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Effectiveness of home therapy on affected upper extremity to reinforce motor function among stroke patients

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Abstract

Effective stroke education and practices to remain an essential part of the continuum of stroke care for the foreseeable future.

Objective: Determine the Effectiveness of Home therapy practices focuses onto provide best practices and to improves fine motor skills among affected upper extremity stroke patients.

Method

Research Design: Pre experimental one group pretest-posttest design

Setting: Sri ASP Out Patient Neuro Clinic. Chennai.

Participants: 30 Stroke patients with affected upper extremity who satisfied the inclusion criteria.

Intervention: Home therapy given at 45minutes 3 times each week over the affected upper extremity of stroke patients.

Results: Comparison of Mean and Standard Deviation of pre and post-test of Disabilities of the Arm, Shoulder and Hand Score of post-test (M=30.03 SD=3.62) was higher than that of in the pretest (M=17.50, SD=4.54). Comparison Mean and Standard Deviation of Upper Extremity Functional Scale Activities in the Post test (M=30.02, SD=3.42) was higher than that of in the Pre-test (M=17.29, SD=4.0). The difference was found to be statistically significant at $P<0.001$ levels which indicates effectiveness of Home therapy of affected upper extremity among Stroke patients.

Conclusion: Effectiveness of Home therapy for affected upper extremity help the stroke patients to enhances the motor activities and improve Activities of Daily Living in day today life.

Keywords: Effectiveness, home therapy, upper extremity, reinforce, stroke, motor function

Introduction

The boundaries between nursing stroke care tasks such as mobilization, positioning, feeding and early multidisciplinary rehabilitation in stroke patients overlap, as most nursing interventions have rehabilitative functions too, the aim being to help the patient to regain his/her independence^[1]. Action Research Arm Test, Motricity Index, and Fugl-Meyer motor evaluated that to increased development in the arm function^[2]. The long term goal of educative and practice is to improve function so that the stroke survivor can became as independent as possible Centre for Physical Medicine and Rehabilitation, Case Western Reserve University analysed that the purpose of the study was to assess the efficacy of neuromuscular stimulation in enhancing the upper extremity motor and functional recovery of acute stroke survivors.46 stroke survivors were randomly assigned to receive either neuromuscular stimulation or placebo. The treatment group received surface neuromuscular stimulation to produce wrist and finger extension exercises. The control group received placebo stimulation over the paretic forearm. The difference was found to be statistically significant at $P<0.001$ level which indicates the effectiveness of surface neuromuscular stimulation to produce wrist and finger extension exercises

[3].

The study objectives are

1. To assess the effectiveness of Home therapy to reinforce the motor activity of the affected upper extremity among stroke patients through pre -test
2. To evaluate the effectiveness of Home therapy to reinforce the motor activity of the affected upper extremity among stroke patients through post-test
3. To find the association between pre &post- test on Home therapy to reinforce the motor activity of the affected upper extremity among stroke patients and selected demographic variables.

The null hypothesis formulated for the study includes;

Ho1. There will be no significant difference between the pre test and post test level on Home therapy to reinforce the motor activity of the affected upper extremity among stroke patients.

Ho2. There will be no significant association between demographic variables on Home therapy to reinforce the motor activity of the affected upper extremity among stroke patients.

Theoretical Model

The theoretical framework adapted for this study is based on Orem's Self-Care Deficit Theory (1971) [4]

