

Awareness and Knowledge of Maxillofacial Prostheses Among Dental Practitioners and Students

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ABSTRACT

Objectives: The aim of the study was to determine the awareness and knowledge of maxillofacial prostheses among dental students and house officers in a Tertiary Dental Healthcare facility in Islamabad, Pakistan.

Materials and Methods: A cross-sectional study was conducted on 300 dental students and dental house officers at a Prosthodontics Department of a private dental college in Islamabad from August 2022 to October 2022 after obtaining approval from the Institutional Review Board. Sampling was done using a non-probability consecutive sampling technique. Data collection involved questioning the participants through a questionnaire designed for this study. SPSS V-25 was used to analyze data.

Results: Out of 300 participants 181 (60.3%) participants were BDS students while 119 (39.7%) were dental house officers in this study. 80.7% of students and house officers were aware of the aspects of maxillofacial prosthodontics including the scope and design. Social media proved a popular aid for the participants to gain insight [200 (66.7%)] followed by information gathered from other dentists which was 52 (17.3%). Participants were not completely aware of the different sources and types of maxillofacial prostheses.

Conclusion: House officers and dental students are not completely aware of various aspects of maxillofacial prostheses which include the types and identification of prostheses, the role of the Prosthodontist, the rehabilitation of the patients, and referring patients to a hospital.

Keywords: Awareness, Dental Students, House Officers, Maxillofacial Prostheses, Maxillofacial Rehabilitation

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INTRODUCTION

Prosthetic rehabilitation using maxillofacial prostheses has long been used for providing patients with a reliable solution to their aesthetic defects because due to extensive loss of tissue, surgical reconstruction cannot be used as a stand-alone option for treating large facial defects.^{1,2} Facial defects demand an extensive solution. Restoration of large facial defects is challenging as it requires choosing between surgical reconstruction and prosthetic restoration.^{3,4}

Acid attack burn cases, vehicle accidents, and oral carcinoma cases needing extensive tissue removal and rehabilitation of the defective parts with prostheses,^{5,6} are increasing day by day in countries like Pakistan. Patients require extensive surgical procedures in such cases but it's not possible to restore the large tissue defects by only surgical means. Here comes the role of maxillofacial prosthodontics in restoring craniofacial and maxillofacial defects with dental prostheses. Dental prostheses not only restore the aesthetics but restore the function as well.^{7,8} In addition, the restoration may be readily removed to allow evaluation of the health of the underlying tissue.⁹

Maxillofacial defect restoration involves a complex approach by a team of multidisciplinary specialists to tackle the various trials posed. Rehabilitation of maxillofacial deformities is a challenging and skill-based task, it involves many disciplines working together for the betterment of the patient.¹⁰ However more often than not, a prosthodontist is not a member of the tumor board and lack of consultation after surgery severely affects the rehabilitation process. There is a perceived need to bring awareness among surgeons and physicians and major interprofessional initiatives were deemed necessary to improve this collaboration.^{11,12}

Local literature in Pakistan is present but it mainly contributed to treatments and methods provided to patients for rehabilitation. This literature is insufficient regarding the major exposure of maxillofacial prosthetic rehabilitation in our young dental students and house officers and is basically creating a research gap. The other important aspect of the study is to contribute to the spread of information and to improve the proficiency of clinicians and students. Prosthodontists are the Dental Specialists dealing with the rehabilitation of maxillofacial defect in patients and Prosthodontics is

the Dental Specialty that mainly deals with these cases. With this study, we will be able to increase the level of cognition of our dental students and house officers about multiple options available and they will be able to refer the patients properly to concerned dental departments and accordingly, they will be able to provide proper care and treatment to patients.¹³

This study aims to assess the level of cognition of dental students and house officers in multiple facets of maxillofacial prosthetic rehabilitation.

The rationale of this study is to determine the awareness and knowledge of dental students and house officers who are involved in multiple aspects of maxillofacial prosthetic rehabilitation in a local dental healthcare facility in Islamabad, Pakistan. The results of this study will be useful to take initiatives to further enhance the exposure regarding this field. This study suggests a need for enhanced training and education to improve the exposure of dental students and practitioners. The dental students and house officers will be able to refer the patients properly to concerned dental departments and accordingly, they will be able to provide proper care and treatment to patients.

