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Perceived relevance of oral biology: a comparative study among dental interns and faculty

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ABSTRACT

BACKGROUND & OBJECTIVE: This study aims to compare and examine the distinctive perspectives of dental trainees and distinguished faculty members toward the significance of oral biology subjects for dentistry, clinical training, and dental education .

METHODOLOGY: A pre-validated questionnaire consisting of two sections was distributed through Google Forms and handouts to dental interns and faculty members of basic and clinical departments of different dental institutes and hospitals in Punjab. The data was collected and statistically analyzed using IBM-SPSS version 25. The chi-square test was applied to check the significance of questions regarding perception of oral biology. A p-value of less than 0.05 was considered as the threshold for statistical significance.

RESULTS: Both groups perceived high relevance of oral biology towards dentistry, with slightly more relevance reported by dental interns regarding the importance of oral biology for dental education and clinical training. Regarding the data collected from clinical dental departments, the Oral surgery department showed the highest relevance of oral biology with dentistry, whereas the Orthodontic department considered oral biology most relevant for future clinical training and practice

CONCLUSION: Dental faculty and interns emphasized the importance of oral biology as a discipline for dentistry, but interns reported substantial application for relevance related to future clinical training and practice.

KEYWORDS: Oral Biology, Dental Education, Dentistry, Undergraduate.

INTRODUCTION

In the realm of modern dentistry, where the amalgamation of scientific knowledge and clinical expertise is paramount, the foundational significance of oral biology stands as an integral cornerstone [1]. The intricate links between oral health and systemic well-being have revealed a new line of inquiry beyond the usual conception of dental treatment as a localized undertaking. In this setting, an important question that goes beyond a purely academic study to become a driving principle in dentistry education and clinical practice is the investigation of oral biology [2].

The American Association of Oral Biologists has defined oral biology as a subject that deals with the study of the development, structure, and functions of oral tissues in healthy and diseased conditions [3,4]. The field of oral biology is a crucial intersection where the art and science of dentistry meet cutting-edge research and clinical application in the complex web of healthcare [5].

The relationship between dental health and general wellness has become increasingly important as the lines between conventional medical specialties become blurred. In this setting, the exploration of oral biology goes beyond the bounds of a purely academic endeavor and transforms into a crucial compass guiding the direction of dental treatment and education [6,7].

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A beautiful smile and pain-free teeth are only a small part of the modern concept of oral health. A growing corpus of research highlights the complex interactions between oral health and systemic disorders, including diabetes, cardiovascular disease, respiratory diseases, and even the result of pregnancies [8]. The traditional view of dentistry as a specialized treatment for oral conditions changes in light of these insights into a comprehensive strategy that recognizes the mouth as a portal to holistic health [9].

This study, "Perceived Relevance of Oral Biology: A Comparative Study Among Dental Interns and Faculty," conducts a thorough investigation into the attitudes that underlie the clinical and pedagogical facets of oral health. We aim to decipher the complicated tapestry of beliefs and attitudes that create the conversation surrounding oral biology's significance in the field of dentistry by concentrating on the distinctive perspectives of dental trainees and distinguished faculty members.

This study has significant significance for both present and future oral health professionals because of its location within the dynamic environment of dentistry education and practice. At the beginning of their careers, dental interns provide new insights into the importance of oral biology in the modern dental industry. Their perceptions of how oral biology fits with their goals and changing roles within the healthcare system can offer insightful information about the future course of dental practice [10].

On the other hand, tenured faculty members' ideas and experiences, having experienced the development of dental education and patient care, are equally important. These professors have seen dentistry evolve from a regional, tooth-centric concept to an integrative strategy that acknowledges the systemic implications of oral health. Their observations might help clarify how attitudes toward oral biology have changed over time and how those attitudes affect the curricula, instructional strategies, and clinical procedures used in dental institutions [11].

