Evaluating the Long-Term Success of Removable and Fixed Prosthodontic Treatment in Completely Edentulous Patients: Comparative Clinical-Radiographic Study

Keywords

Marginal Bone Loss
Complete Denture
Implant Survival
Implant-Supported Overdenture
Implant -Supported Fixed Prostheses

Authors

Abhinav Sharma *
(BDS, MDS)

Pragati Rawat *
(BDS, MDS)

Pratiksha A Srivastava *
(BDS, MDS)

Aditya Sharma *
(BDS, MDS)

Address for Correspondence

Pragati Rawat *

Email: rawatpragati@gmail.com

* *Subharti Dental College and Hospital, Swami Vivekanand Subharti University, Meerut, India*

Received: 24.07.2024
Accepted: 11.05.2025

doi: 10.1922/EJPRD_2765Sharma09

ABSTRACT

Introduction: A clinician must choose the right treatment modality with various fixed and removable prosthetic treatments available for completely edentulous patients. This systematic review aims to evaluate removable and fixed prosthetic treatment modalities in a completely edentulous patient. Material and Methods: A comprehensive search of MEDLINE, PubMed, Scopus, Web of Science, Google Scholar, and LILACS and a manual search across reference lists of included studies were done. The study analyzed clinical and radiological outcome for patients with completely edentulous arches, including bone loss, post-prosthetic rehabilitation challenges and hygiene maintenance across removable and permanent treatment options. Results: A total of 2182 articles, which, after the thorough screening process yielded 10 studies for qualitative analysis. The success rates of implant-supported fixed prostheses (IFP) were greater than those of implant-supported overdentures (IOD) and complete dentures (CD), respectively. Nevertheless, there were significant differences in the success criteria across the various treatment options, making it futile to compare the success rates directly. Conclusions: Comparing the fixed and removable treatment modalities for completely edentulous patients regarding successful outcomes is multifaceted and challenging due to the lack of comparable assessments with equivalent follow-up periods and similar outcome criteria.

INTRODUCTION

All across the globe, dental health is of grave concern across all age groups. It influences overall health, involving psychological, physical, social, and emotional well-being.[1] One such condition affecting oral health is edentulism. Edentulism and that too complete edentulism can affect the ability of an individual to speak, masticate, and appear aesthetically pleasing drastically. While a lot of previously conducted epidemiological studies show that the prevalence of edentulism has ranged from as low as 4.9% in the USA, 5.7% in Switzerland, and 6.4% in Canada, 8.5% in South Africa,

9% in China, and as high as 16.3% in India, 18% in Russia, and 21.7% in Mexico, respectively[2-5] recent data estimates that the prevalence of edentulism globally ranges from 11% to 70%.[6] With such an increasing rate of edentulism, it becomes necessary to rehabilitate such patients to provide them with a good oral health-related quality of life (OHRQoL).

Although, muco-supported removable prosthesis have been a more commonly opted conservative treatment option for completely edentulous patients, complete-arch implant-supported fixed dental prostheses as well as implant-supported overdentures have also emerged as a treatment option for edentulism with a high patient acceptance rate. Despite having a high implant survival rate in rehabilitating such patients, chipping or fracture of the veneering material, prosthetic screw loosening or fracture, wear and fracture of resin denture teeth, loss of access-hole filling, fracture of the prosthesis framework, difficulty in maintaining hygiene, and poor gingival esthetics and architecture have been reported over short- and long-term periods.[7-11] On the other hand, loss of retention, difficulty or discomfort while wearing the prosthesis, and frequent need for rehabilitation or relining also limit the acceptability of a conventional complete denture by patients.[12-14] Hence, which treatment can provide a suitable treatment outcome is sometimes controversial. The objective of this systematic review was to provide a comprehensive analysis of available removable and fixed treatment options, emphasizing favorable clinical and radiographic outcomes to aid in evidence-based decision-making for both patients and practitioners.

Accordingly, the null hypothesis was formulated, stating that there would be no difference between removable and fixed treatment outcomes (both clinically and radiographically) in completely edentulous patients

MATERIAL AND METHODS

The present systematic review registered in the National Institute of Health Sciences, International Prospective Register of Systematic Reviews database under registration number CRD42023433620 was formulated according to preferred reporting items of systematic reviews and meta-analysis (PRISMA) guidelines, with the main review question being, 'Out of all the removable and fixed prosthetic treatment options available for completely edentulous patients, which is better regarding good clinical and radiographical outcomes?'.[15,16] The focus question followed the Population, Intervention, Comparator, and Outcome (PICO) strategy summarized in Table 1.

