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EFFECTIVENESS OF MIME THERAPY VERSUS PROPRIOCEPTIVE NEUROMUSCULAR FACILITATION ON FACIAL FUNCTION IN SUBJECTS WITH BELL'S PALSY

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ABSTRACT

Purpose: The purpose of the study was to find the effectiveness of Mime therapy versus Neuromuscular facilitation on facial function in subjects with Bell's palsy. **Methods:** Quasi experimental study design. In this study, there were 78 subjects with an average age of 20 years, a clinical diagnosis of Bell's palsy, who were randomly divided into two groups. The subjects in Group A (n=39) received Mime come physiotherapy, while the subjects in Group-B (n=39) received PNF come physiotherapy protocol. Intervention was given to participants daily for six weeks. The SBFGS for facial function and FDI for disability were used to assess the intervention's effectiveness. **Results:** Independent 't' test was used to compare the mean significance difference between Continuous variables. Paired 't' was used to assess the statistical significance difference between pre and post scores. Statistical analysis of this data revealed that, both groups significantly improved in both parameters when compared within groups, but when compared between the groups, Mime therapy come electrical stimulation protocol group (Group A) improved better than PNF Protocol (Group-B). **Conclusion:** After 6 weeks of intervention both Group-A and Group-B showed significant improvement in Bell's palsy subjects. However Mime therapy with electrical stimulation protocol group showed better improvement compared to the PNF with electrical stimulation protocol. Study concluded that Mime therapy with electrical stimulation is more beneficial and for better improvement in Bell's palsy subjects.

KEYWORDS: Bell's palsy, SBFGS, FDI questionnaire, Mime therapy, Electrical stimulation and PNF.

INTRODUCTION

Bell's palsy is a sudden lower motor neuron paralysis of the facial nerve, and results in an asymmetry in the corner of the mouth, inability to close the eye, disappearance of nasolabial fold, and loss of frowning on the same side.[1] It also consider as an idiopathic paralysis that effects more than half of the lower facial muscles as a result of injury to the seventh cranial nerve, and its symptoms either weakness in facial muscles or complete paralysis.[2]

The annual incidence is 15 to 20 per 100,000 with 40,000 new cases each year and the life time risk is 1 in 60. There is an 8% to 12% recurrence rate.[3] There is no gender or racial preference, and most of the cases are seen in mid and late- life with the median age of onset at 40 years but it increases in the last stages of pregnancy, and its incidence worsens with diabetic patients.[4]

Bell's palsy is an "acute" or "rapid onset", the occurrence of paralysis/paresis usually reaches its maximum severity in less than 72h of paresis onset, the other potential etiology such as trauma, neoplasm's, congenital or syndromic problems, postsurgical facial paresis or infection by agents including Herpes zoster virus (HZV) and Lyme disease, Inflammation, Acute cold exposure, middle ear infections, post surgeries of dental and ear, nose or throat.[5] Bell's palsy increases in winter, and this may be due to exposure of the face and neck area to cold air, which leads to nerve inflammation, which in un blocks transmission of impulses along the nerve. The purpose of this study is to evaluate the physiotherapy aspects in subjects with Bell's palsy, by the usage of Sunnybrook Facial Grading (FGS) and Facial Disability index (FDI).[6]

Physiotherapy can be beneficial with Bell's palsy and it is important to be implied prior to recovery in order to help and prevent permanent contractures of the paralyzed

muscles.[7] Physiotherapy interventions such as conventional therapy are a method of treatment which includes electrical stimulation, tapping techniques, and heat modalities. Exercise therapy, included receiving massage, bio feedback was applied to reeducate facial muscles.[8] Mime therapy is a combination of auto massage, relaxation exercises, exercises to inhibit synkinesis, it mainly enhance stimulation of facial emotional expression and improve functional movements to promote symmetry of face at rest and during movement.[9] Mime therapy helps the patients who had limited or restricted facial movement or lack of facial muscle control. Conventionally speaking, miming is a performance art that relies on expression and body movement to communicate without speaking.[10]

Brain activity is higher when subjects imagine the Mime, in the absence of actual sensory input, a multimodal cognitive stimulation process enables the subject to represent perceptual information the mind, this termed as a motor imagery, without any motor output, a dynamic mental state is observed when the image of given motor movement is rehearsed in working memory, this improves motor learning and neural plasticity.[11] Hence accurate treatment of Bell's palsy is important and this study intended to analyze the efficacy of mime therapy with conventional therapy.

Proprioceptive Neuromuscular Facilitation states that the rehabilitation through the global pattern of entire muscular section that undergoes resistance facilitates the voluntary response of an impaired muscle, To emphasize a particular muscle or a desired activity, the normal sequencing of motions are changed, This termed as timing of emphasis, contraction into a weaker muscle is diriected by the energy produced by the prevention of motion in a stronger synergist.[12]

The therapist can alter the normal timing by two ways.

a) By preventing all the motions of a pattern excluding the one that is to be emphasized.
b) By resting an isometric or maintained contraction of the strong muscles in a pattern while exercising the weaker muscles.[13]

Proprioceptive Neuromuscular Facilitation is a manual resistance technique that works by stimulating fundamental patterns of movement, it hastens the response of neuromuscular mechanism by stimulation of proprioceptors; could results in either facilitation or inhibition.[14] The PNF techniques was used in managing facial paralysis conditions which includes rhythmic initiation, repeated stretch combination of isotonic and percussion of tendons and fascia of the muscle decline, disharmony, atrophy and movement limitations PNF training of the perioral muscles to adapt to the changes in the tissue and improves the facial functions.[15]

There are various physiotherapeutic managements are in the practice for treatment for bell's palsy but lacks strong evidence for being a best treatment procedure, hence this is an effort taken to know the effectiveness of Mime therapy and PNF in improving the facial functions of Bell's palsy.

NEED OF THE STUDY

During Bell's palsy one side of the face become weak or paralysed it can dramatically affects subjects with General quality of life, may results in cosmetic inconvenience in young adults too, with impaired speech and facial asymmetry.

For early and complete recovery process many physicians advices physiotherapy treatment, it takes an important role may helps to increase muscle strength and to regain facial coordination, ROM.

