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Awareness of Maxillofacial Prosthetic Treatment Options in Patients with Head and Neck Cancer in Coastal Karnataka Population

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KEYWORDS

Head and Neck Neoplasms, Maxillofacial Prosthesis, Health Knowledge, Patient Education, Cross-Sectional Studies

ABSTRACT:

Introduction: Head and neck cancer (HNC) is a significant public health concern in coastal Karnataka, with many cases presenting at advanced stages due to poverty, illiteracy, and lack of access to affordable treatment. Maxillofacial prosthetics play a crucial role in the rehabilitation of these patients, but awareness levels among patients are often limited..

Objectives: To evaluate the awareness and knowledge of various maxillofacial prosthetic treatment options among patients diagnosed with head and neck cancer in coastal Karnataka.

Methods A cross-sectional questionnaire-based survey was conducted among 60 patients visiting the Outpatient Unit of the Department of Oral and Maxillofacial Surgery, Oral Medicine and Radiology and Oral Pathology. The questionnaire assessed general knowledge about maxillofacial prosthetics, perception of benefits, and barriers to treatment. Ethical approval from the institution and informed consent were obtained from the participants..

Results: The study found that while 75% of participants were aware that facial parts could be replaced with artificial materials, of these only 10% knew about the role of prosthodontists. Financial considerations and lack of awareness were identified as significant barriers to treatment. Most participants (86.7%) felt that healthcare providers should educate patients about all available treatment options.

Conclusions: There is a significant gap in patient awareness regarding maxillofacial prosthetic treatment options. Enhancing patient education and improving access to information can lead to better treatment acceptance and improved quality of life for patients with head and neck cancer. Future efforts should focus on targeted educational interventions to bridge this knowledge gap.

1. Introduction

Head and neck cancer (HNC) is a significant public health concern, particularly in regions like coastal Karnataka. Globally, 57.5% of HNC cases originate from Asia, and in India, HNC accounts for 30% of all cancers in males and 11% to 16% in females 1. In coastal Karnataka, the prevalence of HNC mirrors these national trends, with a substantial number of cases presenting at advanced stages due to factors such as poverty, illiteracy, and lack of access to affordable treatment facilities. These challenges exacerbate the impact of HNC on patients' quality of life, necessitating comprehensive rehabilitation strategies 2.

Maxillofacial prosthetics play a crucial role in the rehabilitation of patients with head and neck cancer. Surgical resection, trauma, and congenital illnesses often

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result in significant facial disfigurements, functional difficulties, and psychological consequences 3. Prosthetic treatment modalities, including surgical and prosthetic interventions, are essential for restoring aesthetic, functional, and psychological well-being. Despite advancements in surgical techniques, many significant defects cannot be satisfactorily addressed through surgery alone, highlighting the importance of maxillofacial prosthetic rehabilitation. These prosthetic devices not only improve patients' quality of life but also address their aesthetic, functional, and psychological needs 4.

Patient awareness is a critical factor influencing treatment decisions and outcomes in maxillofacial prosthetics. The effectiveness of any prosthetic treatment depends on psychological factors such as presentation, satisfaction, hygiene, comfort, function, and aesthetics. Patient satisfaction with prosthetic therapy is closely related to their overall body image, oral health-related quality of life, self-esteem, and self-concept 5. However, awareness levels regarding the availability and benefits of maxillofacial prosthetics vary significantly. In developed countries, populations are generally more aware of the different types of prostheses due to advancements in oral and maxillofacial healthcare 6. In contrast, in developing countries like India, awareness is often limited, particularly in regions with lower economic status and education levels, where awareness is low in oral hygiene practices. This lack of awareness can deprive patients of the benefits of maxillofacial prosthetics, compelling them to live with poor quality of life despite existing facilities.

