

Evaluating Pain, Dysphagia, Psychological Status and Quality of Life among Diverse Age Group in Bell's Palsy: A Cross-Sectional Study

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Abstract: *Objective: In this cross-sectional study, in which we assessed facial paralysis or bell's palsy patient's pain, dysphagia, psychological conditions and life quality in variety of age groups. There were 47 subjects and all of them were older than 18 years. Data was collected through printed Google forms, adhering to informed consent and ethical clearance protocols. The patient's quality of life was affected by different levels of pain, dysphagia and psychological status, according to the analysis. These results underscore the importance of customized interventions to address diverse difficulties faced by facial paralysis patients at different ages. This study's goal was to understand that patient's quality of life was affected or not, did they suffer from pain during bell's palsy and how their psychological status was affected.*

Keywords: Bell's palsy, Dysphagia, Quality of life, Facial nerve, Facial paralysis

1. Introduction

Facial paralysis results from the peripheral facial paralysis / weakness / strokes. Neither patients' medical history nor findings from brain / head and neck tests indicates specific alternate causes. Even without intervention, facial paralysis resolves well, but corticosteroid treatment improves outcomes. To treat facial paralysis, we need to understand anatomy, motor parts & functions of facial nerve. [1] Adults are most likely to develop idiopathic peripheral facial nerve palsy, often known as Bell's palsy. The predominant pathologic theory posits that cerebral edoema and its compression by the petrous bone are caused by reactivation of HSV-1 within the geniculate ganglion. Seventy-five percent of patients will recover normally; this rate can be increased if oral corticosteroid medication is initiated within the first 72 hours. aberrant reinnervation) will make the condition worse. [2] Facial paralysis, commonly known as Bell's palsy after Scottish anatomist Sir Charles Bell, is the most prevalent diagnosis linked with facial nerve weakness, as well as the most common mononeuropathy, or illness, that affects only one nerve. The cause of facial paralysis is unknown, although it is marked by weakness of the facial muscles. Bell's palsy produces temporary facial paralysis, which can be uncomfortable and alter facial expressions. It makes it difficult to close your eyes. [3] Oral corticosteroids, maybe antibiotics, and eye protection against dryness are the first treatments. A tiny proportion of patients may experience hemifacial spasms, synkinesis, facial contractures, or incomplete recovery. There is a combination of medication and surgical treatment available for Bell's palsy long-term effects. [4] Impacted different groups at a rate of 11.5-53.3 per 100, 000 persons annually. Bell's palsy is a dangerous medical condition that can have an adverse effect on individuals as well as their families. Bell's palsy's aetiology, which influences its course of treatment, is unknown. Furthermore, it shows that the idiopathic facial palsy diagnosis is typically made by ruling out five possible causes: the body, infection, ischemia, inflammation, and the common cold mentioned

before. [5] About 1 in 60 persons will eventually have Bell's palsy, and typically affects those between the ages of 15 and 40. [6]

Pathophysiology

Facial paralysis generally occur due to the compression of 7th facial / cranial nerve of geniculate ganglion. The most common and narrowest (first part) here is labyrinth. Due to the narrowing of facial canal, side effects may occur which leads to vessel compression and reduces blood flow. Most common is unilateral facial weakness which involves forehead muscles. [7]

Anatomy of facial nerve

Cranial nerve VII is a multipurpose nerve that performs several motor, sensory, and parasympathetic activities. Its nerve fibres are connected to three nuclei in the medulla oblongata and the pons the superior salivatory (parasympathetic), the face (motor), and the solita (sensory). There are six segments that make up the facial nerve: tympanic, labyrinthine, cisternal, meatal, mastoid, etc. [8] The face nerve is a mixed cranial nerve that has sensory, parasympathetic, and motor branches. The motor root and nervus intermedius, commonly known as the Wrisberg nerve, are components of the cisternal segment. They exit the brainstem and enter the auditory canal within the body. These two portions converge in the internal auditory canal to form the canalicular (intracanalicular, meatal) segment. The geniculate ganglion is connected to the labyrinthine segment, which runs between the inner ear's vestibule and cochlea. [9]

Pain in bell's palsy

Retro auricular pain (behind the ear) before facial paralysis / weakness in IBP (idiopathic bell's palsy) corelates with more severe symptoms while retro auricular pain after facial paralysis indicates milder IBP. [10] When combined with other medical problems including fever, taste perversion, hyperacusis, facial alterations, dehydration, or dry eyes, this syndrome is characterised by the onset of facial paralysis. [11]

Volume 13 Issue 6, June 2024

Fully Refereed | Open Access | Double Blind Peer Reviewed Journal

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Twitch describes hemifacial spasm and trigeminal pain that occur simultaneously. Severe pain following ipsilateral Bell's palsy has never been stated, though. Within three months, postoperative spasticity stopped completely and the pain subsided. [12] Additionally, paraesthesia or ear / pinna pain may be reported by minor individuals. [13]

Quality of life in bell's palsy

In any case, the prevalence of facial nerve palsy in young children is indicative of a major medical set of difficulty, as it is also functional and beautiful in terms of life quality; and good care of doctors. [13] The questionnaire's consistently gives similar results when used at different times. Good way to track changes in life quality of patients [14] This study's objective was to compare the quality of life (QoL) of patients who had heavy golden eyelid surgery to that of healthy people ("good" group) and patients with other ocular illnesses ("poor" group). The data was collected using two questionnaires (SF-36 and NEI-VFQ39). patients in a "group." The study participants with the lowest quality of life were those who were untreated patients with facial paralysis. The greatest benefit to their mental health was receiving a gold nugget treatment for exophthalmos, which also enhanced their life quality. Thus, this study's objective was to:

- 1) Assess if eye damage affects patients' quality of life when they have facial brain swelling using the SF-36 and NEI VFQ39 questionnaires;
- 2) Assess the impact of medical treatment given to patients' bad quality of life when they have facial nerve injury. [15]
- 3) Stroke and brain injury can result in facial paralysis, which has a major impact on life and health and creates both functional and cosmetic abnormalities. [16]

Dysphagia in Bell's Palsy

The facial nerve influences the oropharyngeal phase of swallowing by innervating the orbicularis oris, zygomaticus, buccinator, posterior digastric, and stylohyoid muscles. The facial nerve also innervates the salivary glands and two-thirds of the taste buds on the tongue. Swallowing is impacted by peripheral facial palsy; difficulties primarily occur at the oral level, and eating and drinking are frequently aided by balance techniques. [17] Dysfunction of the lower brain, nerves, and the systems that innervate them can cause facial weakness, dysarthria, or dysphagia. Facial weakness may be a central or peripheral nervous system effect. Dysphagia at the oropharyngeal level can cause disease in the supranuclear region, brain, cranial nerves, neuromuscular junction, and muscles. [18]

Anxiety and depression in bell's palsy

In order to evaluate the quality of life, anxiety, and depression symptoms linked to PFP, a systematic review was conducted. [19] A recent cohort study (Tseng et al., 2017) found a bidirectional temporal correlation between facial paralysis and disorders of anxiety, pointing to implicit connecting mechanisms including the reactivity of stress hormones and the modification of susceptible function. Furthermore, the usual experimental line of anxiety comes before depression, suggesting that the majority of anxiety disorders primarily heighten the risk of developing secondary depression (Wittchen et al., 2000). One manifestation of the advanced psychological suffering linked to depression could be facial

paralysis. According to Simanek et al. (2014), the burden of depression is rising and can have a negative psychological effect on society. In the past Bell's palsy raised the chance of depression. In the hypotheses we were incorrect in that Bell's palsy had nothing to do with a higher likelihood of depression. [20] Facial paralysis patients frequently experience psychological issues such despair, anxiety, social disengagement, and physical impairment. [21]

Prognosis

Studies on natural history have revealed that over the first three weeks, about 85% of patients exhibit some improvement. The degree of facial palsy, the length of recovery, and the persistence of discomfort are all indicators of healing failure. If there is no recurrence during the first 3-6 months following the onset of the disorder, people with complete facial nerve palsy (House-Brackman grades 5-6) it is more likely to have an incomplete facial recurrence, with or without spasticity and joint. Additionally, chronic discomfort can portend negative consequences. These major trials' findings indicate that 70% of patients will recover totally on their own without the need for medical intervention. When using steroids acutely, approximately 90% of patients recover. [22]

Epidemiology

Peripheral facial palsy occurs in approximately 15 to 30 people per 100, 000 each year and it becomes more common as people age. Facial paralysis / weaknesses are most common between ages 15 to 45, with fewer cases in those under the ages of 15 or over 60. Both genders are equally affected. De Diego et al. observe more cases during winter season, with fewer cases during summer season. [23]

Complication

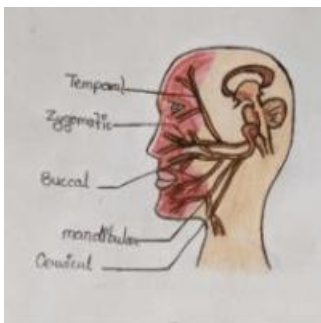
Complications of bell's palsy include; unwanted contractions of facial muscles, crocodile tear, decreased or loss of taste slurred speech & facial muscle weakness. [24]

