

# **A Study on C.V.A. Patients with Behavioural Pre & Post Physiotherapy**

Dr. K.S. Ramakrishnan<sup>1</sup>, Dr.Solomon J Renati<sup>2</sup>, Dr. P. Sathya<sup>3</sup>, Dr.Shweta Satish DevarePhadke<sup>4</sup>,  
Janice Oliveira<sup>5</sup>

Professor& HOD, Dept. of Kinesiotherapy& Physical Diagnosis, D. Y. Patil University, Nerul, Navi Mumbai, India<sup>1</sup>

Ph.D Guide, ICSSR Senior Research Fellow, Department of Psychology, K B P College, Navi Mumbai, India<sup>2</sup>

Asst Professor, Dept. of Kinesiotherapy& Physical Diagnosis, D. Y. Patil University, Nerul, Navi Mumbai, India<sup>3</sup>

Asso Professor, School of Physiotherapy, D. Y. Patil University, Nerul, Navi Mumbai, India<sup>4</sup>

BPT Student, D. Y. Patil University, Nerul, Navi Mumbai, India<sup>5</sup>

**ABSTRACT:** Cerebro Vascular Accident (CVA) or C.V.A is a major non-communicable disease of increasing socio-economic importance in ageing population. According to Global Burden of Disease (GBD) 2013 study CAV is regarded as a major cause of long term disability. This study aimed at analyzing the changes in behaviour and personal life status in Cerebro-Vascular accident (CVA) patient's pre and post physiotherapy treatment. There were 40 CVA patients taken for this study. To analyse the change, personal wellbeing index scale was used on CVA patients prior to the physiotherapy treatment and again after six weeks of physiotherapy treatment. The study showed an increase in improvement and the difference in change in the behaviour of CVA patient's pre and post physiotherapy treatment

**KEY WORDS:** Cerebrovascular Accident, Behavioural problem, Personal wellbeing index scale, Physiotherapy.

## **I. INTRODUCTION**

C.V.A is a global health problem. It is the second commonest cause of death and fourth leading cause of disability worldwide. Approximately 20 million people each year will suffer from C.V.A and of these 5 million may lead to death. In developed countries, C.V.A is the first leading cause for disability, second leading cause of dementia and third leading cause of death.[14][15] [20]

C.V.A is also a predisposing factor for epilepsy, falls and depression in developed countries and is a leading cause of functional impairments, with 20% of survivors requiring institutional care after 3 months and 15% - 30% being permanently disabled. C.V.A is no longer a disease of the developed world. Low and middle-income countries account for 85.5% of total C.V.A deaths worldwide and the number of disability-adjusted life years in these countries was approximately seven times that in high-income countries.[5][10][14]

C.V.A is a life-changing event that affects not only the person who may be disabled, but their family and caregivers. Utility analyses show that a major C.V.A is viewed by more than half of those at risk as being worse than death. In many high-income countries, C.V.A management has changed substantially in the past two decades. Impressive developments through structured clinical pathways for thrombolysis and secondary prevention have been made. Organized provision of care in a C.V.A unit have been found to increase the number of patients who survive, return home, and regain functional independence in their everyday activities. However, implementation of such organized care for C.V.A is limited and inadequate in low and middle income countries, especially in a country like India where resources for rehabilitation are scarce.[14]

Morbidity and Mortality associated with C.V.A Global C.V.A estimates [16]

- 400-800 C.V.As per 100,000

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- 5.7 million Deaths
- 16 million new acute C.V.As every year
- 28,500,000 DALYs (disability adjusted life-year)
- 28-30 day case fatality ranges from 17%-35%

## C.V.A Morbidity and Mortality in India [16]

- Prevalence 90-222 per 100,000
- 102, 620 million deaths
- 1.44-1.64 million cases of new acute C.V.As every year
- 12% of C.V.As occur in the population aged <40 years [17]
- 28-30 day case fatality ranges from 18-41%