Previous literature on physiotherapeutic management of Bell's palsy has shown the Mime therapy and PNF are two approaches to be used for as a early intervention which can fasten the recovery of the subjects But, these approaches are not commonly employed by most of the physiotherapists in their regular practice, so the need arises to find out the best technique to treat bell's palsy. There are limited studies that have compared the effectiveness of Mime therapy and PNF in improving facial functions in Bell's palsy.

AIM OF THE STUDY

The aim of the study was to compare the effectiveness of Mime therapy and Proprioceptive Neuromuscular Facilitation in improving facial function in subjects with Bell's palsy.

OBJECTIVES OF THE STUDY

1. To determine the effectiveness of Mime therapy in improving facial functions in subjects with Bell's palsy.
2. To determine the effectiveness of Proprioceptive neuromuscular facilitation in improving facial functions in subjects with Bell's palsy.
3. To compare the effectiveness of Mime therapy and Proprioceptive neuromuscular facilitation in improving facial functions in subjects with Bell's palsy.

HYPOTHESIS

RESEARCH HYPOTHESIS (H_1)

Mime therapy is effective when compared to the Proprioceptive neuromuscular facilitation [PNF] in improving facial functions in subjects with Bell's palsy.

ALTERNATIVE HYPOTHESIS (H_2)

Proprioceptive neuromuscular facilitation is more effective, compared to Mime therapy in improving facial functions in subjects with Bell's palsy.

NULL HYPOTHESIS (H_O)

There is no significant difference between Mime therapy and Proprioceptive neuromuscular facilitation in improving facial functions in subjects with Bell's palsy.

METHODOLOGY

STUDY DESIGN: Prospective study design.

ETHICAL CLEARANCE AND INFORMED CONSENT: The study protocol was approved by the ethical committee of GSL Medical College & General hospital (Annexure-I) the investigator explained the purpose of the study and given the subject information sheet. The participants were requested to provide their consent for participation in the study (Annexure-II) All the participants signed the inform consent and the rights of included participants have been secured.

STUDY SETTING: The study was conducted at outpatient Department of Physiotherapy, GSL General Hospital, Rajahmundry, Andhra Pradesh, India.

STUDY DURATION: The study was conducted during the period one year.

TREATMENT DURATION: Duration of treatment is 6 weeks / 6session/week.

PARTICIPANTS: Both male and female subjects with Bell's palsy.

SAMPLE SIZE: 108 based on the prevalence.

A total 108 subjects were screened in that 78 subjects were recruited to participate in the study. Recruited participants were explained the purpose of the study and relevance of the study. The participents were included in the study after obtaining informed consent. All eligible participants were randomized in to Mime Therapy training group and PNF training.

TYPE OF SAMPLING: Systematic random sampling.

GROUP	NO.OF SUBJECTS	TREATMENT
A	39	MIME THERAPY
B	39	PNF

MATERIALS USED

- Treatment couch
- Electrical stimulator
- Powder
- Lint pad\ Pen electrode
- Two leads
- Cotton
- Gel
- Water bowl
- Mirror

INCLUSION CRITERIA

- Idiopathic bell's palsy
- Acute onset subjects
- Age group of 15 to 60 years

EXCLUSION CRITERIA

- Bell's palsy induced by surgical intervention
- Traumatic bell's palsy
- UMN facial palsy
- Subjects who cannot understand the treatment process
- Bilateral facial palsy
- Neurological, Mental and psychological disorders
- Skin diseases

STUDY TOOLS AND OUTCOME MEASURES

- **FACIAL DISABILITY INDEX (QUESTIONNAIRE)[17]**

Facial disability index is a self report, disease –specific instrument designed to provide the clinician with information about the disability and related social and emotional well-being of patients with facial nerve disorders.

- **SUNNY BROOKS FACIAL GRADING[18]**

Facial symmetry measured using 13-item Sunny brook facial Grading System. The system measures three components of facial asymmetry, resting asymmetry, symmetry of voluntary movement and synkinesis. Resting asymmetry of the eye, cheek and mouth are collectively scored from 0 to 4 with 4 being the most asymmetrical. Symmetry of the voluntary movements – forehead wrinkle, gentle eye closure, open mouth smile, snarl, and lip pucker- are each from 1 to 5 with 5 being the most symmetrical, giving total range of 0 to 15.
A composite facial symmetry score is calculated as
[4 x symmetry of voluntary movement -5 x resting asymmetry +1 x synkinesis]
With 100 representing normal facial symmetry

INTERVENTION

This study consist of 6 weeks intervention, a total of 78 Subjects who fulfilled the inclusion criteria will be given to sign a consent form, a convenient sampling technique will be used. Subjects will be divided into two groups.
Group A: Mime therapy.
Group B: PNF for Both male and female subjects with Bell's palsy.

Before the commencement of the treatment a brief demonstration or instructional video will be given to subjects and will be familiarize with the procedures to minimize the learning effect during the course of the study.[19] Subjects performances will be tested before and after the 6- week treatment period, pre test measures will be taken by using Facial disability index questionnaire and Sunny brook grading. All subjects in the group will undergo a 60 minutes Treatment protocol of daily for 6 weeks duration, Study consists of 78 subjects, 39 in each group, with age group [15 to 60] years subjects in group A will undergo Mime therapy with Electrical stimulation, subjects in Group B will undergo Proprioceptive neuromuscular facilitation [PNF] with electrical stimulation.[20] Facial functions and disability measures will be taken every week through 6 weeks, Facial disability index [FDI] and Sunny brook grading scale measures will be taken at pre test and post test.[21]

Follow up will be done after 3 months to observe the maintenance effects of this treatment procedure.

GROUP A: MIME THERAPY + CONVENTIONAL THERAPY

In this group, 39 subjects were screened and did baseline evaluation, during 6 weeks of treatment, subjects received 42 sessions of Mime therapy followed by conventional therapy, 6 sessions per week for 30 minutes. Mime therapy which includes auto massage of face and neck, along with breathing and relaxation exercises, exercise to coordinate movements of both sides in order to reduce the synkinesis and exercises that focus on facial expressions. A Mirror was used for feedback, when performing facial exercises, which help them to guide their progress and observe the severity of their synkinesis.[22]

MANUAL FACIAL MASSAGE

Massage improves the blood circulation, and also muscles get excited. Finger to thumb kneading, wringing, hacking, tapping and stroking is given on effected side of face, with other hand unaffected side of the side is supported.[23] Hacking is given with ventral aspect of fingers, Massage consisted of effleurage technique for both sides of the face. During this process contact and continuity process had done for 15 minutes.[24]

Figure 1: Therapist performing effleurage massage technique to face.

