Research Article

Patient's Perception after treatment of Mandibular Fracture: A Questionnaire Based Retrospective Study

Ajay K Pillai[1], Shaji Thomas[2]
Department of Oral and Maxillofacial Surgery, [1]People's Dental Academy, People's University, Bhopal (Madhya Pradesh), [2]People's College of Dental Sciences & Research Centre, People's University, Bhopal (Madhya Pradesh)

ABSTRACT:

Background - Accurate clinical and radiological evaluation of mandibular fracture help in establishing proper diagnosis and restoration of patient's aesthetic, neurological function, and overall oral functions. A proper planned management will improve patient's quality of life. The study includes trauma patients who have been diagnosed with mandibular fracture and their quality of life post operatively.

Materials & Methods - A retrospective study was conducted in our department of those patients who had been diagnosed and managed for mandible fracture in a period of 2023 - 2024. Their reports were examined to identify any post operative complication reported and the patients were interviewed for their postoperative quality of life via questionnaire.

Results - Out of all the panfacial trauma only isolated mandibular fracture were included in the study. A total of 46 cases of isolated mandible fracture who had been operated in our department had been included. 32 males and 14 females with the mean age of 40 years formed the study group. Questionnaire included patient esthetics, malocclusion, speech and sensory deficit. 28 patients reported no complication post operatively where as 4 patients had reported post operative scars, 2 patients had malocclusion whereas 12 patients had sensory deficit.

Conclusion - Among all the post operative complications, sensory deficit was reported most commonly in our study.

KEY WORDS: trauma, Mandible fracture, quality of life, post-operative complication, questionnaire.

Address for correspondence : Dr. Ajay K Pillai, Professor & Head, Department of Oral and Maxillofacial Surgery, People's Dental Academy, People's University, Bhopal (Madhya Pradesh) , India, E-mail: drajaypillai@yahoo.co.in

Submitted: 24.12.2024, **Accepted:** 21.05.2025, **Published:** 20.06.2025

INTRODUCTION:

Due to improvement in road traffic conditions in our country, road traffic accidents and its high velocity impact due to over speeding is a major concern in India. As per the reports from the website of ministry of road transport and Highway a total number of 4,61,312 road traffic accidents (RTAs) have been reported during the calendar year 2022 claiming 1,68,491 deaths and causing injuries to 4,43,366 people.[1] As per the records among the states, the highest number of accidents are recorded in the state of Tamil Nadu 64,105 (13.9%) followed by Madhya Pradesh 54,932 (11.8%).[1] According to the profile of patients, facing injuries due to accidents, young adults, or adults with age group of 18 to 45 are most affected. These young adults may experience emotional, physical, or psychosocial impact on themselves as well as their family. The facial appearance is one of the most vital components of one's personality and body image.

Access this article online

Quick Response Code:

Website: www.pjsr.org

DOI: https://doi.org/10.5281/zenodo.15737013

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-Non Commercial ShareALike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.
For reprints contact: editor.pjsr@peoplesuniversity.edu.in

How to cite this article: Pillai A & Thomas S. Patient's Perception after treatment of Mandibular Fracture: A Questionnaire Based Retrospective Study. PJSR. 2025;18(1):114e

The World Health Organization (WHO) defines quality of life a subjective evaluation of one's perception of reality relative to one's goals as observed through the lens of culture and value system.[2] In Maxillofacial trauma the most frequently fractured bone is mandible which may lead to various complications such as trismus, restricted mouth opening, disturbed occlusion, airway obstruction and neurosensory deficits.[3]

Quality of life has been rarely reported in the city of Bhopal, Central India hence the present study will provide the Maxillofacial surgeons with better understanding of management of mandible fracture and quality of life of patients.

MATERIALS & METHODS:

A retrospective study was conducted in the department of Maxillofacial Surgery involving 46 patients with mandible fracture. The study period was from August 2023 to August 2024. The aim of the study was to assess the etiology, site and postsurgical complications following open reduction and internal fixation of fracture of mandible. The study had the approval of the institutional ethical committee and the participants were informed about the study. The study group included patients with isolated mandible fracture within the age group (18 to 60 years) who underwent open reduction and internal fixation under local or general anesthesia. The exclusion criteria were pediatric patients and adult patients with pan facial trauma or edentulous arches. Selected patients were given questionnaire and the survey was recorded and analyzed using IBM SPSS Statistics version 30.0**.** A copy of blank questionnaire is attached Figure 1 Descriptive statistics, including frequency and percentage, were used to summarize demographic variables, etiology, fracture site, postoperative complications, and patient-reported outcomes. To assess the association between neurosensory

QUESTIONNAIRE –

Patient's perception of after treatment of mandibular fracture: A questioner based retrospective study.