C.V.A is caused by the interruption of the blood supply to the brain, usually because a blood vessel bursts or is blocked by a clot. This cuts off the supply of oxygen and nutrients to the brain, causing damage to the brain tissue. The WHO clinically defines C.V.A as 'the rapid development of clinical signs and symptoms of a focal neurological disturbance lasting more than 24 hours or leading to death with no apparent cause other than vascular origin'. Depression is seen more with the younger age group (48.64%) [17] The effects of a C.V.A depend on the site and severity of brain injury. A very severe C.V.A can cause sudden death. The most common symptom of a C.V.A is sudden weakness or numbness of the face, arm or leg, most often on one side of the body. Other symptoms include: confusion, difficulty speaking or understanding speech; difficulty seeing with one or both eyes; difficulty walking, dizziness, loss of balance or coordination; severe headache with no known cause; fainting or unconsciousness (WHO).[2]

The emotional, psychological and behavioral changes that take place following a C.V.A are, in part, caused by physical damage to the brain. Each C.V.A is different and, to a large extent, the psychological problems that someone may experience will vary depending on the part of the brain affected and the extent of the damage. For example, impulsive behaviour is associated with damage to the right half of the brain, while tearfulness and outbursts of anger are more common in those with damage to the left half of the brain. Apart from the psychological effects caused by damage to the brain, having a serious illness such as a C.V.A, being in hospital, or facing up to the reality of having to live with any lasting disabilities can affect emotional health. Someone may feel anxious or depressed, be frustrated, angry or bewildered. All these feelings are common and, although they usually fade with time, they may persist in some people. [19]

## II. RELATED WORK

ML Hackett, C yapa-2005(AHA)-conducted a study on frequency of depression after CVA. M.L.kauhanen, J.T.korpelainen (AHA)-conducted a study on post CVA depression correlating with cognitive impairment neurological deficits. F.B Van de Weg-conducted a study to investigate the influence of depression on functional recovery after CVA. G.Gainotti et al-conducted a study to see the effect of CVA on patients and the post CVA depression. The Hamilton depression rating scale and the post CVA depression rating scale. F.J.carod-artal, JA Egado (Cerebrovascular disease 2009)-conducted a study on quality of life after CVA. Cumming, joby B, collier, Janice (journal of rehabilitation medicine 2008)-conducted a study on the effect on early mobilization after CVA on psychological well-being on levels of depression, anxiety, irritability using irritability depression anxiety scale. Jorge moncayogaete and Julian bogousslavsky-conducted a study on post CVA depression. Caryl.L.Gay (2013)-conducted a study on depressive symptoms in acute CVA. Hafsteinsdottir TB, grypdonck M-conducted a study to review the research literature on the patients experience of CVA

## III. METHODOLOGY

- STUDY DESIGN: Experimental study
- SAMPLING TECHNIQUE: Convenient Sampling
- STUDY SETTING: D.Y. Patil Hospital, Nerul, Navi Mumbai.

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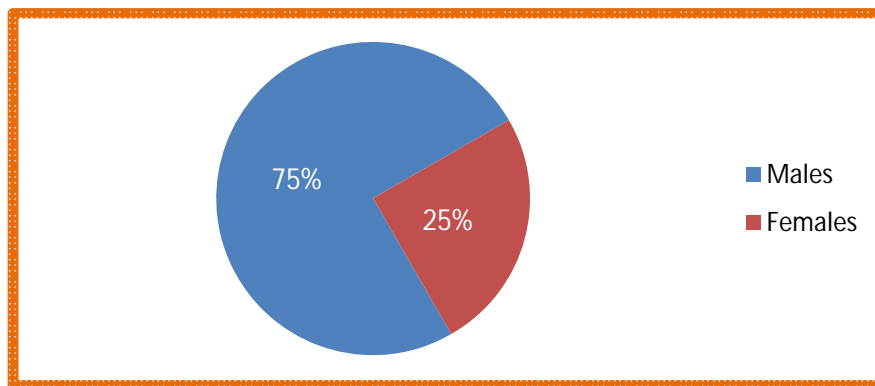
- SAMPLE SIZE: 40 subjects
- POPULATION FOR STUDY: Patients suffering from Cerebrovascular Accident.
- DURATION OF STUDY: 6 months
- MATERIAL USED: Personal Wellbeing Index Scale

PROCEDURE: Permission to conduct study at D. Y. Patil Hospital, Nerul, Navi Mumbai has been obtained from the University Authority prior to the study. From each subject, Informed consent has been obtained sports individuals were interviewed in person to get information. A validated Personal Wellbeing Index Scale was used. The scale was explained to each and every patient. And the responses were recorded pre and post Physiotherapy treatment.