Figure 2: Therapist Performing Skin Rolling on Affected Side.

STRETCHING EXERCISES

Stretching exercises are used to relieve muscles involved in synkinesis, stretching exercises has given to effected side, press the trigger point for 2 minutes which starves the muscle oxygen which forces it to relax when pressure is released.[25]

1. Forehead muscles: are stretched by putting fingers in the middle of the forehead and using firm pressure slowly move the one hand upwards towards the hair and other hand towards eyebrows. It is repeated for 5 times.
2. Eye Muscles: these are circular muscles, stretched in 3 different areas. It is started with top of the eye, fingers are placed in middle of the eyebrow and slowly they are pulled apart finished at the end of eyebrows, and its repeats for 5 times next the fingers are moved to the side of the eye next to outer corner and is solely pulled with one hand up and another hand down to open up the eye and repeats for 5 times , next fingers are placed below the delicate eye lid skin level with the center of the eye by pulling one hand across the nose and other hand towards the ear.[26]
3. Nostril muscles: are stretched by placing thumb inside the nostril then slide the finger over the muscles on the outside and repeated for 5 times.
4. Lips: are stretched by placing one finger on the front of the lip and other at the corner of the lip and stretched apart. And hold for 20 seconds for 5 times.
5. Neck Muscles: affected side of neck is stretched by tilting head opposite to the affected side and hands are placed in the middle of the neck and slowly pull one hand towards the jaw line and other towards the collar bone.[27]

Figure 3: Therapist performing stretching to forehead muscles [frontalis]

Figure 4: Therapist performing stretching orbicularisoris muscle.

During Mime therapy subject perform a series of Mime like active facial exercise to increase the voluntary power of muscle. The most common facial exercises include eye brow raising, eye closure, snarl, smile, pucker and pout.[28]
Repetitions: 15 times.
Hold time: 5- 10 seconds.
i. Angry face exercise: Drawing the eyebrows together as making a angry face.
ii. Frowning: Drawing the corners of mouth downward and Making sad face.
iii. Raised eyebrows: Drawing eyebrows upward in surprise.
iv. Puckering: Draw the lips together firmly as puckering.
v. upper lip elevation: Drawing the upper lip upwards.[29]

Figure 5: Training Mime therapy exercises by using mirror as a Bio feedback.

Figure 6: Therapist training Smiling expression Mime therapy by using mirror as a biofeedback.

Figure 7: Therapist training Mime therapy pout expression by using mirror as a biofeedback.

ELECTRICAL STIMULATION EXERCISE

1) Faradic stimulation using 0.1 – 1 ms duration pulse delivered at a frequency of 1-2 pulse/s or more.
2) This was given for 50 -200 contractions, 7 session /per week.
3) For stimulating muscles which is completely de-innervated galvanic stimulation of (IGS) of 100ms triangular pulses was given at rate of 1 pulse /s for 30- 100 contractions/sessions.
4) During each session electrical stimulation may be stopped once muscle fatigue occurs.[30]

Figure 8: Therapist stimulating Nasalis muscle by using electrical stimulation.

Figure 9: Therapist stimulating Frontalis muscle by using electrical stimulation.

GROUP-B: PROPRIOCEPTIVE NEUROMUSCULAR FACILITATION[PNF] + CONVENTIONAL PHYSIOTHERAPY.

In this Group B 39 subjects were screened and did baseline evaluation, during 6 weeks of treatment the subjects received total 40 sessions, 6 sessions/week for 30 minutes /per day. PNF is a normalized, facilitated training method that involves stretching, resisted movements, traction, and approximation to ameliorate muscle decline, disharmony, atrophy, and movement limitation.

PNF training procedure.

- Smile without opening of mouth, then the use your fingers to resists the movement for 5 seconds.
- Purse the lips as in whistling, and then apply resistance using the fingers for 5 seconds.
- Lift the angle of the mouth, and then apply, resistance using the fingers for 5 sec.
- Lower the lower lip, and then apply resistance for 5 seconds.
- Strain the chin with the mouth closed, and then apply resistance for 5 seconds.
- With the head upright, open the mouth wide, and then apply resistance for 5 seconds.
- After above exercise release the resisted movement and then stick out the tongue and hold for 5 seconds.
- Stick the tongue upward to try to touch the tip of the nose and hold for 5 seconds Stick the tongue to the right and then to left.[31]

Figure 10: Therapist performing PNF stretching and applying resistence Orbicularis oris muscle.

Figure 11: Therapist performing PNF stretching and applying resistance for Mentalis muscle.

