Purpose: This study sought to determine the impact of oral rehabilitation (maxillofacial prosthetic intervention and oral hygiene education) on patients with maxillofacial defects' oral health-related Quality of Life (OHRQoL) and oral hygiene status, as well as to examine the relationship between these variables in these patients.

Methods: This study includes 30 maxillofacial patients who had treatment from April 2017 to March 2021. The Oral Health Impact Profile (OHIP) scores were designated as the OHRQoL scores. Age, the number of remaining teeth and occlusal supports, and occlusal units (OUs) were evaluated as patient-related factors influencing these variables in statistical analyses to compare the scores of "before" and "after" prosthetic therapy.

Results: Both oral rehabilitations have the potential to considerably raise OHIP scores. Age and OUs were found to significantly correlate with the change in OHIP scores. CRT had no discernible impact on OHIP.

Conclusions: There was no link between OHRQoL and oral hygiene conditions in individuals with maxillofacial abnormalities, despite the fact that oral rehabilitation strategies such maxillofacial prosthesis therapy and oral hygiene education would be highly effective.
INTRODUCTION:
Maxillofacial defects caused by ablative surgery for oral cancer, trauma, and deformity may affect facial appearance and oral functions such as mastication, articulation, and deglutition [1–4]. For the objective of functional and aesthetically recovering from these problems, maxillofacial prostheses or surgical reconstruction may be used [5]. The key considerations in deciding on the best reconstruction technique can include the magnitude of the defect, its location, and the surviving structures [6–9].

Maxillofacial prostheses have historically been used as non-surgical alternatives to surgical reconstruction and have been linked to improvements in oral function [1–4] and quality of life (QoL) [9–12]. Additionally, oral health-related quality of life (OHRQoL) has been defined as the patients' perception of their dental health and has been assessed in these patients [14,15]. Although maxillofacial prosthesis are a straightforward and non-surgical technique of restoration, it frequently takes several months to adapt to them, and during adaptation, mouth conditions are frequently seen to change.

Particularly after receiving treatments for oral cancer like resection, radiation, and chemotherapy, individuals with maxillofacial abnormalities frequently struggle to maintain and improve their oral health and hygiene. Based on these contexts, it has been emphasised that dental care and oral hygiene are crucial for preoperative and postoperative management [16,17]. In particular, residual teeth, ridge, and mucosa serve as the foundation for maxillofacial prosthesis, suggesting that the wellbeing of these tissues is essential for well operating maxillofacial prostheses. Additionally, it has been demonstrated that having more remaining teeth greatly improves mastication [8].

For the prevention of oral complications during hospitalization, professional oral care by dentists and dental hygienists as well as oral care by ward nurses are frequently offered [18]. Establishing oral self-care at home after hospital discharge is essential for preventing oral complications including caries, periodontitis, and mucositis and ensuring that maxillofacial prosthesis continue to function properly and that OHRQoL levels are high. Patients should receive proper oral hygiene guidelines in order to maintain good dental health. Some patients improved their oral hygiene after receiving education, particularly when it came to adjusting to their maxillofacial prostheses. The relationship between oral hygiene status and OHRQoL in patients with craniofacial abnormalities is still unknown, nevertheless.

The purpose of this study was to assess the impact of oral rehabilitation, including maxillofacial prosthesis therapy and oral hygiene teaching, on patients with maxillofacial defects' OHRQoL and oral hygiene status. Additionally, the relationship between these patients' oral hygiene conditions and OHRQoL was investigated, as well as the variables influencing these changes.

MATERIALS AND METHODS
Patients
This study included 30 patients who had maxillofacial abnormalities and had been using new maxillofacial prosthesis at the prosthodontic department of the researchers' organization from February 2017 to April 2021.

Following were the exclusion criteria
- Patients who were completely edentulous
- Patients with hearing disability and impairment in vision
- Patients who didn’t speak Gujarati.

Table1 Profiles of patients are summarized. There were anomalies in the maxilla and mandible in 20 and 4 cases, respectively, with one patient having deformities on both sides.
Table 1 shows patients' profile in detail.

<p>| | |</p>
<table>
<thead>
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<tbody>
<tr>
<td>Age of the patient</td>
<td>68 (63–75.6)</td>
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<tr>
<td>Remaining Teeth</td>
<td>15 (11–23.5)</td>
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<tr>
<td>Occlusal Supports</td>
<td>5 (1–8)</td>
</tr>
<tr>
<td>Occlusal units</td>
<td>2 (0–5)</td>
</tr>
<tr>
<td>Maxillary Defect</td>
<td>20</td>
</tr>
<tr>
<td>Mandibular Defect</td>
<td>4</td>
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How the maxillofacial prosthesis is made? What is the clinical procedure for it?

The Removable partial denture process was used to create the maxillofacial prosthetics. A quick, accurate impression was made using silicone rubber impression material on a separate tray. The wax trial denture was assessed following maxillomandibular jaw relation record utilizing metal framework. The occlusal evaluation and denture adjustment were done at the appointment for delivery of denture. These maxillofacial prostheses were created using composite resin teeth, a metal clasp, and a resin denture base. Comparing them to immediate surgical obturators was impossible (ISO).