Materials and Method

A one group pretest-posttest experimental research design was adopted. The study was conducted in Sri ASP Out Patient Neuro Clinic, Chennai. The intervention given to the participants in the study group included baseline assessment motor arm test [5] and randomization (Week-0). Pre-test for selected patients regarding demographic variables, questionnaire on disabilities and hand score and home therapy (Arm exercises, and Best hand exercises for stroke patients at home) given 45mts. [6, 7] Home therapy 3times each week (week 1-8). At the End of home therapy assessment (week-4) Primary outcome measures assessed upper extremity functioning with evaluate the Arm, Shoulder and Hand (DASH) Score [8, 9]. Compliance assessment via phone calls follows up (week-6). End of follow up assessment of Post Test with the same of pretest. Secondary outcome measures evaluated with the Upper Extremity Functional Index (week-8) [10, 11]. The inclusion criteria for selection of affected upper extremity stroke Patients who are already diagnosed to have stroke with mild and moderate deficit of upper limb. Patients who are able to read and understand and English or Tamil. Age group above 30 to 70. Patients who are visiting Sri ASP Out Patient Neuro Clinic. Neoplastic Disease of the Central Nervous System, Spinal Muscular Atrophy, Meningitis and Encephalitis were excluded. Pilot study was done to confirm feasibility and practicability. No modifications were made in the tool and data collection procedure for the main study.

Data collection procedure

Ethical permission for conduction of the study was obtained from Sri ASP Out Patient Neuro Clinic, Chennai. Prior to the collection of data; the investigator introduced self to the patients and established rapport with them. The patients who met the inclusion criteria were chosen.

The intervention was explained to the patients and a written consent was obtained prior to initiation of the intervention. The purpose of the study was explained to each subject in the language known to them (Tamil/English). Adequate privacy was ensured throughout the study. Collected the data from June 2018- July 2018. (2 month). Samples selected by using purposive sampling technique. Initially the investigator assessed the Motor Arm Test. Enrolment for Screening and informed consent (Stroke patients with upper limb paresis). Allocation Baseline assessment and randomization (Week-0). Accessible population and setting patients with affected upper extremity stroke patients. (True Experimental Design pre- test –post-test only design). Pre-

test given for selected patients regarding demographic variables, Home therapy Practices given 45mts. Demonstrated Home Therapy Practices 3times each week 1-8. (Monday, Wednesday and Friday) End of treatment assessment (week-4) Primary outcome measures assess upper extremity functioning to evaluated with Arm, Shoulder and Hand (DASH) Score. Compliance assessment via phone calls (week-6) Follow-up. Post Test was given with Home therapy Practices and Secondary outcome measures assessed upper extremity functioning to evaluated with Upper Extremity Functional Index (week-8).

Instruments

The instrument used for three sections. Section A- Demographic variables that included age in years, sex, Educational Status, Occupation, Monthly Family Income, Family History of Stroke, Dietary History, Duration of disease in years, check up in month and History of chronic disease; Section B-1..Primary measure on disabilities of Arm, Shoulder and Hand score to assess the effectiveness of Home therapy practice in upper extremity performance of self-report measure use to assess the upper extremity function. It consists 30 Disabilities of the Arm, Shoulder and Hand (DASH) Score questions with five responded options. Each respond is given a numerical score and the scores are totaled to measure the respondents to practice. 2. Upper extremity functional Index assess the effectiveness of Home therapy practice in affected upper extremity performance. It consists 18 questions with five responded options. Performances were timed and rated by using a 5-point functional ability scale.

The test was administered to subjects' 8-week. Section-C. Effectiveness of Home therapy practices (Pre-test on 1week Post-test on 8week). It consists of total 24 Practices includes best hand exercises for stroke patients at home and Hand level 1 exercise.

Statistical Analysis

Descriptive statistics (frequency, percentage, mean, standard deviation) and inferential statistics (paired t test) and Chi square test were used to investigate the data and to test the null hypotheses. In all the tests value less than .05 were interpreted as statistically significant.

Results

Table-1 reveals that the Demographic variables of the participants indicated that 40% of the stroke patients were in the age group of 61-70 years and 66% were in the male gender. 40% of the patients had high school education. 68% of the patients were in the non vegetarian, duration of stroke in years were below 3years, history of chronic disease 34% have hypertension disorder.