Date.............

Name..Age / sex...................................

IPD No.. ....

Diagnosis... ....

Treatment done..

SPEECH:

1. Do you have speech problem after surgery? (क्या आपको सर्जरी के बाद बोलने में समस्या है ?)

   a) Never (कभी नहीं), b) Sometimes (कभी –कभीं), c) Often (अक्सर)

PARESTHESIA:

1. Do you feel numbness or heaviness after fracture?

   a) Never (कभी नहीं), b) Mild (बहुत कम), c) Always (हमेशा)

OCCLUSION:

1. Do you teeth occlude well? (क्या आपके दॉत अच्छी तरह संपर्क में रहते है?)

   a) Never (कभी नहीं), b) Seldom (हमेशा)

AESTHETIC:

1. Are you displeased or unhappy with the looks of your jaws / facial profile?

   (क्या आप अपने जबड़ें / चेहरे की बनावट से नाखुश हैं?)

   a) Never (कभी नहीं), b) Mild (बहुत कम), c) Good (हमेशा)

Department of Oral and Maxillofacial Surgery, People’s Dental Academy, People’s University, Bhopal (Madhya Pradesh) , India

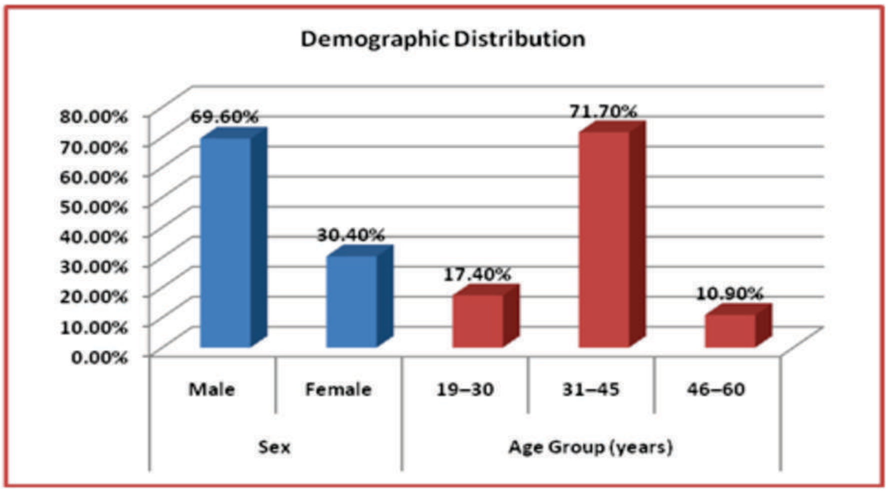

Figure 2: Demographic Characteristics of Patients with Mandible Fractures (n = 46)

Table 1: Distribution of Etiology, Fracture Site, and Postoperative Complications.

Variable	Category	Frequency	Percentage (%)
Etiology	Road Traffic Accident (RTA)	32	69.6%
	Sports Injury	5	10.9%
	Fall	4	8.7%
	Physical Assault	5	10.9%
Fracture Site	Parasymphysis	18	39.1%
	Body	10	21.7%
	Angle	11	23.9%
	Condyle	7	15.2%
Complications	Sensory Disturbance	28	60.9%
	Speech Difficulty	12	26.1%
	Esthetic Disturbance	4	8.7%
	Malocclusion	2	4.3%

Table 2: Distribution of Patient Responses to Post-Surgical Quality of Life and Neurosensory Questions.

Question	Response Category	Frequency (n)	Percentage (%)
1. Do you have speech problems after surgery?	Never	46	100.0%
	Sometimes / Always	0	0.0%
2. Do your teeth occlude well post-surgery?	Mild / Improper occlusion	2	4.3%
	Good occlusion	44	95.7%
3. Are you happy with post-surgery esthetics?	Never	2	4.3%
	Mild / Fine	2	4.3%
	Always / Good	42	91.3%
4. Do you feel numbness post-surgery? (Sensory disturbance)	Never	34	73.9%
	Mild	8	17.4%
	Always	4	8.7%

Table 3: Association between Neurosensory Disturbance and mandibular fracture site.