Clinical features

- Unilateral upper and lower facial paralysis (more than 48 hours)
- Decreased tears
- Hyperacusis
- Taste disturbance
- Pain on the restless face ear or mastoid
- Tingling or numbness in the jaw/mouth [25]

Management

Corticosteroids, combination of antibiotics & corticosteroids, physical therapy, use of routine eye protection can be recommended to the patients suffering from bell's palsy. Neither use of antibiotic alone nor adding anti-inflammatory drugs to corticosteroids in patients will mild to moderate pain is not recommended. [26]



The Facial Nerve (Fig. a)



Bell's Palsy (Fig. b)

Scales	Assessment
Facial Disability Index (FDI)	Impairments, disability and psychosocial status
Facial Clinimetric Evaluation Scale Worksheet (FaCE)	Facial function and life quality
Sunnybrook Facial Grading System	Symmetry and skinesis
Numeric Pain Rating Scale (NPRS)	Pain
Hospital Anxiety and Depression Scale (HADS)	Anxiety and depression
Dysphagia Outcome and Severity Scale (DOSS)	Dysphagia
36 - Item Short form Survey (SF-36)	Life quality

Muscles which are involved in bells palsy

Occipitofrontalis
Procerus
Nasalis Muscle
Depressor Septinasi
Orbicularis Oculi
Corrugator Supercilium
Platysm

2. Review of literature (Only from 10 years from 2011-2021)

1) Stephen G Reich, MD, FAAN et. al. (2017) in Bell's Palsy concluded that the unexpected beginning of one-sided facial paralysis that persists for more than 24 to 72 hours. The patient's neurological examination, medical history, and overall evaluation do not point to a different diagnosis. A gradual development of symptoms, concurrent dizziness or auditory impairment, blisters in the outer ear canal, living in a region where Lyme disease is common, risk factors for HIV, and underlying malignancy are a few warning signs that raise uncertainty regarding the Bell's palsy diagnosis. Further testing is typically not required when there are no warning signs and the Bell's palsy diagnostic criteria are satisfied. Most

individuals will recover totally even without treatment, especially those who only have facial weakness rather than complete paralysis. According to studies, the likelihood of recovery is greatly increased by a 10-day course of corticosteroids. The chance of recovery is not considerably increased by using an antiviral drug, while there might be a little advantage that cannot be ruled out. Long-term weakness and synkinesis—a condition in which gustatory cues cause tears and sweating—are possible after Bell's palsy (also referred to as Frey syndrome).

- 2) S. Prud'hon, N. Kubis et. al. (2019) in Peripheral facial paralysis has cold Bell's palsy concluded that more than half of adult occurrences of facial paralysis in the peripheries are caused by cold or idiopathic peripheral facial paralysis, additionally referred to as Charles Bell's palsy in English-speaking nations. Clinical assessment is the basis for diagnosis; nevertheless, one should be alert for evidence of secondary peripheral facial paralysis and should not ignore central facial paralysis. 75 percent of cases. Still, it's important to think about the possible outcomes.
- 3) Reginald F. Baugh MD, Gregory J. Basura et. al (2013) in Clinical Practice Guideline: Bell's Palsy concluded that the evidence that is currently available about steroids' efficacy in children is ambiguous. It is not clear that children with Bell's palsy who are experiencing it for the first-time benefit from taking steroids on a regular basis. Nonetheless, patients who start treatment as soon as possible—within 72 hours of the beginning of symptoms—may be given the option of a combination therapy, in which steroids play a major part in the therapeutic strategy. In a shared decision-making process, steroids are recommended as a highly efficacious therapeutic choice in an effort to improve the likelihood of facial nerve function recovery (risk difference: 12.8% to 15%). It's crucial to remember that no treatment significantly outperformed untreated control groups in terms of progress.
- 4) Kavita Vakharia MD, Kalpesh Vakharia MD et. al (2016) in Bell's Palsy concluded that One side facial paralysis that occurs suddenly is frequently caused by Bell's palsy. Although the exact cause is uncertain, the HSV-1 virus is suspected to contribute to the swelling of the face and subsequent paralysis. Fortunately, most people with Bell's palsy recover their facial function on their own. Treatment guidelines suggest starting with oral corticosteroids to improve the likelihood of return of facial function. It is debatable but advised to combine antiviral medication with corticosteroids in extreme situations where total loss of facial function occurs. The primary therapy for Bell's palsy is surgical decompression, which is controversial and not currently supported by published recommendations. Long-term complications such as facial stiffness, asymmetry, autonomic dysfunction, hemifacial spasms, or synkinesis may emerge in some individuals who do not recover completely. These long-term effects of Bell's palsy can be treated with a number of medical and surgical procedures.
- 5) Wenjuan Zhang, Lei Xu et. al (2020) in the etiology of Bell's palsy: a review concluded that additionally, inflammation, ischemia, viral infections, reaction to cold

stimulation, anatomical structure, and ischemia are the five variables that are typically used to make the diagnosis of idiopathic facial palsy.

- 6) N Julian Holland, Jonathan M Bernstein (2014) in Bell's palsy concluded that the effectiveness and safety of a number of therapies, including as antiviral therapy, corticosteroids (alone or in conjunction with antiviral medication), hyperbaric oxygen therapy, and face retraining, are discussed in this comprehensive review.
- 7) Warner MJ, Hutchison J et. al (2022) in Bell Palsy concluded that Evidence-based medicine on the management and prognosis of Bell's palsy is lacking. The fact that many instances end on their own complicates the matter even more. The vast bulk of outcome data that is currently accessible is from isolated case reports or tiny case series. Although the majority of patients do recover, complete restoration may take months or even years to accomplish. Since there are now more treatment choices available than just medication, It is vital that an interprofessional team participate in the management process since different persons may react differently to different treatments.
- 8) Arsalan Danesh, Aviv Ouanounou (2022) in Bell's Palsy: Etiology, Management and Dental Implications concluded that Bell's palsy has a noticeable negative effect on a patient's quality of life, given how important the face is for communicating, expressing emotions, and carrying out other basic tasks. It is critical for healthcare providers to identify this crippling illness, obtain an early diagnosis, and differentiate it from other possibly fatal underlying causes. A favourable prognosis is influenced by early diagnosis and appropriate management, even if the majority of cases resolve on their own. Permanent problems may arise in a tiny percentage of patients, requiring a multidisciplinary approach combining physicians, neurologists, and ophthalmologists. Thus, it is imperative that medical professionals possess a thorough comprehension of the cause, symptoms, and suitable treatment approaches for individuals suffering with Bell's palsy.
- 9) Mai-Lan Ho, Amy Juliano et. al (2015) in Anatomy and Pathology of the Facial Nerve concluded that the facial nerve (CN VII) is a mixed cranial nerve with a complex anatomical course that comprises segments in the tympanic, mastoid, intraaxial, cisternal, canalicular, labyrinthine, and extracranial regions. The clinical presentation of facial palsy and its associated symptoms provide valuable insights regarding the location of lesions, whether nuclear, infranuclear, or supranuclear. CT and MRI have complimentary roles in imaging evaluation, depending on the specific parts of interest. T. Understanding the variety of disorders, normal anatomy, and embryology will assist radiologists accurately detect facial nerve abnormalities.
- 10) Aleksandar Kopitovic, Filip Katanic et. al (2021) in Bell's Palsy Retroauricular Pain Threshold concluded that the degree of bilateral idiopathic Bell's palsy (IBP) is negatively linked with the degree of reduced pain threshold in recurrent acute retro auricular pain (RAR). According to our research, retro auricular pain that occurs before the onset of facial weakness is linked to a higher severity of IBP, while pain that occurs after the onset is linked to a milder degree of IBP.
- 11) Jayaraman Rajangam, Arun Prasath Lakshmanan et. al (2023) in Bell Palsy: Facts and Current Research Perspectives concluded that early diagnosis. It is crucial to address the disorder's unclear aetiology and administer the proper care. This study examines new medical viewpoints and mechanistic approaches to recent developments in the knowledge and treatment of Bell's palsy.
- 12) Jiao, Wei MD, Zhong, Jun MD, PhD et. al (2013) Microvascular Decompression for Patients with Painful Tic Convulsif Following Bell Palsy, it was determined that the patient's anatomical differences and inflammatory responses may have led to PTC, and microvascular decompression is an effective therapy for the disease.
- 13) Andrea Ciorba, Virginia Corazzi et. al (2015) in Facial nerve paralysis in children concluded paediatric individuals with facial nerve palsy have a disorder that has multiple repercussions, particularly if it happens during childhood. Parents and physicians alike express serious concerns about it, mostly because of the possible effects on both functional ability and appearance. Although there are various causes of facial paralysis in children, the most frequent variety remains idiopathic facial paralysis, often known as Bell's palsy. To determine the appropriate course of treatment, a thorough diagnostic examination must be performed, with differential diagnoses considered. There is optimism that in the future, regenerative medicine will provide more treatments for this disease.
- 14) Nina Bylund, Malou Hultcrantz et. al (2020) in Quality of Life in Bell's Palsy: Correlation with Sunnybrook and House-Brackmann. Over Time concluded that there were low to moderate relationships between the Sunnybrook score and the FaCE/FDI (except for facial movement) in the early stages of Bell's palsy. This shows that quality of life (QoL) tools are not as appropriate for the acute stage of life. The surveys may be used to measure quality of life across time, as evidenced by the high correlations found during follow-up. Our data indicate that the psychosocial dysfunction associated with facial palsy is more prevalent in women.
- 15) Nowak-Gospodarowicz et. al (2020) The study Quality of Life in Patients with Unresolved Facial Nerve Palsy and Exposure Keratopathy Treated by Upper Eyelid Gold Weight Loading revealed that those with facial nerve palsy who did not get therapy had the lowest quality of life. (QOL) as study participants. But when gold weights were used to treat lagophthalmos, patients' quality of life significantly improved, especially in terms of their mental health.
- 16) Annabelle Vaughan, Danielle Gardner et. al (2020) in A Systematic Review of Physical Rehabilitation of Facial Palsy concluded that Every study included in this evaluation documents an improvement in facial function or movement after using different physical rehabilitation techniques for facial palsy. Methodological constraints and differences in study designs impair the quality of evidence and the capacity to draw valid comparisons between various intervention strategies. Significant research demonstrating the efficacy of physical rehabilitation is lacking. It is crucial to carry out

