Original Article

Assessment of Facial Function in Patients with Facial Palsy Using Patient-Based and Clinician-Based Tools

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ABSTRACT

Facial palsy is a serious disorder that impairs both function and appearance resulting from facial muscle weakness. It impairs the quality of life of affected patients. There are questionnaires for general health and disease-specific assessments of quality of life accessible. **Objective:** To assess the facial function in patients with facial palsy using patient-based and clinician-based tools. **Methods:** A cross-sectional study was conducted among patient diagnosed with facial palsy. The study sample size 79 of both genders calculated via Epitools software and using convenient sampling technique. A pre-tested structured valid and reliable tool was used for the assessment of disability and facial function via Facial Clinimetric Evaluation used as patient-based tool and House-Brackmann Scoring Scale used as clinical based tool. SPSS version 25.0 was used to analyze data. **Results:** The mean age of the participants was 27.53 years. 59.5% were males whereas, 40.5% were females. So, a higher prevalence of males was seen. 58.2% were recorded at grade IV (moderately severe), 31.6% were at grade III (moderate level) and 10.1% were at grade V (severe) level. There was statistically significant association between House-Brackmann scores and facial clinimetric evaluation scores (p<0.001) that was indicating that there was an association between disability and patient's perception towards facial palsy. **Conclusions:** Facial Clinimetric Evaluation scale used as patient-based tool provide subjective experience and functional limitation experienced by facial palsy patient while House-Brackmann Scoring Scale used as clinical based tool provides objective evaluation of facial function of facial palsy patient.

INTRODUCTION

Patients with facial malformation, including facial paralysis, might encounter negative consequences due to these impairments and disabilities. These limitations direct affect their functionality [1]. Facial paralysis-related disability has evident limitations, like difficulty in mastication and speech articulation. Although its impact on abstraction aspects such as social contact and (QOL) quality of life are less well known [2]. Facial paralysis is a occurring and devastating after effects of brain damage and stroke [3]. Facial palsy can cause notable alterations in facial function and appearance. Those affected often report psychosocial difficulties including social withdrawal, anxiety, poor body image, and low mood [4]. Bell's palsy is an acute condition, typically occurring unilateral, facial musculature weakness or paralysis, associate with peripheral facial nerve damage without unknown etiology [5]. Other symptoms include experiencing pain behind or around the ear occasionally extending into the occipital or cervical area. Impaired ability to tolerance typical noise levels and disrupted taste buds on the same side. Facial palsy results from an upper motor neuron lesion, which can be caused by a stroke in the area of middle cerebral artery or lesions taking up along the pathway. Lesions to Upper motor neuron cause paralysis of the opposite side of lower part of the face leaving the upper part of the face unharmed. Other signs like Dysphasia, hemiparesis, and sensory impairments are dependent upon neighboring neural pathways and regions [6]. Facial paralysis often as a result of damage to the 7th cranial nerve. The condition varies from flaccid paralysis to post-

paralytic facial hyperactivity [7]. Facial palsy symptoms include Brow ptosis, incomplete eye Closure, external nasal valve collapse, articulation and speech issues, inability to communicate emotions, aesthetic deficiencies, and synkinesis (involuntary movement during voluntary movement). Leading psychosocial consequences, lowering the quality of life of the patients [8]. Facial palsy may result from trauma, specifically basal skull trauma affecting the temporal bone. The facial nerve, traversing this bony channel, can be compressed due to head impact or subsequent swelling, leading to the palsy [9]. Congenital factors encompass genetic syndromes, birth trauma, and isolated developmental issues like facial muscle hypoplasia. This genetic hyperplasia can lead to unilateral or bilateral neonatal paralysis, attributed to intrapartum injuries or developmental disorders [10]. Lyme disease can uncommonly lead to facial palsy as the bacteria responsible for the disease can harm the nervous system, including the facial nerve. This damage can result in a weakened muscle or facial paralysis on one side in those affected [11]. Facial paralysis and bell's palsy differ mainly due to their origin and impact. Facial palsy arises with a clear cause, resulting in permanent (for years to life) nerve damage necessitating surgery. In contrast, Bell's palsy is often unexplained and temporary typically resolving within 3 months without surgical intervention [12]. Risk factors of Facial Palsy mainly stem from brain tumors. The Postoperative percentages for tumors in the deep, superficial, and lower lobes were 37.9%, 15.0%, and 14.6%, respectively, with a notably elevated occurrence in deep lobe cases [13]. The left side is primarily impacted, and the most frequent form of facial nerve paralysis is upper motor neuron lesion, accounting for 80.3% of cases [14]. Limited research exists on this topic due to the rarity of recurring facial paralysis in children. With low occurrence rates for both prevalence and incidence [15]. While the World Health Organization's disability definition focuses on individuals' earlier studies highlighting society's impact on personal health indicate that social viewpoints and their consequences must be factored into assessing outcomes for patients affected by facial paralysis [16]. Research indicates that abnormalities of the face, include facial paralysis, have clear psychosocial impact. Considering how the face and quality of life (QOL) are affected on communication, individuals with facial paralysis-induced disability might encounter amplified social consequences [17]. The evaluation of peripheral facial palsy's impact on facial function involves diverse approaches: physician-assigned grades, automated measurements, and patient self-evaluation via surveys. Despite advancements in computerized tools, the disease's effect on quality of life remains a crucial aspect of assessment, integral from initial consultation to post-treatment [18]. Patient self-assessment via surveys offers insight into how diseases affect quality of life Currently, there are limited disease-specific questionnaires available, with only a handful being utilized in routine clinical practice [19]. While there may be disagreements over the use of physical therapy in treating facial paralysis, various methods such as exercises, electrical stimulation, massage, heat therapy, and biofeedback techniques appear valuable. Each approach possesses distinct merits and suitable applications. Additionally, specific patients enduring recent facial injuries or prolonged paralysis might find rehabilitative surgical techniques advantageous [20]. The purpose of this investigation was to assess the facial function in people with history of facial palsy or in individuals that are currently facing this condition and patients' perception toward facial palsy by utilizing the instruments using Facial Clinometric Scale (for patient perception) and House-Brackmann Scoring System (for clinical evaluation) by patient history and clinician notes.