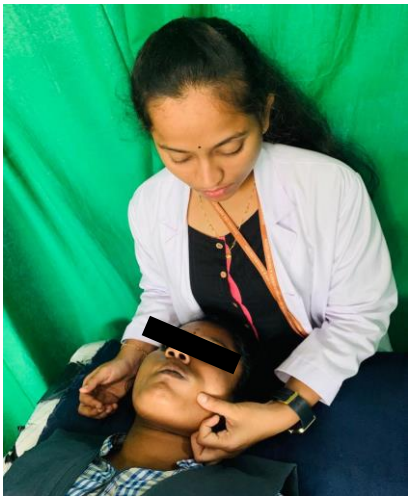
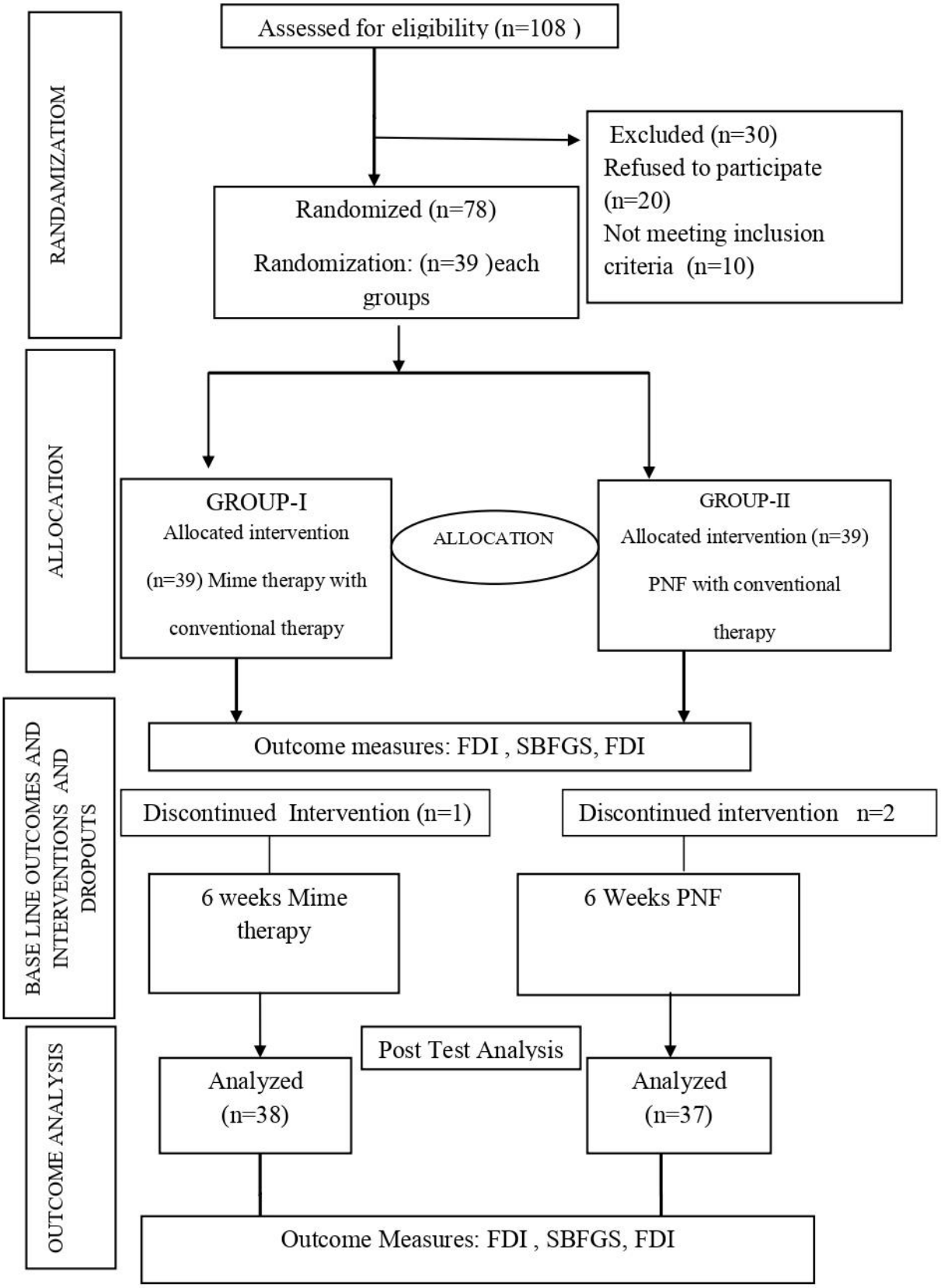


Figure 12: Therapist performing PNF stretching and applying resistance to Buccinator muscle.

FLOW CHART


RANDAMIZATIOM
Assessed for eligibility (n=108)
Excluded (n=30)
Refused to participate (n=20)
Not meeting inclusion criteria (n=10)
Randomized (n=78)
Randomization: (n=39)each groups
ALLOCATION
GROUP-I
Allocated intervention (n=39) Mime therapy with conventional therapy
ALLOCATION
GROUP-II
Allocated intervention (n=39) PNF with conventional therapy
BASE LINE OUTCOMES AND INTERVENTIONS AND DROPOUTS
Outcome measures: FDI , SBFGS, FDI
Discontinued Intervention (n=1)
Discontinued intervention n=2
6 weeks Mime therapy
6 Weeks PNF
OUTCOME ANALYSIS
Post Test Analysis
Analyzed (n=38)
Analyzed (n=37)
Outcome Measures: FDI , SBFGS, FDI

STATISTICAL ANALYSIS

All statistical analysis was done by using SPSS version 21.0 and Microsoft excel 2007. Descriptive statistical data was presented in the form of mean +- standard deviation and Mean differences and percentages were calculated and presented.

Within the group: paired student "t" test was performed to assess the statistical difference with in the groups for SBFGS and FDI form pre and post test values in Bell's palsy.

Between the Groups : Independent student "t" test was performed to assess the statistical significance difference in mean value between the groups for SBFGS and FDI for Bell's palsy for all statistical analysis P<0.05 was statistically significant.

RESULTS

The aim of the study was to compare the effectiveness of Mime therapy and PNF Intervention on Bell's palsy improving facial function, the consort of the study flow Chart of the study showed that the study organization in terms of subjects, random allocation and analysis following the intervention.

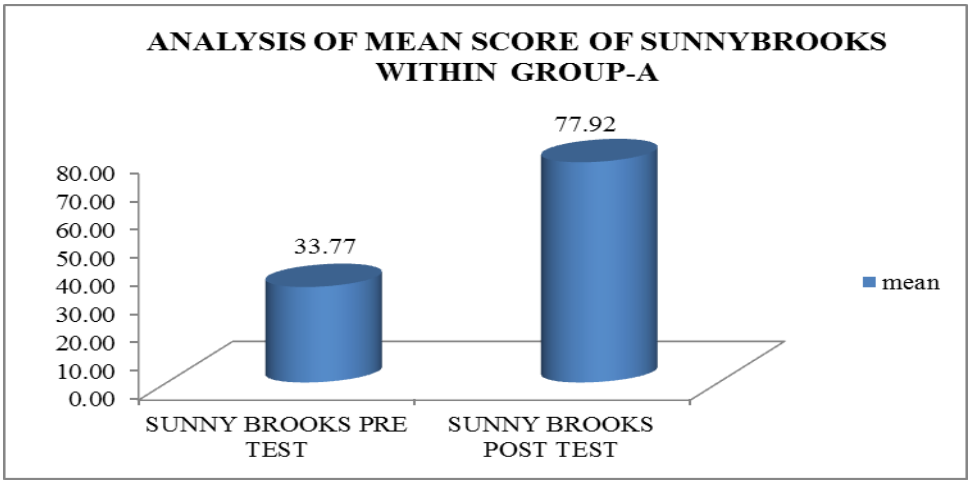
A total 108 subjects were screened for eligibility, 78 subjects were included in the study trail, all the 78 subjects underwent baseline assessment, and the subjects who met the inclusion Criteria were randomized into two groups, consisting 39 subjects in each group. In this study 38 subjects completed training in Group –A and 37 subjects completed training in Group- B With dropouts of 1 and 2 respective groups, results showed that there is a statistical significance in two groups.