Two reviewers (P.R. and A.S.) independently performed an electronic search of the MEDLINE, PubMed, Scopus, Web of Science, Google Scholar, and LILACS databases from January 1, 2000, to January 1, 2023, which was followed by a manual search in different dental journals and references to related articles according to the inclusion criteria. The inclusion criteria were articles falling in the category of observational studies and randomized control trials published in English with a follow-up period of 1-5 years for patients receiving conventional complete dentures and a minimum of 5 years for patients receiving implant-supported prostheses. The exclusion criteria were *in vitro* studies, animal studies, case series, review articles of patients rehabilitated with the prosthesis in only one arch with an opposing arch having natural dentition, patients prosthetically rehabilitated with any maxillary and/or mandibular defect, completely edentulous patients with temporomandibular joint disorders and parafunctional habits who were rehabilitated prosthetically, and patients rehabilitated prosthetically over basal, zygomatic, pterygoid, and patient-specific implants maxillary and/or mandibular arch.

Table 1. PICO Strategy.

ELEMENTS	CONTENTS
Population (P)	Patients 45 years of age and above with completely edentulous arches free of any systemic health condition wearing removable and/or fixed prostheses.
Intervention (I)	Prosthetic treatment modalities in terms of good and favorable clinical and radiographical outcomes in completely edentulous arches free of any systemic/localized health condition
Comparator (C)	Removable versus Fixed Prosthetic Treatment modality in completely edentulous arches.
Outcome (O)	Patient-specific clinical and radiographical outcomes in terms of bone loss, post-prosthetic rehabilitation complications, masticatory, aesthetic, and speech performance of the given prosthesis, hygiene maintenance, and need for re-fabrication (if and when it arises) of different removable and fixed treatment modalities for completely edentulous jaws so that the best treatment modality can be opted for in such patients.

After the initial search, two independent authors (P.R and A.S.) reviewed the full-text articles of the included studies and collected the relevant data (summarized in Tables 2 to 4). Two separate researchers (A.S. and P.A.S.) used the Cochrane Collaboration tool to assess the quality of the risk of bias which included assessment of bias due to confounding factors (D1), due to selection of participants (D2), classification of interventions (D3), deviation from intended interventions (D4), due to missing data (D5), in measurement of outcomes (D6), and in selection of the reported result (D7).[17,18] The authors agreed on a unified decision, ensuring a unanimous outcome for the current systematic review.

RESULTS

A total of 2182 articles were generated through the initial search *(Figure 1)*. Following the elimination of duplicates, the abstracts and titles of 1741 articles were checked, and 1465 of

Table 2. Characteristics of included studies.