Compilation of patients’ data

In this study, continuous variables were chosen as the factors influencing changes in OHRQoL and oral hygiene conditions, including the participants' age, the number of remaining teeth, occlusal units and the number of occlusal supports (OUs; Premolars which are in occlusion is referred as a one unit and same way occluding molars counts as two units, so Occlusal Units can vary from 0 to 12). Third molars were excluded from all the factors.

Statistical Analysis

The Wilcoxon signed rank test was used to statistically compare the "before" and "post" scores of OHIP. Wilcoxon rank sum test was applied to continuous variables in patients receiving radiation, chemotherapy, or CRT to compare the effects on OHRQoL and oral hygiene conditions. Utilizing Spearman's rank correlation coefficient, correlations between the OHIP scores and each factor (age, the quantity of remaining teeth and occlusal supports, and OUs) were also made. The significance level was fixed at 0.05 for all statistical analyses.

RESULTS

In Fig. 1, the data from "before OHIP" and "after OHIP" were shown. Between "before OHIP" and "after OHIP," there was a significant difference (P < 0.0001). It indicates that OHRQoL was enhanced with maxillofacial prosthesis therapy. Table 2 summarises the correlations between every factor (age, the number of remaining teeth and occlusal supports, and OUs) and the OHIP scores.

Evaluations of OHRQoL and oral hygiene condition Utilizing the Oral Health Impact Profile, OHRQoL was assessed (OHIP). An widely recognised self-administered questionnaire known as OHIP is used to assess OHRQoL [13,15,19]. Functional limitation (2 items), physical pain (2 items), psychological discomfort (2 items), psychological disability (2 items), social disability (2 items), and handicap (2 items) are the 7 subscales that they are divided into. Each item was scored on a rating range of 0 (never), 1 (hardly ever), 2,( occasionally), 3 (fairly often) 4 (very often), and higher OHIP aggregate scores indicated more OHRQoL impairment. Pre-OHIP scores were those obtained previous to maxillofacial prosthesis therapy. The scores classified as "post OHIP" were those obtained at least a month after fitting maxillofacial prosthesis.
The difference between "before OHIP" and "after OHIP" was statistically significant (Wilcoxon signed rank test, P < 0.0001). By using the Spearman's rank correlation coefficient, it was determined that there were statistically significant associations between increases in OHIP scores and age (P = 0.0291) and OUs (P = 0.0167). These indicate that OHRQoL tends to improve in younger individuals and patients with more OUs.

**DISCUSSION**

In the current study, we concentrated on OHRQoL, and findings unmistakably showed that maxillofacial prosthesis treatment might considerably improve OHRQoL assessed using OHIP. Through investigations showed that young patients and patients with more Occlusal Units, namely more supports on the molar and premolar area, could enhance OHRQoL more effectively. These findings may be corroborated by earlier research, which indicated that oral functions and quality of life may be influenced by age and residual dentition, particularly the number of OUs [8,20–24].

One of the varying elements impacting OHRQoL or QoL has been identified as radiotherapy [8,9,12]. However, our studies revealed that radiation was not a factor that might have an impact on OHRQoL. Postoperative radiation did not appear to have any negative effects on quality of life, according to Breeze et al.'s findings [25]. Similar to Breeze et al. in their trial, the majority of our patients in this one received radiotherapy as adjuvant therapy postoperatively.
Additionally, xerostomia, oral mucositis and microbial infections are the main side effects of radiation. Professional oral care has reportedly been shown to somewhat relieve these symptoms [16,26,27]. One of our key focuses in the current study, dental care before, during, and after radiotherapy, may be extremely important for minimizing oral problems and maintaining patients' OHRQoL.

Oral hygiene is extremely beneficial at preserving remaining teeth for maxillofacial prosthetics and oral functions, as was previously mentioned [16,17]. There is, however, little data on how oral hygiene training affects patients with craniofacial abnormalities' oral health. The current study shown that oral hygiene training, regardless of patient characteristics including age, the number of remaining teeth, and OUs, can dramatically enhance these patients' PCR scores after discharge. This finding suggests that teaching about oral hygiene can help establish at-home oral self-care. instruction also consisted the significance of maintaining residual teeth, which may have encouraged the patients to become more capable of taking care of themselves. However, to demonstrate the effectiveness of our strategy, well-controlled research must be required.

CONCLUSION
The results of the current study suggested that patients' OHRQoL may be enhanced by maxillofacial prosthesis treatment. OHRQoL improvements were connected with "age" and "OUs." Regardless of the patients' characteristics, oral hygiene training and treatment could enhance their oral hygiene status. For patients with maxillofacial abnormalities, prosthetic intervention and oral hygiene education should be addressed even if there was no association between OHRQoL and oral hygiene condition.

DECLARATION OF COMPETING INTEREST
There are no conflicts of interest for the work that has been submitted, according to the authors.

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