



# Comparative Evaluation of Success Rates of Surgically Placed Dental Implants and Fixed Partial Dentures for the Replacement of Missing Teeth.

Dr. Sudhanshu Singh<sup>1</sup>, Dr. Mehul Patel<sup>2</sup>, Dr. Manjiri Salkar<sup>3</sup>, Dr. Bhushan Bangar<sup>4</sup>, Dr. Rajiv Kumar Gupta<sup>5</sup>, Dr. Ankita Pal<sup>6</sup>

<sup>1</sup>Professor, Dept of Oral & Maxillofacial Surgery, Awadh Dental College and Hospital, Jamshedpur

<sup>2</sup>Reader, Ahmedabad dental college and hospital, Department of Prosthodontics

<sup>3</sup>Associate Professor (Reader) Department of Prosthodontics, Mahatma Gandhi Vidyamandir's, K B H Dental College & hospital, Nashik.

<sup>4</sup>Professor and PG Guide, Dept of Prosthodontics, Midsr Dental College Latur Maharashtra India.

<sup>5</sup>Prof n head, dept of prosthodontics and crown & bridge, Santosh Dental college, Santosh Deemed to be University, Ghaziabad.

<sup>6</sup>Reader, dept of prosthodontics and crown & bridge, Santosh Dental college, Santosh Deemed to be University, Ghaziabad.

## Corresponding author

Dr. Sudhanshu Singh, Professor, Dept of Oral & Maxillofacial Surgery, Awadh Dental College and Hospital, Jamshedpur

**(Received: 27 October 2023)**

**(Revised: 22 November)**

**(Accepted: 26 December)**

## KEYWORDS

Implants,  
FPDs,  
Edentulism.

## ABSTRACT:

**Background:** This study was conducted for comparative evaluation of success rates of surgically placed dental implants and Fixed Partial Dentures for the replacement of missing teeth.

**Material and methods:** This study included total 100 subjects that reported to the department with the chief complaint of missing teeth. Intraoral examination was carried out in all the subjects. The subjects with a good amount of bone were planned for dental implants whereas the subjects having healthy teeth adjacent to the edentulous areas were planned for FPDs. The complications of both the treatment modalities were noticed and the success rate was estimated. Statistical analysis was conducted using SPSS software.

**Results:** 4 subjects from the first group showed peri-implantitis whereas implant mobility was seen in 1 subject. Hence, the failure rate of dental implants was 10%. 3 out of 50 subjects in the second group showed loss of retention followed by tooth fracture, occlusal problems, caries and porcelain fracture. Total 7 complications were observed. Hence the failure rate was 14%.

**Conclusion:** Dental implants were proven to be more successful (90%) as compared to FPDs (86%) for the replacement of missing teeth.

## Introduction

A person's teeth are crucial to sustaining their sense of self. An individual's dental health status has a significant

impact on their overall health.<sup>1</sup> They are intimately connected, and the individual's socioeconomic situation largely determines how teeth are maintained. An individual's quality of life is negatively impacted by



psychological distress, social isolation, and physical damage brought on by tooth loss.<sup>2</sup> According to a study, there is an antagonistic association between social relationships, self-confidence, and missing or poorly fixed teeth.<sup>3</sup> In order to improve oral health, appearance, and self-confidence, tooth restoration is crucial.

In the past, clinicians used various now-obsolete implant designs that healed by fibro-osseous integration. Modern dental implantology began with the introduction of screw-type, root-form implants healing by osseointegration, with direct apposition of vital bone to titanium surfaces.<sup>4</sup> These implants added great benefit for patients with fully or partially edentulous situations.

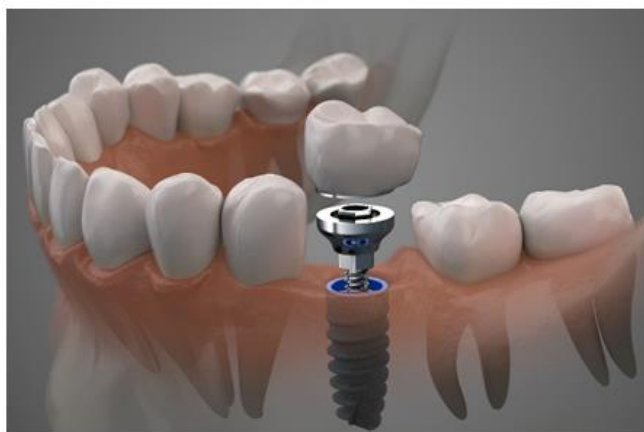
Fixed partial dentures are less well-regarded today, since their use requires preparation of adjacent teeth and the sacrifice of healthy tooth structure. Although historically very successful, survival rates of FDPs are inferior to

single-unit implants<sup>5</sup>, particularly when abutment teeth were endodontically treated.<sup>6</sup>

Hence, this study was conducted for comparative evaluation of success rates of surgically placed dental implants and Fixed Partial Dentures for the replacement of missing teeth.

### Material and methods

This study included total 100 subjects that reported to the department with the chief complaint of missing teeth. Intraoral examination was carried out in all the subjects. The subjects with a good amount of bone were planned for dental implants whereas the subjects having healthy teeth adjacent to the edentulous areas were planned for FDPs. The complications of both the treatment modalities were noticed and the success rate was estimated. Statistical analysis was conducted using SPSS software.



**Figure 1: Dental implant**

### Results

The subjects were divided into two groups based on the type of treatment they received. Group 1 subjects received dental implants and group 2 subjects received FDPs. Both the groups comprised of 50 subjects each.

