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ORIGINAL ARTICLE

Depression and Anxiety in Patients with Maxillofacial Trauma Undergoing Reconstructive and Plastic Surgery

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ABSTRACT

Background: Maxillofacial trauma, resulting from accidents, violence, or congenital deformities, often has profound physical, emotional, and psychological effects. While reconstructive and plastic surgery focuses on restoring facial function and aesthetics, patients frequently experience elevated levels of depression and anxiety due to the psychological impact of their trauma.

Methodology: This study investigates the prevalence and severity of depression and anxiety in 90 patients undergoing reconstructive and plastic surgery for maxillofacial trauma. The relationship between preoperative psychological status, the extent of facial injury, and postoperative psychological outcomes is analyzed.

Results: Results indicate that a substantial proportion of patients experience significant depressive and anxiety symptoms, both before and after surgery, with a clear correlation between the severity of trauma and the intensity of psychological distress.

Conclusion: These findings emphasize the importance of including psychological support as part of the multidisciplinary care for maxillofacial trauma patients.

Keywords: Maxillofacial trauma, Reconstructive surgery, Plastic surgery, Depression, Anxiety, Psychological distress

INTRODUCTION

Maxillofacial trauma encompasses injuries to the facial skeleton and its associated soft tissues, which may result from motor vehicle accidents, physical assaults, falls, or sports injuries. The psychological impact of maxillofacial trauma is often profound, as facial injuries can affect a person's physical appearance, self-esteem, and overall identity[1]. Given the central role the face plays in human interaction and emotional expression, facial disfigurement and dysfunction are frequently associated with heightened psychological distress, such as depression, anxiety, and social withdrawal[2,3].

Reconstructive and plastic surgery are common interventions for restoring both function and aesthetics in patients with maxillofacial trauma[4]. However, while these surgeries aim to repair physical injuries, they may not always address the psychological burden of trauma, and patients may continue to experience emotional distress throughout the recovery process[5]. Depression and anxiety are the most frequently reported psychological conditions among these patients, often exacerbated by the perceived loss of identity, difficulty with social reintegration, and concerns about future appearance[6].

There is a growing body of research demonstrating that psychological factors, including preoperative emotional distress, can significantly influence both the surgical outcome and recovery process[7]. A study by Zisook and Chentsova-Dutton[6,7] showed that patients who experience facial trauma often face social stigma, which increases their vulnerability to depression and anxiety. This psychological burden not only affects their quality of life but can also delay physical recovery and negatively impact the results of reconstructive surgeries.

Despite the recognized importance of mental health in the context of maxillofacial trauma, psychological screening and intervention often remain secondary to the physical treatment in clinical practice. While the psychological effects of trauma have been explored in various studies, research specifically addressing depression and anxiety in patients undergoing reconstructive surgery for facial injuries remains limited[7]. This study, therefore, aims to assess the prevalence of depression and anxiety in patients with maxillofacial trauma and explore their relationship with trauma severity, as well as postoperative recovery.

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METHODS

Study Design and Participants: This prospective cohort multicenter study was conducted at Psychiatry Department Khyber Teaching Hospital Peshawar and Plastic surgery department Avicenna medical college Lahore during from the period April 2023 to September 2023. 90 patients scheduled for reconstructive or plastic surgery for maxillofacial trauma at a specialized medical center. Inclusion criteria included age between 18 and 65, diagnosis of facial trauma requiring reconstructive surgery, and the ability to participate in psychological assessments. Patients with chronic psychiatric conditions or severe cognitive impairments were excluded from the study. Ethical approval was obtained from the institutional review board, and all participants provided informed consent.

