

Assessment Of Awareness And Knowledge Of Maxillofacial Prosthesis Among Dental Practitioners And Postgraduates: A Questionnaire Study

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Abstract:

Maxillofacial prosthetics is a specialized branch of prosthodontics that involves the rehabilitation of patients with defects or disabilities due to disease, trauma, or congenital conditions affecting the head and neck region. The primary goal is to restore the form and function of affected areas, improving the patient's quality of life.

Aim: To assess the knowledge and awareness of maxillofacial prosthesis among dental practitioners and dental postgraduate students.

Materials and Methods: cross-sectional questionnaire based online survey was undertaken at C.S.M.S.S. Dental College and Hospital, Chhatrapati Sambhajnagar, Maharashtra, India between March 2024 and September 2024 amongst dental postgraduate students and dental practitioners across India. The questionnaire consisted of 14 questions which evaluated their awareness towards maxillofacial prosthetic dentistry. The Chi-square test was used for statistical analysis.

Results: A total 102 responses were obtained in this study, out of which 64 (62.7%) were dental postgraduates students, 9(8.8%) dental practitioners and 20 (19.6%) were dental practitioners and teaching faculty 12% were undergraduate student.92(91.1%) participants were know about maxillofacial prosthesis. 92(91.1%) were aware about maxillofacial prosthesis. 9(8.9%) were unaware about maxillofacial prosthesis. (Fig.2) 85(83.3%) responded both (extraoral and intraoral prosthesis) are there. 4(3.9%) responded only intraoral prosthesis are there.11(10.8%) responded only extraoral prosthesis are there. While 6(5.9%) are not aware about the maxillofacial prosthesis. (Fig.3) 73%(73.7) responded silicone is commonly used for maxillofacial prosthesis. 27% responded acrylic resin is commonly used while 6% responded polyurethane is used. 8% responded other materials are used.(Fig. 4).92% responded they vare using the new technologies(CAD CAM) while remaining 8% responded they are not using any recent technology.

Conclusion: The majority of the participants were aware of digital technology, which yields good results.Overall, while the current level of awareness and knowledge among dental postgraduate students is commendable, there is a clear need for enhancements in training, resources, and curriculum to fully prepare future dental professionals in the field of maxillofacial prosthetics.

Keywords: Maxillofacial prosthesis, Knowledge, Awareness, Maxillofacial prosthodontics.

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I. Introduction

Maxillofacial abnormalities cause embarrassment to individuals and can have detrimental effects on their physical and mental well-being, leading to severe mental, familial, and social issues.¹ These deformities might be acquired, brought on by pathologies such necrotising illnesses, oncosurgeries, or trauma, or congenital, brought on by malformation and developmental abnormalities.²

When appropriate, plastic surgery, also known as autoplasmic surgery, is often recommended over alloplastic or artificial reconstruction.^{3,4} However, a number of acquired and congenital deficiencies still need to be restored with a prosthetic.³ Maxillofacial prosthesis, first established by Ackerman in 1953, is the area of dentistry that fixes and replaces facial features artificially following trauma or surgery.⁵ The use of prosthetics to address congenital craniofacial defects in an attempt to enhance facial attractiveness was not included in this definition.⁶ Artificial substitutes for intraoral and extraoral structures, including the eyes, ears, nose, maxilla,

mandible, oesophagus, cranial bones, and palate, are implanted during maxillofacial reconstruction.⁷ Depending on the patient's facial structure, silicone or acrylic resin are typically used to manufacture maxillofacial prosthesis.⁸ Numerous structures, including osseointegrated implants,⁹ the residual skin, whether or not it is adhered to,¹⁰ bodily cavities,¹¹ and teeth, support and hold the prostheses in place.¹²

There is a dearth of research on the maxillofacial prosthesis among Indian dentists. Therefore, the purpose of this study was to assess and understand the postgraduate students' and dental practitioners' knowledge, awareness, and practices about the maxillofacial prosthetics.

II. Materials And Methods

A cross-sectional questionnaire based online survey using Google forms was undertaken at C.S.M.S.S. Dental College and Hospital, Chhatrapati Sambhajinagar, Maharashtra, India between March 2024 and August 2024 amongst dental postgraduate students, dental practitioners and undergraduate students across India. The questionnaire consisted of 15 questions which evaluated their awareness towards maxillofacial prosthetics, their knowledge and practices towards maxillofacial prosthetics.

Study Design: Cross-sectional study

Study Location: C.S.M.S.S. Dental College, Chhatrapati Sambhajinagar

Study Duration: March 2024 to September 2024

Sample size: 102

Sample size calculation: Sample size was estimated using the formula $N = \frac{4 \times PQ}{D^2}$

N= sample size, P= highest prevalence, Q=100-P, D= acceptable error.

Therefore, the sample size calculated was 102. The study included a total of 102 respondents.

Inclusion and Exclusion criteria: The study included postgraduate students, teaching faculties from different dental institutions and private practitioners and undergraduate dental students. Along with the questionnaire, informed consent was obtained from participants via Google Forms. Participants who refused consent to participate in the study were excluded.