Neurosensory Disturbance	Total (n=46)	Parasymphysis (n, %)	Body (n, %)	Angle (n, %)	Condylar (n, %)	Chi-Square (?²)	*p*-value
Never	34	10 (29.4%)	9 (26.5%)	8 (23.5%)	7 (20.6%)	6.439	0.375
Mild	8	5 (62.5%)	1 (12.5%)	2 (25.0%)	0 (0.0%)		
Always	4	3 (75.0%)	0 (0.0%)	1 (25.0%)	0 (0.0%)		
Total	46	18 (39.1%)	10 (21.7%)	11 (23.9%)	7 (15.2%)		

disturbance and the site of mandibular fracture**,** the Chi-square (χ^2) test was employed. A *p*-value of <0.05 was considered statistically significant for all tests.

RESULTS:

In the present study comprising of 46 patients with mandibular fractures, a clear male predominance was observed, with 69.6% of the cases occurring in males and 30.4% in females. About age distribution, most fractures were seen in individuals aged 31–45 years, accounting for 71.7% of the cases. Patients in the 19–30 years age group constituted 17.4%, while those aged 46–60 years made up only 10.9%. These findings indicate that mandibular fractures are most commonly seen in middle-aged adults (Figure 2).

In the present study, RTAs emerged as the leading cause of mandibular fractures, accounting for 69.6% of cases. This was followed by sports injuries and physical assaults, each contributing to 10.9% of the cases, while falls were responsible for 8.7% only. These findings highlight the significant role of high-impact trauma, particularly from RTAs, in the etiology of mandibular fractures. Regarding the anatomical site of fractures, the parasymphysis region was most commonly involved (39.1%), followed by the angle (23.9%), body (21.7%), and condylar region (15.2%). This suggests that the anterior and lateral regions of the mandible are more vulnerable to fracture, possibly due to their prominence and structural characteristics. Postoperative complications were reported in a substantial proportion of patients, with sensory disturbances being the most frequent (60.9%). Other complications included speech difficulties (26.1%), esthetic disturbances (8.7%), and malocclusion (4.3%). The high incidence of sensory disturbances underscores the potential for neurosensory impairment following mandibular trauma and surgical interventions (Table 1).

The assessment of patient-reported outcomes following mandibular fracture surgery revealed generally favorable perceptions regarding postoperative quality of life. All patients (100%) reported no speech problems after surgery, indicating effective surgical management in preserving or restoring speech function. Occlusal alignment was also well-maintained, with 95.7% of patients reporting good occlusion, and only 4.3% experiencing mild or improper occlusion. Satisfaction with facial esthetics was high, as 91.3% of patients expressed being always or generally happy with their appearance post-surgery, while only a small proportion (8.6%) reported mild or no satisfaction. However, in terms of neurosensory outcomes, 73.9% of patients reported no numbness, whereas 17.4% experienced mild sensory disturbance and 8.7% reported persistent numbness. These findings highlight that while functional and esthetic outcomes are predominantly positive, a subset of patients continues to experience sensory disturbances, warranting further attention during postoperative care and follow-up (Table 2).

Table 3 shows the association between neurosensory disturbance and fracture site. Although most patients with no disturbance had evenly distributed fracture sites, those with mild or persistent numbness were more commonly associated with parasymphysis fractures. However, the association was not statistically significant (χ^2 = 6.439, *p*= 0.375), indicating that fracture site does not have a significant impact on neurosensory outcomes in this study.

DISCUSSION:

This is a retrospective study which was conducted to assess the etiology, gender and associated complications of patients who underwent open reduction and fixation of isolated mandibular fracture. Maxillofacial trauma with or without facial laceration may lead to morbidity and mortality of the person involved.[4] The Maxillofacial surgeon who manages maxillofacial trauma requires good knowledge of hard and soft tissues, good skill, and adequate experience and if not properly managed, can result in negative psychosocial and functional activity of an injured person.[5]

According to the data published by the Ministry of Road Traffic and Highways in 2022, over-speeding is the major cause (71.2%), followed by driving on the wrong side (5.4%), of the total RTA casualties in India. In our study, road traffic accidents have emerged as the leading cause of trauma, followed by sports injury and physical assault. This has been proved and published in various studies like RK Singh et al. Hu Wcihsin and many others.[6,7] The Ministry of Road and Highway Transport in 2022 published a more male predominance (86.2%), compared to female (13.8%). In the present study, a clear male dominance of 69.6% was observed as compared to 30.4% in females with mandible fracture in RTA. Many other studies reported the same gender distribution, like studies done by Lasse Ostrup Peterson et al and Singh RK.[6,8]

In this study, we selected only those patients who were diagnosed with having isolated mandibular fracture to assess the quality of life (QOL) followed by open reduction and fixation of the fracture site. In QOL, any problems related to speech, occlusion, aesthetic, or neurosensory deficits were recorded. Out of all the post-surgical complications, neurosensory complications were noted more as compared to other complications.