Despite the importance of patient awareness in treatment decisions and outcomes, there is a significant knowledge gap regarding awareness levels in specific populations, such as those in coastal Karnataka. Studies in India have explored patients' knowledge of tooth replacement options and preferences, but no investigations have specifically addressed the awareness and barriers to maxillofacial prosthetic treatment options among patients with head and neck cancer in this region. This gap in knowledge underscores the need to evaluate patient awareness and identify potential barriers to accessing maxillofacial prosthetic rehabilitation thereby improving the quality of life. Understanding these factors is essential for improving patient outcomes and ensuring that all individuals, regardless of their socioeconomic status, can benefit from advances in maxillofacial prosthetics. Thus this study aimed to evaluate the awareness and knowledge of various maxillofacial prosthetic treatment options among patients diagnosed with head and neck cancer in coastal Karnataka.

2. Methods

Study Design

This study employed a cross-sectional questionnaire-based survey design. The primary objective was to evaluate the awareness and knowledge of various maxillofacial prosthetic treatment options among patients diagnosed with head and neck cancer in coastal Karnataka. The study was conducted over a defined period, capturing data from patients visiting the Outpatient Unit of the Department of Oral and Maxillofacial Surgery.

Sample Selection

The study population were recruited from participants visiting the Outpatient Unit of the Department of Oral and Maxillofacial Surgery, Oral Medicine and radiology who are suspected or confirmed cases of head and neck cancer.

Inclusion Criteria

- Age: Above 18 years of age
- Sufficient cognitive ability and adequate level of literacy to complete the questionnaire
- Patients who are suspected or confirmed cases of head and neck cancer

Exclusion Criteria

- Patients with minimal invasive cancer without any requirement for prosthetic rehabilitation
- Patients with difficulty in understanding the consent process or the questionnaire

Withdrawal Criteria

- Participants will be allowed to withdraw at any point of time if they wish to.

Questionnaire Development

The questionnaire used in this study consisted of 15 questions designed to assess the awareness and knowledge of various maxillofacial prosthetic treatment

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options. The questions cover topics such as general knowledge about maxillofacial prosthetics, perception of the benefits and limitations of these treatments, and sources of information regarding prosthetic options. The questionnaire has been validated to ensure it accurately measures the intended constructs and is comprehensible to the target population. Following questions were asked to analyse the knowledge and awareness.

1. Are you aware that any part or the whole face can be replaced with an artificial material?
2. Are you aware that teeth or oral structures can be replaced with an artificial material?
3. Do you know that prosthodontist, a dental specialist, deals with maxillofacial prosthesis?
4. Have you heard of maxillofacial prosthodontics branch of dentistry which deals with the restoration of maxillofacial defects with an artificial substitute?
5. Are you aware that if the eye lost it can be replaced with artificial prosthesis?
6. Are you aware that if the ear is lost it can be replaced with artificial prosthesis?
7. Do you know that dental implants can also be used to replace to replace teeth and oral sturctures ?
8. Have you been informed or made aware that post-surgery, you will be referred to a dental specialist for further rehabilitation?
9. Do you think finance/cost of treatment would be a significant barrier in getting a post-surgical prosthetic treatment done?
10. Do you think lack of information or awareness among the population is a barrier in getting post-surgical maxillofacial treatment?
11. Do you think healthcare providers should educate the patients of all available treatment options for a particular condition irrespective of their socioeconomic backgrounds?
12. Is access to such advanced maxillofacial prosthesis / implant center's is a significant barrier in seeking such post-surgical prosthetic rehabilitation?

All participants were informed about the study's purpose, procedures, potential risks, and benefits. Informed consent was obtained from all prospective subjects who agree to participate in the study. The consent process involved a detailed explanation of the study, ensuring that participants understand their rights to withdraw at any time without any penalty. Participants who have difficulty in understanding the consent process or the questionnaire was excluded to ensure the integrity of the study and the validity of the data collected.

Data Collection

Data was collected through face-to-face interviews conducted by trained researchers. The interviews was conducted in a private setting to ensure confidentiality and comfort for the participants. The questionnaire was administered in the local language to facilitate better understanding and accurate responses. Data was recorded on standardized forms and later entered into a computerized database for analysis.