meticulously planned and comprehensive research investigations in order to close this gap.

- 17) T. Moverare, A. Lohmander et. al (2017) in Peripheral facial palsy: Speech, communication and oral motor function concluded that Speech, eating, and salivary control may all be impacted by acquired peripheral facial palsy. It is imperative for medical professionals to acknowledge that there is no clear correlation between the severity of facial palsy and its potential impact on these functions. Consequently, during routine checkups, doctors should ask about any issues with eating, speaking, and controlling saliva. If necessary, they can also consider sending patients to a physiotherapist or speech-language pathologist for the proper course of treatment.
- 18) Andrew Tarulli (2016) in Facial Weakness, Dysarthria, and Dysphagia concluded that facial paralysis is a facial nerve condition that usually develops over a few hours or occasionally even days. It is characterised by significant unilateral facial paralysis. Despite being classified as an idiopathic ailment; the majority of cases are probably caused by facial nerve viruses like herpes simplex or zoster. Bell's palsy patients may have trouble closing their eyes, slur their speech, or feel as though food is leaking out of the corner of their mouth. A decreased sense of taste or an increased sensitivity to loud noises may also be noticed, though these symptoms are rarely reported on their own unless expressly brought up during the collecting of medical history. Despite the fact that patients may report feeling numb on their faces, this is actually due to restricted facial mobility.
- 19) Ferran Cuenca-Martinez, Eva Zapardiel-Sanchez et. al (2020) Assessing anxiety, depression, and quality of life in patients with peripheral facial palsy: a systematic review concluded that, while the case-control studies demonstrated acceptable methodological quality, the cross-sectional publications included in the study were found to have inadequate methodological quality. Despite the little data, it indicates that persons with peripheral facial palsy (PFP) may have greater levels of anxiety and depressive symptoms. Furthermore, although there is little evidence to support this, a qualitative review revealed that patients with PFP may have a lower quality of life.
- 20) Sang-Yeon Lee, Il Gyu Kong et. al (2019) Bell's palsy is associated with an increased incidence of depression, according to two longitudinal follow-up studies employing a nationwide sample cohort. Our hypothesis was incorrect; depression did not increase the risk of Bell's palsy.
- 21) Matthew Hotton, Esme Huggons et. al (2020) in The psychosocial impact of facial palsy: A systematic review concluded that Facial palsy has the potential to significantly impact a person's psychological well-being and general quality of life, regardless of the objective severity of their symptoms. An analysis of the included studies' limitations emphasises how critical it is to address these problems in clinical practice. This involves highlighting how important it is for people with facial palsy to have better access to psychological screening and therapies.
- 22) Timothy J Eviston, Glen R Croxson et. al (2015) in Bell's palsy: aetiology, clinical features and multidisciplinary care concluded that When patients experience ongoing problems as a consequence of partial healing, the medical team must address functional, psychological, and cosmetic factors. Functional issues include speech, swallowing, eye closure, and nasal patency. The provision of comprehensive treatment has been made more successful by the collaborative efforts of doctors from different subspecialties. A patient-centered approach that includes targeted injections of botulinum toxin, selected surgery, and physiotherapy has helped to lessen the long-term impairment load associated with facial palsy.
- 23) Ahmed Hassan Kamil Mustafa, Ahmed Mohammed Sulaiman (2018) in The Epidemiology and Management of Bell's Palsy in the Sudan concluded that the results indicated that women predominated. The age range of 21 to 40 years old showed the highest occurrence. A tendency was discovered to favour the right side of the face.
- 24) Dhruvashree Somasundara, Frank Sullivan (2017) in Management of Bell's palsy concluded that Bell's palsy symptoms can range in severity from minor to severe. Although the precise aetiology of the illness is still unknown, it is known that swelling and inflammation of the facial nerves contribute to the symptoms. To avoid long-term eye problems, use enough eye protection. Since the vast majority of patients (more than 70%) eventually restore normal facial function without any treatment, the use of medicine for treatment is up for discussion. Prednisolone, however, can be used early to minimise long-term problems and speed up recovery. Combining antiviral medications with prednisolone may have some potential benefits, despite the moderate to low quality of the data currently available. However, it's crucial to have an honest conversation with patients regarding the advantages and disadvantages.
- 25) Danette C Taylor (2021) in Bell Palsy concluded that Bell's palsy, also known as idiopathic facial paralysis (IFP), is the leading cause of unilateral facial paralysis. It is among the most prevalent neurological conditions affecting the cranial nerves. In the majority of cases, Bell's palsy resolves gradually over time, yet the exact cause of the condition remains unknown.
- 26) John R. de Almeida, Gordon H. Guyatt et. al (2014) in management of Bell Palsy: Clinical Practice Guideline determined that, while some Bell's palsy patients may improve in their facial nerve function even without therapy, prolonged facial weakness can have a major detrimental impact on a person's quality of life. To avoid overlooking any underlying, curable disorders, a detailed diagnosis is required. Helping eligible patients select the appropriate course of treatment can improve their chances of recovery. The current guidelines for the diagnosis and management of Bell's palsy are based on the finest and most reliable information available today.

Hypothesis

There might be effect of Bell ' s palsy on pain, dysphagia, psychological status and quality of life.

Null hypothesis

There might not be effect of Bell ' s palsy on pain, psyhological status, dysphagia and quality of life.

3. Methodology

Study Design: Observational (cross-sectional study design) (primary and secondary clinics)

Sample method: A total of 50 patients will be selected after screening for bell's palsy

Location: Uttar Pradesh & Bihar

Duration of the study

The study duration was 24 weeks (6 months)

Procedure

Ethical clearance forms will be submitted. Consent form will be read and signed by patients. Google forms or printed forms will be created and circulated among people. Collect information from people via a Google form. Screening of patients will be done through Google forms. Analysis of knowledge is done through Google form or printed forms. 50 subjects will be included 50 subjects will be included with an age bracket between 18 and above. so as to assess pain, psychological status, dysphagia and quality of life.

Inclusion criteria

- 1) Patients diagnosed with bell's palsy.
- 2) Age 18 and above.
- 3) Facial weakness.
- 4) Patient's who are willing to sign consent form.

Exclusion criteria

- 1) Any type of surgery unrelated to bell's palsy.
- 2) Neurological conditions.
- 3) Any previous psychological disorder or psychomotor pain.

Scales

- 1) FDI (facial disability index) - to assess bell 's palsy. Reliability-(.88 for physical function) & (.83 for social / well being function).
- 2) FACE (Facial Clinimetric Evaluation)-to assess facial functions after facial paralysis. Reliability-(Cohen's Kappa of.61 for test-retest reliability was acceptable in the cognitively intact subjects).

Validity-(concurrent validity measured by correlation between FPS and NRS and VAS (visual analog scale) was supported.

- 3) Sunnybrook-to measure symmetry of voluntary movements and skinesis. Reliability-(0.89 to 0.92) Validity-(it is valid for measuring the resting symmetry and symmetry of voluntary movement and Skinesis).
- 4) NPRS (numeric pain rating scale)-to assess the pain. Reliability-(0.64 to 0.86).
- 5) HADS (hospital anxiety and depression scale)-to assess anxiety and depression.
- 6) DOSS (dysphagia outcome and severity scale)-to assess dysphagia. Reliability-(0.70 to 0.90). Validity-(it is valid for assessing the severity of dysphagia).
- 7) SF-36 (short form survey)-to assess the quality of life. Reliability-(greater than 0.75). Validity-(it is valid in primary care populations).

