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THE EFFECTIVENESS OF MIRROR THERAPY ON UPPER LIMB MOTOR FUNCTIONS IN STROKE CLIENTS IN PANIPAT, HARYANA – A QUASI EXPERIMENTAL STUDY

Nidhi[1] & Paul Dinagaran[2]

1.M. Sc (N) Scholar – Ved Nursing College – Panipat. Haryana
2.Professor – Ved Nursing College – Panipat. Haryana

Abstract:

Background of the study: One of the most frequent and unfavourable effects of stroke is hemiplegia. The upper extremity paralysis has a longer duration of daily disability than the lower extremity paralysis. Gripping, holding, and manipulating items are among the upper extremity's functional recovery activities, and doing so calls for the complex integration of muscle action from the shoulder to the fingertips. **Objective:** To evaluate and establish the effectiveness of Mirror Therapy on the Motor Function of the Upper Extremity in Stroke Patients at Selected Panipat, Haryana Hospitals and Rehabilitation Centre **Methodology:** A quasi-experimental design was used in this investigation. Patients were chosen specifically for the control group and the experimental group using a sampling procedure. The current study was carried out on stroke patients in selected Haryana hospitals and rehabilitation facilities. The sample size for the current study was 60, with 30 patients randomly assigned to the control group and 30 patients who met the inclusion criteria placed in the experimental group. To gather the baseline data, the researcher used the clinical and demographic characteristics of stroke patients. After confirming validity and reliability, the data was gathered using the Fugl- Meyer motor assessment tool and the Modified Ashworth Rating Scale for patient satisfaction. After establishing the feasibility and practicability through a pilot research, the primary data collection was carried out. For four weeks, samples in the experimental group received the intervention—mirror therapy—twice daily for 20 minutes on five days a week. Statistics, both descriptive and inferential, were used to analyse the collected data. **Results:** In the experimental group of samples, 29 (96.7%) of the samples had severe levels of impairment in their upper extremities during the pre-test. In the control group, all 30 samples (100.0%) had substantial impairment during the pre-test. **Conclusion:** This study confirmed that mirror therapy is beneficial for improving upper-extremity function and self-care when performing activities of daily life.

Key Words: Effectiveness, Mirror Therapy, Upper Limb, Motor Function, Stroke Clients

Introduction:

At least 85% of stroke patients develop hemiplegia, while at least 69% of patients have impaired upper-extremity function.[1] Hemiplegic impairment to the function of the upper extremities has severe consequences for the

capacity to execute independent activities of daily living.[2] Reportedly, interventions to improve the control and function of the upper extremities in stroke patients are connected with neural circuit reconstruction4 and subsequent changes in neural networks.[3]

The purpose of mirror treatment is to improve the functional motions of the paretic limb. It employs visual cues to encourage patients to focus on the movement of their nonparetic limbs.[4] Visual illusions give patients the impression that their two hands are simultaneously and symmetrically moving. The activation of the cerebral hemisphere by visual illusions serves as the basis for a neurological mechanism that induces brain plasticity.[5] Research on the effects of observation or movement association approaches have offered light on the processes by which perception or recognition is converted into actual movements.[6]

Mirror therapy was initially developed for the treatment of phantom limb pain in amputation patients, and subsequent pain reductions were documented.[7] Two chronic stroke patients who underwent four weeks of mirror treatment improved their upper-extremity function and movement accuracy and velocity. Mirror treatment administered to subacute stroke patients for four weeks enhanced their Functional Independence Measure (FIM) ratings for upper-extremity motor recovery and independent activity, as well as lower-extremity motor recovery and motor function.[8]

Based on Disability-Adjusted Life Years, stroke causes the largest illness burden worldwide (DALY). One of the most prevalent causes of chronic impairment is a stroke. Around one-third of the survivors are functionally dependent and have difficulty with the majority of everyday activities (ADL).[9] The majority of people admitted to hospitals are survivors of stroke. An additional sign of disability due to stroke is the fact that around 26 percent of stroke patients reside in nursing homes. In 2005, the direct and indirect expenses of stroke were projected to be around 56.8 billion U.S. dollars.[10]

