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EFFECTS OF BELL'S PALSY ON PSYCHOSOCIAL HEALTH OF PATIENTS IN TERTIARY CARE HOSPITALS PESHAWAR

Original Research

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ABSTRACT

Background: Bell's palsy is an acute unilateral facial nerve disorder resulting in partial to complete facial muscle paralysis, significantly affecting communication and social interactions. The condition is associated with viral infections, immune responses, and vascular ischemia. Its prevalence increases with age and is observed more frequently in rural populations. Recovery depends on the severity of the condition and timely intervention. Recent cases have been linked to COVID-19 and its vaccines. Physiotherapy plays a crucial role in improving functional outcomes at all stages of the disease.

Objective: To evaluate the effects of Bell's palsy on the psychosocial health of patients in tertiary care hospitals in Peshawar.

Methods: A cross-sectional study was conducted in three tertiary care hospitals in Peshawar. A total of 121 patients diagnosed with Bell's palsy were included using non-probability convenience sampling. The sample size was calculated using the OpenEpi sample size calculator. Data were collected using the House-Brackmann Grading Scale (HBGS) to assess disease severity and the Psychosocial Scale of Facial Appearance (PSFA) to evaluate psychosocial distress. Statistical analysis was performed using SPSS version 22. Descriptive statistics, including frequencies and percentages, were calculated, and the chi-square test was applied to determine associations between Bell's palsy severity and psychosocial distress.

Results: Among the 121 patients, 58.7% experienced moderate psychosocial distress, while 41.3% reported severe psychosocial issues. A statistically significant association was found between Bell's palsy severity and psychosocial health ($p<0.001$). Patients with severe facial paralysis had higher rates of emotional distress, social withdrawal, and self-esteem issues. The psychosocial impact was more pronounced among young, unmarried females, who expressed concerns about societal acceptance and future relationships.

Conclusion: Bell's palsy has a profound impact on psychosocial health, leading to moderate to severe psychological and social distress due to facial disfigurement, loss of facial expressions, and societal reactions. These findings highlight the need for comprehensive patient education and psychological support alongside medical treatment.

Keywords: Bell's palsy, facial paralysis, lower motor neuron lesion, psychological distress, psychosocial health, quality of life, social anxiety.

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INTRODUCTION

Bell's palsy, named after the Scottish anatomist Sir Charles Bell, is an acute neurological disorder characterized by sudden-onset unilateral facial paralysis of unknown cause. It is the most common cause of facial nerve palsy, leading to the inability to perform voluntary movements on the affected side of the face. The paralysis impacts essential facial functions, including the ability to close the eye, smile, eat, and speak properly, causing significant functional limitations. Incomplete eye closure can result in dryness, allergies, and corneal injuries, while oral muscle dysfunction affects normal mouth closure and speech. The psychological distress associated with these impairments can be profound, particularly when symptoms persist for an extended duration (1). Bell's palsy is especially distressing for young females and significantly impacts the quality of life by inducing emotional and psychological distress. Given the visible nature of the condition, patients often experience social anxiety, self-esteem issues, and heightened emotional vulnerability, emphasizing the necessity of psychological and emotional support in their management (2). Several treatment modalities have been explored for Bell's palsy. Corticosteroids are widely recognized as the most effective intervention, particularly when administered early in the disease course. Acupuncture has also been investigated as a complementary therapy with promising results. However, the role of antiviral agents remains debatable, as some studies suggest they may not significantly contribute to recovery (3). If Bell's palsy is associated with herpes simplex virus infection, antiviral medications may provide additional benefits (4). Most patients achieve spontaneous recovery even without intervention, but approximately 20% may develop persistent pain or permanent facial disfigurement. In cases where complete paralysis persists beyond two weeks despite medical therapy, referral to an otolaryngologist is recommended to investigate alternative causes of facial nerve palsy. Additionally, ophthalmologic evaluation is essential for patients with signs of corneal involvement to prevent complications (5).