Author	Study Design	Sample size	Follow-up period	Type of prosthetic rehabilitation	Outcomes evaluated	Relevant Findings
Celebic 2003	Analytical Cross-sectional	222	1-5 years	Complete denture	Aesthetics, Denture retention, Speech, chewing ability, and overall satisfaction with the prosthesis	While 14.4% of patients were content with their mandibular CDs, 78.4% were satisfied with their maxillary CDs' retention. Of the patients, 79.3% were satisfied with their appearance and 72.1% were content with their speech. Patients who had worn dentures for a longer period reported feeling more satisfied with mastication. 7.2% expressed dissatisfaction with their dentures.
Di 2013	Cohort	69	1-5 years	Implant-supported overdenture	Implant survival rate, marginal bone loss, and prosthetic complication	95.6 % of the patients were satisfied with overall function and aesthetics. Implant survival rate was significantly higher in the mandible as compared to the maxilla.
Gosavi 2013	Analytical Cross-sectional	178	1 year	Complete denture	Patient satisfaction with the prosthesis	Mastication was the most prevalent complaint, and decreased retention was frequently the reason for complaints.
Martin 2015	Cohort	150	5 years	Complete denture, Implant-supported overdenture, and Implant-supported fixed prosthesis	To compare satisfaction with oral hygiene and function rehabilitated with conventional complete dentures, implant-supported fixed prostheses, or overdentures	The two types of implant-supported prosthesis did not differ statistically significantly in terms of plaque and gingival indices. Around implant-supported fixed prostheses, there was a greater loss of bone (P ~ 0.001). Only 14% of patients experienced complete satisfaction with CDs followed by 36% with IODs and 46 % with IFPs.
Araújo 2018	Analytical Cross-sectional	114	5 years	Complete denture	Patient satisfaction with the prosthesis in terms of Retention, fit, mastication, speech, and aesthetics	57% of the respondents were satisfied with their prostheses.
Koul 2018	Analytical Cross-sectional	125	1-5 years	Complete denture	Patient satisfaction with the prosthesis	The most common complaint (41.7%) was of discomfort, which was followed in order of severity by loss of retention (30.77%), aesthetics (13.77%), and other concerns (13.77%).
Yamaga 2019	Analytical Cross-sectional	267	1- ≥5 Years	Complete denture	Oral Health-Related Quality of Life (OHRQol) of patients wearing complete dentures	When mandibular ridge form and denture quality were taken into account, OHRQol was shown to be considerably impacted by the duration of denture wear.
Barootchi 2020	Cohort	74 (35-metal acrylic prosthesis, 21-zirconia prosthesis)	≥5 Years	Implant-supported fixed prosthesis	Biological and Prosthetic complications and clinical outcomes	Though initially more expensive, zirconia fixed implant prostheses offer better results, less complications, and a greater survival rate.
Sánchez-Torres 2020	Cohort	56	1-≈5 years	Implant-supported fixed prosthesis	The effect of technical or mechanical complications, patient perception, and Quality of life (QoL).	Although the frequency of mechanical complications increases significantly over time, with high survival rate. The occurrence of minor mechanical complications has no impact on the satisfaction and QoL of patients
Nagni 2023	Cohort	30	6years	Implant-supported fixed prosthesis	Clinical and radiographic assessment of full-arch implant prosthetic rehabilitation	High implant survival rates and gradual increases in marginal bone loss within normal limits were seen over time.

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Table 3. Summary of soft-tissue parameters reported in included studies.

Author	Intervention	Indices evaluated	Bleeding on probing	Soft tissue complications	Bone loss assessment	Hygiene maintenance
Di 2013	Implant-supported overdenture	Not evaluated	Not evaluated	None	Marginal Bone loss (MBL): Straight implants (0.7 ±0.2 mm) Angulated implants (0.8 ± 0.4 mm) (p >0.5)	Satisfactory periodontal maintenance. (Water spray preferred)
Gosavi 2013	Complete denture	Not applicable	Not applicable	Infection- 6.7 % Ulceration- 9.6 % Pain- 21.3 %	Not evaluated	48.4 % had a habit of daily cleaning. Food accumulation was seen in 24.7% of the patients followed by 29.8 % of patients who complained of halitosis.
Martin 2015	Complete denture, Implant-supported overdenture and Implant-supported fixed prosthesis	Plaque index Overdentures 0-22 % 1-42 % 2-32 % 3-4 % Fixed prosthesis 0-18% 1-38 % 2-36 % 3-8 % Gingival index Overdentures 0-20 % 1-38 % 2-28 % 3- 14 % Fixed Prosthesis 0- 18 % 1- 34 % 2-28 % 3-20 %	Not evaluated	77.3% of patients did not present lesions of the oral mucosa Positive response for Pain (2.50 ± 1.64) and discomfort while eating some food (2.04 ±1.641) was observed in patients wearing complete dentures	Implant-supported overdenture <1 mm- 45 % 1–3 mm-35% >3 mm- 20 % Implant-supported Fixed prosthesis <1 mm-18 % 1–3 mm-42% >3 mm- 40 %	65.3% of patients brushed their teeth three times a day. Positive response for presence of halitosis (1.28 ± 1.246) as well as difficulty in cleaning the prosthesis (1.54 ± 1.417) was observed in patients wearing IFPs.
Barootchi 2020	Implant-supported Fixed Prosthesis	Not evaluated	Not evaluated	Metal acrylic group: Ulceration-4 Epulis fissuratum-2 Pain & soreness- 4 Obstruction of Stenson's Duct- 1 Candidiasis- 1 Zirconia group: Oral candiasis-1 Hyper plasia-1 Gingival overgrowth-1	Not evaluated	Not evaluated
Nagni 2023	Implant-supported Fixed Prosthesis	A significant association between implant site and plaque index ($\chi 2 = 8.33$, $p = 0.003$) was observed	A significant association between implant site and bleeding index ($\chi 2 = 16.63$, $p < 0.001$) was observed	Not evaluated	From 1.11 mm to 3.62 mm on average at the vestibular level and 1.61 mm on average at the lingual level, respectively, the thickness of the bony cortexl of maxilla increased gradually in an apical direction. Both at the vestibular level (from 1.24 mm to 1.65 mm) and the lingual level (from 2.12 mm to 4.14 mm) of the mandibular bone, there was an apical increase of bone thickness.	Not evaluated

Table 4. Summary of prosthodontic complications reported in included studies.