MATERIALS AND METHODS

This cross-sectional study was performed at Islamic International Dental College and Hospital Islamabad from August 2022 to October 2022 after obtaining approval from the Institutional Review Board. A total of 300 participants participated in the study. Sampling was done using a non-probability consecutive sampling technique. Only final-year students and Dental House Officers currently enrolled in their respective programs were included as a part of this study. Other students and dentists were not considered.

A questionnaire was adapted from sources.¹³ The reliability of the questionnaire was found to be Cronbach's Alpha of 0.89. A questionnaire-based approach already piloted by 13 Participants, consisted of two parts. The first part of the questionnaire included sociodemographic data (age, gender, educational status); the second part of the questionnaire consisted of questions to assess the knowledge and awareness of participants about various aspects of maxillofacial prostheses. The study included dental students and house officers at Islamic International

Dental College and Hospital Islamabad and excluded consultants, postgraduate residents, and demonstrators.

The analysis of data was done by using SPSS V-25. Percentage and frequency were calculated for all the data concocted. Mean and standard deviation were calculated for the Age of the study participants. Data normality was assessed using the Shapiro-Wilk test. This showed a parametric distribution of data. The Chi-square test was performed to deduce a statistical significance whose value was set as 0.05. Phi and Cramer’s test was performed to compare a set of knowledge between dental students and house officers.

RESULTS

A total of 300 participants participated in the study of which 127 (42.3%) were male and 173 (57.7%) were female. The age of the participants ranged from 18 to 28 years with a mean of 22.3 years. 181 (60.3%) participants were BDS students while 119 (39.7%) were house officers.

Table 1 shows that out of the total participants, 242 (80.75%) were aware of maxillofacial prosthodontics and 58 (19.3%) were unaware. Their main source of knowledge was social media 200 (66.7%) followed by other dental colleagues 52 (17.3%) depicting how internet sources play an active role in today’s learning.

Table 1: Results Showing the Total Percentage of Aware and Unaware Participants and Showing Results of Source of Knowledge.

		Frequency
Topic Awareness	Aware	242 (80.7%)
	Unaware	58 (19.3%)
Source of Knowledge	Social media	200 (66.7%)
	Books	36 (12%)
	Friends	12 (4%)
	Dentists	52 (17.3%)

Table 2 shows the total percentage of all aspects of a study showing that overall 80.7% of the BDS students and house officers were aware of this field of prosthodontics. Their main source of knowledge was social media followed by other dentist colleagues. House Officers demonstrated a far better knowledge regarding the maxillofacial prostheses as compared to the BDS students.

Table 2: Awareness Level of House Officers and Dental Students about Various Aspects of Maxillofacial Prostheses

Variable			
Participants x Type of Defect	House officer	Aware	107 (89.9%)
		Unaware	12 (10.1%)
	Dental student	Aware	135 (74.5%)
		Unaware	46 (25.5%)
Participants x Name of Prosthesis	House officer	Nasal	47 (43.9%)
		Ocular	29 (27.1%)
		Auricular	31 (28.9%)
	Dental student	Nasal	70 (51%)
		Ocular	37 (27%)
		Auricular	30 (22%)
Participants x Source of information	House officer	Social media	72 (67.2%)
		Books	19 (17.7%)
		Friends	42 (39.2%)
		Dentists	9 (8.4%)
	Dental student	Social media	102 (74.4%)
		Books	8 (5.8%)
		Friends	22 (16.2%)
		Dentists	5 (3.6%)
Participants x knowledge that these prosthetics are given by a prosthodontist	House officer	Aware	99 (92.5%)
		Unaware	8 (7.5%)
	Dental student	Aware	117 (85.4%)
		Unaware	20 (14.5%)
Participants x dealing with the rehab of such patients	House officer	Yes	38 (35.5%)
		No	69 (64.4%)
	Dental student	Yes	34 (24.8%)
		No	103 (75.1%)
Participants x referring such patients to hospitals for maxillofacial defects	House officer	Yes	22 (20.9%)
		No	83 (79.1%)
	Dental student	Yes	6 (4.3%)
		No	131 (95.6%)
Participants x referral for the type of prosthesis	House officer	Nasal	28 (84.8%)
		Ocular	3 (9.1%)
		Auricular	2 (6.1%)
	Dental student	Nasal	3 (100%)
		Ocular	0 (0%)
		Auricular	0 (0%)

Table 3 shows the statistical significance of different aspects of maxillofacial prostheses which includes the types and identification of prostheses, the role of the prosthodontist, the rehabilitation of the patients, and, referring patients to a hospital.

