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Impact of Physical and Mental Health in Patients With Facial Palsy

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ABSTRACT

Background: Facial palsy, resulting from facial nerve (CN-VII) damage, profoundly affects physical and mental health. Patients often experience functional challenges in eating, drinking, and speaking, coupled with psychological issues such as anxiety and depression stemming from altered facial muscle function.

Objectives: To evaluate the interrelationship between physical and mental health outcomes, specifically anxiety and depression, in patients with facial palsy.

Methods: A cross-sectional study was conducted with 73 participants (38 men, 35 women; mean age: 57.10 ± 6.72 years) experiencing facial palsy for an average of 4.19 ± 1.56 months. Physical impairment was measured using the Facial Disability Index (FDI), while anxiety and depression levels were assessed using the Hospital Anxiety and Depression Scale (HADS). Pearson correlation analysis was employed to determine the relationships between physical and mental health indicators.

Results: Among patients, 45 (61.6%) had left-sided palsy and 28 (38.4%) had right-sided palsy. HADS scores indicated that 5.5% were normal, 63% borderline abnormal, and 31.5% abnormal for anxiety and depression. Correlation analysis revealed significant relationships between FDI and HADS depression (r=0.231, p=0.04) and FDI and HADS anxiety (r=0.231, p=0.04).

Conclusion: The findings of this study underscored the profound interplay between physical and mental health in patients with facial palsy, emphasizing the need for patient-centered, multidisciplinary care.

Keywords: Anxiety, Depression, Facial Disability Index, Facial nerve damage, Facial palsy, Hospital Anxiety and Depression Scale, Mental health, Physical impairment, Quality of life.

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Introduction

Facial palsy, a debilitating neurological condition, encompasses a spectrum of movement disorders ranging from flaccid paralysis to post-paralytic facial hyperactivity. It arises predominantly due to damage to the facial nerve (cranial nerve VII), resulting in paralysis of facial muscles (1, 2). Central facial palsy (CFP), a subtype commonly affecting the lower face, is primarily attributed to upper motor neuron damage in the motor cortex, corticobulbar connections, or facial nucleus in the pons (3). This condition typically manifests as unilateral impairment of facial movement contralateral to the site of injury, with the forehead muscles often spared due to preserved ipsilateral input to the dorsal motor nucleus (4).

The facial nerve plays a pivotal role in coordinating muscle activity for expressions and functional activities like speaking, eating, and drinking. Its dysfunction causes visible disfigurement, impairing emotional expression, social interaction, and quality of life (5–7). Such deficits are compounded by social and psychological distress, as facial expressions are critical for non-verbal communication (8). In severe cases, individuals experience hemiparesis, speech difficulties, and compromised oropharyngeal functions such as swallowing and sucking (9, 10). Although emotional responses mediated by limbic pathways may remain intact, patients often lose voluntary control over facial muscles (11).

Facial palsy affects approximately 15 to 30 individuals per 100,000 annually, with a higher prevalence among pregnant women and those with comorbid conditions such as immune suppression or vascular diseases (12). Etiological factors include intracerebral tumors, stroke, multiple sclerosis, infections like syphilis and HIV, trauma, and vascular insults (13). Patients frequently report social withdrawal and anxiety due to perceived stigma and altered appearance, leading to psychological conditions such as depression and loneliness (14). The prognosis of facial palsy depends on the severity and duration of nerve damage, with prolonged impairment often correlating with poorer outcomes (15).

Recent studies underscore the heightened psychological burden faced by adults with facial palsy, with significant impairments in social functioning and overall quality of life (16, 17). This research investigates the combined physical and mental health impact of facial palsy, emphasizing the importance of a holistic approach encompassing medical interventions, physical therapy, psychological support, and community assistance to improve well-being.

Materials and Methods

This cross-sectional study was conducted at multiple hospitals in Lahore, Pakistan, over four months following approval of the research synopsis. A total of 73 patients with unilateral facial palsy were included using convenience sampling. Participants were required to meet inclusion criteria: an age range of 48–73 years, unilateral facial palsy lasting less than six months, and the provision of informed consent. Patients with facial palsy caused by fractures, neoplasms, or pregnancy, as well as those unwilling to consent, were excluded from the study.

All participants provided written informed consent after being briefed about the study's purpose and methodology. Confidentiality and anonymity were maintained in accordance with ethical guidelines established by the University of Lahore's ethics committee. Ethical principles outlined in the Declaration of Helsinki were strictly followed, ensuring participants' autonomy and safety throughout the research. Participants were informed about their right to withdraw at any stage without repercussions.

Data collection involved structured demographic surveys and validated assessment tools. The Facial Disability Index (FDI) was used to measure self-reported physical impairment, while the Hospital Anxiety and Depression Scale (HADS) assessed psychological distress, specifically anxiety and depression. Demographic data included variables such as age, gender, duration of palsy, and the affected side of the face. Each patient completed the surveys under standardized conditions, with guidance provided as needed.

Data were analyzed using SPSS version 25. Descriptive statistics, including mean and standard deviation, summarized demographic and clinical characteristics. Pearson correlation analysis was performed to examine the relationship between physical impairment (FDI) and psychological health (HADS scores). A p-value of <0.05 was considered statistically significant.