Author	Total no. of implants/ complete dentures placed	Loading protocol	Complications reported	Survival Rate
Celebic 2003	222 complete dentures	Not Applicable	Discomfort while wearing the prosthesis- 11.3% (concerning maxillary prosthesis); 11.7% (concerning mandibular prosthesis) Loss of Retention- 14.4 % (for mandibular prosthesis) 78.4 % (for maxillary prosthesis)	Not evaluated
Di 2013	344 implants (Maxillary-152 Mandibular- 192)	All on four (Delayed)	Implant failure- 13 (11 in the posterior segment and 2 in the anterior segment) Abutment screw loosening-03 Artificial teeth separation from acrylic base-05	96.2 % at 33.7 months (mandible-99%, maxilla- 92.8 %)
Gosavi 2013	178 complete dentures	Not Applicable	Looseness of prosthesis- 41.4 % Loss of Retention- 35.4 % Tongue space restriction-26.4 % Fracture- 3.4 %	Not evaluated
Araújo 2018	228 complete dentures (at the end of 1year follow-up) 114 complete dentures (at the end of 5 years)	Not Applicable	AT THE END OF 1 YEAR: Higher frequency of maxillary denture fracture (p=0.027) Least stability in mandibular denture (p= 0.001) Worse static (p= 0.016) and dynamic (p= 0.019) occlusion. AT THE END OF 5 YEARS: Loss of Retention- 82.5 % in mandible Fracture – 7.8 % (maxillary prosthesis) and 6.8 % (mandibular prosthesis)	During the first year of prosthesis use, there was a greater withdrawal than between the first and fifth years.
Koul 2018	119 complete dentures	Not Applicable	Discomfort while wearing the prosthesis- 15.96% (concerning maxillary prosthesis); 70.5 % (concerning mandibular prosthesis) Loss of Retention- 24.36 % (concerning maxillary prosthesis); 39.5 % % (concerning mandibular prosthesis)	Not evaluated
Barootchi 2020	74 implant-supported fixed prostheses (43 metal acrylic prostheses; 31 zirconia prostheses)	Immediate loading (n= 22) and Delayed loading (n= 52)	Single tooth fracture/dislodgement (67.6%) Metal acrylic group- 94 times in 22 prosthesis Zirconia group- 36 times in 9 prostheses Multiple teeth fracture (35.1%) Metal acrylic group- 40 times in 17 prosthesis Zirconia group- 17 times in 4 prostheses	Implant failure: Metal acrylic group - 12.7 % Zirconia group - 9.5 % Survival rate after 5 years: Metal acrylic group- 83%±11.1% Zirconia group- 93.7±5.5 % Survival rate after 8 years: Metal acrylic group- 67.6%±14.8% Zirconia group- 88±8.8 %
Sánchez-Torres 2020	56 implant supported fixed prostheses	Immediate Loading	Abutment screw loosening- 43 % of participants Chipping or fracture of the veneering material- 25% of participants Loss of access-hole filling- 11% of participants Prosthetic screw fracture- 9%of participants	The prosthetic success rate was 38.8% with a mean follow-up time of 40 months. The survival rate was 100%

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them were disqualified for being irrelevant or not having been published in English. Out of the 276 papers that remained, a total of 10 studies (5 cross-sectional and 5 cohort)[11-13,19-25] were finally shortlisted for qualitative analysis. An overview of the main features of the included studies is depicted in Table 1. These 10 studies reported the post-treatment outcomes of different treatment options available for completely edentulous jaws, analyzing prosthodontic complications *(Table 3)* and soft tissue parameters. *(Table 4)*

Nine hundred and fifty-eight participants received CDs, 119 received IODs, and 210 received IFPs. The risk of bias assessment for cross-sectional studies is presented in Figure 2, and for cohort studies, it is presented in Figure 3. Out of the 5 cross-sectional studies, 3 presented a moderate risk of bias,[11,12,19] 1

