase their wellbeing. Accordingly, the majority of stroke patients acquired good progress in their physical functions after the treatment process.

Patients also have gained their mental condition which had been weakened by the stroke. Also, this study provides an adequate grasp of stroke risk factors, probable causes, and symptoms. The study investigated details regarding the patients' experiences and perceptions of various stroke treatments, their difficulties, and their experiences during the Ayurveda treatment process. Finally, by considering all the above factors, it can be concluded that Ayurveda treatments can be considered as the most efficient complementary and alternative medicine for enhancing the life status of stroke patients since it increases the stroke patients' physical and mental health. Therefore, community awareness should be drawn for Ayurveda treatments and their inpatient facilities because it is the best treatment method to raise the life of stroke patients.

The followings are several recommendations derived from the study.

- i. Government should provide more facilities for Ayurveda medical hospitals.
- ii. Authorities should draw community awareness and attention to Ayurveda treatments.
- iii. The number of specialized Ayurveda doctors and other medical staff should be increased.
- iv. Medicine and drugs should be supplied continuously to the hospital.
- v. Authorities should encourage patients to get Ayurveda medicine as soon as they get ill to avoid developing severe conditions.
- vi. Psycho-counseling sessions should be provided to patients and their families to help them re-establish their lives.
- vii. Further expanded studies should be conducted in the Sri Lankan context with the assistance of relevant organizations to determine stroke patients' difficulties, experiences, and mental conditions and to promote the effectiveness of Ayurveda medicine on stroke.

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