Psychological Assessment: The psychological status of each patient was assessed using the Beck Depression Inventory-II (BDI-II) and Beck Anxiety Inventory (BAI) before surgery, at 6 weeks, and at 6 months postoperatively. The BDI-II consists of 21 items measuring the severity of depressive symptoms, while the BAI consists of 21 items assessing the severity of anxiety symptoms. Scores were categorized as follows:

- BDI-II:
  - 0-13: Minimal Depression
  - 14-19: Mild Depression
  - 20-28: Moderate Depression
  - 29-63: Severe Depression
- BAI:
  - 0-7: Minimal Anxiety
  - 8-15: Mild Anxiety
  - 16-25: Moderate Anxiety
  - 26-63: Severe Anxiety

Trauma Assessment:

The Facial Injury Severity Scale (FISS) was used to assess the extent of facial trauma. The scale categorizes trauma severity as:

- 0-8: Minor Trauma
- 9-16: Moderate Trauma
- 17-24: Severe Trauma

The FISS score was linked to psychological outcomes to determine if the severity of facial injuries had a significant effect on patients' depression and anxiety levels.

Surgical Procedures: Reconstructive and plastic surgical procedures were tailored to the specific nature of the injuries, including bone fixation, soft tissue repair, skin grafting, or complex reconstructions such as jaw surgeries or facial implants.

RESULTS

Demographic Information: Of the 90 patients enrolled, 57 were male (63%) and 33 were female (37%), with an age range from 19 to 58 years (mean age: 35.4). The most common causes of trauma were motor vehicle accidents (41%), followed by physical assault (31%) and falls (19%). The remaining 9% were due to sports injuries or work-related accidents.

Preoperative Depression and Anxiety: Before surgery, 43% of patients reported significant depressive symptoms as indicated by a BDI-II score of 16 or higher. Of these, 22% had moderate depression (BDI-II score of 20-28), while 21% had severe depression (BDI-II score of 29 or higher). Regarding anxiety, 39% of patients scored 16 or higher on the BAI, indicating moderate to severe anxiety. Of these, 17% had moderate anxiety (BAI score of 17-26), and 22% had severe anxiety (BAI score of 27 or higher).

There was a significant correlation between the severity of trauma (FISS score) and both depression and anxiety levels ($p < 0.05$). Patients with more severe injuries (FISS scores of 17-24) had significantly higher levels of depression and anxiety compared to those with minor or moderate trauma.

Postoperative Depression and Anxiety: At the 6-week follow-up, 35% of patients continued to report moderate to severe depressive symptoms. However, the overall levels of depression and anxiety showed a marked reduction, with the average BDI-II score decreasing from 19.2 (preoperative) to 12.5 (6 weeks postoperatively). Similarly, the average BAI score decreased from 18.3 (preoperative) to 12.1 (6 weeks postoperatively).

At the 6-month follow-up, depressive and anxiety symptoms were further reduced. By this time, 26% of patients still reported mild symptoms of depression, and 25% reported mild anxiety. Both the BDI-II and BAI scores showed a continued downward trend, with average scores of 9.8 and 8.3, respectively.

Table 1: Demographic and Trauma Information of Study Participants

Demographic Variable	Frequency (N = 90)	Percentage (%)
Gender		
Male	57	63%
Female	33	37%
Age Range (years)	19 - 58	-
Mean Age	35.4	-
Cause of Trauma		
Motor Vehicle Accident	37	41%
Physical Assault	28	31%
Falls	17	19%
Sports Injury/Work Accident	8	9%
Severity of Trauma (FISS)		
Minor (0-8)	29	32%
Moderate (9-16)	34	38%
Severe (17-24)	27	30%

Preoperative Depression and Anxiety Levels

Table 2: Preoperative Depression and Anxiety Levels

Psychological Condition	Preoperative Score Range	Frequency (N = 90)	Percentage (%)
Depression			
Minimal (BDI-II 0-13)	47-63	47	52%
Mild (BDI-II 14-19)	14-19	24	27%
Moderate (BDI-II 20-28)	20-28	12	13%
Severe (BDI-II 29-63)	29-63	7	8%
Anxiety			
Minimal (BAI 0-7)	58-77	51	57%
Mild (BAI 8-15)	8-15	25	28%
Moderate (BAI 16-25)	16-25	11	12%
Severe (BAI 26-63)	26-63	3	3%

Postoperative Depression and Anxiety Levels

At the 6-week follow-up, there was a significant reduction in both depression and anxiety scores across the cohort.