Comparison was done both within the group as well as in between the two groups. So as to evaluate the intra group and inter group effectiveness of Mime therapy and PNF interventions which are under considerations in the present study.

ANALYSIS OF MEAN SCORES OF SBFGS WITHIN THE GROUP-A

Table-1

GROUP A	MEAN	STD DEVIATION	P VALUE	INFERENCE
SUNNY BROOKS PRE TEST	33.77	5.715	0.001	SIGNIFICANT
SUNNY BROOKS POST TEST	77.92	5.900		



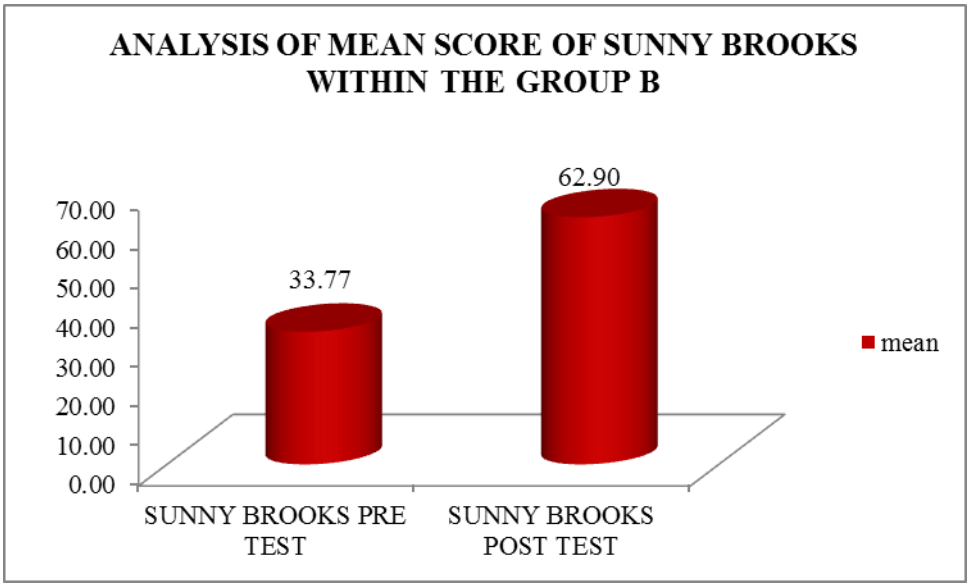
Graph No. 1.

Results: The above Table and Graphs shows that mean scores of SBFGS changes from pre test to post test values within Group-A were found to be statistically significant (P<0.05).

ANALYSIS OF MEAN SCORE OF SBFGS WITHIN THE GROUP-B

Table-2.

GROUP B	MEAN	STD DEVIATION	P VALUE	INFERENCE
SUNNY BROOKS PRE TEST	33.77	5.733	.000*	HIGHLY SIGNIFICANT
SUNNY BROOKS POST TEST	62.90	9.789		

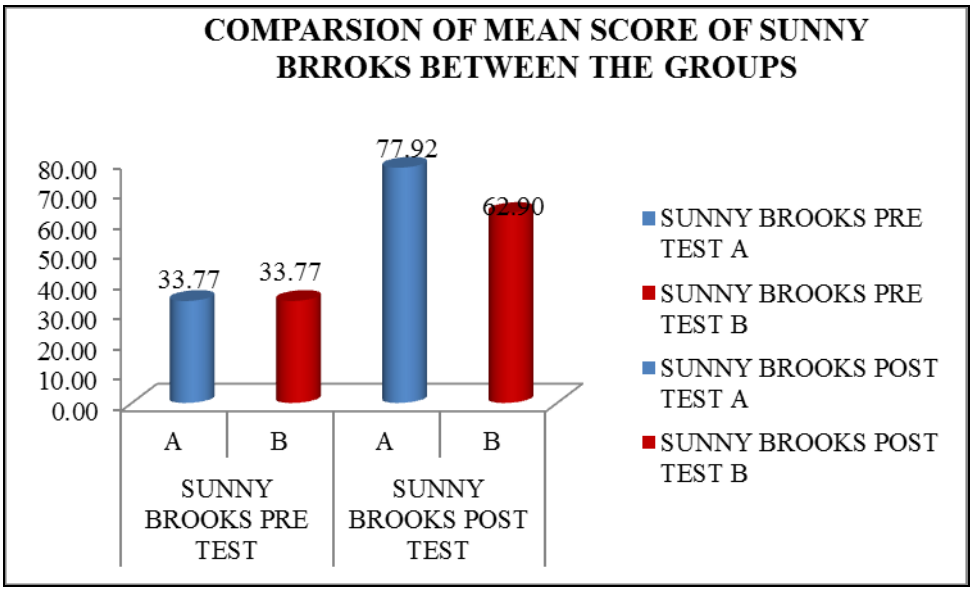


GRAPH-2.

Results: The above table graph shoes that mean score of SBFGS changes from Pre to post test values within Group-B were found statistically significant (P<0.05). Comparison of Mean scores SBFGS between the groups.

COMPARISON OF MEAN SCORES OF SBFGS FROM PRE AND POST TEST IN BETWEEN GROUPS
Table-3.