Table 3: Results Showing Statistical Significance between House Officers and Dental Students

	Chi-Square Value	Phi and Cramer's Value
Participants x the type of defect	0.06	0.06
Participants x the name of the prostheses	0.60	0.60
Participants x having knowledge that these prosthetics are given by a prosthodontist	0.00	0.00
Participants x dealing with the rehab of such patients	0.01	0.01
Participants x referring such patients to hospitals for maxillofacial defects	0.00	0.00
Participants x referral for the type of prosthesis	0.00	0.00

A chi-square test was performed to deduce a statistical significance whose value was set as 0.05. The results concluded that a statistical significance was observed when comparing the participants with the knowledge that maxillofacial prostheses are prescribed by a prosthodontist, denoting that an association exists between the BDS students and house officers in their knowledge. Considering the rehabilitation of these patients, variance was observed between the participants. The remainder comparisons showed that statistical significance was absent and weak associations were noticed by the Phi and Cramer's Value denoting that a similar knowledge set existed between the BDS students and House Officers.

Fig-1 Shows that 181 house officers and 119 dental students participated in the study.

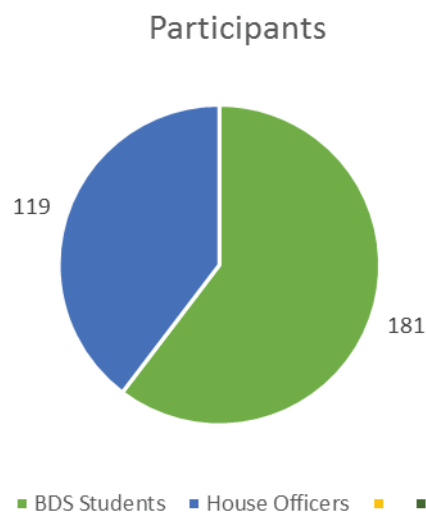


Fig-1. Pie Chart Showing the Number of Participants

Figure 2 shows a good percentage of house officers (89.9%) had knowledge and awareness regarding different types of maxillofacial prosthesis as compared to a lower percentage of BDS students (74.5%).

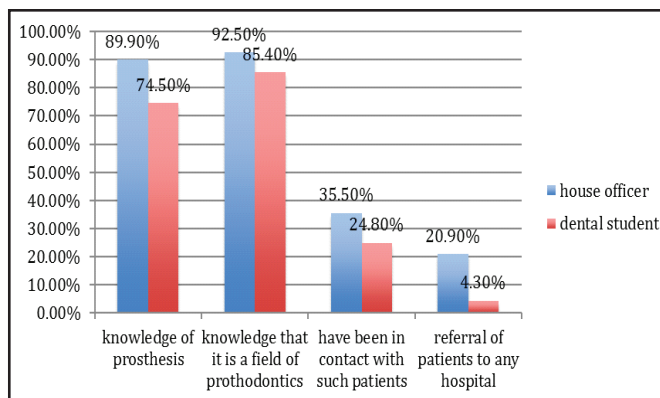


Figure 2. Knowledge and Awareness of Maxillofacial Prostheses among House Officers and Dental Students

DISCUSSION

Maxillofacial prostheses are a non-surgical option for aiding patients with facial impairments caused by birth defects, cancer, or injuries.^{14,15} These prostheses serve to replace facial components or areas of bone and soft tissue that are absent, allowing patients to regain oral capabilities like swallowing, speaking, and chewing. The ultimate objective is to enhance the patient's overall

quality of life. The finished prosthesis must be skin-like in appearance and touch.^{16,17} Maxillofacial prosthodontists are not widely recognized or fully comprehended by both the general public and medical professionals regarding their capabilities and the extent of their expertise.^{18,19} Due to insufficient knowledge, patients suffering from maxillofacial deformities are not appropriately informed and directed to a maxillofacial prosthodontist to receive proper rehabilitation.^{20,21}

This survey showed the level of awareness of BDS students and house officers. The study revealed that BDS students have little knowledge about maxillofacial prosthodontics as compared to house officers.