All data were securely stored, and only aggregate results were reported to ensure participants' privacy. The study posed no known risks to participants, and the findings aim to contribute to understanding the interplay between physical and mental health in individuals with facial palsy, ultimately informing comprehensive care strategies.

Results

The study included 73 participants, with 38 men (52.1%) and 35 women (47.9%). The mean age of the participants was 57.10 years (SD ± 6.72), and the average duration of facial palsy was 4.19 months (SD ± 1.56). Among these, 45 patients (61.6%) had left-sided facial palsy, while 28 patients (38.4%) had right-sided facial palsy.

The Hospital Anxiety and Depression Scale (HADS) indicated an anxiety score range of 0 to 19, with a mean of 8.7 ± 1.02, and a depression score range of 0 to 15, with a mean of 6.4 ± 2.36. The Facial Disability Index (FDI) Physical Score ranged from 6.88 to 48.13, with a mean score of 20.22 ± 20.53. These findings highlight the

diverse physical and psychological challenges faced by individuals with facial palsy. Higher scores of FDI indicate lesser disability and better function. However, higher level of HADS scores indicate more anxiety and depression.

Table 1: Descriptive Statistics of Facial Disability Index (FDI) & Hospital Anxiety and Depression Scale

Measure	Range	Mean	Standard Deviation
HADS-Anxiety	0-19	8.7	1.02
HADS-Depression	0-15	6.4	2.36
FDI-Physical	6.88-48.13	20.22	20.53

The correlation analysis revealed significant relationships between the variables studied. The FDI Physical Score showed a positive correlation with both HADS Depression ($r = 0.231$, $p = 0.049$) and HADS Anxiety ($r = 0.231$, $p = 0.049$), indicating a modest association between physical impairment and psychological distress. Additionally, HADS Depression and HADS Anxiety were strongly correlated with each other ($r = 1.000$, $p = 0.049$), reflecting the close interplay between anxiety and depression in individuals with facial palsy. These findings underscore the interconnectedness of physical and mental health in this population.

Table 2: Correlation Between Physical and Psychological Distress in Facial Palsy Patients

Variable	FDI Physical (r)	HADS Depression (r)	HADS Anxiety (r)	Significance (p-value)
FDI Physical	1.000	0.231	0.231	0.049
HADS Depression	0.231	1.000	1.000	0.049
HADS Anxiety	0.231	1.000	1.000	0.049

Discussion

This study investigated the intertwined physical and mental health impacts of facial palsy, highlighting a significant correlation between physical disability, measured by the Facial Disability Index (FDI) Physical Score, and psychological distress, assessed through the Hospital Anxiety and Depression Scale (HADS). The findings revealed that increased physical disability was associated with higher levels of anxiety and depression, aligning with previous research. The visible manifestations of facial palsy, including asymmetry and drooping, profoundly affect patients' self-esteem, body image, and emotional well-being, compounding the psychological burden.

The results were consistent with the findings of Hamlet et al. (2021), who also identified heightened levels of anxiety and depression in patients with facial palsy using the HADS scale. This study further illuminated the direct relationship between physical impairments and psychological distress, emphasizing how deformities and functional limitations exacerbate mental health challenges (18). Similarly, Ishii et al. (2018) demonstrated that facial paralysis impacts both internal factors, such as emotional health, and external factors, like social interactions and perceptions. This underlines the necessity for holistic, integrated interventions addressing the physical, psychological, and social dimensions of the disorder to reduce stigma and improve quality of life (7).

Nellis et al. (2017) extended these insights by highlighting broader implications of facial palsy, such as impaired self-perception and reduced social engagement. They reported that patients with more severe symptoms experienced significantly higher depression levels, reduced mood, and lower quality of life compared to controls without facial palsy (19). These findings collectively underscore the cyclical nature of physical disability and mental health deterioration in individuals with facial palsy. Patients' difficulties in conveying basic emotions, such as smiling, lead to social withdrawal and heightened self-consciousness, further perpetuating their psychological distress.

This study's strength lies in its focused investigation of a defined patient cohort and its use of validated tools to assess both physical and psychological dimensions. However, it was limited by its cross-sectional design, which precluded causal inference. Additionally, the sample size, although adequate, may not fully represent the broader population. Future research should explore longitudinal outcomes and evaluate the effectiveness of multidisciplinary interventions to better address the complex needs of these patients. Tailored treatment strategies encompassing physical rehabilitation, psychological counseling, and social support are critical for breaking the cycle of physical and mental health challenges faced by individuals with facial palsy.

Conclusion

This study highlights the connection between physical and mental health in patients with facial palsy, underscoring the importance of patient-centered, multidisciplinary care. Holistic strategies that address physical limitations, psychological distress, and social challenges are crucial

for enhancing mental health and overall quality of life in these individuals.

Authors' Contributions

ICMJE authorship criteria	Detailed contributions	Authors
Substantial Contributions	Conception or Design of the work	1
	Data acquisition	1,2
	Data analysis or interpretation	1,2
Drafting or Reviewing	Draft the work	1
	Review critically	2,
Final approval	Final approval of the version to be published.	1,2,
Accountable	Agreement to be accountable for all aspects of the work.	1,2,

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