One of the direct outcomes of stroke is loss of upper limb function. According to research, approximately 83% of stroke patients learn to walk again, while only 5 to 20% of stroke survivors achieve complete functional recovery of their damaged upper extremity.[11] Around 70% to 80% of patients who have a stroke have upper extremity damage, and the majority of them do not regain functional use of their paretic upper limb, which can leave them dependent in their daily activities and participation in community life. Ultimately, the quality of life suffers as a result.[12] To recover the function of the afflicted extremity, coordination of joint and muscle activities at many levels is essential. The recovery of proximal joint functioning is frequently faster than those of distal joints. Activities of daily life are severely restricted due to the failure of distal joint healing (wrist and fingers), despite the restoration of strength and coordination at proximal joints (shoulder and elbow). As a result, regaining hand function is a vital component of stroke therapy.[13]

There are just a few studies that integrate mirror therapy in the therapeutic protocol for increasing motor recovery and hemiparetic upper extremity functioning in subacute stroke patients. The primary goal of this study was to look at the effects of mirror therapy on upper extremity motor recovery and functioning in individuals with subacute stroke. The secondary goal of this study was to see if there was a link between upper limb motor functions and certain demographic and clinical factors in the experimental and control groups.

Objectives:

1.To assess the upper limb muscle tone among clients with stroke in experimental and control group.
2.To compare the effectiveness of mirror therapy on upper limb motor functions among patients in experimental and control grou
3.To identify the association between upper limb motor functions and selected demographic and clinical variables among the experimental and control group.

Hypotheses:

H1: There is a difference in upper limb motor functions among stroke clients of both experimental and control group.
H2: There is an association between gain in upper limb motor function and selected demographic and clinical variables

Materials and Methods:

Study Design, Setting and Population:

The researcher in this study used a quasi-experimental design to see if mirror treatment improved motor function in the upper limbs of stroke patients. The study included 60 people, 30 of whom were assigned to the experimental group and 30 to the control group. The sample size is determined by the inclusion and exclusion criteria for the rehabilitation centre in Panipat, Haryana, as well as the practicality of collecting data from the selected population. In this investigation, we used a purposeful sampling strategy. Individuals who have been diagnosed with stroke, patients who have upper extremity hemiplegia as a result of stroke, patients who are at least 18 years old and are willing to participate in the study.

Research Tools:

For the current study, researcher had developed the following tools and it was explained in detail below.
The developed tool for this study consisted of following sections.
Section – I: Socio – Demographic Variables
Section – II: Clinical Performa
Section – III: Modified Ashworth Scale (MAS)
Section – IV: Fugl-Meyer motor function assessment tool
Section – V: Mirror therapy Satisfaction Scale

Intervention:

Everyone participated in typical stroke rehabilitation. 5 days a week, 1 hour a day, for 4 weeks, with breaks as needed. In addition to rehabilitation, the mirror therapy and sham mirror therapy groups got 30 minutes of mirror therapy for the affected hemiparetic upper limb.
The patient was near to a table and the mirror was vertical in midsagittal plane during the treatment. The paretic upper limb was behind the mirror and the normal limb parallel to it to reflect the mirror picture. Participants only saw the normal limb in the mirror. The non-paretic hand performed simple motions including finger flexion, extension, abduction, adduction, wrist flexion, extension, ulnar deviation, and radial deviation, and task-specific movements like power and prehension grip with different-sized and weighted items.
The non-paretic hand movement requires full attention to the mirror. Seeing their non-involved hand in the mirror triggered similar activity in their involved hand. Participants were instructed to move the paretic hand in sync with the non-paretic hand. The sham mirror therapy group used the non-reflecting side of the mirror to hide the paretic hand.

Data Collection Procedure:

Data collection is the process of carefully and methodically gathering information that is relevant to the research goal. The investigator got the information from the Prem Physiotherapy Rehabilitation Centre in Panipat after getting ethical approval and permission from the right people in charge. The times for the observation were from 10 am to 3 pm. From September 5 to September 6, 2022, data were collected.
In the experimental group, 30 people were chosen from Prem Physiotherapy Rehabilitation Centre – Panipat, and 30 people were chosen from Physiotherapy Centre – Panipat. Patients were told what the study and procedure were for and gave their written consent. Tools like the demographic variable Performa, the clinical variable Performa, and the Modified Asworth Scale (MAS) were used in a pre-test on both the control group and the experimental group of stroke patients.

On the first day, both the Experimental group and the Control group had their pre-test scores taken. Samples in the experimental group were given 20 minutes of mirror therapy twice a day, five days a week, for four weeks. The help was given at the bedside. During the procedure, there was enough privacy. Samples in the control group were treated as usual.