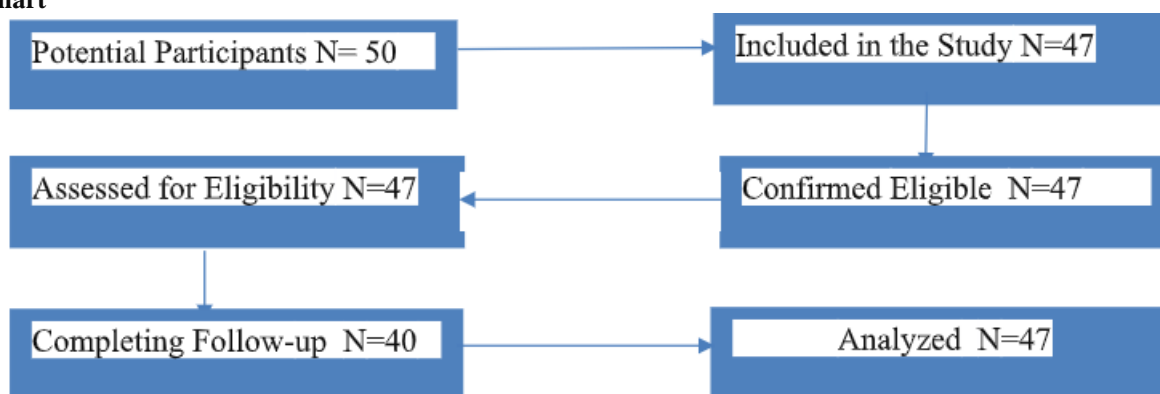
Outcome measures

- 1) Pain
- 2) Dysphagia
- 3) Psychological status
- 4) Quality of life

4. Result

Bell's palsy is a disorder that causes the muscles to momentarily become weak or paralysed on one side of the face, often due to viral infections. Symptoms include facial drooping, trouble smiling or closing of the eye, drooling, and changes in taste. It can impact quality of life and cause psychological challenges like anxiety & depression. Treatment options include steroids, antivirals, and physical therapy. The SF-36 scale assesses quality of life. While most cases resolve on their own, treatment reduces the risk of incomplete recovery. Long-term effects can affect aesthetics, physiology, and psychology, underscoring the need for comprehensive support.

Flow Chart



Descriptive Data

Demographic Characteristics:

- Age: Participants aged 18 and above.
- Gender: Male, female.
- Socioeconomic Status: Education level, income, occupation.

Clinical Characteristics:

- Diagnosis: Confirmed diagnosis of Bell’s Palsy.

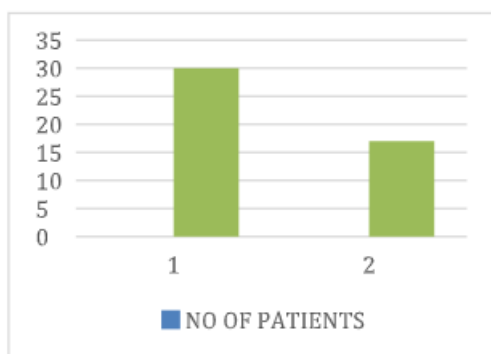
Social Characteristics:

- Social Support: Availability of support from family, friends, or community.
- Living Situation: Living alone, with family, or in a care facility.
- Employment Status: Employed, unemployed, retired, student.

Exposures:

- Corticosteroid Treatment: History of corticosteroid administration for Bell’s Palsy.
- Other Treatments: Use of antivirals, physical therapy, or alternative therapies.
- Environmental Factors: Exposure to environmental triggers or toxins.

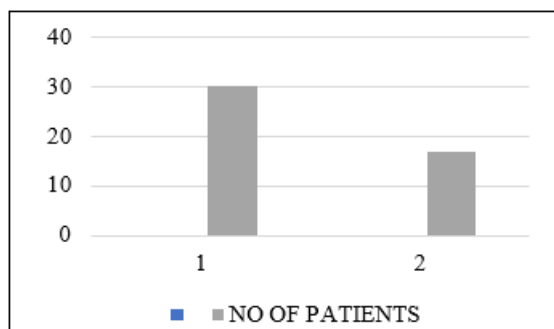
Outcome Data



1) Gender

Table 1.1

	Male	Female
No. of patients	30	17

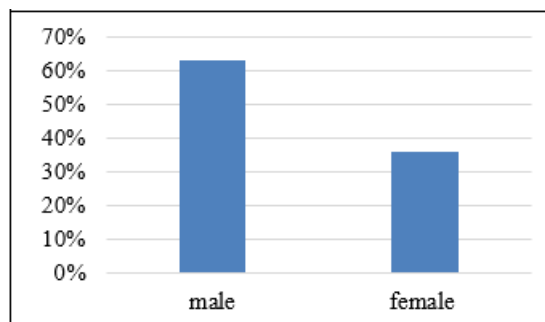


According to the analysis on the basis of gender there were thirty male patients and 17 female patients who had experienced facial paralysis. This data represents that there

was higher incidence of facial paralysis among males in this particular group.

Table 1.2

	Male	Female
Percentage	63%	36%



According to the analysis there are 63% males and 36% females who had experienced bells palsy. So, this suggests that there is a higher prevalence of facial paralysis among males in this particular data sheet. Understanding these factors helps in developing targeted preventions and treatment strategies for facial paralysis. Severity and location of the paralysis can determine the extent of functional impairment and guide treatment decisions.

Bell’s palsy affects 36 % of women and 63% of men, according to analysis. So, approaches to individual needs to better outcomes and improved life quality for those who are impacted by facial paralysis It’s all about addressing individual needs and circumstances to achieve the best possible outcomes. By adapting treatments accordingly, healthcare providers can greatly improve effectiveness of their interventions and ultimately enhance the life quality for those patients who are impacted by facial paralysis.

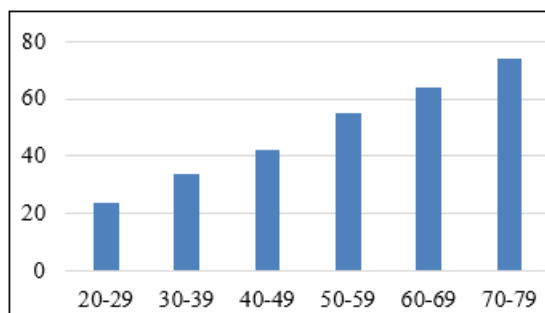
2) Age

Table 2.1

AGE	20-29	30-39	40-49	50-59	60-69	70-79
No. of patients	7	11	8	4	12	4

Table 2.2

AGE	20-29	30-39	40-49	50-59	60-69	70-79
Average	24	34	42	55	64	74
Std. deviation	17	17	17	17	17	19



According to the analysis, there are seven patients who are between the ages of 20 and 29; Eleven patients between the ages of 30 and 39; Eight patients between the ages of 40 and 49; Four patients between the ages of 50 and 59; Twelve

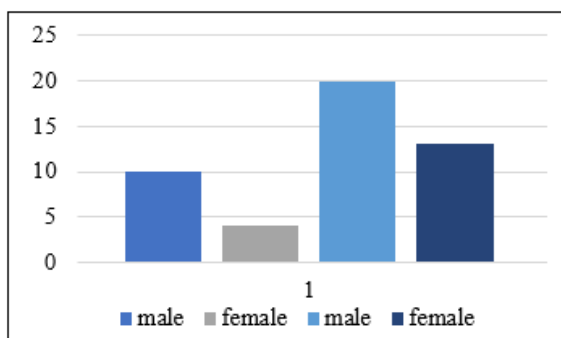
patients between the ages of 60 and 69; And four patients between the ages of 70 and 79. So this breakdown explains the distribution of facial paralysis across different age groups which can help in understanding the demographics of the conditions and potentially guide treatment and management strategies. Understanding how age affects the prognosis of facial paralysis can help in setting realistic expectations for patients and their families. Younger patients may have a better chance of full recovery as compared to the older patients.

According to the analysis mean / average and standard deviation of the people ages between 20 to 29 is 24 ± 17 , People ages between 30 to 39 is 34 ± 17 , people ages between 40 to 49 is 42 ± 17 , people ages between 50 to 59 is 55 ± 17 , people ages between 60 to 69 is 64 ± 17 , and people ages between 70 to 79 is 74 ± 19 .

3) Duration of Disease

Table 3

Duration	Complete Paralysis		Partial (Paresis)	
	Male	Female	Male	Female
No. of patients	10	4	20	13

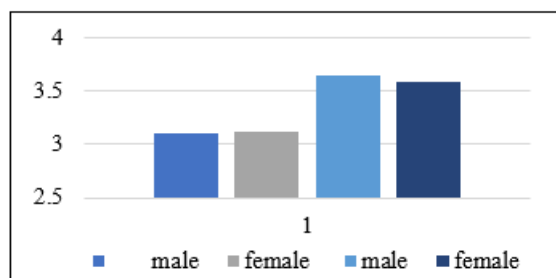


According to the analysis there Where 10 male patients and 4 female patients who had experienced complete paralysis during facial paralysis while there were 20 male patients and 13 female patients who had experienced partial paralysis during facial paralysis condition. This data provides insight into the gender distribution and severity of facial paralysis among the patients analyzed. This data represents about complete paralysis and partial paralysis during facial paralysis condition. In this table there are two groups which includes complete paralysis and partial paralysis.

