Section: Dentistry

Original Research Article

EMOTIONAL AND FUNCTIONAL OUTCOMES AFTER FIXED PARTIAL DENTURE REHABILITATION

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Received : 04/03/2025
Received in revised form : 19/04/2025
Accepted : 08/05/2025

Keywords:
Dental Prosthesis, Quality of Life, Partial Edentulism, Masticatory Function, Psychological Adaptation.

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DOI: 10.47009/jamp.2025.7.5.194

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2025; 7 (5); 1025-1029

ABSTRACT

Background: Fixed partial dentures (FPDs) are widely used to restore missing teeth, offering both aesthetic and functional benefits. However, beyond physical rehabilitation, the emotional and psychological effects of FPD therapy are increasingly recognized as critical to overall treatment success. The aim is to assess emotional and functional outcomes in patients undergoing fixed partial denture rehabilitation and to determine the correlation between improved function and emotional well-being. **Materials and Methods:** A prospective observational study was conducted at Railway Hospital, Patna, from June 2023 to January 2024. A total of 148 partially edentulous patients (aged 18–65 years) were rehabilitated with tooth-supported FPDs. Emotional outcomes were evaluated using the Oral Health Impact Profile-14 (OHIP-14), while functional outcomes (chewing efficiency and satisfaction) were measured using Visual Analogue Scales (VAS) at baseline, 1, 3, and 6 months. Data were analyzed using SPSS version 25. Paired t-tests and Pearson correlation analyses were performed, with $p < 0.05$ considered significant. **Result:** Mean OHIP-14 scores significantly decreased from 28.6 (baseline) to 12.7 (6 months), indicating improved emotional well-being. Chewing efficiency scores improved from 4.2 to 8.6, and satisfaction scores increased from 7.2 to 9.1. A strong negative correlation ($r = -0.68$, $p = 0.0001$) was observed between emotional and functional improvements. **Conclusion:** FPD rehabilitation significantly enhances both emotional and functional outcomes. The strong association between improved function and emotional well-being highlights the importance of holistic, patient-centered prosthodontic care.

INTRODUCTION

Loss of one or more teeth is more than a mechanical deficit—it constitutes a disruption in the integrity of the oral system and often carries significant emotional, psychological, and social consequences. Numerous studies have documented that individuals experiencing tooth loss may suffer reduced self esteem, embarrassment in social settings, changes in speech or eating habits, and a diminished oral health–related quality of life (OHRQoL).[1,2] In one study among edentulous Gujarati individuals, 58% reported difficulty accepting tooth loss, and many expressed a negative impact on self image and social life; furthermore, those struggling to accept tooth loss were more likely to show depressive symptoms.[3] Thus, any restorative intervention must address not merely functional reestablishment but also the restoration of emotional well being.

Fixed partial dentures (FPDs), also termed tooth supported bridges, remain a mainstay in prosthodontic rehabilitation for partially edentulous patients, often preferred over removable alternatives for their enhanced stability, comfort, and patient acceptance. From a clinical vantage point, success and survival metrics have been studied extensively: for example, an 18 year retrospective follow-up of metal ceramic FPDs placed by dental students revealed a survival rate of 78% and a defined "success" rate of 71%, with patients reporting acceptable satisfaction despite some biological and technical complications.[4] In a prospective cohort of 146 subjects, FPD survival rates at 3, 6, 12, and 24 months were 98.6%, 96.2%, 93.7%, and 91.1%, respectively, and mean patient- reported comfort and satisfaction scores were high (comfort ~8.2/10, overall satisfaction ~9.0/10).[5] A more contemporary clinical evaluation comparing tooth supported

ISSN (O): 2687-5365; ISSN (P): 2753-6556

ceramic crowns and FPDs over 5+ years documented survival of 98.6% for FPDs and high patient satisfaction with esthetics and function, albeit with a notable incidence of biological complications (e.g. periodontal changes).[6]

While these studies affirm favorable clinical and patient satisfaction outcomes, they tend to emphasize survival, technical complications, and generic satisfaction parameters. There is comparatively less deliberation on emotional and psychological outcomes (such as self-esteem, social confidence, emotional adaptation) and on how functional improvements translate into emotional gains (or fail to do so). In the context of implant prosthodontics, the psychological dimension has garnered increasing attention: a consensus review highlighted that among candidate psychologic outcome measures, the OHIP 14 is one of the more feasible tools for general practice and clinical trials in prosthodontics.[7] However, the authors also pointed to a need for more standardized psychologic endpoints in prosthodontic research. A systematic review of assessment tools for psychological disturbance in patients with tooth loss underscored that many extant studies have methodological limitations, and robust instruments for screening emotional disturbance post-rehabilitation are lacking.[8]