Facial muscles play a fundamental role in human interaction, making facial paralysis a source of both psychological and social distress. The condition affects self-perception, social participation, and overall well-being, often leading to social withdrawal and reduced confidence. Studies have reported that patients with Bell's palsy frequently experience anxiety and depression, given the disfiguring nature of the condition (6). The psychological burden is heightened due to the unpredictability of recovery, with some individuals developing chronic symptoms that interfere with daily life. Research has also established a bidirectional relationship between Bell's palsy and anxiety disorders, suggesting that stress may not only be a consequence of the condition but also a potential contributing factor (7). Despite its prevalence, the exact pathophysiology of Bell's palsy remains unclear. The condition is believed to result from inflammation, vascular congestion, and edema leading to ischemic injury of the facial nerve. Post-mortem studies have identified these pathological changes, supporting the hypothesis that immune-mediated mechanisms, viral infections, trauma, metabolic disorders, and hypertension may all contribute to its onset (8). Facial nerve compression within the bony canal, particularly at the labyrinthine segment, can lead to neuropraxia and partial or complete degeneration, further exacerbating functional impairment (9). Recent evidence has also linked Bell's palsy to COVID-19, suggesting a possible neuroimmunological mechanism triggered by molecular mimicry between viral antigens and neural tissues (10). Given the significant functional, psychological, and social challenges associated with Bell's palsy, this study aims to investigate its impact on the psychosocial health of patients in tertiary care hospitals. By exploring the extent of emotional distress, social limitations, and psychological consequences, the research seeks to highlight the importance of integrating mental health support into the clinical management of Bell's palsy. Understanding these effects will contribute to the development of comprehensive treatment strategies that address not only the physical but also the emotional and social dimensions of the disease.

METHODS

This cross-sectional study was conducted to assess the association between Bell's palsy and its effects on the psychological and social health of patients in tertiary care hospitals in Peshawar. The research was carried out in three major tertiary care hospitals, namely Lady Reading Hospital (LRH), Khyber Teaching Hospital (KTH), and Hayatabad Medical Complex (HMC). A convenience sampling technique was employed, allowing data collection from readily available participants who met the eligibility criteria. The study duration was six months following approval from the Advanced Studies and Research Board (AS&RB). Ethical approval was obtained from the institutional ethical committee of Khyber Medical University (KMU), and permission for data collection was granted by the administration of the participating hospitals. Informed consent was obtained from all participants after a detailed explanation of the study's objectives, procedures, potential risks, and confidentiality assurances (11). The study population comprised patients diagnosed

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with Bell's palsy who attended physiotherapy and neurology outpatient departments (OPD) of the selected hospitals. The inclusion criteria encompassed patients with a confirmed diagnosis of Bell's palsy, unilateral lower motor neuron facial paralysis, and individuals aged between 5 and 70 years. Patients presenting with upper motor neuron facial paralysis, stroke, traumatic brain injury, brain tumors, or those unwilling to participate were excluded. The sample size was determined using the OpenEpi sample size calculator, considering a total population of 532 patients in the selected tertiary care hospitals. With an anticipated frequency of 11.4%, a 5% margin of error, and a 95% confidence interval, the final calculated sample size was 121 participants (12).

Data collection was carried out using validated assessment tools, including the House-Brackmann Grading Scale (HBGS) to evaluate the severity of Bell's palsy and the Psychosocial Scale of Facial Appearance (PSFA) to assess the psychosocial impact of the condition. Participants were interviewed and assessed using these standardized instruments to ensure consistency and reliability of data (13). The collected data were analyzed using Statistical Package for Social Sciences (SPSS) version 22. Descriptive statistics, including frequencies and percentages, were calculated for categorical variables such as gender, residence, marital status, severity of Bell's palsy, and occupation. Continuous variables, including age, education level, and PSFA scores, were analyzed using mean and standard deviation. To determine the association between the psychosocial impact (PSFA scores) and independent variables such as severity of Bell's palsy, gender, residence, marital status, and occupation, the chi-square test was applied (14). The study adhered to ethical principles, ensuring participant confidentiality and voluntary participation. Patients were provided with the right to withdraw at any stage without any consequences. Ethical approval was granted by the institutional review board, and informed consent was secured prior to data collection to maintain transparency and compliance with research ethics standards (15).

RESULTS

The study included a total of 121 participants, with ages ranging from 5 to 70 years. The duration of Bell's palsy among the patients varied from a minimum of one day to a maximum of five months. The sample comprised individuals from diverse educational and occupational backgrounds, ranging from uneducated rural residents to highly educated individuals, including government employees. The mean and standard deviation for age and disease duration were calculated. The grading of Bell's palsy was assessed, revealing that 41 patients had mild facial involvement, 47 had moderate, 15 had moderately severe, 15 had severe, and 3 had total paralysis. The association between the severity of Bell's palsy and the categorical psychosocial scale was statistically significant ($p<0.01$). Among the 47 patients with moderate Bell's palsy, 31 exhibited moderate psychosocial distress, while 16 reported severe psychosocial distress. The analysis demonstrated that as the severity of Bell's palsy increased, the likelihood of severe psychosocial impact also increased.

