

Research Paper

Current Practice Patterns in the Management of Bell's Palsy Among Physiotherapists of Sargodha, Pakistan

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ABSTRACT

Objectives: We intend to find out current practice patterns in managing Bell's palsy among the physiotherapists of Sargodha, Pakistan.

Methods: A cross-sectional study was conducted from May to August 2022. Data were obtained from 50 physiotherapists working in various clinical settings of Sargodha with more than 2 years of clinical experience. They were selected using convenient sampling. A self-designed questionnaire was used to gather all necessary information regarding the physical therapy practice patterns of Bell's palsy. The obtained data were analyzed by using SPSS software, version 20.

Results: Proprioceptive neuromuscular facilitation (PNF) was the preferred (42%) neurodevelopmental technique used in current practice patterns to manage Bell's palsy. The most used therapeutic exercises by the physiotherapists were facial expression coordination exercises (66%). Also, 44% of physiotherapists used electrical muscle stimulation as the preferred electrotherapeutic modality in their current practice. Soft tissue release (54%) was the most preferred manual therapy technique in Bell's palsy patients. The combination of electrical muscle stimulation, facial exercises, and biofeedback was the most used (54%) among physiotherapists.

Discussion: Current practice for Bell's palsy treatment includes PNF techniques, facial expression coordination exercises, soft tissue release, and electrical muscle stimulation by most physiotherapists in Sargodha. The most preferred combination was facial exercises, electrical stimulation, and biofeedback.

Keywords:

Bell's palsy, Physiotherapy, Practice pattern

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Highlights

- Current practice for Bell's palsy treatment includes using proprioceptive neuromuscular facilitation (PNF) techniques, facial expression coordination exercises, soft tissue release, and electrical muscle stimulation by most physiotherapists in Sargodha, Pakistan.
- The most preferred combination is facial exercises with electrical stimulation and biofeedback.

Plain Language Summary

Bell's palsy is a neurological disorder that causes paralysis or weakness on one side of the face. It is usually caused by injury to the facial nerve or a reaction that occurs after a viral infection. Symptoms include difficulty speaking, eating, or drinking, as well as dry eyes, loss of taste, drooping eyebrows, and mouth. This study explored the present profile of physical therapy practice in Sargodha, Pakistan, for managing Bell's palsy. Results indicate that most physiotherapists use PNF techniques, facial coordination exercises, soft tissue release, and electrical muscle stimulation in their treatment plans. Also, their preferred combination was using facial exercises with electrical stimulation and biofeedback.

Introduction

Bell's palsy is a sudden-onset paralysis of the VII cranial nerve, characterized by a lower motor neuron lesion of the facial nerve, usually unilateral [1]. The reported incidence varies according to the geographical area. Its annual estimated incidence is around 30 per 100000 persons [2]. It is characterized by a lack of forehead wrinkles, incomplete lid closure, low eyebrow position (eyebrow ptosis), flattened nasolabial fold, and mouth corner droops [3]. The pathophysiology of Bell's palsy includes vascular distension, edema with ischemia, and inflammation of the VII cranial nerve. Its etiology has remained unclear, but some causes have been proposed, such as vascular, autoimmune, inflammation, and viral infection, which includes reactivation of herpes zoster [4]. About 70% to 75% of patients fully recover without treatment, and early treatment enhances the chance of full recovery up to 82% [5]. A prompt diagnosis and therapy intervention seem essential for the best outcome in Bell's palsy [6].

Bell's palsy can be managed with both pharmaceutical and non-pharmacological treatments, as well as surgery. Corticosteroids (prednisolone), antivirals (acyclovir and valacyclovir), vitamin B12, non-steroidal anti-inflammatory drugs, and combination therapy are all examples of pharmacological treatments [7]. Non-pharmacological management includes physiotherapy, and surgical interventions include nerve decompression [8]. There is no explicit agreement on the treatment procedure for Bell's palsy. The goal of therapy in its acute stage is to minimize inflammation with corticosteroids. After this

period, antiviral drugs such as acyclovir or valacyclovir are administered to eliminate the human simplex virus. Rehabilitation treatment included electrical stimulation, neuromuscular facilitation technique, neuromuscular reeducation, infrared rays, acupuncture, facial exercise, and eye protection. If complete paralysis of the facial nerve occurs, it can be assessed by electromyography and electroneurography [9].