## IV. RESULT AND INTERPRETATION

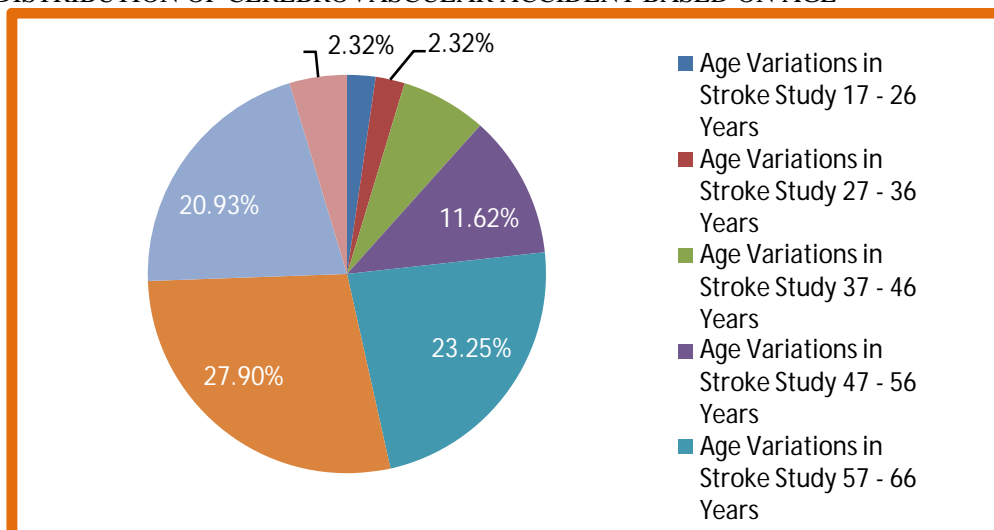
This study has been conducted with a sample of 40 Cerebrovascular Accident patient.

Diagram 1: DISTRIBUTION OF CEREBROVASCULAR ACCIDENT BASED ON GENDER



Inference: The above pie diagram shows 75% of males and 25% of females are affected with C.V.A

Diagram 2: DISTRIBUTION OF CEREBROVASCULAR ACCIDENT BASED ON AGE



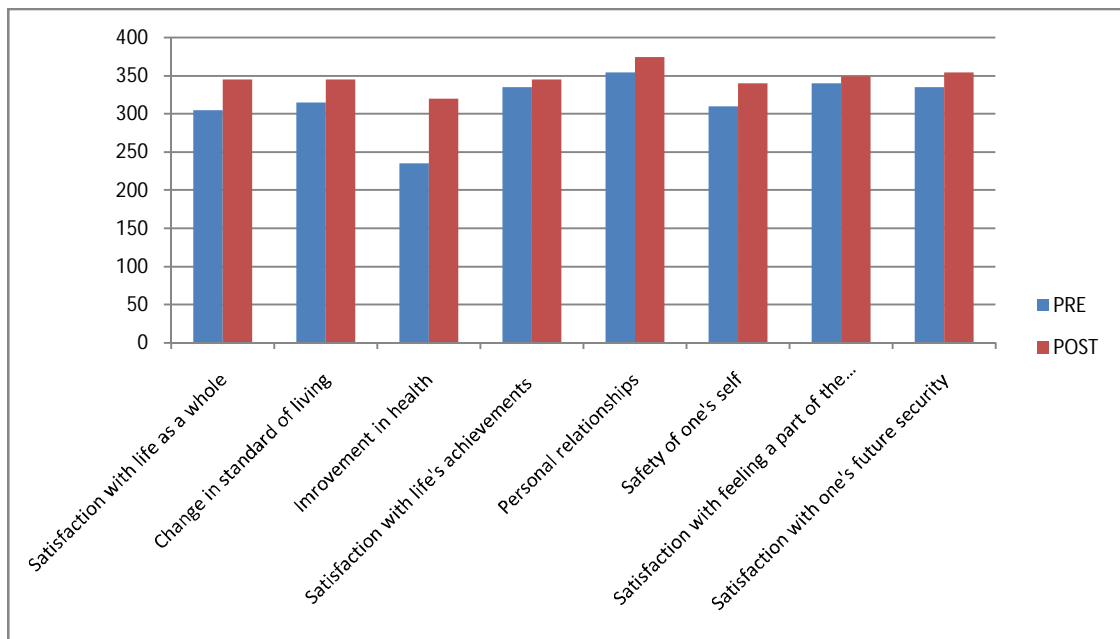
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Inference: The highest occurrence of CVA according to this is age group is 67-76 years with 27.90% , the next affected is age group 57 to 66 yrs with 23.25% and 47 to 56 Yrs with 20.93%.