Both groups' post-test scores were done on the 14th or 15th day using the same scale. The intervention will take about 15 to 20 minutes each day for a single subject. There will be clear signs that the intervention worked and that hand function got better.

Data Analysis Procedure:

Data analysis is the process of determining the validity of a research project. SPSS version 23 was used to analyse data (Windows 10). Demographic data for both groups were examined. Because all of the variables were non-parametric in nature, non-parametric statistical analysis was performed.

Results:

Table – I: Frequency and Percentage Distribution of Demographic Variables of Samples in Experimental Group

(n = 30)

S. No	Demographic Variables	Options	Frequency	Percentage
1.	**Age (Years)**	36 – 50 years	2	6.7
		50 – 65 years	11	36.7
		> 65 years	17	56.7
2.	**Gender**	Male	19	63.3
		Female	11	36.7
3.	**Occupational Status**	Employed	7	23.3
		Unemployed	12	40.0
		Home maker	7	23.3
		Retired	4	13.3
4.	**Educational Status**	Primary education	8	26.7
		Secondary education	11	36.7
		Higher secondary education	9	30.0
		Graduates and above	2	6.7
5.	**History of Alcoholism**	Yes	16	53.3
		No	14	46.7
6.	**History of Smoking**	Yes	13	43.3
		No	17	56.7

Sample demographics for the experimental group are shown in Table - I, along with their frequency and percentage distributions.

Of the total number of participants, 17 (or 56.7%) were aged 65 and up. There were 11 (36.7%) people in this age range, from 50 to 65.

There were 19 males (63.3% of the total) and 11 females (36.7% of the total) among the study's samples.

The majority of the 12 samples' occupational statuses in this investigation were "unemployed" (40.0%). Seven (23.3%) of the samples included both working women and mothers.

11 (36.7% of the total) of the samples had completed only secondary schooling, while 9 (30%) had completed high school and beyond.

The results show that 16 (53.3% of the total) of the samples had a history of alcoholism, while 14 (46.7% of the total) did not.

The majority of the samples (17, or 56.7%) had no smoking history. Thirteen (43.3%) of the samples had a history of smoking.

Table – II: Frequency and Percentage Distribution of Demographic of Samples in Control Group

(n = 30)

S. No	Demographic Variables	Options	Frequency	Percentage
1.	**Age (Years)**	36 – 50 years	0	0.00
		50 – 65 years	7	23.3
		> 65 years	23	76.7
2.	**Gender**	Male	18	60.0
		Female	12	40.0
3.	**Occupational Status**	Employed	4	13.3
		Unemployed	14	46.7
		Home maker	9	30.0
		Retired	3	10.0
4.	**Educational Status**	Primary education	4	13.3
		Secondary education	6	20.0
		Higher secondary education	11	36.7
		Graduates and above	9	30.0
5.	**History of Alcoholism**	Yes	15	50.0
		No	15	50.0
6.	**History of Smoking**	Yes	8	26.7
		No	22	73.3

Table II shows the frequency and percentage distribution of demographic variables of samples in the control group.

In terms of how old the samples were, 23 of them (or 76.7%) were over 65. Seven (23.3%) of them were between 50 and 65 years old.

Based on the genders of the people in the study samples, 18 (60%) were men and 12 (40%) were women.

The job status of the 14 samples in this study shows that most of them were unemployed (46.7%). home makers were 9 (30.0%)

In terms of education, most of the samples (11, or 36.7%) had at least a high school diploma, while 9 (30%) had a college degree or higher.

History of alcoholism among the samples: 15 (50%) of the samples had a history of drinking, and the same number (15) did not.

History of smoking of the samples shows that most of them, or 22 (73.3%), had never smoked. There were 8 (26.7%) samples that had smoked in the past.

Table – III: Frequency and Percentage Distribution of Clinical Variables Samples in Experimental Group

(n = 30)

S. No	Clinical Variables	Options	Frequency	Percentage
1.	Types of Stroke	Ischaemic	13	43.3
		Haemorrhagic	17	56.7
2.	Side of upper limb affected with stroke	Left upper limb	18	60.0
		Right upper limb	12	40.0
3.	History of comorbidities	Absent	3	10.0
		Hypertension	18	60.0
		Coronary Artery Disease	5	16.7
		Obesity	3	10.0
		Any other	1	3.3
4.	Duration of illness	Less than 1 month	2	6.7
		2 - 6 months	16	53.3
		7 - 9 months	4	13.3
		10 - 12 months	8	26.7

Table – III: Frequency and Percentage Distribution of Clinical Variables Samples in Experimental Group

In terms of the type of stroke, most (17, or 56.7%) of the samples were diagnosed with a hemorrhagic stroke. And 13 of the others, or 43.3%, were said to have had an ischaemic stroke.