4) FDI (a) on the basis of gender

Table 4.1

	Physical Function		Social Function	
	Male	Female	Male	Female
Average	3.10	3.12	3.64	3.58

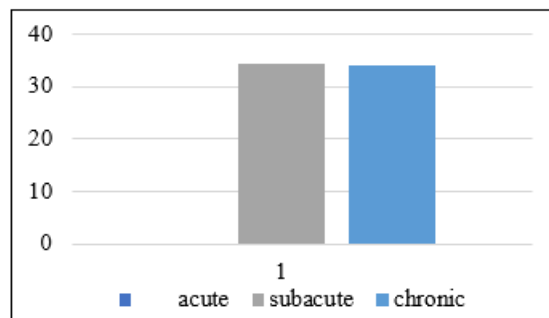


According to the analysis of facial disability index scale on the basis of gender mean or average for physical function of male patients (3.10) slightly lower as Compared to female patients (3.12) and mean or average for social function of male patients (3.64) slightly higher as compared to female patients (3.58). These findings could provide insights into the different experiences and need of male and female patients in managing facial disabilities.

Understanding that how men and women can deal differently with facial disabilities can inform tailored psychosocial support. Understanding that how social support differ between genders could be insightful. Females might receive more emotional support while males might trust more on practical assistance or problem-solving actions. Explorations of how discrimination shown differently for males and females with facial disabilities could highlight areas for targeted interventions and support programmes. Differences in how facial disabilities may affect daily functioning and activities of daily living between genders could inform rehabilitation actions and assistive technology development. Elaborating on these findings could lead to more approaches in healthcare, psychosocial support and societal inclusion for both male and female patients with facial disabilities or facial paralysis (bell's palsy).

FDI (b) on the basis of duration (Table 4.2)

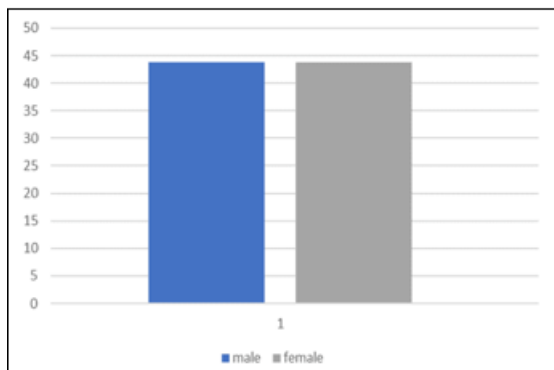
	Acute	Subacute	Chronic
Average	0	34.2	33.9
Std. deviation	0	8	7.6



According to the data analysis of facial disability index scale average and standard deviation of acute condition is zero and for subacute condition is 34.2 ± 8 and for chronic condition is 33.9 ± 7.6 . So average and std. deviation is slightly higher for subacute condition as compared to acute and chronic condition.

5) FACE (a) on the basis of gender (Table 5.1)

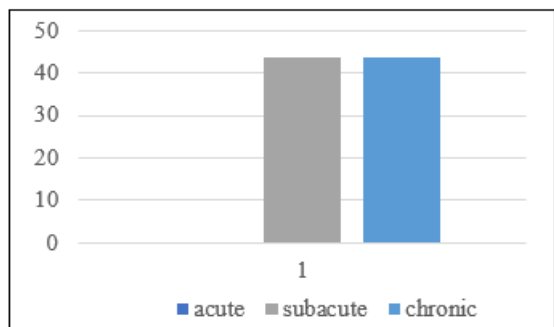
	Male	Female
Average	43.86	43.84
Std. deviation	7.58	7.63



According to the analysis of facial clinimetric evaluation scale on the basis of gender average and standard deviation of male patients is 43.86 ± 7.58 and for female patients is 43.84 ± 7.63 . So, we can say that both genders seem to experience similar levels of discomfort as indicated by their average facial clinimetric evaluation scale ratings. This finding of data analysis suggests that there is no significant gender difference in the experience of discomfort among the patients analysed. The standard deviation measures the number of variations in a set of data points. This analysis suggests that there might be slightly more variability in reported discomfort among female patients as compared to male patients as indicated by the higher standard deviation. This means that while both genders have a similar average level of reported discomfort the individual ratings among female patients may spread out more from the average as compared to male patients.

FACE (b) on the basis of duration (Table 5.2)

	Acute	Subacute	Chronic
Average	0	43.6	43.8
Std. deviation	0	7.8	7.4

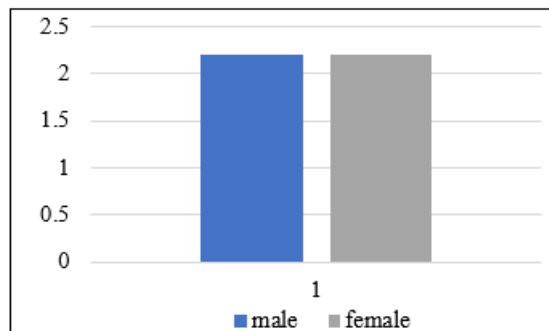


According to the data analysis of facial clinimetric evaluation scale average and standard deviation of acute condition is zero and for subacute condition is 43.6 ± 7.8 and for chronic condition is 43.8 ± 7.4 . It suggests that chronic conditions are more consistently present as compared to subacute conditions. The absence of acute conditions indicates that they are not present in data sheet. The standard deviation for subacute conditions and chronic conditions shows variability in their occurrence. This moderate occurrence explains that subacute conditions are present but not as frequently as chronic conditions. This higher average explains that chronic conditions are consistently present across the dataset, potentially reflecting their long-term nature and persistent impact on the populations. Overall analysing the averages and standard deviations provides a valuable distributions and variability of acute, subacute and chronic conditions to

understand of health status and dynamics of populations. Variations or variability explains about standard deviations.

6) FGS: RS (a) on the basis of gender (Table 6.1)

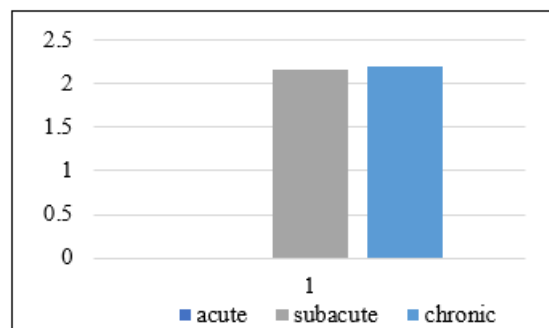
	Male	Female
Average	13.7	13.6
Std. deviation	3	3



According to the data analysis of facial grading system (resting symmetry) average and standard deviation of male patients is 2.2 ± 0.5 and for female patients is 2.2 ± 0.5 . So, we can say that both genders have similar average and standard deviation. They indicate similarity in the central tendency and variability or variations of the data distribution between genders. The purpose of the analysis is to draw meaningful conclusions about the equality or similarity of the two groups. This analysis helps to summarize the data distribution by providing information about where the data tends to cluster around and how spread out it is. While these statistical data are informative. The shape of the distribution refers to its overall form whether it is symmetrical or it is positive or negative or it is having multiple peaks. Variation in the shape of distribution between male and female patients could indicate differences in underlying patterns or characteristics.

FGS: RS (b) on the basis of duration (Table 6.2)

	Acute	Subacute	Chronic
Average	0	2.15	2.2
Std. deviation	0	0.5	0.56

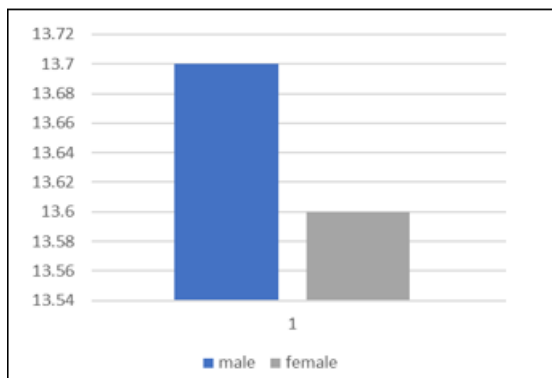


According to the data analysis of facial grading system (resting symmetry) average and standard deviation of acute conditions is 0 and for subacute conditions is 2.15 ± 0.5 and for chronic conditions is 2.2 ± 0.56 . So, we can say that average of subacute condition is slightly lower than chronic condition. And a standard deviation of subacute condition is a slightly lower than chronic condition. The demographics of

patients with subacute conditions could differ from those with chronic conditions which influencing both the average and variability of their conditions. It is possible that treatment for subacute conditions is more effective leading to less variability in patient outcomes and consequently a lower standard deviation. This means that patient with subacute conditions have symptoms somewhat less intense than those with chronic conditions.