GROUPS		mean	std deviation	p value	Inference
SUNNY BROOKS PRE TEST	A	33.77	5.733	0.116	INSIGNIFICANT
	B	33.77	5.733		
SUNNY BROOKS POST TEST	A	77.92	5.900	.000*	HIGHLY SIGNIFICANT
	B	62.90	9.789		

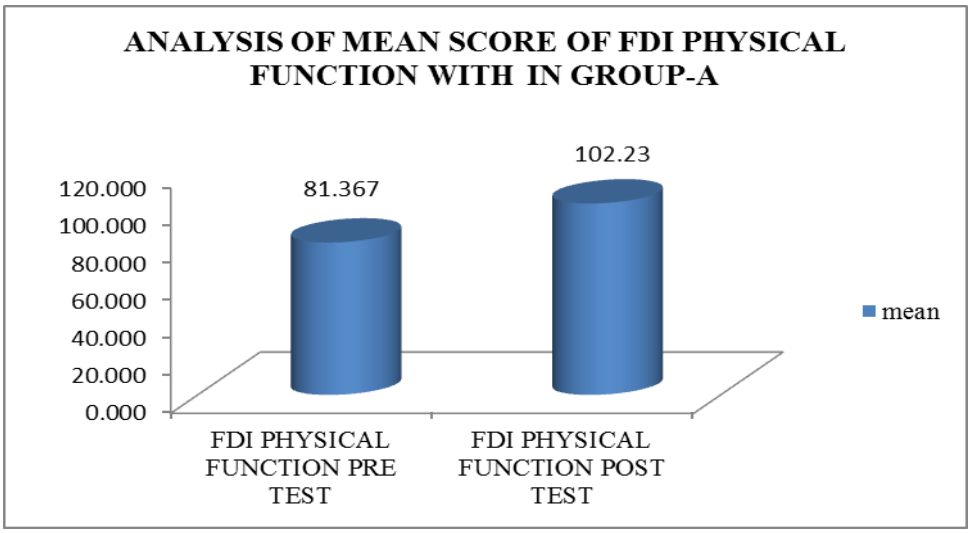


Graph-3.

RESULTS: The above Table and Graph shows the base line measurement of SBFGS in Between the Groups were found statistically insignificant at Pre-test (P>0.05) and statistically Significant at post test measurements.

ANALYSIS OF MEAN SCORES OF FDI PHYSICAL WITH IN GROUP-A
Table-4.

GROUP A	MEAN	SD	P VALUE	INFERENCE
FDI PHYSICAL FUNCTION PRE TEST	81.367	7.7879	.000*	Highly significant
FDI PHYSICAL FUNCTION POST TEST	102.23	6.873		

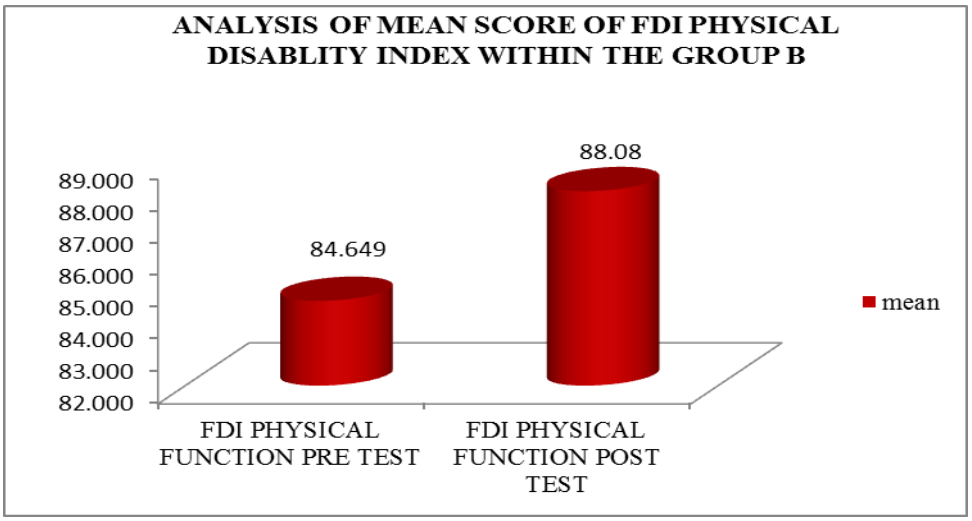


Graph- 4.

Results: The above table and Graph shows FDI physical values changes from Pre test to post test within Group-A were found to be Statistically significant (P<0.05).

ANALYSIS OF MEAN SCORE FDI PHYSICAL WITH IN GROUP-B
Table-5.

GROUP -B	MEAN	SD	P VALUE	INFERENCE
FDI PHYSICAL FUNCTION PRE TEST	84.649	5.8417	.109	INSIGNIFICANT
FDI PHYSICAL FUNCTION POST TEST	88.08	3.814		



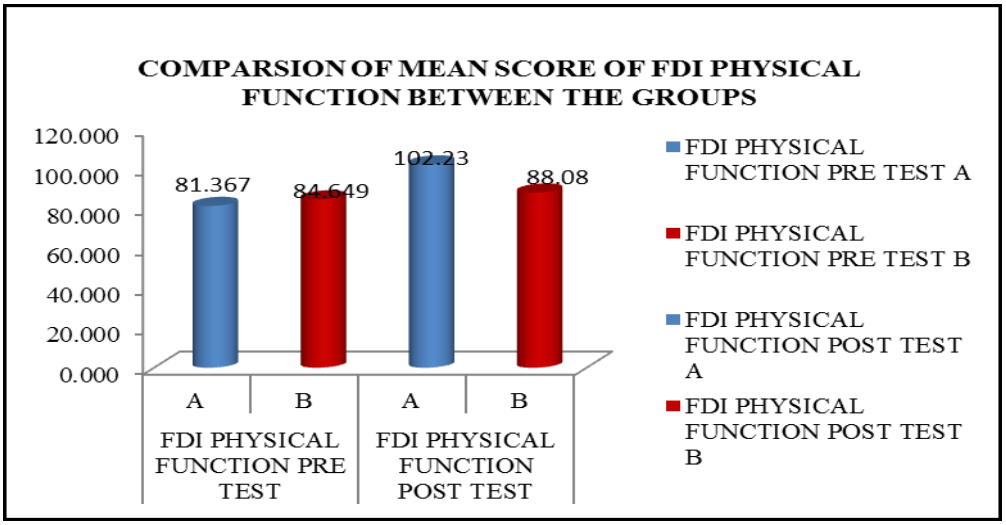
Graph-5.

RESULTS: The above table and graph shows FDI physical values changes pre and post test within Group-B were found statistically Significant (P<0.05).

COMPARISON OF MEAN SCORES OF FDI PHYSICAL FUNCTION FROM PRE AND POST TESTS IN BETWEEN GROUPS

Table-6.