Diagram 3: THE PRE AND POST RESULT OF PERSONAL WELLBEING INDEX SCALE.



Inference: The pre and post result of Personal wellbeing Index Scale shows that there is overall improvement in all the domains of the Scale in CVA patients after taking Physiotherapy treatment.

## V. DISCUSSION

C.V.A leads to mental, physical, psychological and cognitive disabilities or a combination of all. A person may be physically independent but many have various psychological problems.

Psychological problems are common complications following C.V.A and have an impact on all aspects of recovery. The analysis of the data shows the psychological symptoms were slightly less intense and less frequent in the follow up after a period of six weeks of physiotherapy treatment.

In this study there is improvement in psychological behaviour post the physiotherapy treatment. This could be because before treatment, the cortical representation area of the affected hand muscle was significantly smaller than the contra lateral side. After treatment, the muscle output area size in the affected hemisphere was significantly enlarged, corresponding to a greatly improved motor performance of the paretic limb.[9] Tight muscles will change the normal biomechanics.[19]

Evaluation of Precision grips like Pinch, 2 Jaw chuck, 3 Jaw Chuck, Pinches need to assessed first on dominant hand & then on non-dominant. The pinchometer, was held by the examiner at the distal end to prevent dropping. [18] This also will help to morally boost the C.V.A Patient to come out of Behavioral Problems and improve functional recovery.

The stroke is more common in males than females and this difference could be because of increase of high blood pressure seen in men more because of the rapid urbanization, sedentary life-style and competitive environment that has resulted in stress. [7]

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This study shows there is increase in the MCA type of C.V.A. The MCA feeds an enormous territory of brain, including the frontal, temporal, and parietal lobes and the brain's deep structures—basal ganglia and internal capsule. The MCA has a main stem and several branches arising from it. Occlusion of the main stem affects the entire territory of brain supplied by the MCA. Distribution of the MCA is so large that a C.V.A of the main stem puts the victim at risk for severe disability or death. In contrast, occlusion of an MCA branch damages a smaller brain territory and causes less severe disability. [3][7]

In this study about 27% of the population affected with CVA are above the age of 67years. Globally, C.V.A is the second leading cause of death above the age of 60years. C.V.A is less common in people under 40 years, although it does happen. [4]

In this study there is improvement in the satisfaction of life post the physiotherapy treatment than in the pre-treatment phase this could be because in an elderly population affected with C.V.A the patients are seen to have more psychiatric ,lower functional abilities and a pronounced reduction in life satisfaction. After a 6 weeks session of physiotherapy the symptoms of anxiety gradually reduced over time while sleeping problems and prevalence of major depression decreased significantly during the rehabilitation phase. During this phase, social contacts and leisure-time activities were partly resumed and life satisfaction improved. [10]The differences between anxiety and self-confidence between team and individual [16] causes huge difference in CVA patients as they mostly undergo Physiotherapy treatment individually.