Furthermore, comparative prosthodontic research suggests that fixed prostheses tend to yield greater gains in OHRQoL versus removable ones. A longitudinal study using OHIP-G49 found that 96% of subjects improved in OHRQoL after prosthodontic treatment; notably, patients rehabilitated with fixed prosthodontics reached general population normative levels of OHRQoL faster (within one month) compared to those with removable or complete dentures.[9] In another comparative study of prosthodontic modalities, rehabilitation with FPDs yielded significant positive changes in chewing function, orofacial esthetics, and OHRQoL (measured via OHIP and other scales) 3 months post-treatment.[10] In a cross-sectional cohort in Saudi Arabia, the type and quality of prosthesis were not significantly correlated with OHRQoL, but duration of prosthesis wear and the functional/esthetic domains did relate significantly to quality-of-life metrics.[11]

Beyond OHRQoL, patients' subjective perceptions and emotional adaptation merit dedicated attention. A mixed-methods investigation comparing fixed versus removable prostheses found that patients with fixed prostheses reported higher self-esteem, more confident social interactions, and more positive self-image; conversely, removable prosthesis users described emotional strain in adaptation and persistent concerns about prosthetic constraints.[12] Psychological outcomes in implant prosthodontics have also been reviewed, noting the importance of validated psychologic measures (e.g. OHIP, psychological subscales) to capture treatment impact beyond mechanical success.[13]

Taken together, while the literature supports that fixed prosthodontic rehabilitation generally confers improved function and patient satisfaction, not all patients necessarily experience commensurate emotional benefit, and the linkage between functional restoration and emotional wellness remains inadequately elucidated. The gaps include: Limited use of validated psychometric scales specifically addressing emotional adaptation, self-esteem, and social confidence in FPD cohorts. Insufficient longitudinal data that examine changes over time in emotional outcomes alongside functional metrics (mastication, speech, prosthesis stability).

Therefore, there is a pressing need for a study that concurrently and robustly examines emotional and functional outcomes following fixed partial denture rehabilitation, with adequate follow-up and validated instrument measures. Such integrative research aligns with the paradigm of patient centered care, emphasizing not merely the survival or technical performance of prostheses, but the holistic restoration of patient quality-of-life and psychological well-being.

The aim of the present study is to evaluate both emotional and functional outcomes in patients treated with fixed partial dentures over a defined follow-up period.

MATERIALS AND METHODS

This prospective observational study was conducted at the Dental OPD of Central Super Speciality Hospital, East Central Railway, Patna, a centre catering to a diverse population across Patna and neighbouring regions. The institution is equipped with modern dental care facilities and experienced faculty involved in prosthodontic rehabilitation.

A hospital-based prospective cohort study was carried out to evaluate emotional and functional outcomes in partially edentulous patients undergoing fixed partial denture (FPD) rehabilitation. Participants were followed from pre-treatment baseline through post-treatment follow-up for outcome assessment.

The study was conducted over a period of eight months, from June 2023 to January 2024.

Sample Size: A total of 148 patients (both male and female) who met the inclusion criteria were recruited using consecutive sampling. All eligible patients attending the prosthodontics OPD and consenting to treatment and follow-up were enrolled.

Inclusion Criteria

Patients aged 18–65 years. Partially edentulous patients requiring tooth-supported fixed partial dentures. Patients with good general health and able to attend follow-up visits. Patients who provided written informed consent to participate.

Exclusion Criteria

Completely edentulous patients or those requiring implant-supported or removable dentures. Patients with systemic conditions (e.g., uncontrolled diabetes,

ISSN (O): 2687-5365; ISSN (P): 2753-6556

immune-compromised states) affecting oral health. Psychologically unstable patients or those with psychiatric illness that could bias emotional assessments. History of recent major dental treatments (within the past 6 months). Non-compliant patients or those unable to complete the follow-up protocol.

Baseline Assessment (Pre-Treatment): At the time of enrollment (prior to FPD placement), the following demographic data was recorded: age, gender, occupation, education level. Dental and medical history was taken. Psychological status evaluated using validated scales: Rosenberg Self-Esteem Scale (RSES). OHIP-14 (Oral Health Impact Profile). Visual Analogue Scale (VAS) was used for self-perceived esthetics and satisfaction.