GROUP		MEAN	STD DEVIATION	P VALUE	INFERENCE
FDI PHYSICAL FUNCTION PRE TEST	A	81.367	7.7879	0.039	INSIGNFICANT
	B	84.649	5.8417		
FDI PHYSICAL FUNCTION POST TEST	A	102.23	6.873	.000*	HIGHLY SIGNIFICANT
	B	88.08	3.814		



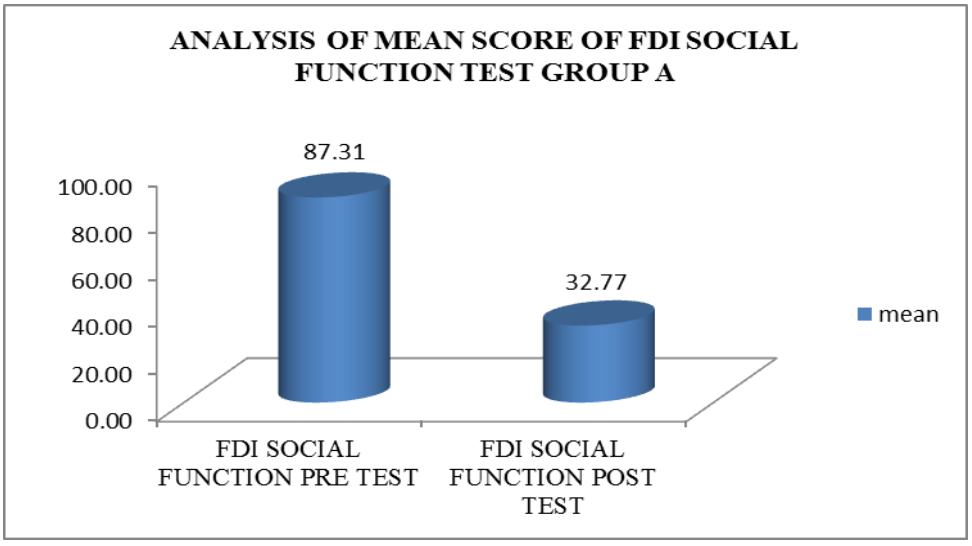
Graph -6.

RESULTS: The above table and Graph shows the baseline measurement of FDI Physical function within groups were found statistically insignificant at Pre-test (P>0.05) and statistically significant at Post test (P<0.05).

ANALYSIS OF MEAN SCORE OF FDI SOCIAL WITHIN GROUP-A.

Table-7.

GROUP A	MEAN	SD	P VALUE	INFERENCE
FDI SOCIAL FUNCTION PRE TEST	87.31	8.569	.000*	HIGHLY SIGNIFICANT
FDI SOCIAL FUNCTION POST TEST	32.77	5.756		



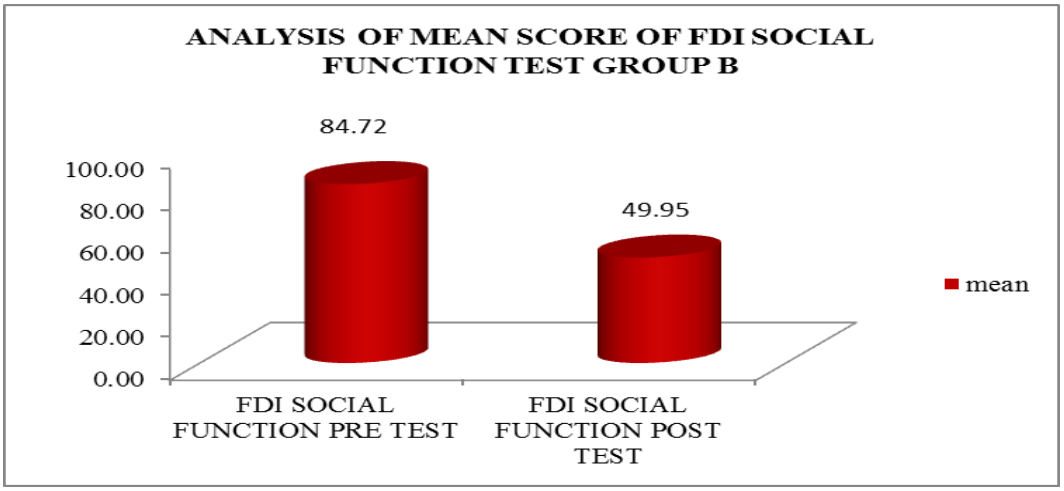
Graph- 7.

Results: The above table and graph shows FDI social function changes from pre test to post Test within Group-A were found to be statistically significant (P<0.05).

ANALYSIS OF MEAN SCORE OF FDI SOCIAL WITH IN GROUP-B

Table-8.

GROUP –B	MEAN	SD	P VALUE	INFERENCE
FDI SOCIAL FUNCTION PRE TEST	84.72	9.012	.963	INSIGNIFICANT
FDI SOCIAL FUNCTION POST TEST	49.95	10.029		



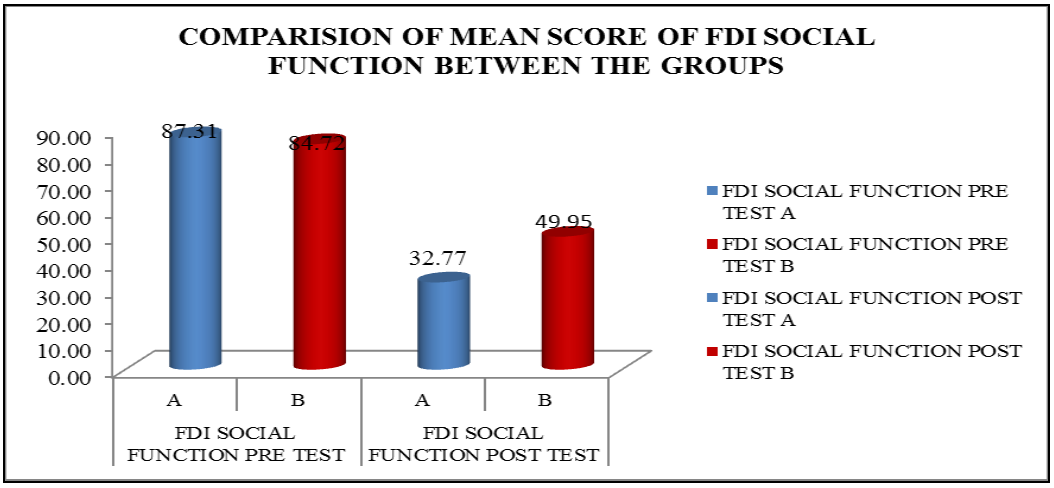
Graph-8.