The cross-tabulation of Bell's palsy grading with categorical scores for facial appearance and emotional adjustment (EA) showed significant associations ($p=0.003$). The findings indicated that patients with severe and total paralysis grades experienced the highest levels of emotional distress and self-perceived disfigurement. Similarly, the categorical SASI (Social Anxiety and Self-Image) scale showed that patients with moderate and severe Bell's palsy had greater social anxiety and self-image concerns, although this association was not statistically significant ($p=0.123$). The grading of Bell's palsy also demonstrated a significant correlation with the categorical facial scoring scale ($p=0.043$), reinforcing the impact of facial paralysis severity on perceived facial function and aesthetics. The assessment of the Psychosocial Scale of Facial Appearance (PSFA) showed that 71 patients had moderate psychosocial distress, while 50 experienced severe distress. Among patients with mild Bell's palsy, 32 had moderate and 9 had severe psychosocial issues. For those with moderate Bell's palsy, 31 reported moderate distress, while 16 experienced severe distress. The majority of patients with moderately severe and severe Bell's palsy reported severe psychosocial distress, indicating a progressive increase in psychological impact with increasing facial paralysis severity. The association between Bell's palsy grading and PSFA scores was highly significant ($p=0.000$).

Table 1: Cross tab grades of bell's palsy and categorical SAPT

		Cat_SAPT				P value
		Mild	moderate	Severe	Total	
Grading of face	Mild	9	25	7	41	0.001
	Moderate	9	28	10	47	
	Moderately severe	1	5	9	15	
	Severe	1	3	11	15	
	Total paralysis	1	2	0	3	
	Total	21	63	37	121	

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Table 2: Cross tab grades of bell's palsy and categorical SASI

		Cat_SASI				P value
		Mild	moderate	Severe	Total	
Grading of face	Mild	13	20	8	41	0.123
	Moderate	15	22	10	47	
	Moderately severe	3	7	5	15	
	Severe	4	4	7	15	
	Total paralysis	3	0	0	3	
	Total	38	53	30	121	

Table 3: Cross tab grades of bell's palsy and categorical EA

		Cat_EA				P value
		Mild	Moderate	Severe	Total	
Grading of face	Mild	1	33	7	41	0.003
	Moderate	4	36	7	47	
	Moderately severe	1	9	5	15	
	Severe	2	7	6	15	
	Total paralysis	2	1	0	3	
	Total	10	86	25	121	

Table 4: Cross tab grades of bell's palsy and categorical score face

		Cat_score face				
		Mild	Moderate	Severe	Total	P value
Grading of face	Mild	2	38	1	41	0.043
	Moderate	3	43	1	47	
	Moderately severe	0	14	1	15	
	Severe	0	11	4	15	
	Total paralysis	0	3	0	3	
	Total	5	109	7	121	

Table 5: cross tab grades of bell's palsy and categorical PSFA

		Moderate	Severe	Total	P value
Grading of face	Mild	32	9	41	0.000
	Moderate	31	16	47	
	Moderately severe	3	12	15	
	Severe	2	13	15	
	Total paralysis	3	0	3	
Total		71	50	121	

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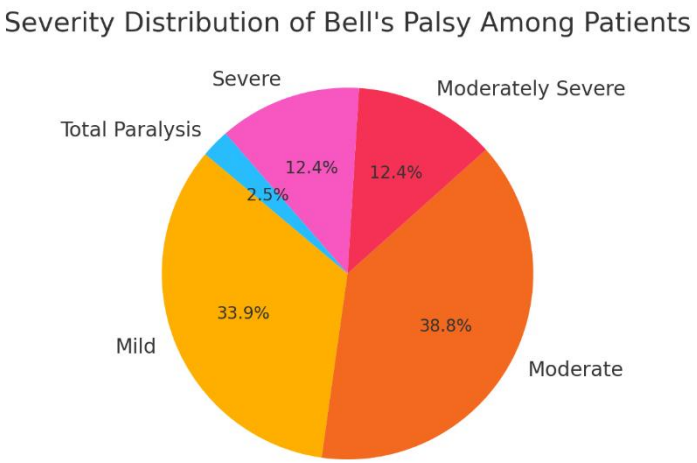