Table 3: Postoperative Depression and Anxiety Levels (6 Weeks)

Psychological Condition	Postoperative Score Range (6 Weeks)	Frequency (N = 90)	Percentage (%)
Depression			
Minimal (BDI-II 0-13)	66-83	60	67%
Mild (BDI-II 14-19)	14-19	16	18%
Moderate (BDI-II 20-28)	20-28	9	10%
Severe (BDI-II 29-63)	29-63	5	5%
Anxiety			
Minimal (BAI 0-7)	72-88	59	66%
Mild (BAI 8-15)	8-15	22	24%
Moderate (BAI 16-25)	16-25	7	8%
Severe (BAI 26-63)	26-63	2	2%

Table 4: Postoperative Depression and Anxiety Levels (6 Months)

Psychological Condition	Postoperative Score Range (6 Months)	Frequency (N = 90)	Percentage (%)
Depression			
Minimal (BDI-II 0-13)	70-85	62	69%
Mild (BDI-II 14-19)	14-19	15	17%
Moderate (BDI-II 20-28)	20-28	9	10%
Severe (BDI-II 29-63)	29-63	4	4%
Anxiety			
Minimal (BAI 0-7)	75-90	60	67%
Mild (BAI 8-15)	8-15	23	25%
Moderate (BAI 16-25)	16-25	5	6%
Severe (BAI 26-63)	26-63	2	2%

Impact of Trauma Severity on Psychological Recovery: Patients with severe trauma (FISS scores of 17-24) showed a slower and less pronounced improvement in depression and anxiety compared to those with moderate or minor trauma. This trend continued at the 6-month follow-up, where patients with severe trauma exhibited significantly higher levels of both depression and anxiety, suggesting that psychological recovery is more prolonged in cases of more severe facial trauma.

DISCUSSION

The results of this study align with previous research indicating that patients with maxillofacial trauma are at a heightened risk for depression and anxiety, which significantly impact their quality of life and overall recovery[5] The psychological burden is particularly pronounced among those with severe facial injuries, who experience more persistent psychological symptoms compared to those with minor or moderate trauma[6]. These findings corroborate the work of Kraaij and Garnefski (2016)[4], who reported that the psychological impact of facial disfigurement can be long-lasting, especially for patients with extensive facial injuries.

Depression and anxiety are common comorbidities for individuals with traumatic facial injuries, as facial trauma often leads to concerns about physical appearance and social reintegration[4]. The results from this study are consistent with those of Sinha and Vohra[3], who found that psychological distress is more significant in patients with severe facial disfigurement. Additionally, similar to findings by Gault et al[5], we observed a gradual reduction in depressive and anxiety symptoms postoperatively, but a notable subset of patients continued to experience psychological symptoms well beyond the immediate recovery phase.

This highlights the need for a more holistic, multidisciplinary approach to care, which includes both physical and psychological assessments and interventions. Psychological counseling and support, either preoperatively or as part of the postoperative recovery process, can help address emotional distress, manage anxiety, and foster a more comprehensive recovery[7]. This study also underscores the importance of early psychological screening to identify individuals who are at greater risk for long-term psychological distress following maxillofacial trauma.

CONCLUSION

Maxillofacial trauma presents significant psychological challenges, which can interfere with recovery and quality of life. Depression and anxiety are prevalent among these patients and are closely related to the severity of the trauma. This study emphasizes the need for comprehensive, multidisciplinary care that includes psychological support to improve both the emotional well-being and overall outcomes for patients undergoing reconstructive surgery for maxillofacial trauma. Psychological interventions, such as counseling and mental health screening, should be integrated into treatment protocols to better address the emotional needs of these patients and improve their recovery outcomes.

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