Result: The above table and graph shows FDI social function changes from pre to post test within Group-b were found to be statistically significance (P<0.05).

COMPARISON OF MEAN SCORES OF FDI SOCIAL FUNCTION FROM PRE AND POST TEST IN BETWEEN THE GROUPS

Table-9.

GROUP		MEAN	SD	P VALUE	INFERENCE
FDI SOCIAL FUNCTION PRE TEST	A	87.31	8.569	1.97	INSIGNIFICANT
	B	84.72	9.012		
FDI SOCIAL FUNCTION POST TEST	A	32.77	5.756	0.000*	SIGNIFICANT
	B	49.95	10.029		



Graph- 9.

Result: The above table and Graph shows the baseline measurement of FDI social function in between the

Groups were found statistically insignificant at Pre-test (P >0.05) and statistically significant at post test (P< 0.05).

DISCUSSION

The present study is designed to determine the "EFFECTVENESS OF MIME THERAPY ANDPROPRIOCEPTIVE NEUROMUSCULAR FACILITATION ON FACIAL FUNCTION IN SUBJECTS WITH BELL'S PALSY": A COMPARATIVE STUDY, with 6 weeks protocol. In this study, subjects with Bell's palsy were treated with Sunny Brooks facial grading scale [SBFGS][30] and Facial disability Index [FDI] Questionnaire to measure severity and facial function. Recently, facial expression therapy has been used along with conventional physical therapy to treat patients with Bell's palsy and facial paralysis. Several studies have reported promising effects of Mime therapy With conventional physiotherapy, but there have been few studies investigating the effect of Mime therapy protocol on improvement in patients with Bell's palsy.[31]

The results showed significant improvement in both outcome measures, SBFGS and FDI questionnaire in both techniques. Group A showed a statistically more Significant improvement in SBFGS (P < 0.0001) and FDI (P < 0.0001) than group B. These two techniques were effective in reducing severity and improving facial function in subjects with Bell's palsy. This study supports the earlier study by **Sharvani Balle Praveen kumar** and **Thomas Annie** et al, study was conducted For 4 weeks, to see the long term effects on improvement of facial function and severity of Bell's palsy. Bell's palsy is a sudden paralysis of the lower motor neuron of the facial nerve and results in an asymmetry of the corners of the mouth, inability to close the eyes, disappearance of the nasolabial fold, and loss of wrinkling of the forehead skin on the same side. Subjects who received 6 weeks of Mime therapy had significantly and substantially more favorable scores on indices of facial stiffness, lip immobility, and the physical and social aspects of FDI compared with randomized control group. Similar positive aspects of mime therapy were noted in a retrospective study over 10 years.

The improvement in group A, who received Mime therapy along with electrical stimulation, may be due to the fact of Mime therapy involving facial massage, stretching ,and pantomimic exercises based on expressions such as happy, sad, angry, surprised, etc., which are part of a person's daily routine of facial activities. These exercises help in the rehabilitation of the face, which illustrates the neural plasticity of the neuro motor system of the face, and also helps in facial rehabilitation that illustrates the neural plasticity of the facial neuro motor system, in which new roles are adopted by reducing abnormal movement patterns and restoring symmetrical control of muscle activity for intended facilitation.[32] A few studies indicate that facial expression therapy reduces facial asymmetry both at rest and during voluntary movements, thereby reducing synkinesis. In addition, Mime exercises are associated with emotional control, which is related to the activation of the thalamus, globus –pallidus and reticular system. Whenever these exercises are performed, they activate the reticular system, which contributes to muscle control, there by reducing synkinesis. The performance of facial exercises causes a constant increase in muscle tension, followed by a bilateral relaxation, which this improves blood flow to the face and coordination between the two halves of the face, allowing them to displaced movements and emotions in a symmetrical manner.[33]

An earlier study by **Baber et al**. on the validity of an early rehabilitation approach for Bell's palsy patients concluded that PNF rehabilitation, when applied at an early stage produced a more rapid recovery compared with non rehabilitated patients. The better prognosis in the PNF group(B) in two subcomponents of SFGS, resting symmetry and voluntary Movement, and in the physical function and social function subscales in this method, the proprioceptors such as muscles, tendon spindles, ligaments are stimulated by the resistance of movement, which facilitates muscle contraction. The facial muscles act on each other, because the facial muscle is a thin skin muscle that acts from bone to skin or skin to skin. PNF could affect the skin muscles that are distributed over the entire surface of the human face, which could contribute to early improvement. The only drawback is that continuous training might be required to strengthen the muscle in the long term. The results showed significant positive effects of Group-b on SBFGS and FDI (P <. 000).

PNF patterns produces appropriately strong muscle contractions by using diagonal stretching patterns, these repetitive movements are according to the principle of irradiation and the additional bilateral co-contraction initiate an early recovery. Therefore it is more effective in improving facial symmetry and reducing facial disability in patients with Bell's palsy.[34]

When comparing the two groups, Mime therapy and PNF showed statistically significant in post test results for reduction of facial disability, severity, and improvement of synkinesis, as reported by SBFGS. Subjects reported an overall improvement in physical functions such as eating, drinking, speaking, and brushing teeth and became socially and psychologically independent, as reported by FDI.

The results of the current study shows that six weeks of Mime therapy and PNF Interventions produced significant improvement in the patients with Bell's palsy. The comparison between the groups, however, show that both therapies were equally successful. However, the Mime therapy (Group-A) intervention protocol shows slightly better results than PNF protocol (Group-B) intervention.

This study may helps to raise awareness without using high medications and expensive equipment, and also useful for early recovery.

CONCLUSION

The present study concludes that after 6 weeks of interventions, both the groups shown statistically significant improvement in post test values. However, Mime therapy with conventional physiotherapy group had marginally superior clinical outcomes than the PNF groups.

Thus this study concludes that Mime therapy protocol has additional effect on reducing Severity of facial asymmetry, disability and also improves facial function.

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