Figure 2 Severity Distribution of Bell's Palsy Among Patients

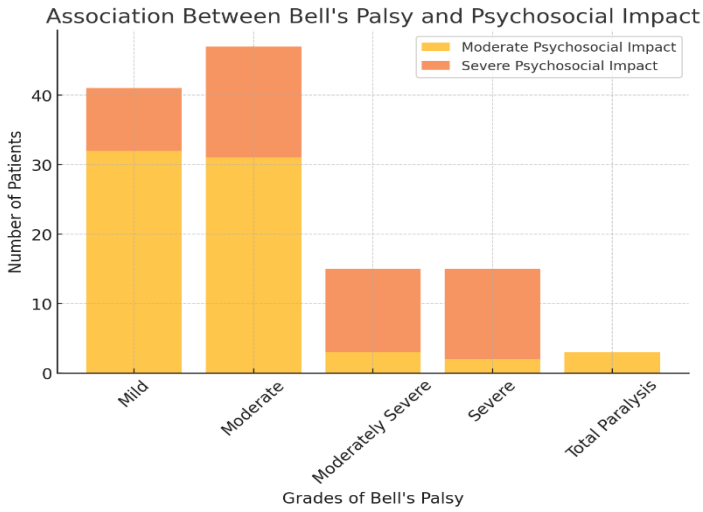

Figure 1 Association Between Bell's Palsy and Psychosocial Impact

DISCUSSION

This cross-sectional study was conducted to evaluate the association between Bell's palsy and its impact on psychosocial health. It is one of the first studies in tertiary care hospitals of Peshawar investigating the psychological and social issues faced by individuals diagnosed with Bell's palsy. The findings revealed that 58.7% of patients experienced moderate psychosocial distress, while 41.3% reported severe psychological and social issues. These results are consistent with previous studies that have established a significant link between facial disfigurement and mental health disturbances, including depressive moods and anxiety disorders. A systematic review reported that approximately 32% of individuals with facial distortion exhibit depressive symptoms, though variations in findings may be attributed to differences in study design, sample size, geographical distribution, and patient perceptions regarding their disease and recovery (15). The current study demonstrated a statistically significant association between Bell's palsy and psychosocial health ($p<0.001$), aligning with previous case-control and cohort studies that have similarly highlighted a strong relationship between facial nerve paralysis and psychological distress (16). Psychosocial health is an essential aspect of disease burden, particularly in conditions that alter facial aesthetics and communication. Bell's palsy not only affects voluntary facial movements but also disrupts social interactions, self-confidence, and overall emotional well-being. Previous cohort studies have confirmed a significant association between Bell's palsy and increased risks of depression, anxiety, and social withdrawal. The level of psychological distress observed in this study is in accordance with previous research, which reported that a considerable proportion of patients with facial disfigurement experience mild to severe psychological disturbances. Differences in prevalence rates across studies may be due to variations in sample size, study population, assessment tools, and patient perceptions regarding treatment and prognosis (17).

One of the major strengths of this study is the use of validated and reliable assessment tools to evaluate the severity of Bell's palsy and its psychosocial effects. The House-Brackmann Grading Scale (HBGS) and the Psychosocial Scale of Facial Appearance (PSFA) ensured an objective assessment of disease severity and its impact on mental health. However, several limitations must be acknowledged. The cross-sectional nature of the study restricted the ability to establish a temporal relationship between Bell's palsy and psychological distress. The use of a hospital-based sample rather than a community-based population may have introduced selection bias, limiting the generalizability of the findings. Additionally, the non-probability convenience sampling method may not fully represent the broader population of individuals affected by Bell's palsy (18-20). Given the substantial psychological and social burden associated with Bell's palsy, there is a critical need for integrated medical and psychological support for affected patients. Medical practitioners should provide adequate education regarding the prognosis of the condition to reduce anxiety and misconceptions related to disease recovery. A multidisciplinary approach, incorporating psychological counseling alongside pharmacological and physiotherapeutic interventions, may improve overall patient well-being. Future research should focus on community-based studies with larger, randomly selected populations to enhance the generalizability of findings. Longitudinal studies would also be beneficial in understanding the long-term psychological impact and recovery trajectories of patients with Bell's palsy (19,21).

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CONCLUSION

This study highlights the significant psychosocial impact of Bell's palsy, emphasizing how facial paralysis disrupts daily communication, self-expression, and social interactions. The inability to convey emotions effectively affects various aspects of life, leading to social withdrawal, decreased confidence, and avoidance of public settings, including educational institutions and professional environments. The psychological burden was particularly pronounced among young, unmarried females, who expressed concerns about societal acceptance and future prospects. The severity of psychosocial distress was closely linked to the degree of facial paralysis, affecting both genders, especially socially active individuals. These findings underscore the importance of integrating psychological support and patient education into the management of Bell's palsy to mitigate its long-term emotional and social consequences.

AUTHOR CONTRIBUTIONS

Author	Contribution
Kousar	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Muhammad Tariq	Substantial Contribution to study design, acquisition and interpretation of Data Critical Review and Manuscript Writing Has given Final Approval of the version to be published
Zindagi	Substantial Contribution to acquisition and interpretation of Data Has given Final Approval of the version to be published
Veneeza Bangash	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Anosha Jamal	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Mamoona Waseem	Substantial Contribution to study design and Data Analysis Has given Final Approval of the version to be published
Aqsa Khan	Contributed to study concept and Data collection Has given Final Approval of the version to be published
Inayat Ullah*	Writing - Review & Editing, Assistance with Data Curation Has given Final Approval of the version to be published

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