Physical therapy treatment for Bell's palsy shows its effectiveness by depicting a notable increase in facial function and a quicker recovery. A combination of proprioceptive neuromuscular facilitation (PNF) and the Kabat technique with nerve stimulation improves facial asymmetry [10]. One of the previous studies about the efficacy of electrotherapy in treating Bell's palsy shows that electrotherapy alone has unsatisfactory results but, when combined with other forms of treatment, significantly improves Bell's palsy [11]. Evidence for managing Bell's palsy in physical therapy is heterogeneous and limited. Descriptive data analysis from a previous study demonstrates that 78% of physiotherapists choose electrical stimulation, 34% favor mime therapy, and 72% adhere to the most recent evidence-based recommendations for treating Bell's palsy [8]. There is ongoing discussion on the best course of therapy for Bell's palsy, which varies from nation to nation and even between different institutions within a single country. Some commonly used physiotherapy techniques include massage therapy, mirror therapy, mime therapy, Kabat technique, infrared therapy, and low-level laser therapy. Bell's palsy treatment varies; no consensus exists on what works best [9]. The recovery period varies according to the patient's age, duration between treatment start and initial symp-

toms, severity of nerve damage, and rehabilitation after surgery [12].

Numerous studies have been done on the prevalence, risk factors, and treatment of Bell's palsy. However, there is no study in the context of Pakistan regarding the identification of present clinical practice patterns regarding its management. So, this study aims to identify the type and number of common physiotherapy treatments for Bell's palsy that physiotherapists of Sargodha, Pakistan, use.

Materials and Methods

A cross-sectional survey was conducted from May to August 2022. Data were obtained from 50 registered physiotherapists selected through a convenience sampling of those working in various clinical setups of Sargodha having more than 2 years of clinical experience. Novice practitioners and non-clinical physiotherapists were excluded [8]. A self-designed questionnaire was distributed to registered physiotherapists throughout Sargodha utilizing various internet platforms and by visiting their clinical setups in person. It was designed after searching literature with similar objectives for physiotherapists to assess current physical therapy practice patterns of Bell's palsy by gathering all necessary information, including demographics, level of education, years of experience, and management strategies regarding physical therapy treatment of Bell's palsy. Data were analyzed using SPSS software, version 20.1.0. Qualitative data, such as age, was presented as mean and standard deviation. Descriptive statistics were computed as frequency tables and graphs with percentages.

Results

In this cross-sectional observational study, 50 physiotherapists working in various clinical setups of Sargodha were included. The Mean±SD age of participants was 26.84±2.207 years. There were 42% male and 58% female physiotherapists. Almost 78% of physiotherapists had two years of clinical experience. About 18% had 2-5 years, and 2% had more than five years of clinical experience. Most physiotherapists work as general practitioners, and very few specialize in neurological physical therapy. About 80% of physiotherapists said they deal with 1-5 Bell's palsy patients daily, with an average of 16 patients per month. According to most physiotherapists, the recovery period of patients was about 1-2 weeks.

Results indicate that PNF (42%) is the preferred neurodevelopmental technique used in current practice pat-

terns for the management of Bell's palsy as compared to neuromuscular reeducation (24%), biofeedback (22%), mime therapy (8%), and Kabat technique (4%) (Table 1). The most used therapeutic exercises by physiotherapists are facial expression coordination exercises (66%). Others used strengthening exercises (14%), relaxation exercises (12%), and convention exercises only for 8% of cases of Bell's palsy. Manual therapy techniques used by physiotherapists for the management of Bell's palsy are soft tissue release (54%), muscle energy techniques (30%), and acupuncture (16%) (Table 2).