In this study highest percentage of 80.7% of house officers and BDS students have heard of maxillofacial prosthetic rehabilitation and 19.3% have not heard of maxillofacial prosthesis at all. 71.3% of BDS students and house officers have heard about this field mainly through Internet sources. This result is similar to the study conducted by Jain et al¹⁴ which found that 90% of students were aware of this field and 10% never heard about this field. He concluded that 26% of cohorts were aware of maxillofacial prosthetics through the means of the Internet. The results are similar to another study by Berge et al²² which found that the internet was the main source of information about maxillofacial prosthetics. A similar picture was observed in India in a study conducted by Rupali et al¹³ and it concluded that only 10% of medical practitioners were aware of maxillofacial prosthodontics.

The results of this study show that our BDS students and house officers have heard about maxillofacial prosthetics from other sources too which were Books 7.8%, Friends 3.7%, and Dentists 14%. Jain demonstrated a range of 38%, 25%, and 11% of participants gained knowledge from newspapers, friends, and others. Rupali demonstrated a range of 39.7 % by dental acquaintance followed by friends at 38.8 % and books at 31.5 %.

In our research majority of participants have sound knowledge of different types of defects. The role of the maxillofacial department is also very important in this matter.^{23,24} They treat the patients and do the surgeries resulting in large tissue defects and then they refer the

patients to the prosthodontics department. If the facilities are not there and there is no well-established surgical setting it affects the maxillofacial prosthodontics much. The cost of the material and the availability of materials are also very important, that's why very few dental hospitals in Pakistan are doing this reconstructive work.²⁵

The participants in our study are dental students who have little knowledge that prosthodontics is a subspecialty that deals with maxillofacial prosthetics and only 85.0% of dental students are aware when compared to 92.50% of house officers. 34.5% of house officers have seen patients with facial defects compared to 24.8% of dental students.

20.9% of house officers refer patients to dental hospitals and only 4.3% of dental students refer such patients and they are not aware of the hospitals and settings that are providing treatment to such patients.

In general, the results obtained in this study revealed the awareness of dental students about various aspects of prosthetic rehabilitation. The knowledge of house officers is good but their knowledge is also lacking about different prosthetic options, referral of patients, and different types of prostheses. Therefore there is an immense need to develop different methods and different awareness programs and also it is necessary to include this in dental students' curriculum so they become well aware of this field at their undergraduate level. It is mandatory to organize different workshops for house officers so as to improve their knowledge about this field. Based on these results it is recommended for institutes and concerned bodies to integrate the curriculum on maxillofacial prosthesis. This would in turn enhance better learning at the undergraduate level and lead to an improved approach for patients suffering from such issues.

This study has certain limitations as it is conducted on a small population size which includes only a single dental setting in Islamabad thus having limited data. Including more dental practitioners such as postgraduate residents and postgraduate clinicians would have shed light on the topic in a better way. Perhaps, replicating this study on different dental settings may provide a clearer picture. These are some factors that limit the applicability of the results to the local population.

CONCLUSION

Within the confines of this study, it became evident that dental students are less aware of maxillofacial prosthetics as compared to house officers, but it is also seen that house officers are also not completely aware of this field and they are not dealing with such patients, they do not know the exact referral department for such patients. Consequently, it is imperative to address this by implementing strategies to educate and inform dental students and house officers about the diverse range of maxillofacial prosthodontics.

DISCLAIMER

None to declare.

CONFLICT OF INTEREST

There is no conflict of interest among the authors.

ETHICAL STATEMENT

Ethical approval was provided by the Ethical Review Committee at Islamic International Dental College, Islamabad under ERC Ref. No. IIDC/IRC/2022/11/080).

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AUTHORS CONTRIBUTION

Conception and design of the study: H. Ijaz, M. A. Ghafoor.

Acquisition of data: H. Riaz, W. Ishaq.

Analysis and/or interpretation of data: S. A. Khan, M. F. Kamran.

Drafting the manuscript: H. Ijaz, M. A. Ghafoor, H. Riaz
 Revising the manuscript critically for important intellectual content: W. Ishaq, S. A. Khan, M. F. Kamran
 Approval of the version of the manuscript to be published: H. Ijaz, M. A. Ghafoor, H. Riaz, W. Ishaq, S. A. Khan, M. F. Kamran.

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