7) FGS: SVM (a) on the basis of gender (Table 7.1)

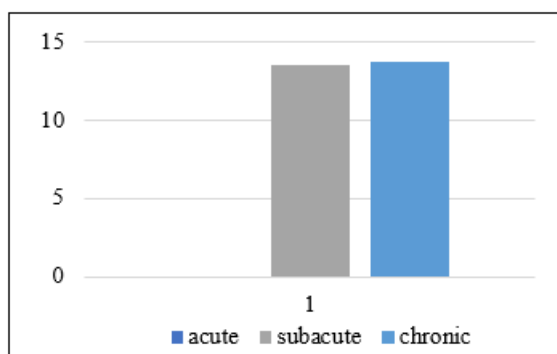
	Male	Female
Average	13.7	13.6
Std. deviation	3	3



According to the data analysis of facial grading system (symmetry of voluntary movement) average and standard deviation of male patients is 13.7 ± 3 and for female patients 13.6 ± 3 . This represents that average of male patients is slightly higher than female patients while standard deviation of male and female patients is similar. The similarity in standard deviation indicates that variability of the data around the respective means is comparable between male and female patients. It also suggests that the averages differ slightly the range of values within each group is similar implying consistent dispersion of data around the mean for both the genders. Overall, this finding could have various interpretations.

FGS: SVM (b) on the basis of duration (Table 7.2)

	Acute	Subacute	Chronic
Average	0	13.5	13.7
Std. deviation	0	3.2	3.2

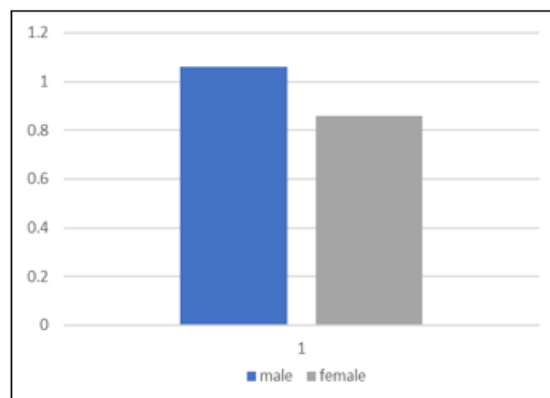


According to the data analysis of facial grading system (symmetry of voluntary movements) average and standard deviation of acute condition is 0 and for sub-acute condition is 13.5 ± 3.2 and for chronic condition is 13.7 ± 3.2 . That

average of subacute condition is slightly lower than chronic condition and standard deviation of subacute and chronic condition is similar. The similarity in standard deviation indicates that variability of the data around the respective means is comparable between male and female patients. It also suggests that the averages differ slightly the range of values within each group is similar implying consistent dispersion of data around the mean for both the genders. Overall, this finding could have various interpretations.

8) FGS: SYNKINESIS (a) on the basis of gender (Table 8.1)

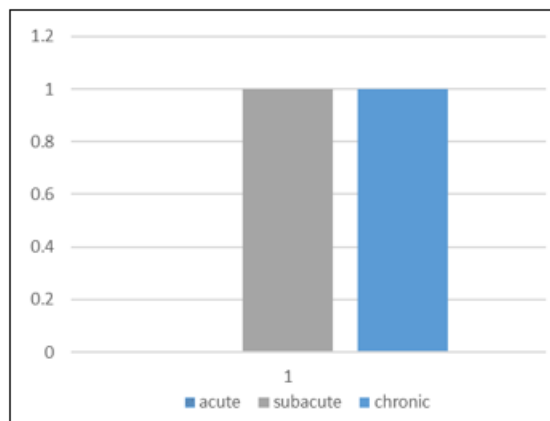
	Male	Female
Average	1.06	0.86
Std. deviation	2.0	1.8



According to the data analysis facial grading system (synkinesis or unwanted contraction of muscles) average and standard deviation of male patients is 1.06 ± 2.0 and for female patients is 0.86 ± 1.8 . This represents that average of male patients is slightly higher than female patients. Standard deviation of a male patients is slightly higher than female patients. Standard deviation shows variations between these two genders. This means that while male patients on an average exhibit slightly higher values, the extent to which individual data deviate from mean is consistent between genders.

FGS: SYNKINESIS (b) on the basis of duration (Table 8.2)

	Acute	Subacute	Chronic
Average	0	1	1.0
Std. deviation	0	1.9	1.9



According to the analysis facial grading system (synkinesis or unwanted contraction of muscles) average and standard deviation of acute condition is 0 and for subacute condition is

1±1.9 and for chronic condition is 1±1.9. So, this data represents that average for subacute and chronic condition is similar and standard deviation for a subacute and chronic condition is also similar. This statistical analysis discusses about acute, subacute and chronic conditions. However, the standard deviation being the same at 1.9 it suggests that the average severity might be the same the variability or spread of severity levels within each condition is also similar.

9) NPRS (Numeric Pain Rating Scale) (Table 9.1)

	No Pain	Mild Pain	Moderate Pain	Very Severe Pain	Worst Pain
No. of patients	18	17	10	2	0

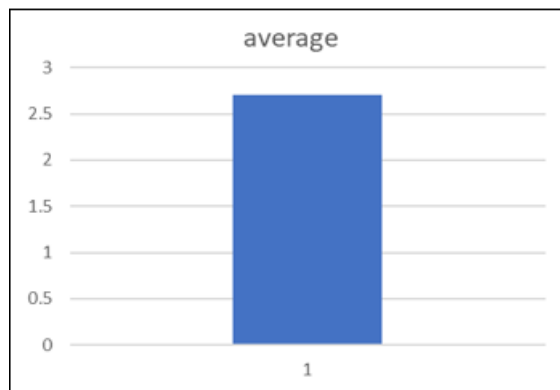


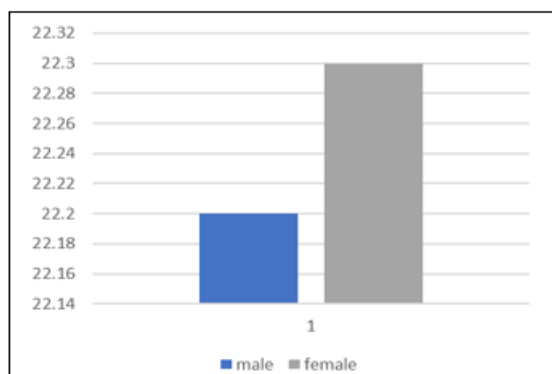
Table 9.2

NPRS (SCALE)	Average	Std. deviation
	2.7	2.6

According to the analysis of NPRS (numeric pain rating scale) the average and standard deviation 2.7 ± 2.6 . The average indicates moderate level of pain on the scale while standard deviation 2.6 suggest a significant variability in pain experiences among individuals with facial paralysis. So according to the pain analysis 18 patients experienced no pain and 17 patients experienced mild pain and 10 patients experienced moderate pain and 2 patients experienced very severe pain and none of the patients experienced worst pain during bell’s palsy or facial paralysis condition.

10) HADS (a) on the basis of gender (Table 10.1)

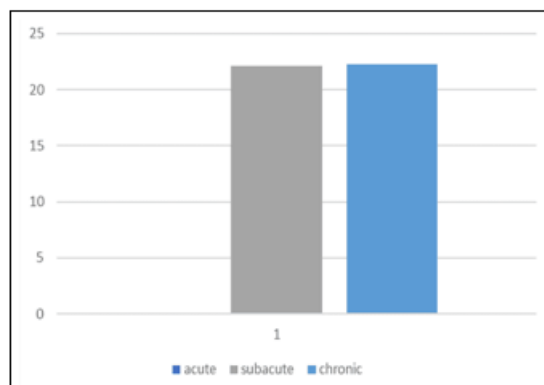
	Male	Female
Average	22.2	22.3
Std. deviation	6	6



According to the analysis of HADS (hospital anxiety and depression scale) average and standard deviation of male patients is 22.2 ± 6 and for female patients is 22.3 ± 6 . This data represents that average of male patient is a slightly lower than as compared to female patients. But the standard deviations of male and female patients are similar. It could reflect underlining demographic differences between genders. The purpose of the hospital anxiety and depression scale is to gauge patients' levels of anxiety and depression. There are fourteen items total, seven of which are related to anxiety and seven to depression. This scale is used to monitor psychological conditions particularly among patients with physical illness where anxiety and depressions are common conditions. The higher the score the higher the level of anxiety or depression. This scale is mainly used in healthcare to identify patients Who may need further psychological evaluation or support.