Most of the strokes in this study, 18 (60%) of the samples, happened on the left side of the body, while only 12 (40%) happened on the right side.

The history of any comorbidities in the samples shows that 18 of them (60%) had high blood pressure and 5 of them (16.7%) had coronary artery disease.

Table – IV: Frequency and Percentage Distribution of Clinical Variables Samples in Control Group

(n = 30)

S. No	Clinical Variables	Options	Frequency	Percentage
1.	Types of stroke	Ischaemic	13	43.3
		Haemorrhagic	17	56.7
2.	Side of upper limb affected with stroke	Left upper limb	19	63.3
		Right upper limb	11	36.7
3.	History of comorbidities	Absent	5	16.7
		Hypertension	11	36.7
		Coronary Artery Disease	5	16.7
		Obesity	6	20.0
		Any other	3	10.0
4.	Duration of illness	Less than 1 month	5	16.7
		2 - 6 months	14	46.7
		7 - 9 months	9	30.0
		10 - 12 months	2	6.7

Table – III: Frequency and Percentage Distribution of Clinical Variables Samples in Control Group

Regarding the kind of stroke among the samples, hemorrhagic stroke was diagnosed in the majority of 17 cases (56.7%). And the remaining 13 (43.3%) had an ischemic stroke.

The majority of stroke samples in this study, 19 (63.3%), were afflicted on the left side of the body, while 11 (36.7%) were impacted on the right side.

The prevalence of comorbidities across the samples reveals that 11 (36.7%) of the samples had hypertension and 6 (20%) had obesity.

Regarding duration of sickness, the majority of samples (14, 46.7%) had been afflicted for between 2 and 6 months, whereas only 9 (30%) had been afflicted for between 7 and 9 months.

Table – V: Frequency and Percentage Distribution of Samples in Experimental Group according to Level of Muscle Spasticity as per Modified Ashworth Scale

(n = 30)

S. No	Scoring	Description	Pre – Test		Post - Test	
			Frequency	Percentage	Frequency	Percentage
1.	0	No increase in tone	0	0.00	3	10.0
2.	1	Slight increase in tone giving a catch when slight increase in muscle tone, manifested by the limb was moved in flexion or extension.	0	0.00	13	43.30
3.	1+	Slight increase in muscle tone, manifested by a catch followed by minimal resistance throughout (ROM)	0	0.00	0	0.00
4.	2	More marked increase in tone but more marked increased in muscle tone through most limb easily flexed	14	46.6	6	20.00
5.	3	Considerable increase in tone, passive movement difficult	8	26.7	8	26.7
6.	4	Limb rigid in flexion or extension	8	26.7	0	0.00

Table V shows the frequency and percentage distribution of samples in the experimental group based on their level of muscle spasticity as measured by the Modified Ashworth Scale.

During the pre-test, it was discovered that the majority of the samples in the experimental group (14/46.7%) had a score of 2, indicating that the samples had More marked increase in tone but more marked increase in muscle tone through most limb easily flexed.

At the time of the post - test, the majority of the samples (13/43.3%) scored 1, indicating that samples could Slight increase in tone giving a catch when the limb was moved in flexion or extension.

Table – VI: Frequency and Percentage Distribution of Samples in Control Group according to Level of Muscle Spasticity as per Modified Ashworth Scale

(n = 30)

S. No	Scoring	Description	Pre – Test		Post - Test	
			Frequency	Percentage	Frequency	Percentage
1.	0	No increase in tone	0	0.0	0	0.0
2.	1	Slight increase in tone giving a catch when slight increase in muscle tone, manifested by the limb was moved in flexion or extension.	0	0.0	0	0.0
3.	1+	Slight increase in muscle tone, manifested by a catch followed by minimal resistance throughout (ROM)	0	0.0	1	3.3
4.	2	More marked increase in tone but more marked increased in muscle tone through most limb easily flexed	14	46.7	12	40.0
5.	3	Considerable increase in tone, passive movement difficult	9	30.0	12	40.0
6.	4	Limb rigid in flexion or extension	7	23.3	5	16.7

Table VI shows the frequency and percentage distribution of samples in the control group based on the Modified Ashworth Scale level of muscle spasm.