Procedure Methodology:

A written informed consent was obtained from all the participants, a well-designed questionnaire was used to collect the data. The questionnaire included the socio-demographic characteristics of the respondents, including age, designation followed by 15 multiple choice questions regarding the knowledge and awareness of maxillofacial prosthetics. The Google Form was distributed via the WhatsApp and Telegram groups to all the study participants.

A total of 102 responses were obtained in this study, out of which 64% were dental postgraduate students, 9% dental practitioners and 20% were dental practitioner and teaching faculty and 12% were undergraduate students. Data collection, compilation, and management were made easier with the use of an online questionnaire. A further advantage was that participants may take part in the study whenever it was convenient for them as it was online. The collected data was readily available right away and could be quickly imported into spreadsheets or specialized statistical tools for additional analysis. To assess the responses, Chi-square test was used for statistical analysis.

III. Results:

A total 102 responses were obtained in this study, out of which 64 were dental postgraduate students, 9 dental practitioners and 20 were dental practitioners and teaching faculty, 12% were undergraduate student, 92% participants were know about maxillofacial prosthesis.

Designation

102 responses

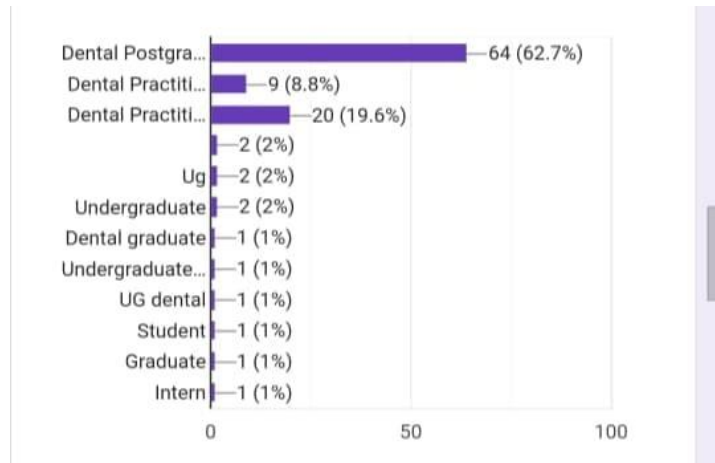


Figure 1

92(91.1%) were aware about maxillofacial prosthesis. 9(8.9%) were unaware about maxillofacial prosthesis. (Fig.2)

Do you know what a maxillofacial prosthesis is?
101 responses

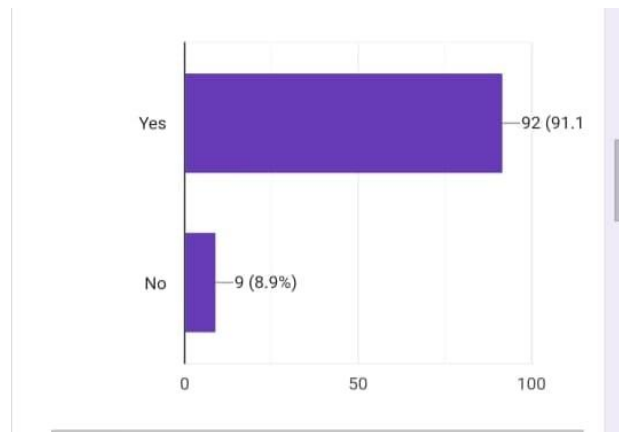


Figure 2

85(83.3%) responded both (extraoral and intraoral prosthesis) are there. 4(3.9%) responded only intraoral prosthesis are there. 11(10.8%) responded only extraoral prosthesis are there. While 6(5.9%) are not aware about the maxillofacial prosthesis. (Fig.3)

Which kinds of maxillofacial prostheses are there?
102 responses

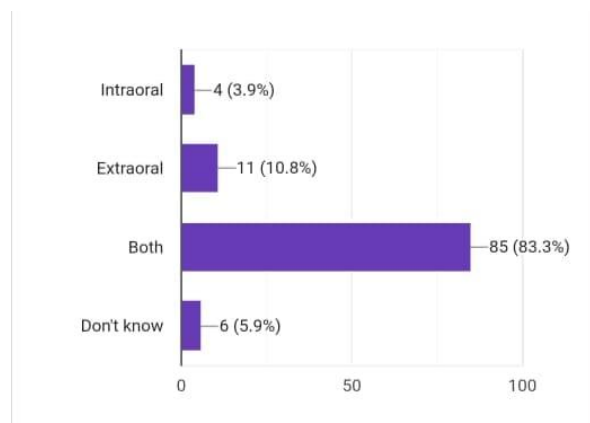


Figure 3

73% (73.7) responded silicone is commonly used for maxillofacial prosthesis. 27% responded acrylic resin is commonly used while 6% responded polyurethane is used. 8% responded other materials are used.(Fig. 4)

What materials do you commonly use for maxillofacial prosthesis?