Table 1: Frequency and Percentage Distribution of Demographic variables of stroke patients (Age in years, Sex, Educational status, Dietary History, Duration of Stroke in years and History of Chronic Disease.) (N=30)

| S. No | Demographic variables | Frequency | Percentage |
|-------|---------------------------------------|-----------|------------|
| 1. | 1. Age in years | | |
| | 1.1.30-40 | 5 | 8 |
| | 1.2.40-50 | 7 | 20 |
| | 1.3.51-60 | 7 | 32 |
| | 1.4.61-70 | 11 | 40 |
| 2. | 2. Sex | | |
| | 2.1-Male | 20 | 66 |
| | 2.2-Female | 10 | 34 |
| 3. | 3. Educational Status | | |
| | 3.1. Elementary | 4 | 4 |
| | 3.2. High School | 8 | 40 |
| | 3.3. Higher Secondary | 9 | 34 |
| | 3.4. Degree | 9 | 22 |
| 4. | 4. Dietary History | | |
| | 4.1. Non-Vegetarian | 19 | 68 |
| | 4.2. Vegetarian | 11 | 32 |
| 5. | 5. Duration of Stroke in years | | |
| | 5.1. <3yrs | 12 | 40 |
| | 5.2.3-6yrs | 7 | 30 |
| | 5.3.6-9yrs. | 8 | 15 |
| | 5.4.>9yrs. | 3 | 15 |
| 6. | 6. History of Chronic Disease. | | |
| | 6.1. Diabetes Mellitus | 5 | 25 |
| | 6.2. Hypertension | 10 | 34 |
| | 6.3. Renal Disorders | 10 | 30 |
| | 6.4. Heart Disorders | 5 | 11 |

Table 2: Mean and standard deviation of pre test and post test of primary measures to assess the disabilities of the arm, shoulder and hand score (DASH) of patients with stroke (N-30)

| S. No | Activities | Pre-Test | | Post-Test | | ‘t’ |
|-------|--|----------|------|-----------|------|---------|
| | | M | SD | M | SD | |
| 1. | Open a tight or new jar | 2.26 | 1.01 | 3.54 | 0.79 | 6.68** |
| 2. | Write | 1.46 | 1.03 | 3.16 | 0.87 | 10.02** |
| 3. | Turn a key | 4.18 | 1.06 | 4.06 | 0.87 | 4.95** |
| 4. | Eat food | 1.98 | 1.41 | 3.5 | 1.05 | 6.22** |
| 5. | Push open a heavy door | 3.14 | 1.80 | 3.22 | 0.82 | 0.30 |
| 6. | Place an object on a shelf above your head | 1.68 | 1.10 | 3.2 | 0.70 | 7.43** |
| 7. | Do heavy house hold chores(eg wash walls and floors) | 2.44 | 1.45 | 4.62 | 1.05 | 9.49** |
| 8. | Garden or do yard work | 2.36 | 1.14 | 3.76 | 0.82 | 7.65** |
| 9. | Make a bed | 2.25 | 1.02 | 3.53 | 0.78 | 6.65** |
| 10. | Carry a shopping bag or brief case | 1.43 | 1.03 | 3.15 | 0.86 | 10.01** |
| 11. | Carry a heavy object(over 10lbs) | 4.17 | 1.04 | 4.05 | 0.85 | 4.94** |
| 12. | Change a light bulb over head | 1.96 | 1.40 | 3.3 | 1.04 | 6.20** |
| 13. | Wash or blow dry your hair | 3.15 | 1.79 | 3.23 | 0.84 | 0.31 |
| 14. | Wash your back | 1.67 | 1.10 | 3.21 | 0.82 | 7.43** |
| 15. | Put on a pull over sweater | 1.64 | 1.11 | 3.20 | 0.83 | 7.42** |
| 16. | Use a knife to cut food | 1.42 | 1.02 | 3.14 | 0.85 | 10.0** |
| 17. | Play cards | 3.14 | 1.78 | 3.22 | 0.83 | 0.30 |
| 18. | Recreational activities in which you take some force or impact through your arm shoulder or hand(eg golf, hammering, tennis) | 3.12 | 1.76 | 3.21 | 0.82 | 0.29 |
| 19. | Recreational activities in which you move your arm freely (for eg playing Frisbee,badmiton) | 1.97 | 1.40 | 3.4 | 1.04 | 6.21** |
| 20. | Manage transportation needs (getting up from one place to another) | 1.68 | 1.10 | 3.2 | 0.70 | 7.43** |
| 21. | Sexual activities | 2.26 | 1.01 | 3.54 | 0.79 | 6.68** |
| 22. | During the past weeks to what extent has your arm, shoulder or hand problem interfered with your normal social activities, family, friends, neighbors or groups? | 1.98 | 1.41 | 3.5 | 1.05 | 6.22** |
| 23. | During the past week where you limit your work or other daily activities as a result of your arm shoulder or hand problem? | 1.96 | 1.40 | 3.2 | 1.03 | 6.20** |
| | Please rate the severity of the following symptoms | | | | | |
| 24. | Arm, shoulder or hand pain | 2.24 | 1.01 | 3.53 | 0.76 | 6.67** |
| 25. | Arm, shoulder or hand pain when you performed any specific activity | 1.43 | 1.01 | 3.14 | 0.84 | 10.01** |
| 26. | Tingling (pins and needles) in your arm, shoulder or hand | 4.17 | 1.06 | 4.06 | 0.85 | 4.94** |
| 27. | Weakness in your arm, shoulder or hand | 1.65 | 1.11 | 3.1 | 0.71 | 7.42** |
| 28. | Stiffness in your arm, shoulder or hand | 2.44 | 1.43 | 4.61 | 1.04 | 9.48** |
| 29. | During the past week how much difficulty have had sleeping because of the pain in your arm shoulder or hand | 2.34 | 1.12 | 3.75 | 0.82 | 7.63** |
| 30. | I feel less capable, less confidence or less useful because of my arm shoulder or hand problem | 2.31 | 1.11 | 3.71 | 0.81 | 7.62** |