METHODS

A cross-sectional study using a Non-Probability Convenient sampling technique for facial palsy patients. The sample size calculated using Epitools software. Statistical conditions were 99% confidence interval. The sample size of 79 individuals of both genders. Data were collected through Questionnaire including Facial Clinimetric Scale (for patient perception) and House-Brackmann Scoring System (for clinical evaluation), of facial function. Data were collected from Physiotherapy Departments of Services and Jinnah Hospitals and other private clinics of Physiotherapy department in Lahore. The study encompassed unilateral and bilateral facial palsy cases, involving participants aged 18-35 years. Exclusion criteria involved the presence of comorbidities or Bell's palsy. After taking informed written consent from patients. SPSS version 25.00 was used to analyze data. Percentages and Frequencies were reported for categorical variables and mean ± SD were reported for non-normal continuous data. Chi-square test was used to assess the association between variables. Tests were applied according to normative and non- normative data. The prevalence was reported as having 95% confidence interval using binomial exact distribution. The significance level was set at $P<0.05$.

RESULTS

The descriptive statistics of house-Brackmann scale score are given in figure 1. The maximum score was 6 and minimum was 2. The mean score was 3.77 with a standard deviation of 1.154.
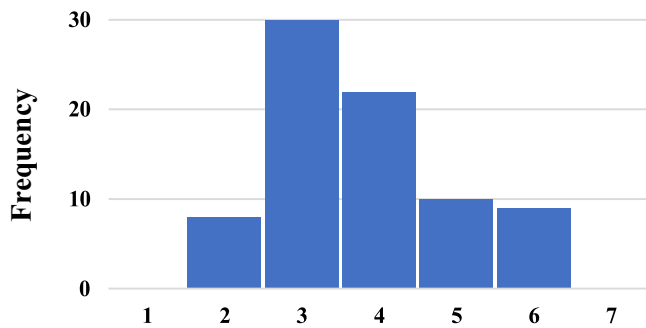
Figure 1: Descriptive Statistics-House-Brackmann Facial Nerve Score

The descriptive statistics of Facial Clinometric Evaluation Score are given in figure 2. The maximum score was 56 and minimum was 23. The mean score was 36.27 with a standard deviation of 8.05
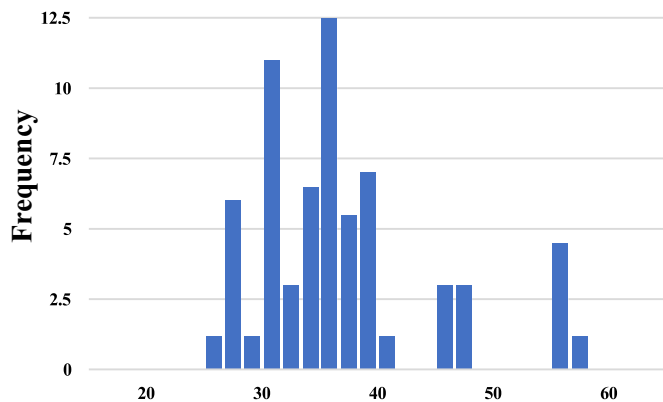

Figure 2: Descriptive Statistics of Facial Clinimetric Evaluation Scores(FaCE)