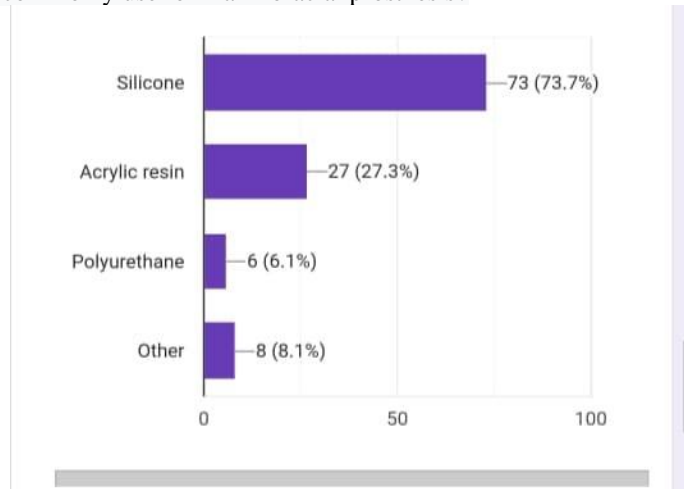


Fig. 4

92%9 (91.1) responded yes while 9(8.9%) responded no. (Fig. 5)

Have you incorporated any new technologies (e.g., 3D printing, digital scanning) in your practice for maxillofacial prosthetics?

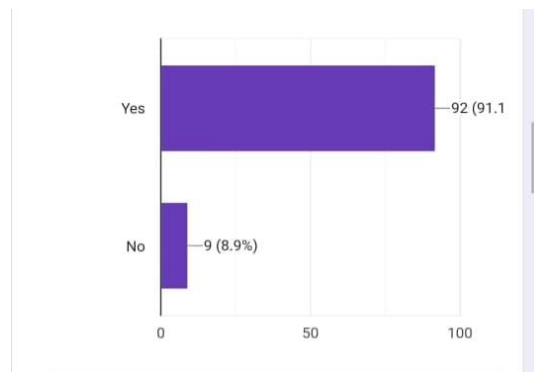


Fig. 5

64% (64.3%) responded we need replace the maxillofacial prosthesis only when necessary. 23% (23.5%) responded we need to replace after 2-3 years. While 11% reacted we need to replace it every 6 months and 5% (5.1%) reacted we need to replace it annually. (Fig. 6)

How often do you update or replace maxillofacial prosthesis for your patients?

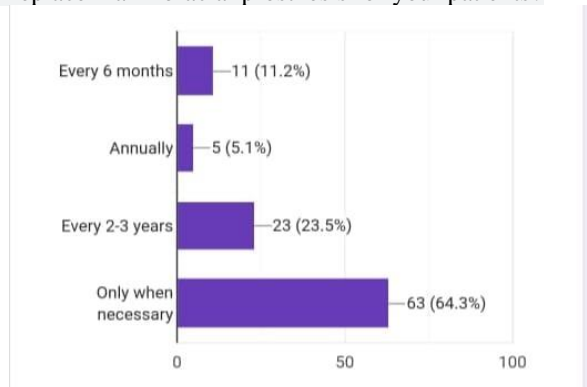


Fig.6

IV. Discussion:

The impact of facial deformities on a patient's life is significantly larger since they impair basic bodily processes like breathing, speaking, chewing, and taste. Above all, a person's psychosocial life is impacted by facial flaws. Treating the individual rather than just the flaw should be the main goal.¹³

Maxillofacial prosthodontics is a better option than reconstructive surgery in certain cases, such as those involving elderly patients, greater defects, reduced blood flow from radiation exposure, and sick patients. Given that it is a more cosmetic and less intrusive treatment than surgery, prosthetic rehabilitation offers several advantages over the latter.¹⁴

Such patients are treated using a multidisciplinary approach. Prior to surgery, prosthodontics plays a crucial role in helping the surgeon recover by fabricating surgical stents, which support the surgeon's prosthetic.¹⁵ The use of CAD/CAM technology for obtaining impressions has simplified and improved the accuracy of treatment planning. Additionally, implants help keep maxillofacial prosthesis in place.¹⁶

This article helps to assess the knowledge among the dental professionals and dental postgraduates about the prosthetic rehabilitation of the defect. For amelioration of such patient, cognizance of the new techniques and treatment options is necessary.

With the advent of technology, patients with maxillofacial defects now have an alternative to traditional impression techniques: 3-D computer-aided design (CAD) and computer-aided manufacturing (CAM), often known as rapid prototyping (RP). The doctor can replicate the missing portion pretty similarly with the help of this innovation. The limitations of the traditional method are overcome by CAD/CAM. When asked about CAD/CAM technology, a large number of research participants were not aware of this invention. It is necessary to recognise such beneficial progress.¹⁷

This study aids in our conclusion that, although while practitioners are aware of prosthetic treatment options, they should also take into account more recent developments. The most crucial thing is for patients to understand their options for rehabilitation in order to improve their quality of life.

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