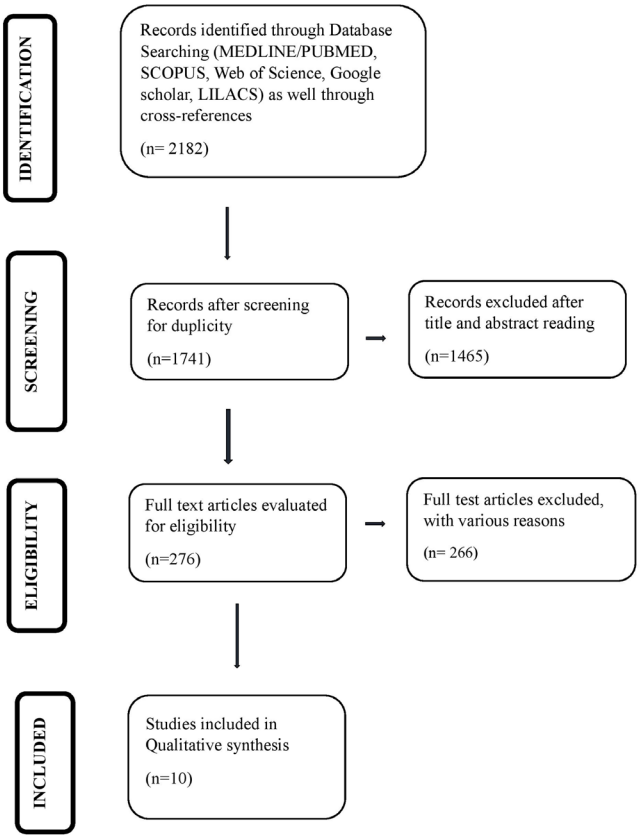

Figure 1: Study Flowchart.

had a serious risk of bias,[20] and 1 had a critical risk of bias.[13] Among the cohort studies, the risk of bias was reported as low for 2 studies,[21,22] moderate for 2,[23,24] and 1 for high.[25]

The post-treatment outcome in terms of prosthetic survival rate was not evaluated in any of the studies on CDs except for one study in which it was reported that the rate of withdrawal occurred more in the first year of CD usage than in the first and fifth years combined.[12] For IODs, the implant survival rate was 96.7% (69 participants, 344 implants) with no significant difference between the loading protocol used (p>0.5) at the end of 33.2 months.[23] In the case of IFPs, the implant survival rate was

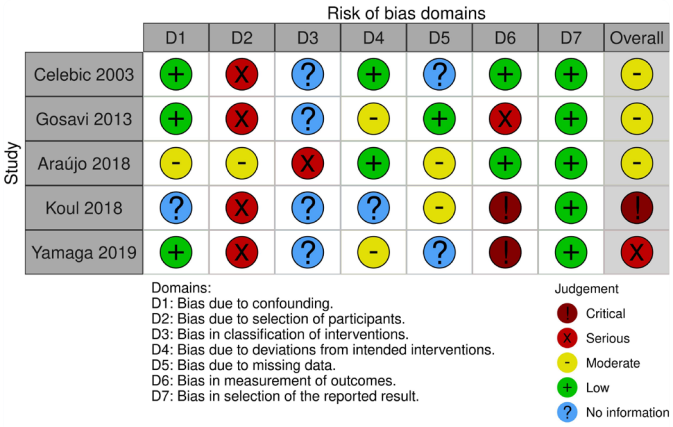

Figure 2: Risk of Bias Assessment (cross-sectional studies).

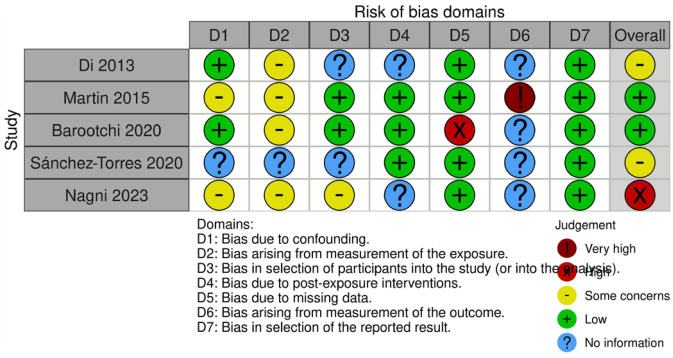

Figure 3: Risk of Bias Assessment (cohort studies).