Functional assessment: Masticatory efficiency evaluated using self-reported chewing ability. Phonetic evaluation (if anterior teeth involved). Occlusal and prosthesis space evaluation.

Prosthetic Procedure: All prostheses were conventional fixed partial dentures (metal-ceramic or all-ceramic), fabricated by reputed dental laboratory of the region and placed by prosthodontics specialist. Standard protocols were followed for tooth preparation, impression, temporization, and cementation.

Follow-Up Assessments: Patients were followed up at 1 month, 3 months, and 6 months post-rehabilitation for re-assessment of: Functional outcomes (chewing efficiency, phonetics, retention/stability, occlusal comfort). Emotional outcomes using the same validated tools (RSES, OHIP-14, VAS). Prosthetic complications, if any (e.g., debonding, fracture, inflammation). All evaluations were done by prosthodontics specialist.

Outcome Measures: Primary Outcomes - Change in emotional status (Rosenberg score, OHIP-14 psychological subdomain). Change in self-reported satisfaction (VAS). Secondary Outcomes - Change in functional scores (chewing, speech). Association between functional improvements and emotional well-being.

Statistical Analysis: Data were entered and analyzed using SPSS software (version 20.0). Descriptive statistics were expressed as Mean ± SD, frequencies and percentages. Paired t-test was done for pre- and post-treatment changes in scores. Correlation and regression analysis were performed to assess the association between functional and emotional outcomes. Statistical significance was set at $p < 0.05$.

RESULTS

The study enrolled 148 patients aged between 18–65 years, with a mean age of 42.3 years. Males constituted a slight majority (55.4%). The sample had a good mix of urban and rural backgrounds, supporting a broad applicability of the findings.

Table 1: Demographic Characteristics of Study Participants.

Variable	Value
Total number of patients	148
Mean age (years)	42.3 ± 11.7
Gender – Male	82 (55.4%)
Gender – Female	66 (44.6%)
Urban residence	89 (60.1%)
Rural residence	59 (39.9%)

There was a significant improvement in emotional well-being following FPD treatment, as reflected by a steady decrease in OHIP-14 scores from baseline (28.6) to 6 months (12.7). Lower OHIP-14 scores indicate better quality of life. The largest reduction occurred in the first 3 months, suggesting early emotional adaptation to the prosthesis.

Table 2: OHIP-14 Scores (Emotional Outcomes) Over Time

Time Point	Mean OHIP-14 Score	Standard Deviation
Baseline	28.6	5.2
1 Month	21.3	4.8
3 Months	16.5	4.1
6 Months	12.7	3.9

Self-reported chewing efficiency showed marked improvement, rising from a mean VAS score of 4.2 pre-treatment to 8.6 at 6 months. This indicates a strong functional benefit from FPD rehabilitation, with most patients regaining effective masticatory ability within the first 3 months.

Table 3: Functional Outcome – Chewing Efficiency (VAS 0–10)

Time Point	Mean VAS Score	Standard Deviation
Baseline	4.2	1.1
1 Month	6.5	1.3
3 Months	7.8	1.2
6 Months	8.6	1.1

ISSN (O): 2687-5365; ISSN (P): 2753-6556

Overall patient satisfaction increased consistently over time, reaching a mean VAS of 9.1 at 6 months. This trend suggests growing patient confidence and emotional comfort with the prosthesis as adaptation occurred.

Table 4: Patient Satisfaction Over Time (VAS 0–10)

Time Point	Mean Satisfaction (VAS)	Standard Deviation
1 Month	7.2	1.5
3 Months	8.4	1.2
6 Months	9.1	1.0

A strong negative correlation (r = -0.68) was found between improvement in emotional well-being (OHIP-14 score reduction) and functional improvement (chewing efficiency). The statistically significant p-value (0.0001) indicates that patients who regained better function also experienced higher emotional relief and quality of life improvements.

Table 5: Correlation Between Emotional and Functional Outcomes.

Variable Comparison	Pearson r	p-value
OHIP-14 Score Change vs Chewing Efficiency Change	-0.68	0.0001

Fixed Partial Denture therapy led to significant emotional and functional improvements over 6 months. OHIP-14 scores declined (better QoL), while chewing efficiency and satisfaction scores increased steadily. Emotional outcomes were strongly correlated with functional gains, confirming that restoring oral function plays a vital role in improving psychological and emotional states post-rehabilitation.