Primary measures to assess the disabilities of the arm, shoulder and hand score (DASH) of patients with stroke reveals that the patients had a significant improvement ($P<0.05$) in their mean post-test knowledge scores in relation to all the aspects of disabilities of the arm, shoulder and hand score (DASH). Except (Push open a heavy door, Wash or blow dry your hair, Play cards and Recreational activities in which you take some force or impact through your arm shoulder or hand).

The data in table 3 reveals that the Comparison of mean and standard deviation of primary measures to assess the disabilities of the arm, shoulder and hand score of patients with Stroke in the post test ($M=30.03,SD=3.62$) was higher than that of in the pre test ($M=17.50,SD=4.54$). The difference was found to be statistically significant at $P<0.001$ level which indicates the effectiveness of post-test to assess the disabilities of the arm, shoulder and hand score of patients with stroke. This H_0 is rejected.

Table 3: Comparison of mean and standard deviation of pre test and post test of primary measures to assess the disabilities of the arm, shoulder and hand score (DASH) of patients with stroke (N=30)

| Comparison | M | SD | t |
|------------|-------|------|---------|
| Pre test | 17.50 | 4.54 | 12.85** |
| Post test | 30.03 | 3.62 | |

** $P<0.001$

Table-4 reveals that the Mean and Standard deviation of pre test and post test of secondary measures to assess the upper extremity functional Index among stroke patients shows that

the significant improvement ($P<0.05$) in their mean post-test scores in relation to all the aspects of the upper extremity functional scale among stroke patients.

Table 4: Mean and standard deviation of pre test and post test of secondary measures to assess the upper extremity functional Index among stroke patients.