The results of House-Brackmann facial nerve grading system are shown in figure 3. 31.6% were at grade III (moderate level). 58.2% were recorded at grade IV (moderately severe), and 10.1% were at grade V (severe) level.
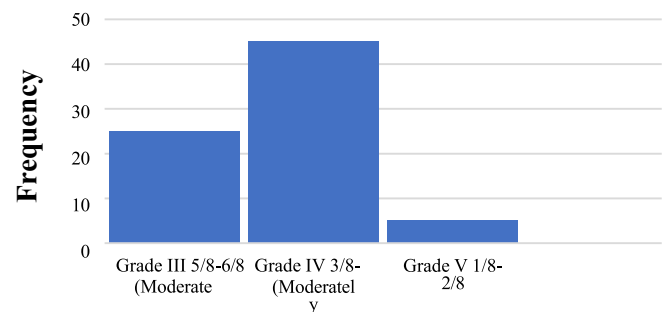

Figure 3: House-Brackmann Facial Nerve Grading System

The association between the two scales used in the study is shown in table 1 as House-Brackmann Scale Scores * faCE Scale Total Score Correlation. A p-value of less than 0.001 was obtained showing a statistically significant relationship between the two variables.

Table 1: House-Brackmann Scale Scores * faCE Scale Total Score Correlation(N=79)

House-Brackmann Scores (out of 8)	Facial Clinimetric Evaluation Scores	
	Moderate (40-60)	Moderately Severe (20-40)
2.00	1	7
3.00	4	26
4.00	6	16
5.00	5	5
6.00	6	3

p-value <0.001

DISCUSSION

Face palsy is a debilitating disorder that causes facial muscular weakness, poor oral function, psychological discomfort, and difficulty in communication, which impair the quality of life of affected patients. For evaluating quality of life, there are both general health and disease-specific questionnaires available. In patients with facial paralysis, Giones et al., examined the relationships between patient- and observer-perceived impairment and quality of life. She concluded compared to patients who were paralyzed, observers were more likely to judge their quality of life poorer due to impairment [2]. The aim of this investigation was to evaluate the facial function in individuals suffering from facial palsy using patient based & clinician based tools.in current study 79 facial palsy patients was enrolled via non-probability convenient technique was used. The mean age of the participants was 27.53 the maximum age was 35 and the minimum age was 18. In this study fifty nine percent were males whereas, forty percent were females. So, a higher prevalence of males was seen. Fifty eight percent were recorded at grade IV (moderately severe), thirty-one-point six percent were at grade III (moderate level) and ten-point one percent were at grade V (severe) level. A p-vale of less than 0.001 was obtained showing a statistically significant relationship between House-Brackmann scores and facial clinimetric evaluation scores. Majority of the population fall in moderate level of severity. In contrast to disability, which is subjective and may be influenced by individual viewpoints and values, facial impairment is a concept that is better suited for objective interpretation. This distinction may assist to explain our findings that observers imposed a higher quality of life penalty due to disability and severity than the patients who were paralysed did. Bruins et al., interpreted variation in the Facial Disability Index (FDI), Facial Clinimetric Evaluation (FaCE) scale, and Synkinesis Assessment Questionnaire (SAQ) quality-of-life scores among patients with facial palsy. He discovered that SAQ, FaCE, and FDI are useful for research purposes [21]. According to the response shift theory, patients gradually modify their expectations and value systems to account for their handicap. For instance, person who lost their capacity to utilise their legs would

come to value walking less and less over time. By doing this, a patient's values grow more in line with their capabilities, which lessens the impact of their impairment on how they view QOL themselves [22]. Similar results have also been found in facial deformity research. In our sample, the patient may not have felt more impaired despite having what is thought to be a more severe impairment because of the accommodation effect. In fact, our research revealed a correlation between a patient's lower disability rating and a better quality of life (QOL) when the observer rated the paralysis as more severe. Observer-based analysis of facial function was compared patient based to facial palsy-specific gradings (FaCE and FDI), and general health-related quality of life questionnaires (SF-36) by Eva. His conclusion was that the evaluation of patients with facial palsy requires the use of validated instruments relevant to the disorder [13]. When comparing to current study there was significant association between House-Brackmann scores and facial clinimetric evaluation scores (p<0.001) that was indicating that there was association between disability and patients' perception towards facial palsy.

CONCLUSIONS

Facial Clinimetric Evaluation used as patient based too provide subjective experience and functional limitation experienced by facial palsy patient while house Brackmann scoring scale used as a clinical based tool provides objective evaluation of fascial function. Spectators' perceptions of a patient's post-facial paralysis normality and severity had a significant impact on the observer's assessment of the patient's level of disability. An objective severity level influenced the patient's impression of their disability, implying that the patient is going through extra procedures.

Authors Contribution

Conceptualization: AL, SM
Methodology: AL, SM
Formal analysis: AL, SM
Writing, review and editing: AL

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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