HADS (b) on the basis of duration (Table 10.2)

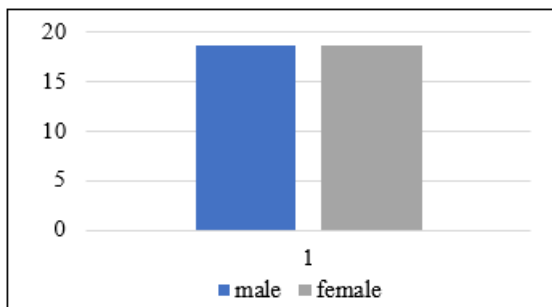
	Acute	Subacute	Chronic
Average	0	22.1	22.3
Std. deviation	0	7	6.7



According to the analysis of HADS (hospital anxiety and depression scale) average and standard deviation for acute condition is 0 and for subacute condition is 22.1 ± 7 and for chronic condition is 22.3 ± 6.7 . This data represents that average for subacute condition is slightly lower than chronic condition and standard deviation for subacute condition is slightly higher than chronic condition. Standard deviation shows variations between acute, subacute and chronic conditions. Hospital anxiety and depression scale is used to measure anxiety and depression of an individual during facial paralysis. This scale is also useful in evaluating the emotional status of an individual during facial paralysis.

11) DOSS (a) on the basis of gender (Table 11.1)

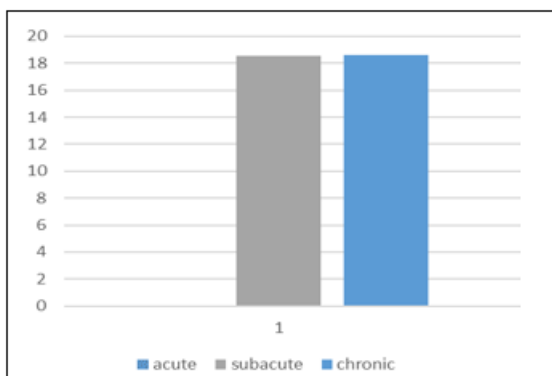
	Male	Female
Average	18.6	18.6
Std. deviation	1.5	1.5



According to the analysis of DOSS (Dysphagia outcome and severity scale) it represents that the average and standard deviation of male patients is 18.6 ± 1.5 and for female patients is 18.6 ± 1.5 . So, we can see that average for male and female patient is similar and standard deviation for male and female patient is also similar. DOSS Scale is also known as House-Brackmann scale. This scale is used to measure severity of facial nerve dysfunction in conditions like facial paralysis. Grade 1 (normal) to Grade 6 (total paralysis) are the possible grades. This scale helps to clinically access the extent of facial nerve involvement and monitor changes over time.

DOSS (b) on the basis of duration (Table 11.2)

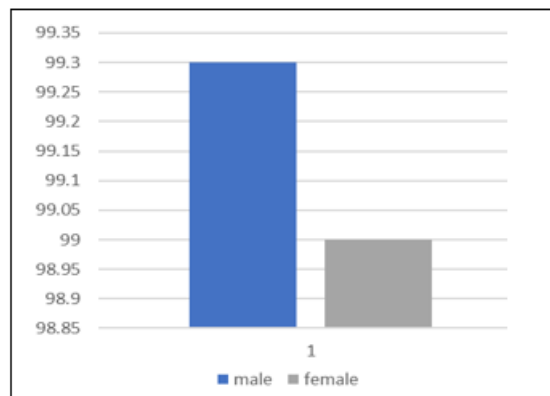
	Acute	Subacute	Chronic
Average	0	18.55	18.59
Std. deviation	0	1.6	1.54



According to the analysis of DOSS (dysphagia outcome and severity scale) it represents That average and standard deviation for acute condition is zero and for subacute condition is 18.55 ± 1.6 and for chronic condition is 18.59 ± 1.54 . This data represents that average for subacute condition is slightly lower than chronic condition. And standard deviation for subacute condition is slightly higher than chronic condition. This scale is used to assess factors like movement and function. Each grade corresponds to specific facial features and movements which helps clinicians to assess the extent of paralysis and track the progress overtime.

12) SF - 36 (a) on the basis of gender (Table 12.1)

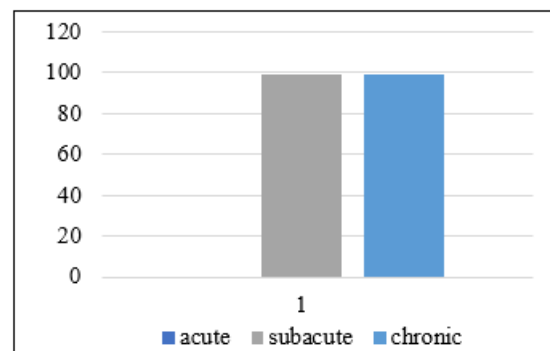
	Male	Female
Average	99.3	99.0
Std. deviation	8	7.8



According to the data analysis of short form 36 health survey Questionnaire (SF-36) averages and standard deviation for male patients is 99.3 ± 8 and for female patients is 99 ± 7.8 . So average for male patient is slightly higher than female patients and standard deviation for male patient is slightly higher than female patient. Standard deviation shows variations between these two genders. SF-36 scale is used to measure the quality of life of a patient. This scale is useful for determining how a condition affects a person's overall health, vitality, social functioning, mental health, bodily pain, and limits resulting from physical or emotional health.

SF - 36 (b) on the basis of duration (Table 12.2)

	Acute	Subacute	Chronic
Average	0	99.4	99.1
Std. deviation	0	8.2	7.9



According to the analysis of short form 36 health survey questionnaire (SF-36) averages and standard deviations for acute condition is 0 and for subacute condition is 99.4 ± 8.2 and for chronic condition is 99.1 ± 7.9 . So, this represents that average and standard deviation for subacute condition is slightly higher as compared to chronic condition. By evaluating these fields healthcare professionals can better understand the overall well-being and functioning of individuals affected by facial paralysis which can inform treatment decisions and interventions. Higher score in SF-36 scale represents better health of an individual. This scale is used to evaluate overall health and well-being. This scale explains about how the quality of life is affected of an individual during facial paralysis condition.

5. Discussion

The retro auricular pain (RAP), which is reported by over half of patients, has also drawn a lot of attention, although paresis

is still the most worrying IBP symptom. Analgesia is necessary to treat the deep, localized pain in the mastoid region, which might linger for one to several weeks. RAP's pathophysiology in these people is not fully understood. In light of the fact that some research implies that patients with IBP have worse prognoses, other studies, on the other hand, have produced conflicting findings, necessitating the need to define clearly and exactly whether the prognostic factor is favourable or unfavourable. [10] Bell's palsy has an unknown cause that may vary from person to person. Bell's palsy patients often experience facial paralysis over the course of 1 to 2 days. Although the majority of Bell's palsy patients do not experience dry eyes (recall that cranial nerve VII innervates the lacrimal gland), proper lubrication and eye care are still required, as was discussed in the section on treatment, particularly when severe orbicularis oculi weakness results in an inability to approximate the upper and lower lids. Most facial paralysis patients won't have a recurrence of their condition; however, it happens in about 7% of cases, either on the same or the other side. [1] The disorder causes the facial muscles on the affected side of the face to become partially or completely inactive. Rarely occurs bilateral Bell's palsy. As of right now, Bell's palsy has no known cause. [3] Symptoms of seventh cranial nerve peripheral paralysis include visceral, motor, and sensory deficiencies in the affected hemi-face. A closer look reveals a facial asymmetry: the nasolabial fold and facial creases disappear, and the affected side also has an extended eyelid, a collapsing mouth rim (perhaps due to saliva leakage), and lagophthalmos (static symptoms). [13] The most typical type of peripheral facial palsy is Bell's palsy. 30% of Bell's palsy patients will experience sequelae that may have a detrimental impact on their quality of life (QoL), both functionally and psychosocially. Full recovery is achieved by 70% of bell's palsy patients. Social isolation can result from the inability to express emotions and aesthetic problems with the face. Less consideration is given to how severe the patient's palsy is perceived to be or how it may affect their psychosocial life. [14] The orbicularis oculi muscle cannot be closed because it lacks innervation. Patients under the age of eighteen were not accepted. The SF-36 questionnaire assesses two cumulative and eight homogenous aspects of health. More information is provided in the following categories:

- 1) Physical functioning (PF) is a domain that consists of 10 items with varying levels of resolution. It measures the range of common daily physical activities that are accomplished and the degree to which health difficulties limit physical activity.
- 2) The measurement of the limitations on a patient-specific physical activity caused by health difficulties is made possible by the significance of physical restrictions (physical roles, or RP) and the influence that physical health has on daily activity (4 questions with yes/no answers).
- 3) Body pain (BP) complaints: the degree of physical discomfort and how it affects day-to-day activities (assessed using two questions pertaining to multiple choice answers).
- 4) General health (GH): An individual's assessment of their overall well-being. [15]