**Table 1: Gender-wise distribution of subjects.**

Gender	Males	Females	Total
Group 1	25	25	50
Group 2	35	15	50
Total	60	40	100



**Figure 2: Fixed Partial Denture**

The study comprised of 60 males and 40 females. Group 1 had 25 males and females each and the second group had 35 males and 15 females.

**Table 2: Complications of dental implants in group 1 subjects.**

Complications	Number of subjects
Peri-implantitis	04
Implant mobility	01
Nerve damage	00
Infection	00
Total	05



4 subjects from the first group showed peri-implantitis whereas implant mobility was seen in 1 subject. Hence, the failure rate of dental implants was 10%.

**Table 3: Complications of FPDs in group 2 subjects.**

Complications	Number of subjects
Loss of retention	03
Tooth fracture	02
Occlusal problems	01
Caries	01
Porcelain fracture	00

3 out of 50 subjects in the second group showed loss of retention followed by tooth fracture, occlusal problems, caries and porcelain fracture. Total 7 complications were observed. Hence the failure rate was 14%.

**Table 4: Comparison of success rates of the 2 treatment modalities.**

Fate of treatment	Group 1	Group 2
Success	45/50 (90%)	43/50 (86%)
Failure	05/50 (10%)	07/50 (14%)
Total	100%	100%

Dental implants were proven to be more successful (90%) as compared to FPDs (86%) for the replacement of missing teeth.

## Discussion

Today, dental implants are one of the restorative methods to replace missing teeth. Improvements in implant design, surface characteristics, and surgical protocols made implants a secure and highly predictable procedure with a mean survival rate of 94.6 % and a mean success rate of 89.7 % after more than 10 years.<sup>7</sup>

The performance of any fixed prosthesis is evaluated by measuring outcomes of chewing function, esthetics, longevity, as well as technical complications. When assessing the efficiency of fixed prosthesis therapy, Anderson in 1998 showed that it is important to consider both the clinicians' as well as the patients' appraisals.<sup>8</sup> However, important parameters such as patient satisfaction are clearly underexposed in the current literature, especially for implant prosthesis.<sup>9</sup>

Hence, this study was conducted for comparative evaluation of success rates of surgically placed dental implants and Fixed Partial Dentures for the replacement of missing teeth.

In this study, the subjects were divided into two groups based on the type of treatment they received. Group 1 subjects received dental implants and group 2 subjects received FPDs. Both the groups comprised of 50 subjects each. The study comprised of 60 males and 40 females. Group 1 had 25 males and females each and the second group had 35 males and 15 females. 4 subjects from the first group showed peri-implantitis whereas implant mobility was seen in 1 subject. Hence, the failure rate of dental implants was 10%. Dental implants were proven to be more successful (90%) as compared to FPDs (86%) for the replacement of missing teeth.

Suganna M et al<sup>10</sup> conducted a study assess the awareness of patients about various dental prosthetic rehabilitative procedures in Saudi Arabia, their preference(s) regarding the choice of treatment, and the motivating factors that drive them to avail of dental prosthetic rehabilitative treatment. After randomly selecting 600 individuals for the purpose of our investigation, a nine-variable questionnaire was framed by investigators to record the responses of those who consented to participate in their study. Only 68.3% of the respondents were found to be aware of the several prosthodontic replacement choices. As mentioned by the majority of the respondents, the cost element was the biggest drawback for replacement. The benefits of choosing fixed partial dentures (FPD) or dental implants were judged to be aesthetics (41.1%) and the feel of one's own teeth (40.1%). Only 68.3% of respondents reported knowing about the several prosthodontic replacement choices. The cost aspect was cited by 348 respondents as the biggest drawback to replacement. The perceived benefits of choosing FPD or dental implants were deemed to be aesthetics (41.1%) and the feel of one's own teeth (40.1%).

Da Silva JD et al<sup>11</sup> determined the types, outcomes, risk factors and esthetic assessment of implants and their restorations placed in the general practices of a practice-based research network. All patients who visited network practices three to five years previously and underwent placement of an implant and restoration within the practice were invited to enroll. Practitioner-investigators



(P-Is) recorded the status of the implant and restoration, characteristics of the implant site and restoration, presence of peri-implant pathology and an esthetic assessment by the P-I and patient. The P-Is classified implants as failures if the original implant was missing or had been replaced, the implant was mobile or elicited pain on percussion, there was overt clinical or radiographic evidence of pathology or excessive bone loss ( $> 0.2$  millimeter per year after an initial bone loss of 2 mm). They classified restorations as failures if they had been replaced or if there was abutment or restoration fracture. The authors enrolled 922 implants and patients from 87 practices, with a mean (standard deviation) follow-up of 4.2 (0.6) years. Of the 920 implants for which complete data records were available, 64 (7.0 percent) were classified as failures when excessive bone loss was excluded from the analysis. When excessive bone loss was included, 172 implants (18.7 percent) were classified as failures. According to the results of univariate analysis, a history of severe periodontitis, sites with preexisting inflammation or type IV bone, cases of immediate implant placement and placement in the incisor or canine region were associated with implant failure. According to the results of multivariate analysis, sites with preexisting inflammation (odds ratio [OR] = 2.17; 95 percent confidence interval [CI], 1.41–3.34) or type IV bone (OR = 1.99; 95 percent CI, 1.12–3.55) were associated with a greater risk of implant failure. Of the 908 surviving implants, 20 (2.2 percent) had restorations replaced or judged as needing to be replaced. The majority of P-Is and patients were satisfied with the esthetic outcomes for both the implant and restoration. These results suggested that implant survival and success rates in general dental practices may be lower than those reported in studies conducted in academic or specialty settings.

## Conclusion

Dental implants were proven to be more successful (90%) as compared to FPDs (86%) for the replacement of missing teeth.

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