The study conducted by Lilies Dwi Sulistyani also reported neurosensory disturbance as the main complication in the management of mandibular fracture.[9] They reported that most patients experience a peak in neurosensory deficit in the first week post-operation. They also noted that 50 % - 70% of other patients recovered from this deficit over a period of time.

This study has few limitations too as the data was collected only for 1 year, hence sample size was too less which might influence the statistical results of the study.

CONCLUSION:

RTA is the main etiological factor for maxillo-mandibular injury in our country. Proper education of road safety measures should be focused full stop on all post-operative complications. Neurosensory deficit is the most common complication a surgeon encounters, hence a thorough evaluation regarding pre-and post-operative neurosensory evaluation is required for proper management. Sufficient periodic follow-up is advised.

ACKNOWLEDGMENT:

The author would like to thank all the residents of the OMFS department of People's Dental Academy, People's University for their support in the study.

Financial Support and Sponsorship

Nil.

Conflicts of Interest

There are no conflicts of interest.

REFERENCES:

1. Ministry of Road Transport and Highway, date 24.06.2025 (accessed), Annual Report 2022-2023, https://morth.nic.in/ and https://morth.nic.in/sites/default/files/MoRTH%20Annual%20Report%20for%20the%20Year%202022-23%20in%20English.pdf
2. Somoye MS, Adetayo AM, Adeyemo WL, Ladeinde AL, Gbotolorun MO. A comparative study of quality of life of patients with maxillofacial fracture and healthy controls at two tertiary healthcare institutions. J Korean Assoc Oral Maxillofac Surg. 2021 Oct 31;47(5):351-359. doi: 10.5125/jkaoms.2021.47.5.351. PMID: 34713809; PMCID: PMC8564083.
3. Teoli D, Bhardwaj A. Quality Of Life. [Updated 2023 Mar 27]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK536962/
4. Kumar S, Kashyap S, Singh S, Sharma R, Singh YP, Naik HY. Maxillofacial trauma among Indians. Bioinformation. 2023 Aug 31;19(8):876-880. doi: 10.6026/97320630019876. PMID: 37908612; PMCID: PMC10613808
5. Chandra L, Deepa D, Atri M, Pandey SM, Passi D, Goyal J, Sharma A, Gupta U. A retrospective cross-sectional study of maxillofacial trauma in Delhi-NCR Region. J Family Med Prim Care. 2019 Apr;8(4):1453-1459. doi: 10.4103/jfmpc.jfmpc_89_19. PMID: 31143738; PMCID: PMC6510095.
6. Singh RK, Kumar V, Ganguly R, Patel J, Daga D. Helmet shielding effect in mandibular fractures during road traffic accident. Natl J Maxillofac Surg. 2021 Jan-Apr;12(1):56-61. doi: 10.4103/njms.NJMS_150_20. Epub 2021 Mar 16. PMID: 34188401; PMCID: PMC8191562.
7. Weihsin H, Thadani S, Agrawal M, Tailor S, Sood R, Langalia A, Patel T. Causes and incidence of maxillofacial injuries in India: 12-year retrospective study of 4437 patients in a tertiary hospital in Gujarat. Br J Oral Maxillofac Surg. 2014 Oct;52(8):693-6. doi: 10.1016/j.bjoms.2014.07.003. Epub 2014 Jul 30. PMID: 25086833.
8. Petersen LØ, Ipsen EØ, Felding UA, von Buchwald C, Steinmetz J. Sequelae of Major Trauma Patients with

Maxillofacial Fractures. Ann Otol Rhinol Laryngol. 2021 May;130(5):475-482. doi: 10.1177/00034894-20958732. Epub 2020 Sep 16. PMID: 32935553.

9. Sulistyani L, Julia V, Noviantika D, Irfan I, Muskab M, Kawisana P. Evaluation of neuro-sensory disturbances of the inferior alveolar nerve after ORIF procedure in mandibular fracture: a systematic review. Journal of Stomatology. 2022;75(2):130-137. doi:10.5114/jos.2022.117413.