| Activities | Extreme Difficulty of Unable to Perform Activity | | | | Quite a Bit of Difficulty | | | | Moderate Difficulty | | | | A Little Bit of Difficulty | | | | No Difficulty | | | |
|--|--|------|-----------|------|---------------------------|------|-----------|------|---------------------|------|-----------|------|----------------------------|------|-----------|------|---------------|------|-----------|------|
| | Pre-test | | Post-test | | Pre-test | | Post-test | | Pre-test | | Post-test | | Pre-test | | Post-test | | Pre-test | | Post-test | |
| | M | SD | M | SD | M | SD | M | SD | M | SD | M | SD | M | SD | M | SD | M | SD | M | SD |
| 1. Any of your usual work, household or school activities. | 2.26 | 1.01 | 3.54 | 0.79 | 2.21 | 1.0 | 3.5 | 0.76 | 2.21 | 1.01 | 3.51 | 0.78 | 2.21 | 1.01 | 3.52 | 0.76 | 2.22 | 1.0 | 3.52 | 0.74 |
| 2. Your usual hobbies, recreational or sporting activities | 1.42 | 1.02 | 3.15 | 0.87 | 1.42 | 1.02 | 3.14 | 0.85 | 1.42 | 1.01 | 3.12 | 0.83 | 1.41 | 1.02 | 3.16 | 0.83 | 1.46 | 1.04 | 3.12 | 0.86 |
| 3. Lifting a bag of groceries to waist level | 4.17 | 1.06 | 4.62 | 0.86 | 4.12 | 1.02 | 4.61 | 0.84 | 4.12 | 1.05 | 4.60 | 0.85 | 4.13 | 1.02 | 4.59 | 0.83 | 4.10 | 1.02 | 4.58 | 0.85 |
| 4. Lifting a bag of groceries above your head | 1.98 | 1.41 | 3.5 | 1.05 | 1.97 | 1.40 | 3.2 | 1.04 | 1.94 | 1.40 | 3.3 | 1.02 | 1.96 | 1.39 | 3.4 | 1.05 | 1.94 | 1.40 | 3.2 | 1.03 |
| 5. Grooming your hair | 3.14 | 1.80 | 3.22 | 0.82 | 3.12 | 1.70 | 3.21 | 0.81 | 3.12 | 1.70 | 3.20 | 0.81 | 3.10 | 1.79 | 3.21 | 0.81 | 3.11 | 1.80 | 3.20 | 0.81 |
| 6. Pushing up on your hands (e.g., from bathtub or chair) | 1.68 | 1.10 | 3.2 | 0.70 | 1.67 | 1.1 | 3.1 | 0.69 | 1.65 | 1.2 | 3.1 | 0.70 | 1.64 | 1.09 | 3.1 | 0.69 | 1.63 | 1.1 | 3.1 | 0.68 |
| 7. Preparing food (e.g. peeling, cutting) | 2.44 | 1.45 | 4.62 | 1.05 | 2.43 | 1.43 | 4.61 | 1.03 | 2.41 | 1.43 | 4.60 | 1.03 | 2.40 | 1.40 | 4.61 | 1.01 | 2.04 | 1.43 | 4.61 | 1.02 |