reported as 100% (56 participants, 72 arches, immediate loading protocol) at the end of 5 years, irrespective of the type of prosthesis given.[24] Whereas, in one of the included studies, the implant survival rate decreased from 83%±11.1% (at the end of 5 years) to 67.6%±14.8% after 8 years of follow-up (p<0.01) when a metal acrylic prosthesis (35 participants, 252 implants with 48.8% participants receiving immediately loaded prostheses) was given and decreased from 93.7±5.5% (at the end of 5 years) to 88±8.8% after 8 years of follow-up when zirconia prosthesis (21 participants, 200 implants with 96.2% participants undergoing delayed loading protocol) was given.[22]

None of the CD studies reported the effect of prosthesis on the residual alveolar ridge morphology. MBL was evaluated in 3 of the included studies (199 participants, 1396 implants).[21,23,25] MBL in IODs (119 participants, 744 implants) was reported as ≤ 1 mm at the end of 5 years when rehabilitated using the all-on-four (with delayed loading) concept, with angulated implants showing slightly more but statistically similar (p>0.05) MBL (0.8 ± 0.4 mm) than straight implants (0.7 ±0.2 mm).[21,23] In IFPs (80 participants, 1052 implants), MBL was reported to be ≥ 3mm when the delayed loading protocol was adopted.[21,25]

While the loss of retention (mandibular > maxillary) amongst 639,[11-13,19] pain/discomfort while wearing the prosthesis amongst 347 participants,[13,19] and fracture of the prosthesis (maxillary> mandibular) amongst 292 participants[11,12] were found to be major prosthetic complications with CDs

between the follow-up period of 1–5 years, soft tissue complications were reported in the form of infection and ulcerations (amongst 178 participants) after 1 year of follow-up.[11] With implant-supported prostheses, the major prosthetic complications reported with IODs (69 patients, 344 implants with delayed loading protocol) were found to be implant failure, abutment screw loosening, and separation of artificial teeth from the denture base during the follow-up period of 1–5 years.[23] As far as IFPs (130 participants, 812 implants) were concerned, single tooth fractures occurred in 67.6% of patients and multiple tooth fractures occurred in 35.1% of participants undergoing delayed loading protocol, while abutment screw loosening occurred in 43% of the participants, chipping or fracture of the veneering material occurred in 25%, loss of access hole filling occurred in 11% of the participants, and prosthetic screw fracture occurred in 9% of the patients exposed to immediate loading protocol after 5 years of follow-up.[22-24]

The incidence of food accumulation and halitosis was higher in CDs and IFPs and less frequent with IODs.[11,21] The satisfaction regarding aesthetics varied from 43%, 72.1%, to 86.3% for CDs,[12,13,19] 95.6% for IODs,[22] and 94.97% for IFPs.[25] Masticatory ability (489 patients) for CDs showed greater improvement as the prosthesis usage time increased.[19,20] Whereas, amongst 292 patients, dissatisfaction with chewing ability was observed.[11,12] Overall satisfaction with phonetics was observed with all the types of prostheses delivered.[11-13,19,21,23]

DISCUSSION

The data assimilated from all the included studies indicated rejection of the null hypothesis of no difference between removable and fixed treatment outcomes (both clinically and radiographically) in completely edentulous patients, which is consistent with the study done by Martin-Ares *et al.*,[21] Dorj *et al.*,[26] and Kern *et al.*[27]

Adaptation to CD may vary individually. Some may adapt early, but for some, especially first-time users, this initial adaptation phase can prove to be more problematic. With increased follow-up visits to the dentist and adherence to maintenance protocols, the prosthesis can be viewed as a troublesome experience. This experience is worsened or severely affected by the lower retention achieved in mandibular dentures, as reported by Araujo *et al.*[12] The decreased surface area of the edentulous mandible (12.25 cm^2), increased soft tissue movement beneath the denture, constant application of force from the tongue and the cheek musculature, and little tolerance or adaptability to denture wearing due to age-related systemic factors can reduce the retention of mandibular CD.[28]

Dental implants may tolerate axial forces well, which can result in a greater survival rate of any implant-supported prosthesis as compared to a removable one.[29] Most patients often seek IOD treatment for the mandibular arch because of the above-mentioned shortcomings of a mandibular CD. However, the maintenance and complication rates are relatively high with IODs.[30] According to a study by Bakker *et al.*,[31] it was concluded that at first, the overall health of older people with an IOD is similar to that of older people with natural dentition, but with time, it may deteriorate and become similar to the overall health of older people wearing conventional dentures in the presence of any systemic illness such as diabetes, cardiovascular diseases, etc. Amidst all these negative aspects, a good survival rate of the IODs has been reported in the included studies, which are per the studies conducted by Chang *et al.*,[32] and Schwartz-Arad *et al.*,[33] irrespective of the attachment used and the loading protocol adopted.