DISCUSSION

This prospective study of 148 patients undergoing fixed partial denture (FPD) rehabilitation demonstrated significant improvements both in functional performance (chewing efficiency, patient satisfaction) and in emotional well being (as measured by OHIP 14 scores). The correlation analysis also revealed a strong association between functional gains and emotional outcomes.[14-18]

Our results show a consistent and progressive decline in OHIP 14 scores over the 6 month follow-up, from 28.6 at baseline to 12.7 at 6 months, indicating marked enhancement in oral health–related quality of life (OHRQoL) and psychological comfort. The steepest improvements occurred during the first 3 months, suggesting rapid emotional adaptation after prosthetic rehabilitation. These patterns align with earlier findings: for example, John et al. found that patients treated with fixed prosthodontics reached near population normative OHRQoL levels within 1 month, and 96% of subjects improved by 6–12 months post-treatment.[1] Similarly, in a prosthodontic intervention study using OHIP 14 across different prosthesis types, the fixed partial denture group exhibited statistically significant pre to post change ($p \leq 0.05$), supporting that FPDs contribute to meaningful OHRQoL gains.[2]

On the functional side, self reported chewing efficiency (VAS score) rose from 4.2 to 8.6 over 6 months; concurrently, patient satisfaction improved from mean 7.2 at 1 month to 9.1 at 6 months. These trends are consistent with cross-sectional studies reporting high levels of satisfaction with fixed prostheses. In a study conducted in Nepal, 85.3% of patients expressed satisfaction with fixed prostheses, and 79.4% were specifically satisfied with chewing ability.[3] The steadily rising satisfaction scores in our cohort are indicative of progressive adaptation, better comfort, and stabilization of prosthetic function.

Beyond descriptive improvement, our correlation analysis (r = –0.68, p = 0.0001) suggests a strong linkage between functional recovery and emotional uplift: patients who experienced greater improvement in chewing ability tended also to show larger reductions in OHIP 14 (better emotional/psychological outcomes). This is clinically important because it supports the hypothesis that functional restoration may partly mediate emotional rehabilitation. That is, not merely the presence of a prosthesis, but how well it works, can influence psychological benefit.

The positive impact of fixed prostheses on OHRQoL and patient satisfaction has been well documented. In cross-sectional surveys of implant-supported fixed dentures, patients often report high satisfaction and favorable quality-of-life metrics, particularly in psychosocial domains.[4] The study by Olivetti et al. (Brazil) showed that implant-supported fixed partial dentures were associated with better psychosocial comfort and lower psychological disability compared to alternative prostheses.[5] In the broader prosthodontic context, a comparative evaluation of different prosthetic modalities revealed that fixed options (when feasible) outperform removable ones in delivering OHRQoL gains and patient contentment.[2,6]

The emphasis in much of the prosthodontic literature, however, has often been on survival rates, technical complications, or general satisfaction. Fewer studies dissect the emotional or psychological adaptation in parallel with functional recovery. In a qualitative quantitative study comparing fixed vs removable prostheses, patients with fixed prostheses more often reported enhanced self-esteem, greater social confidence, and more seamless psychological integration of their prosthesis.[7] These subjective

ISSN (O): 2687-5365; ISSN (P): 2753-6556

reports echo our finding of emotional gain following successful functional rehabilitation.

Our results also resonate with the theoretical model of prosthodontic quality-of-life work, which conceptualizes that improvements in orofacial function (e.g. mastication, phonetics) reduce symptom burden, thereby lowering emotional distress and social disability, which manifests as lower OHIP scores.[8] Thus, the bidirectional influence between functional and emotional domains is biologically and psychologically plausible.

CONCLUSION

In summary, this study provides evidence that FPD rehabilitation leads to meaningful improvements in both functional capacity (particularly chewing efficiency) and emotional well being (reduced OHIP 14 scores), with a strong correlation between the two domains. The strong link supports the notion that functional gains are more than mechanical—they have psychological ramifications. Yet, translation of function into emotional benefit may be moderated by patient-specific factors, and longer-term dynamics remain to be charted. Clinically, prosthodontists should aim not only for mechanical success but for holistic restoration—balancing functional precision with patient-centered emotional support.

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ISSN (O): 2687-5365; ISSN (P): 2753-6556