Psychosocial problems associated with peripheral facial palsy can cause a worse quality of life, increased anxiety, and

depressive symptoms. Even when they smiled, patients with PFP reported a decrease in psychological well-being as a result of their feelings about their looks and contacts with healthcare personnel. Observers frequently have negative impressions about patients who exhibit PFP facial expressions. [19] Peripheral facial palsy is characterised by unilateral weakening or paralysis of the muscles of the lips, eyes, and forehead. This may result in facial asymmetry, as well as issues eating, drinking, speaking, and controlling saliva. Lip force and motion are particularly critical for articulating labial consonants and managing salivation. People with acquired peripheral unilateral facial palsy are likely to experience changes in lip force and movement; however, the study does not address the potential impact of lip impairment on speech comprehension, communication, feeding, and salivation control in this patient population. [17] The most common cause of unilateral facial paralysis is BP. The tiny entrance of the facial canal produces inflammation, squeezing the facial nerve and rendering it ischemic. A weakness in one side of the face, involving the forehead muscles, is the most common finding. One side of the face, which could be the whole face or just a portion of it, will have weaker eyebrows, a forehead, and a mouth angle. [7] Face function and appearance can vary significantly as a result of bell's palsy. Facial paralysis sufferers frequently describe psychological challenges such as social disengagement, anxiety, bad body image, and low mood. [23] The seventh cranial nerve may be compressed by ischemia as a result of viral infection. [11] Bell's palsy can have both early and late therapy choices, depending on the patient's functional recovery and the existence of any sequelae, such as synkinesis. When the face is in a dysfunctional state, early in the course of treatment, attempts are made to improve facial healing through the use of therapies such as steroids, antivirals, physical therapy, acupuncture, and eye protection. When one set of facial muscles contracts abnormally and involuntarily while another group moves the face voluntarily, this condition is known as synkinesis. This syndrome is noticed when the facial nerve lesion heals. [4] Most cases go away on their own, but if a viral aetiology is suspected, antivirals may also need to be used in addition to corticosteroids to prevent insufficient healing. Patients' quality of life is severely reduced by long-term challenges resulting from poor healing, which might have aesthetic, physiological, and psychological implications. [8]

6. Key Result

The key results from the cross-sectional study on Bell's palsy or facial paralysis include:

- 1) Pain: Some patient's experiences pain (mild, moderate, severe), while some patient's does not experience pain.
- 2) Dysphagia: Some patient's experiences difficulty during swallowing, which may impact their ability to eat and drink, while some patient's does not experience difficulty during swallowing.
- 3) Psychological Status: Patient's psychological status is also affected such as increased levels of anxiety, depression, or social difficulties among individuals affected by Bell's palsy.
- 4) Quality of Life: Bell's palsy can have a significant impact on patients' daily activities, relationships, and overall

satisfaction with life, highlighting the need for comprehensive support and management strategies.

7. Conclusion

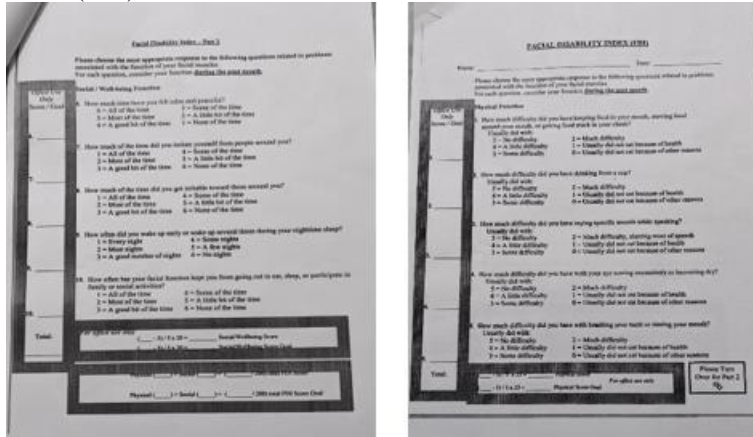
Bell's palsy, often caused by viral inflammation which leads to sudden facial muscle weakness / paralysis, drooping of the mouth or eyelid, and reduced taste sensation. Treatment involves medications like corticosteroids and antivirals, along with physiotherapy. Though rare, long-term complications can arise. Diagnosis relies on symptoms, sometimes aided by imaging. Treatment varies by severity, including exercises, massage, or surgery in extreme cases. Early detection and intervention are vital for successful management.

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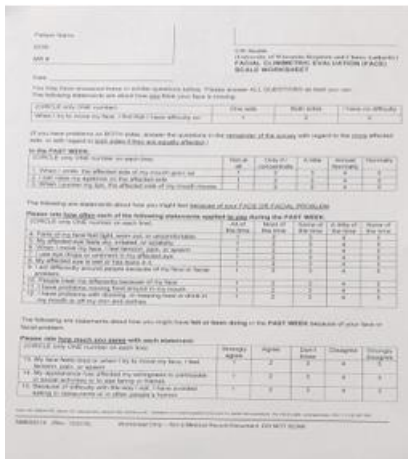
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Annexure

1) Facial Disability Index Scale (FDI)



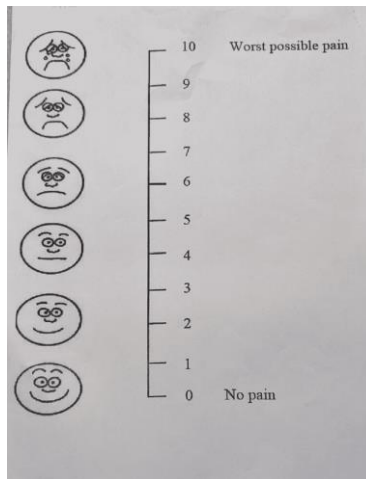
2) Facial Clinimetric Evaluation Scale (FaCE)



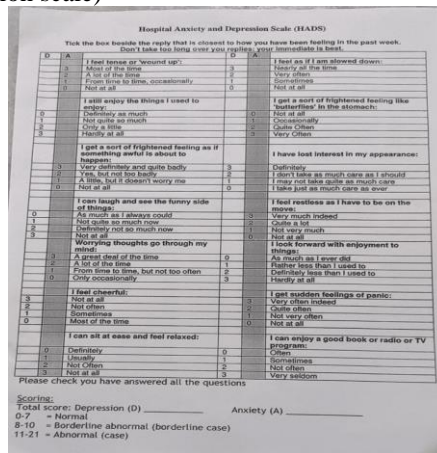
3) Sunnybrook Scale

Sunnybrook Facial Grading System						
Resting Symmetry		Symmetry of Voluntary Movement			Synkinesis	
Compared to normal side		Degree of muscle excursion compared to normal side			Degree of involuntary muscle contraction associated with voluntary expression	
Eye (closure one only)	normal	0	Standard	0	Normal	0
	minor	1	Exaggerated	1	Minor	1
	with synkinesis	1			Minor	1
Cheek (non-labial side)	normal	0	Shrink all	1 2 3 4 5	0	1 2 3
	shrink	1				
	less pronounced	1	Gentle eye closure	1 2 3 4 5	0	1 2 3
Mouth	normal	0	Open mouth smile	1 2 3 4 5	0	1 2 3
	corner drooped	1	Smile	1 2 3 4 5	0	1 2 3
	corner pulled up	1				
Total			Lip pucker	1 2 3 4 5	0	1 2 3
Resting symmetry score	Total 1 f	Voluntary movement score: Total 4			Synkinesis score: Total	
		Vol score	Resting symmetry score	Synk score	Composite score	

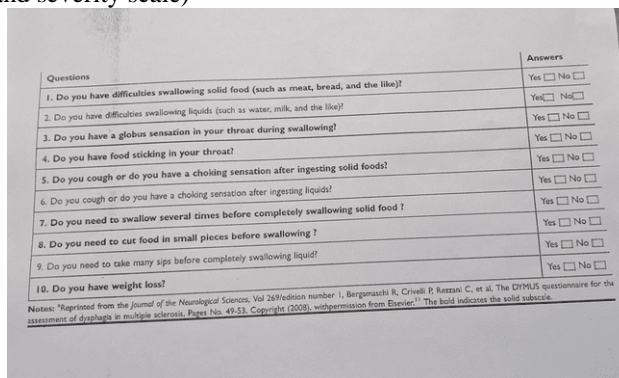
4) NPRS (numeric pain rating scale)



5) HADS (hospital anxiety and depression scale)



6) DOSS (dysphagia outcome and severity scale)



7) SF-36 (short form survey)

The image displays the SF-36 Questionnaire form, which is divided into several sections. The top section includes a header with the title 'SF-36 QUESTIONNAIRE' and fields for Name, Sex, Age, and Number of Pages. Below this, there are instructions and a 'GENERAL HEALTH' section with five questions. The main body of the form consists of 36 items, each with a corresponding question and response options. The items are grouped into sections: 'LIMITATIONS OF ACTIVITIES', 'SOCIAL ACTIVITIES', 'PAIN', 'ENERGY AND EMOTIONS', 'PHYSICAL HEALTH PROBLEMS', 'EMOTIONAL HEALTH PROBLEMS', 'SOCIAL ACTIVITIES', 'PAIN', 'ENERGY AND EMOTIONS', and 'SOCIAL ACTIVITIES'. Each item has a set of radio buttons for the response options.

This image shows a smaller section of the SF-36 questionnaire, specifically the 'GENERAL HEALTH' section. It contains five statements, each followed by four response options: 'Definitely true', 'Mostly true', 'Don't know', and 'Definitely false'. The statements are: 'I am as healthy as anybody I know', 'I expect my health to get worse', 'My health is excellent', 'I am as healthy as anybody I know', and 'I expect my health to get worse'.