Statistical Analysis

The responses collected from the patients were initially compiled and tabulated using Microsoft Excel for data organization and preliminary review. Descriptive statistical analysis was subsequently performed using IBM SPSS Statistics for Windows, Version 25.0 (IBM Corp., Armonk, NY). Frequencies and percentages were calculated for categorical variables, while means and standard deviations were computed for continuous variables, as appropriate. The statistical analysis aimed to summarize the demographic characteristics of the participants and the distribution of responses to the survey questions.

3. Results

The study population consisted of 60 participants, comprising 28 females and 32 males. The mean age of the female participants was 44.68 years (SD = 14.40), with ages ranging from 18 to 70 years. The male participants had a slightly higher mean age of 45.25 years (SD = 15.96), with a minimum age of 20 years and a maximum of 75 years. These age distributions reflect a relatively balanced and mature sample, suitable for the analysis undertaken in this survey-based study [Figure 1].

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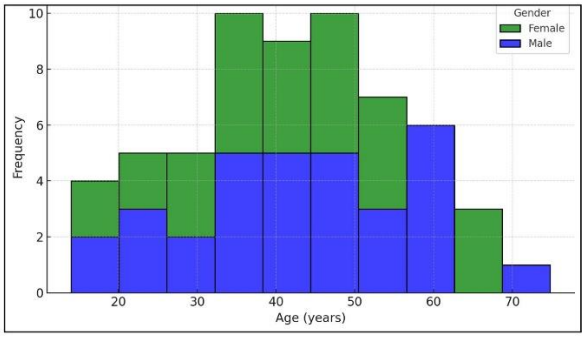

Figure 1 Age wise distribution of Participants involved in the study

The survey revealed varying levels of awareness and perception among participants regarding maxillofacial prosthetic rehabilitation. While a majority (75%) were aware that parts or the whole face can be replaced with artificial materials, and 80% recognized that teeth or oral structures could be similarly replaced, only 10% were aware that a prosthodontist is the specialist responsible for such rehabilitation and of the existence of the maxillofacial prosthodontics branch. Awareness about specific prosthetic replacements was limited, with only 36.7% aware that an eye or ear could be replaced with artificial prostheses. All participants (100%) acknowledged that dental implants can be used to replace oral structures and agreed that healthcare providers should educate patients on treatment options regardless of socioeconomic background. A significant portion (63.3%) reported being informed about specialist referral post-surgery, while 86.7% identified cost and lack of awareness as barriers to treatment. Additionally, 76.7% felt that access to advanced treatment centers posed a challenge. These findings underscore a notable gap in public awareness and highlight the need for greater education and accessibility in maxillofacial prosthetic services [Figure 2].

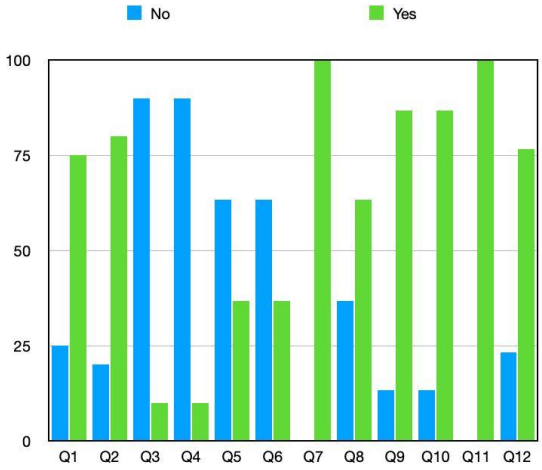

Figure 2 Response of Participants to the Questions

4. Discussion

This study represents a pioneering effort in assessing the awareness of maxillofacial prosthetic treatment options among patients with head and neck cancer (HNC) in coastal Karnataka. To our knowledge, this is the first study to specifically focus on this underserved and understudied population, highlighting the critical need for targeted research in this region. Understanding patient perspectives is fundamentally different from practitioner perspectives, as patients often have limited exposure to the full spectrum of available treatment options and may face unique barriers in accessing and utilizing these services. Practitioners, on the other hand, are typically well-versed in the latest advancements and clinical guidelines, which may not always align with the realities faced by patients. Therefore, it is essential to gather data directly from patients to gain a comprehensive understanding of their awareness levels and the factors influencing their treatment decisions. This patient-centric approach not only provides valuable insights into the current state of awareness but also underscores the importance of addressing knowledge gaps to improve patient outcomes and overall quality of life.