During the pre-test, it was discovered that the majority of the samples in the experimental group (14/46.7%) had a score of 2, indicating that the samples had More pronounced increase in tone, but more pronounced increase in muscle tone through most easily flexed limbs. Scores 2 (More marked increase in tone but more marked increase in muscle tone through most limb easily flexed) and 3 were obtained at the time of the post-test (Considerable increase in tone, passive movement difficult)

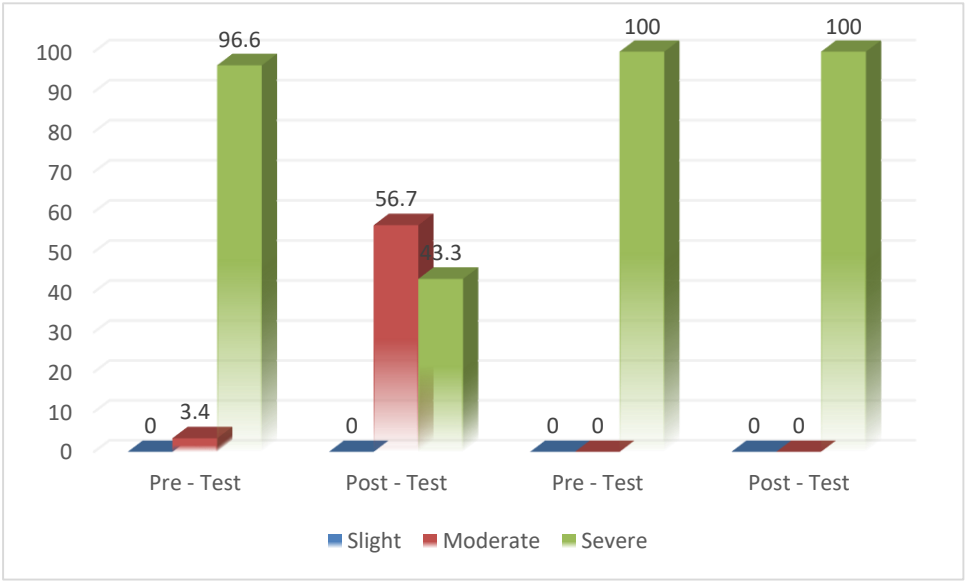

Figure – I Percentage distribution of samples according to Level of Impairment in Upper Extremities as Measured by (FMA-UE)

Figure 1 depicts the Sample Percentage Distribution Based on Level of Impairment in Upper Extremities as Measured by (FMA-UE).

During the pre-test, an overwhelming majority of 29 (96.7%) of the samples in the experimental group had severe upper extremity impairment. Only one sample (3.4%) had moderate impairment as measured by the (FMA-UE) tool. During the pre-test in the control group, all 30 (100% of the samples) had severe impairment.

During the post-test in the experimental group, the majority of the samples (17 (56.7%) had moderate impairment and 13 (43.3%) had severe impairment. As measured by, all 30 (100% of) control group samples had severe impairment (FMA-UE).

Table – VII: Comparison of Mean, Standard Deviation and Paired 't' test score of Motor Function of Upper Extremity in the Experimental Group of Stroke Patients

(n = 30)

Test	Mean	Mean Difference	Standard Deviation	Paired 't' test	'P' Value
Experimental Group					
Pre – Test	16.63	6.54	3.045	13.927	0.001*
Post - Test	23.17		3.174	(df = 29)	Significant
Control Group					
Pre – Test	15.83	0.6	2.828	3.844	0.142
Post - Test	16.43		2.763	(df = 29)	Not Significant

Table VII compares the mean, standard deviation, and Paired 't' test score of upper extremity motor function in the experimental group of stroke patients.

The mean and standard deviation score before the test were 16.63 ± 3.045. The post-test mean and standard deviation scores were 23.17 ± 3.174. 6.54 was the average difference. The estimated paired 't' test value for degree of freedom 29 was 13.927. At a p value less than 0.001, it was statistically significant.

The pre-test mean and standard deviation score for the control group was 15.83 ± 2.828. The post-test mean and standard deviation score was 16.43 ± 2.763. 0.6 was the average difference. The estimated paired 't' test value for degree of freedom 29 was 3.844. It was not significant at $p < 0.142$.