The included studies in the present review concluded a cumulative implant survival rate (irrespective of individual arches) of more than 95% in IFPs, which aligns with the studies conducted by Chrcanovic *et al.*,[34] and Dierens *et al.*[35] The probable explanation for such a high implant survival rate of IFPs is that in all the included studies (except in one study by Sanchez-Torres *et al.*)[24], a good-density bone (Type 1 and Type 2) was considered. The bone of such quality has a high elastic modulus, making it more resistant to deformation and thus resulting in a greater implant survival rate.[36] The lower survival rate of IFPs rehabilitated with metal-acrylic resin prostheses, as observed in the included studies, could be attributed to prosthesis wear followed by framework fracture, which is more common in such prostheses as compared to zirconia prostheses.[22] This observation can be supported by studies done by Bozini *et al.*,[8] and Box *et al.* 2018.[37]

A key criterion of success following dental implants is marginal bone loss, which may be caused by inflammation of peri-implant tissue.[38] The inability to clean a fixed prosthesis as compared to a removable one may result in more plaque accumulation, leading to peri-implant inflammation and thus greater bone resorption. The current investigation discovered that patients with IFPs experienced more bone loss around implants than those with IODs.[21] These findings differ from the results of the studies conducted by Saravi *et al.*,[39] who concluded that the mean MBL was observed to be significantly greater in the IODs compared to the IFPs and that after 4 years, MBL values became statistically insignificant. This may be because an IOD prosthesis with posterior soft tissue may impart more stress on the underlying tissue, accelerating bone resorption two to three times faster.[40]

Higher rates of biological and mechanical failures such as screw loosening, screw fracture, and chipping of veneering material were observed in implant-supported prostheses in the included studies, the reason for which may be multifactorial, such as bone condition, type of prostheses given, and periodontal parameters.[25,36,41] Also, Malo *et al.* concluded that antagonist implant-supported complete-arch restorations tended to induce more mechanical complications, although this factor did not seem to affect long-term survival.[41]

Masticatory satisfaction was observed the least with CDs. One possible explanation is that implants have nine times less proprioception than natural teeth, and the loss of periodontal receptors may result in decreased sensory function while chewing, which in turn may increase the force of the bite.[42,43]

Due to the limited amount of accessible data, the current study was limited in that it did not contain any randomized control trials (RCTs). Furthermore, due to data limitations, exquisite studies on IODs could not be included, and the studies with the least risk of bias could not dominate the results of the study. Other than that, there were no high-quality investigations on residual ridge resorption brought on by CDs. In addition, fewer studies used radiographic analysis to correlate clinical results influencing the outcome of the post-treatment phase. A meta-analysis could not be carried out due to the heterogeneity present in the included studies. Therefore, further research is required to get more accurate results, particularly RCTs with longer follow-up periods that include post-treatment radiographic outcomes. Moreover, meta-analyses yield a more accurate and less biased estimate of clinical issues than other sources of information, making them the gold standard in evidence-based medicine.[44] As a result, further research of this kind will be required in the future to obtain a clearer image. Additionally, as stated before, zirconia prostheses tend to show fewer mechanical complications as compared to the metal-acrylic ones, but due to its high economic value, it is preferred less by the patients. Therefore, more research needs to be conducted in the future comparing these two.

CONCLUSION

Each prosthetic treatment possesses inherent shortcomings, precluding the designation of any as definitively superior. CDs have always been a prioritized choice for prostheses due to their lower economic investment. It can provide good patient satisfaction, but its service span is limited by increased post-treatment complaints, leading to decreased patient acceptance in the long term. Although IODs can provide better patient satisfaction, especially in the mandibular arch, as compared to CDs, they are still a removable treatment option, and the presence of posterior tissue coverage may impart bone resorption two to three times faster than that of CDs. The implant-supported prostheses pose inherent challenges, with their lifespan constrained by mechanical and biological factors. Despite this, more satisfaction and acceptance have been noted in a fixed one as it mimics natural dentition and does not require frequent removal by the patient.

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