Also, 44% of physiotherapists used electrical muscle stimulation as the preferred electrotherapeutic modality in their current practice. About 32% used transcutaneous electrical nerve stimulation, 10% ultrasound, 10% infrared radiation, and 4% laser (Table 1). Several combination therapies were also used. The combination of electrical muscle stimulation, facial exercises, and biofeedback was the most used (54%) among physiotherapists. Around 32% used a combination of ultrasound, facial exercises, and transcutaneous electrical nerve stimulation. In addition, 6% were using acupuncture and transcutaneous electrical nerve stimulation, and 6% were utilizing hot packs, soft tissue release, and relaxation exercises. Only 4% of physiotherapists chose other combinations (Figure 1).

Discussion

This study was done to identify the most popular treatment patterns currently used by most physiotherapists in Sargodha, Pakistan, for managing Bell's palsy. PNF techniques, facial expression coordination exercises, soft tissue release, and electrical muscle stimulation have been used commonly from categories of neurodevelopmental techniques, therapeutic exercises, manual therapy techniques, and electrotherapeutic modalities. The most used combination was facial exercises, electrical stimulation, and biofeedback.

Regarding electrotherapeutic modalities, the practice pattern represented in the current study indicated the use of electrical stimulation (44%) by most physiotherapists compared to transcutaneous electrical nerve stimulation, ultrasound, infrared, and laser. Literature also verifies that most physiotherapists prefer electrical stimulation (78%) to manage Bell's palsy [8]. It has been described in the past that infrared radiation releases heat that influences the superficial dermis and epidermis, which produces vasodilation, resulting in raised blood circulation and improved oxygen supply in the illuminated area. Moreover, it has the benefit of providing a warm and

Table 1. Descriptive statistics of neurodevelopmental techniques and electrotherapeutic modalities

Neurodevelopmental Techniques	No. (%)	Electrotherapeutic Modalities	No. (%)
PNF techniques	21(42)	Electrical stimulation	221(44)
Neuromuscular-reeducation techniques	12(24)	Transcutaneous electrical nerve stimulation	16(3)
Biofeedback techniques	11(2)	Infrared radiations	5(10)
Mime therapy	4(8)	Ultrasound	52(10)
Kabat technique	2(4)	Laser	2(4)

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Table 2. Descriptive statistics of therapeutic exercises and manual therapy techniques

Therapeutic Exercises (n=50)	No. (%)	Manual Therapy Techniques (n=50)	No. (%)
Facial-expression coordination exercises	33(66)	Soft tissue release techniques	27(54)
Strengthening exercises	7(14)	Muscle energy techniques	15(30)
Relaxation exercises	6(12)	Acupuncture	8(16)
Conventional exercises	4(8)		

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calm radiation effect [13]. Instead of its effectiveness, the present study demonstrated that only a small % of physiotherapists (10%) were using infrared radiation to manage Bell’s palsy.

The most preferred therapeutic exercises reported by physiotherapists are facial expression coordination and

strengthening. At the same time, relaxation exercises are used by some physiotherapists and conventional exercises by a few. It is evident from previous studies that greater functional recovery is observed in patients performing facial exercises than in those who do not perform. This result emphasizes the positive effects of facial coordination exercises in patients with Bell’s palsy [14]. It was