Table – IX: Comparison of Mean, Standard Deviation and Independent 't' test score of Motor Function of Upper Extremity in the Control Group of Stroke Patients

(n = 30)

Post - Test	Mean	Mean Difference	Standard Deviation	Paired 't' test	'P' Value
Experimental Group	23.17	6.74	3.174	8.764 (df = 58)	0.001* Significant
Control Group	16.43		2.763		

Table IX compares the mean, standard deviation, and independent 't' test score of upper extremity motor function in the control group of stroke patients.

The experimental group's post-test mean and standard deviation scores were 23.17 + 3.174. In the control group, the post-test mean and standard deviation score was 16.43 + 2.763. 6.74 was the average difference. For the degree of freedom 58, the estimated paired 't' test value was 8.764. As a result, the null hypothesis was rejected and the alternates hypothesis was accepted. This demonstrates the effectiveness of mirror therapy.

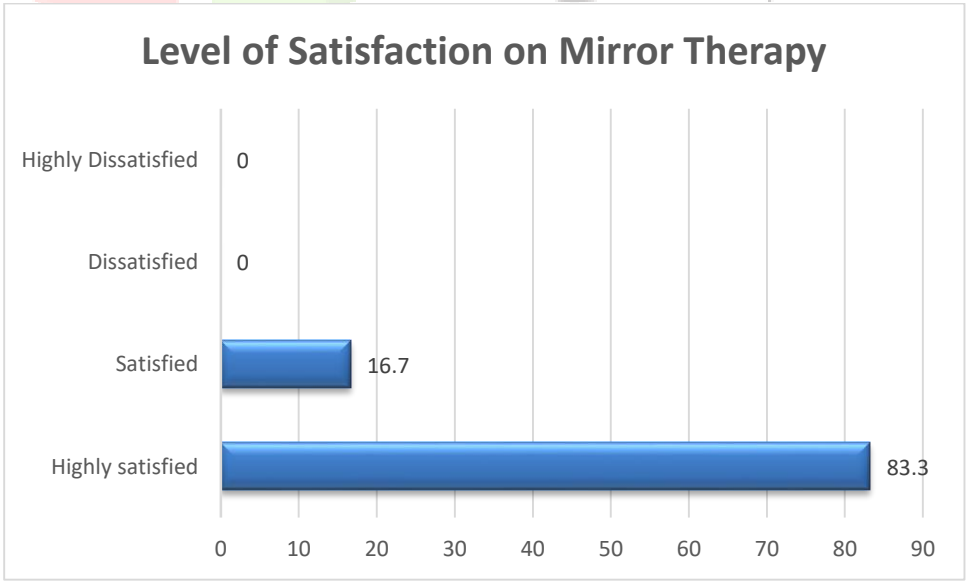

Figure – 2 Clustered Chart Shows the Level of Satisfaction on Mirror Therapy

The chart above depicts the Frequency and Percentage Distribution of Samples Based on Level of Satisfaction with Mirror Therapy Among Samples in the Experimental Group.

Mirror therapy was satisfied by an overwhelming majority of the samples (25 (83.3%), with 5 (16.7%) also feeling satisfied.

Discussion:

This study examines the effects of mirror treatment on upper limb motor functions in stroke patients in Haryana hospitals and rehabilitation centres. Study design was semi experimental. 60 Haryana stroke patients were studied. After demonstrating validity and reliability, an observational checklist and rating scale examined mirror treatment effectiveness. Pilot research determined feasibility and practicability before data collecting. Descriptive and inferential statistics analysed the data.

Under these headings, the discussion was presented:

Demographic factors of experimental and control groups on upper extremity motor function in stroke patients.

In the experimental group, 17 (56.7%) of the samples were older than 65 years. 11 (36.7%) were 50–65. 19 samples (63.3%) were male and 11 (36.7%) were female. This survey found 12 (40.0%) unemployed. 7 samples (23.3%) were employed and homemakers. 11 (36.7%) of the samples were in secondary education and 9 (30.0%) were in higher secondary education. 16 (53.3%) of the samples had a history of alcoholism and 14 (46.7%) did not. 17 samples (56.7%) had no smoking history. 13 (43.3%) samples smoked.