The findings of our study on patient awareness of maxillofacial prosthetic treatment options in coastal Karnataka reveal significant discrepancies when compared to existing studies on practitioner and student awareness. For instance, Kakkad et al. demonstrated that dental professionals had a higher mean knowledge score

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compared to medical professionals, with a statistically significant difference 7. This highlights the variance in awareness levels even among different types of healthcare providers. Similarly, Shreya and Ramesh's study on undergraduate dental students showed that 97.6% of participants had an understanding of maxillofacial defects, and 89.5% were aware of the treatment modalities involved 8. However, our findings indicate that patients' understanding of these options is significantly different and often less comprehensive than that of practitioners and students. This discrepancy underscores the critical gap in knowledge transfer from healthcare providers to patients. While practitioners and students may have access to detailed information through their training and professional exposure, patients often lack this depth of understanding. This gap can lead to inadequate decision-making regarding their treatment options and may hinder the effective utilization of available prosthetic services. Identifying these communication gaps is essential for developing targeted educational interventions that bridge the knowledge divide, ensuring that patients are well-informed and can actively participate in their treatment planning.

The findings of our study on patient awareness and decision-making regarding maxillofacial prosthetic treatment options in coastal Karnataka underscore the critical role of patient education and awareness in healthcare decision-making. Similar to studies in other medical fields, our research highlights the importance of patient education in influencing treatment acceptance and outcomes. For instance, a study by Kalra et al. conducted in the Faridabad region evaluated factors influencing patients' decision-making regarding prosthodontic treatment. Their study found that while most patients accepted the proposed treatment, financial considerations and the need for surgery were significant deterrents 9. This aligns with our findings, where patients' awareness and acceptance of maxillofacial prosthetic options were influenced by their understanding of the benefits and potential risks.

General health literacy principles emphasize the importance of clear communication and accessible information in empowering patients to make informed decisions about their healthcare 10. In the context of maxillofacial prosthetics, patients need to understand the available treatment options, the benefits and limitations of each, and the potential impact on their quality of life. Health literacy also involves addressing barriers such as cost and accessibility, which can significantly influence patient decisions. Our study suggests that improving health literacy in maxillofacial prosthetics could enhance patient awareness and acceptance of these treatments, leading to better health outcomes.

Furthermore, the principles of health literacy can be applied to maxillofacial prosthetic awareness by developing targeted educational materials and interventions. These efforts should aim to bridge the knowledge gap between healthcare providers and patients, ensuring that patients are well-informed about their treatment options. This approach not only empowers patients to make better decisions but also fosters a collaborative relationship between patients and healthcare providers, ultimately improving the overall quality of care.

CONCLUSION

This study underscores the critical need for enhanced patient education and awareness regarding maxillofacial prosthetic treatment options among patients with head and neck cancer in coastal Karnataka. The findings reveal significant gaps in patient knowledge, particularly concerning the availability and benefits of specialized maxillofacial prosthetics. Financial constraints, lack of awareness, and limited access to advanced treatment centers emerged as major barriers to treatment acceptance. Addressing these gaps through targeted educational interventions and improved communication from healthcare providers can empower patients to make more informed decisions, ultimately improving treatment outcomes and quality of life. Future research should focus on developing and implementing effective educational strategies to bridge the knowledge divide and ensure that all patients, regardless of their socioeconomic status, can benefit from advances in maxillofacial prosthetics

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Journal of Chemical Health Risks

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