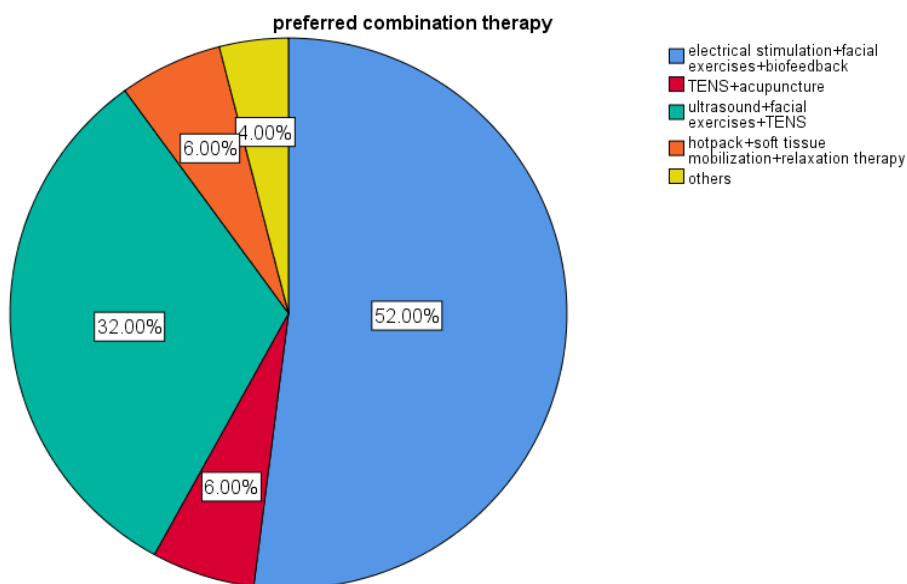


Figure 1. Preferred combination therapy in Bell’s palsy

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identified in the present study that soft tissue release is the most preferred treatment for hands-on techniques in Bell's palsy patients as compared to muscle energy technique and acupuncture. Previous studies also reveal that massage therapy positively impacts facial muscle function due to relaxation as well as muscle tension thereby improving blood circulation [15].

The neurodevelopmental technique preferred by the current study's physiotherapists is PNF compared to neuromuscular reeducation, biofeedback techniques, and mime therapy. This finding correlates with a previous study, which indicates that 4 weeks of a training program with PNF shows remarkable improvement in the functional independence of patients with Bell's palsy, in contrast to the neuromuscular reeducation technique [16]. Evidence shows that about 34% of physiotherapists use mime therapy [8], but in this area of research, only 8% of physiotherapists go for mime therapy. Biofeedback through mirror therapy also benefits patients because it stimulates the brain through visual stimuli by observing the sound body part when the patient performs a series of movements [15]. Only 4% of physiotherapists included the Kabat technique in their treatment regime. However, a previous study found that the Kabat approach enhances social and physical function more effectively than the face exercise technique [17]. Physiotherapists have not selected this technique because of insufficient knowledge and lack of awareness regarding effectiveness of Kabat technique.

The most preferred combination therapies are electrical stimulation, biofeedback, and facial exercises. Afterward, physiotherapists utilized transcutaneous electrical nerve stimulation, ultrasound, and facial exercises in their clinical practice. Other combinations are least preferred. This finding correlates with a previous study, which concludes that the combined technique had a more significant impact than a customized Bell's palsy therapy [18]. Another study reports that 70% of symptoms are resolved using electrical stimulation, facial muscle exercise, and massage in 2 weeks [19].

Conclusion

In conclusion, the current practice patterns in managing Bell's palsy include PNF techniques, facial expression coordination exercises, soft tissue release, and electrical muscle stimulation by most physiotherapists in Sargodha. The most preferred combination was facial exercises, electrical stimulation, and biofeedback.

Study limitations

The small sample size and sample area of coverage make it hard to generalize the results. Moreover, there were fewer neuromuscular specialist physiotherapists, which will make a difference regarding practice behavior and preferences for managing Bell's palsy.

Study recommendations

Future studies must compare these current practice patterns with evidence-based practice guidelines to identify whether their management aligns with current evidence-based practice so treatment efficiency can be improved.

Ethical Considerations

Compliance with ethical guidelines

All ethical principles were considered in this article. The participants were informed about study purpose & their consent was taken in written form.

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Authors' contributions

Conceptualization and supervision: Pakeeza Seemal; Methodology and analysis: Pakeeza Seemal, and Jibrán Arshad; Investigation: Saba Hameed, Sabahat Shafique, and Maryum Majeed; Resources, data curation and writing the original draft: Saba Hameed, Sabahat Shafique, and Maryum Majeed; Review and editing: Pakeeza Seemal, Jibrán Arshad.

Conflict of interest

All authors declared no conflict of interest.

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