| 8. Driving | 2.34 | 1.14 | 3.75 | 0.82 | 2.33 | 1.12 | 3.72 | 0.81 | 2.30 | 1.12 | 3.73 | 0.81 | 2.30 | 1.11 | 3.71 | 0.80 | 2.31 | 1.12 | 3.72 | 0.81 |
| 9. Vacuuming, sweeping, or raking | 2.31 | 1.13 | 3.76 | 0.81 | 2.31 | 1.1 | 3.71 | 0.79 | 2.31 | 1.11 | 3.72 | 0.81 | 2.3 | 1.10 | 3.72 | 0.80 | 2.30 | 1.10 | 3.71 | 0.81 |
| 10. Dressing | 2.30 | 1.14 | 3.71 | 0.80 | 2.32 | 1.2 | 3.72 | 0.78 | 2.32 | 1.12 | 3.73 | 0.72 | 2.2 | 1.1 | 3.69 | 0.81 | 2.40 | 1.1 | 3.81 | 0.80 |
| 11. Doing up buttons | 2.32 | 1.10 | 3.69 | 0.80 | 2.31 | 1.1 | 3.69 | 0.80 | 2.31 | 1.13 | 3.72 | 0.71 | 2.1 | 1.0 | 3.67 | 0.82 | 2.42 | 1.0 | 3.78 | 0.82 |
| 12. Using tools or appliances | 2.35 | 1.11 | 3.68 | 0.81 | 2.30 | 1.1 | 3.67 | 0.80 | 2.30 | 1.12 | 3.65 | 0.68 | 2.2 | 1.1 | 3.68 | 0.81 | 2.4 | 1.1 | 3.7 | 0.81 |
| 13. Opening doors | 2.34 | 1.2 | 3.65 | 0.82 | 2.34 | 1.0 | 3.65 | 0.81 | 2.32 | 1.13 | 3.64 | 0.80 | 2.1 | 1.0 | 3.76 | 0.80 | 2.39 | 1.0 | 3.78 | 0.79 |
| 14. Cleaning Tying or lacing shoes | 2.31 | 1.21 | 3.75 | 0.81 | 2.32 | 1.1 | 3.68 | 0.80 | 2.31 | 1.12 | 3.67 | 0.84 | 2.0 | 1.2 | 3.78 | 0.82 | 2.30 | 1.1 | 3.87 | 0.83 |
| 15. Sleeping Laundering clothes (e.g. washing ironing folding) | 2.30 | 1.20 | 3.76 | 0.80 | 2.31 | 1.0 | 3.67 | 0.81 | 2.30 | 1.11 | 3.65 | 0.80 | 2.2 | 1.3 | 3.79 | 0.81 | 2.32 | 1.2 | 3.86 | 0.82 |
| 16. Opening a jar | 2.36 | 1.21 | 3.75 | 0.83 | 2.32 | 1.2 | 3.68 | 0.82 | 2.32 | 1.12 | 3.69 | 0.82 | 2.1 | 1.2 | 3.78 | 0.82 | 2.33 | 1.3 | 3.87 | 0.81 |
| 17. Throwing a ball | 2.34 | 1.2 | 3.74 | 0.82 | 2.31 | 1.1 | 3.67 | 0.81 | 2.31 | 1.11 | 3.70 | 0.82 | 2.0 | 1.3 | 3.79 | 0.81 | 2.32 | 1.2 | 3.86 | 0.80 |
| 18. Carrying a small suitcase with your affected limb | 2.32 | 1.2 | 3.71 | 0.81 | 2.32 | 1.0 | 3.64 | 0.80 | 2.30 | 1.10 | 3.74 | 0.80 | 2.1 | 1.2 | 3.80 | 0.80 | 2.31 | 1.1 | 3.85 | 0.81 |