The standard of living post the treatment is improved than during the initial phase of the treatment. This could be possible because of the improved functional activities with the help of physiotherapy which helped the patients to get back to their home and undertake social roles. However, C.V.A patients undergoing the physiotherapy treatment showed a better improvement relatively, thus indicating the importance of maintenance of exercise and training for all C.V.A affected patients. [10]

This study showed improvement in the health of the C.V.A patient post physiotherapy this change in health could be due to the Physiotherapy C.V.A rehabilitation which also give importance to community. It is recommended that all C.V.A survivors with residual C.V.A-related problems are followed up by specialist C.V.A services within 24 hours of discharge from hospital. Early Supported Discharge (ESD) teams fulfil this role and are clinically effective, especially when patients return home with mild or moderate disability. [1]

The patients affected with C.V.A are much more satisfied with their life achievements post the physiotherapy treatment than they were in the initial phase and this change could be because of the increase in the intensity of the treatment which leads to recovery of mobility after C.V.A. [18]

In this study there is improvement in personal relationships post the physiotherapy treatment. Compared with a general elderly population, at 3 years after a C.V.A the patients had more psychiatric symptoms, lower functional ability, and a pronounced reduction in life satisfaction. Contacts with close family members were maintained over the 3-year follow-up period, whereas contact with other relatives, friends, and neighbours declined early after C.V.A and remained lower than in the general elderly population. Decreased socializing outside the home in half of the physically restored long-term C.V.A survivors has been reported. Other researchers have demonstrated how social support decreases the risk of poor psychosocial adjustment in patients examined 2-24 months after C.V.A.

Social disintegration was significantly associated with reduction in global life satisfaction. Failure to maintain or re-establish social ties except for those with close family members, as shown by our results, probably is an important determinant of poor life satisfaction late after C.V.A. Psychological well-being was associated with the social integration of an individual outside the immediate family. Examining the changes over time gives further information about these relationships. ADL functions as well as most somatic/neurological symptoms changed little after 3 months while psychiatric symptoms continued to change. Thus, symptoms of anxiety were gradually reduced over time while sleeping problems and the prevalence of major depression decreased significantly during the interval from 3 months to

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1 year after the C.V.A. During this period, social contacts and leisure time activities were partly resumed and life satisfaction improved. [10]

The frequency of adverse effects such as falls in C.V.A patients is high pre physiotherapy treatment and this is a risk to one's safety. The increase in such adverse effects increases with the increasing disability. [6]. Post physiotherapy treatment the frequency of fall has reduced.

There is increase in satisfaction feeling a part of the community post physiotherapy and pre physiotherapy shows a decrease this is because community reintegration post C.V.A is one of the most important and underrated areas of C.V.A care. Failure to mobilize adequate community supports can negate the best efforts of the C.V.A rehab. Higher levels of social support are associated with greater functional gains, less depression, improved mood and social interaction as well as improved quality of life. [13]

There is improvement in ones future security post physiotherapy treatment than in the pre-treatment phase this may be seen because the physical impact of C.V.A with its visible disabilities is in some ways easier for survivors to manage and where possible they develop practical strategies for overcoming challenges and risks. However, the psychological overlay, such as loss of confidence and fear of going out alone appear to need more complex planning to overcome, such as going out with somebody, building activities up slowly, using a combination of walking and transport. Getting back to being independent within the home, required adapting the physical environment, developing practical strategies and accepting help and support where needed. For those who are able to go back to work, patience and support are needed in the work environment. Loss of essential life skills can damage identity and affect relationships within the family. Survivors use a range of 'mental' strategies to maintain a positive outlook and boost their self-confidence that enables them to plan their practical strategies. Survivors who are housebound need far more long-term help and support to ensure that they are given a chance to reach their potential and to try and minimize the stress experienced. [8]

## VI. CONCLUSION

Based on the data analysis of the scores obtained from the personal wellbeing index scale used pre and post physiotherapy the following conclusion can be made. That there is an increase in improvement and difference in change seen in the behaviour and personal life status of CVA patient's pre and post physiotherapy treatment.

Physiotherapy use has salutary effect on personal wellbeing of CVA patients. Physiotherapy has strong impact on alleviating psychological problems commonly associated with C.V.A patients. Physiotherapy is also found to be effective in contributing to social adjustment of the C.V.A patients.

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