In the control group, 23 samples (76.7%) were above 65 years old. 7 (23.3%) were 50–65. The investigation found 18 (60.0%) male samples and 12 (40.0%) female samples. This research found 14 (46.7%) unemployed. 9 (30%) homemakers 11 (36.7%) had higher secondary education, and 9 (30.0%) had graduated. Alcoholism history was present in 15 (50.0%) samples. 22 samples (73.3%) had no smoking history. 8 (26.7%) samples had smoked.

These findings were similar to **Pradeepha N (2017)'s** study on mirror therapy's effects on upper extremity motor function. Findings showed that 36.66% of patients in the 36-50 age group were male (70%, 63.33%) and (43.33%, 43.33%), employed in the control and experimental groups, respectively.[14]

Kurth (2003) did a similar prospective study and found that current smokers were more likely to have a total hemorrhagic stroke, an intracerebral haemorrhage, or a subarachnoid haemorrhage.[15]

Clinical variables of the experimental and control group on stroke patients' upper extremity motor functions.

In this study, the number and percentage of samples were spread out according to the level of impairment in the upper extremities (FMA-UE). During the pre-test, 29 out of 29 samples from the experimental group had severe problems with their upper extremities. The (FMA-UE) tool showed that only sample 1 (3.4% of the group) had a moderate level of impairment. During the pre-test, all 30 samples from the control group showed severe impairment. During the post-test, most of the samples in the experimental group, 17 (56.7%), had moderate impairment, and 13 (43.3%), had severe impairment. All 30 samples from the control group, which made up 100% of the group, had severe impairments, as measured by (FMA-UE). These findings are similar to the findings of the following study, Lee, Myung Mo; Cho, Hwi-young; Song, Chang Ho (2012). The study will assess acute stroke patients' upper-limb motor recovery and function after mirror therapy. Design demonstrates Twenty-six acute stroke patients within six months of study start were assigned to the experimental (n = 13) or control (n = 13) groups. Both experimental and control group participants underwent a conventional rehabilitation programme, but only the experimental group underwent mirror treatment for 25 minutes twice a day, five days a week, for four weeks. After intervention, the Fugl-Meyer 59 Assessment, Brunnstrom motor recovery stage, and Manual Function Test assessed upper-limb motor recovery and function. In upper-limb motor recovery, the experimental group improved more than the control group on Fugl-Meyer Assessment

(shoulder/elbow/forearm items, 9.54 vs. 4.61; wrist items, 2.76 vs. 1.07; hand items, 4.43 vs. 1.46, respectively) and Brunnstrom stages for upper limb and hand (1.77 vs 0.69 and 1.92 vs 0.50, respectively). The experimental group had a higher Manual Function Testscore (shoulder item, 5.00 vs. 2.23; hand item, 5.07 vs. 0.46, respectively) than the control group ($P < 0.01$). Fugl-Meyer Assessment coordination components did not differ between groups.

Mirror therapy effectiveness by comparing upper extremity motor performance between experimental and control stroke patients.

In this study, independent "t" tests were used to determine whether mirror treatment improved upper extremity disability scores in stroke patients. The experimental group had a post-test mean and standard deviation of 23.17 + 3.174, while the control group had 16.43 + 2.763. The mean difference was 6.74. The 58-degree-of-freedom paired "t" test value was 8.764. We rejected the null hypothesis and accepted the alternates. Mirror therapy worked.

The study by **Samuel S et al. (2005)** examined the effects of mirror therapy (MT) combined with bilateral arm training and graded exercises on paretic upper limb motor performance following stroke. MT and control group participants received a patient-specific multimodal rehabilitation programme with conventional occupational, physical, and speech therapy for 5 d/wk, 6 h/d, over 3 weeks. MT participants received 1 hour of MT in addition to stroke therapy. Findings show After 3 weeks of MT, the MT group had significantly higher mean change scores on the Fugl-Meyer Assessment (P=.008), Brunnstrom stages of motor recovery for the arm and hand (P=.003), and Box and Block Test (P=.022). Modified Ashworth scale did not differ between groups (P=.647).[16]

Conclusion:

There was an increase in the motor functioning, sensation, balance, joint range of motion, and joint pain in patients with post-stroke. This was significantly evident by the significant difference in the muscle spasticity score when measured with modified ashworth scale and during the assessment with Fugl-Meyer Assessment (FMA) tool for the motor functioning. Both groups of stroke patients experienced an improvement in their level of impairment.

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Ethical Permission – Obtained from Research Ethical Committee of Ved Nursing College – Panipat.

Conflict of Interest - Not a single possible or actual conflict of interest exists.

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