The data in table 5 reveals that the Comparison of mean and standard deviation of Upper extremity Functional Index Activities among stroke patients in the post test ($M=30.02,SD=3.42$) was higher than that of in the pre test ($M=17.29,SD=4.0$). The difference was found to be statistically significant at $P<0.001$ level which indicates the post test of Home therapy is effectiveness among stroke patients. This H_0 is rejected.

Table 5: Comparison of mean and standard deviation of pre test and post test of secondary measures of upper extremity functional Index among stroke patients. (N=30)

| Comparison | M | SD | t |
|------------|-------|------|---------|
| Pre test | 17.29 | 4.0 | 12.66** |
| Post test | 30.02 | 3.42 | |

** $P<0.001$

Table 6: Mean and Standard Deviation of Pre and Post test of Effectiveness of Home therapy among affected upper extremity stroke patients. (N=30)

| Home Therapy Practices | Pre-test | | Post-test | | ‘t’ |
|---|----------|------|-----------|------|---------|
| | M | SD | M | SD | |
| 1. Lift the arm forwards and upwards towards the head | 2.25 | 1.01 | 3.53 | 0.78 | 6.67** |
| 2. Hold for 20 seconds | 1.43 | 1.02 | 3.15 | 0.86 | 10.01** |
| 3. With the same hand position brings the arm outwards and away from the body. | 4.18 | 1.06 | 5.06 | 0.87 | 4.95** |
| 4. Hold for 20 seconds | 3.14 | 1.80 | 3.22 | 0.82 | 0.30 |
| 5. Bend the elbow by bringing the wrist to the shoulder as for as possible | 1.65 | 1.09 | 3.2 | 0.70 | 7.41** |
| 6. Straighter the elbow as possible | 2.41 | 1.46 | 4.61 | 1.06 | 9.49** |
| 7. With the same hand hold turn the fore arm that the palm now faces down | 2.36 | 1.14 | 3.76 | 0.82 | 7.65** |
| 8. Turn the opposite direction so the palm faces up | 2.44 | 1.45 | 4.62 | 1.05 | 9.49** |
| 9. Bend the wrist forward as possible | 1.47 | 1.01 | 3.18 | 0.85 | 10.02** |
| 10. Bend the wrist backwards as possible. | 1.97 | 1.40 | 3.6 | 1.04 | 6.21** |
| 11. For the fingers bend the fingers and wrist forward as possible. | 3.10 | 1.79 | 3.21 | 0.81 | 0.30 |
| 12. Straighten and stretch the finger and wrist backward as possible. Remember to stabilize the wrist joint. | 1.68 | 1.10 | 3.2 | 0.70 | 7.43** |
| 13. Spread the finger one by one | 2.37 | 1.15 | 3.77 | 0.83 | 7.66** |
| 14. Move the thumb away from the fingers and back towards the fingers | 2.25 | 1.01 | 3.52 | 0.77 | 6.67** |
| 15. Move the thumb forward and away from the palm and bring it back towards the palm | 1.44 | 1.01 | 3.14 | 0.85 | 10.01** |
| 16. Bring the thumb forwards and round to touch the base of the 5 th finger and back to its original position. | 2.27 | 1.02 | 3.57 | 0.81 | 6.69** |
| Hand level 1 exercises | | | | | |
| 17. Step-1 Wrist side movement | 1.64 | 1.1 | 3.0 | 0.68 | 7.41** |
| 18. Step-2 Wrist bend movement | 1.65 | 1.10 | 3.3 | 0.67 | 7.40** |
| 19. Step-3 Palm up and down | 1.98 | 1.40 | 3.2 | 1.02 | 6.20** |
| 20. Step-4 Finger Nerve Glide | 2.63 | 1.13 | 3.74 | 0.81 | 7.64** |
| 21. Step-5 Pushing Hands | 2.61 | 1.12 | 3.72 | 0.80 | 7.61** |
| 22. Step-6 Wrist place and Hold | 1.97 | 1.41 | 3.1 | 1.03 | 6.21** |
| 23. Step-7 Finger place and Hold | 2.60 | 1.11 | 3.71 | 0.81 | 7.60** |
| 24. Step-8 Hand Slide Movement | 2.62 | 1.10 | 3.70 | 0.80 | 7.59** |

Table-6 reveals that the stroke patients had a significant improvement ($P<0.05$) in their mean post-test scores in relation to all the aspect of Effectiveness of Home Therapy in upper extremity among stroke patients except (For the fingers bend the fingers and wrist forward as possible and Hold for 20 seconds).

The data in table-7 reveals that the Comparison of mean and Standard Deviation of Effectiveness of Home therapy in upper extremity among stroke patients in the post- test (M=31.5, SD=3.65) was higher than that of in the Pre-test (M=19.42, SD=4.45).The difference was found to be statistically significant at $P<0.001$ level which indicates the effectiveness of Home therapy in affected upper extremity among stroke patients. This Ho1 is rejected.

Table-8 reveals that there was no significant association between the post-test Effectiveness of Home therapy in relation to the age, sex, Family History of Stroke and History of Chronic Disease. Hence the null hypothesis Ho2 is accepted.

Table 7: Comparison of mean and Standard Deviation of Pre and Post test of Effectiveness Home Therapy in upper extremity among Stroke Patients. (N=30)

| Comparison | M | SD | ‘t’ |
|------------|-------|------|-------|
| Pre-test | 19.42 | 4.45 | 12.89 |
| Post-test | 31.5 | 3.65 | |

** $P<0.001$

Table 8: Shows that the Association between selected socio demographic variables with the Post- test of Home therapy in affected upper extremity among stroke patients. (N=30)

| S.NO | Association between demographic variables with the post-test practices | Level of Practices. | | | | Chi-square |
|------|--|------------------------------|------|-----------------|------|------------|
| | | Moderately Adequate (51-75%) | | Adequate (>75%) | | |
| | | N | p | n | P | |
| 1. | Age in years | | | | | 4.388 |
| | 1.30-40 | 3 | 33.3 | 6 | 17.2 | |
| | 2.41-50 | 4 | 26.7 | 5 | 22.8 | |
| | 3.51-60 | 4 | 33.3 | 4 | 20.0 | |
| 2. | 4.61-70 | 2 | 6.7 | 2 | 40.0 | 0.095 |
| | Sex | | | | | |
| | 1-Male | 8 | 53.3 | 7 | 48.6 | |
| | 2-Female | 10 | 46.7 | 5 | 51.4 | |
| 3. | Family History of Stroke | | | | | 4.383 |
| | 1. Father | 5 | 34.2 | 4 | 20.0 | |
| | 2. Mother | 5 | 33.4 | 3 | 17.4 | |

| | | | | | | |
|----|-----------------------------|---|------|---|------|-------|
| | 3. Paternal Grand Parent | 4 | 26.0 | 5 | 22.6 | |
| | 4. Maternal Grand Parent | 1 | 6.4 | 3 | 40.0 | |
| 4. | History of Chronic Disease. | | | | | |
| | 1. Diabetes Mellitus | 4 | 26.5 | 4 | 22.8 | 4.382 |
| | 2. Hypertension | 1 | 6.6 | 3 | 40.0 | |
| | 3. Renal Disorders | 5 | 33.4 | 6 | 17.2 | |
| | 4. Heart Disorders | 5 | 33.5 | 2 | 20.0 | |

Table-8 reveals that there was no association between socio demographic variables with the post test Home therapy practices. Hence the null hypothesis Ho2 is accepted.

Discussion

Moderate-quality evidence showed a beneficial effect of constraint-induced movement therapy mental practice, mirror therapy, interventions for sensory impairment, suggesting that these may be effective intervention. Home therapy practices also indicated that more effective training for affected upper extremity. Mirror therapy believed that by viewing the reflection of the unaffected arm in the mirror, this may act as substitute for the decreased peripheral and perioperative input to the affected arm but the information was insufficient to reveal the relative effectiveness of different interventions [12]. Current study shows that there is significant improvement of home therapy in affected upper extremity. Comparison of mean and Standard Deviation of Effectiveness of Home therapy in upper extremity among stroke patients in the post- test (M=31.5, SD=3.65) was higher than that of in the Pre-test (M=19.42, SD=4.45).The difference was found to be statistically significant at $P<0.001$ level which indicates the effectiveness of Home therapy in affected upper extremity among stroke patients. This Ho1 is rejected. Comparison of mean and standard deviation of Upper extremity Functional Scale Activities among affected upper extremity stroke patients in the post test (M=30.02, SD=3.42) was higher than that of in the pre test (M=17.29, SD=4.0). The difference was found to be statistically significant at $P<0.001$ level which indicates the post test of Home therapy is effectiveness among affected upper extremity stroke patients. This Ho1 is rejected. There was no significant association between the post-test Home therapy in relation to the age, sex. Family History of Stroke and History of Chronic Disease. Hence the null hypothesis Ho2 is accepted.

Conclusion

From the above, it is clear that these and other interventional approaches differ in aims, assumption, principles underlying theories and consequently. However, all approaches have advantages and disadvantages, as well as strong advocates and opposers. Current intervention study shows that the different was found to be statistically significant at $P<0.001$ level which indicates the post-test of Home therapy is effectiveness among affected upper extremity stroke patients. The nurse, therefore, should be aware of the wide essential care aspects for the stroke patients in order to enhance quicker recovery and improved long term prospects. After all, the nurse in stroke recovery in particular is a key player in the wider rehabilitation team [13].

Recommendation

Bilateral home therapy is recommended so that both side of

the body can gain strength and coordinated movement, therefore the nurse as a part of an integrated health care team should 'harmonize' nursing care activities accordingly. When performed in conjunction with active neuromuscular stimulation, random and blocked practice may improve pre-motor, motor and total reaction times of the upper extremity

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