In the literature, limited data has been reported from all over the world regarding the perceived relevance of oral biology. Studies have been done to evaluate the relevance of oral biology among undergraduate students, interns, and postgraduate students but none of them has involved faculty members [12,13,14]. The study tries to decipher the complex web of perspectives around oral biology's perceived relevance in a nation where the healthcare system is both steeped in history and fast-changing to meet contemporary concerns. At the beginning of their careers, dental interns' perspectives have the potential to shed light on the values that will influence the future generation of dental professionals. On the other hand, faculty members' perspectives and experiences, having survived the challenges of dental practice and teaching, offer a nuanced awareness of the changing importance of oral biology in influencing dental curricula and clinical guidelines [15,16]. The study aims to unravel the beliefs and opinions that shape the discourse surrounding oral biology's relevance in the field of dentistry.

Moreover, this study attempts to answer issues that go much beyond the scope of a research paper through an exploratory perspective. What associations do Pakistani dental interns and instructors perceive between oral biology and general health outcomes? How do these perspectives affect the teaching strategies used in dental education, and how do they alter the clinical strategies used by dentists in practice? To reshape oral health education and patient care in Pakistan, we intend to analyze these questions to reveal the dynamic interaction between perceptions and behaviors.

METHODOLOGY

For undergraduates, the oral biology course offers instructions on the principles of oral and craniofacial anatomy, embryology, histology, and physiology. This research employed a Likert scale-based questionnaire to gauge the attitude and perception of dental interns and faculty after ethical approval from the relevant institution (Ref: ERB/RAC/102/16/12). A total of 430 questionnaires were included in this study and distributed amongst interns and dental faculty of clinical and basic dental departments of different dental hospitals. A total of 69% of Dental Faculty and 31% of dental interns shared their opinions about the clinical relevance of oral biology. All the participants signed the informed consent and were also explained about the purpose of the study.

This pre- validated questionnaire was divided into two sections. The first section centered on demographic information, such as the gender and the dental career status of the participants. The second section delved into the participants' view of the relevance of oral biology within the field of dentistry. All questions included in the second section were close-ended. The first question explored participants' perceptions of the significance of oral biology in dentistry. The second question evaluated participants' opinions regarding the relevance of oral biology in dental education. Lastly, the third question explored the participants' perceptions of the relevance of oral biology in the practices of clinical dentistry. Each question in the questionnaire offered respondents five response options, ranging from "not at all relevant/important" to "very relevant/important." The questionnaire was distributed through Google Forms and handouts. The primary participants in this study were dental interns and faculty members.

To determine relevance scores for each participant, responses were assigned numerical values, ranging from zero for the least relevant option ("not at all relevant") to four for the most relevant option ("very relevant"). The data collected were meticulously recorded in data sheets, and statistical analyses were conducted using IBM-SPSS version 25. To explore potential connections between how oral biology was perceived, the effectiveness of teaching methods, and the significance of study resources, as reported by both groups, the non-parametric Chi-square test was employed. A significance level of 0.05 was considered as the threshold for statistical significance.

RESULTS

In this present study, a total of 430 questionnaires were distributed to clinical and basic dental departments of different dental hospitals. 31.4% of dental interns and 68.6% of Dental Faculty participated. Regarding the gender 64% were female and 36% were male participants. Among dental faculty, 77 were demonstrators, 59 were postgraduate trainees, and 159 responses were collected from the Senior registrar, Assistant Professor, and above. The demographics of the participants are shown in Table-I.

Table- I: Demographics of the participants (N=430)

Characteristic	n (%)
Gender	
Male	154 (36)
Female	276 (64)
Expertise	
Simple dentist	135(31.4)
Specialist dentist (with postgraduation)	295(68.6)
Faculty Ranks	
Demonstrator	77 (26)
Post Graduate Trainee	59 (20)
Full time faculty member	159 (54)
Specialty	
Operative Dentistry	35
Oral Surgery	33
Prosthodontics	26
Oral Pathology	29
Periodontology	27
Community Dentistry	38
Oral Biology	29
Orthodontics	30
Dental Materials	28
Oral Medicine	20

The first question was asked about the perception of interns and faculty about the relevance of Oral Biology with dentistry. Results showed that 96.3% of both dental interns and faculty considered oral biology relevant to dentistry, and the difference is statistically insignificant (p-value= 0.989). However, the response regarding oral biology relevance was significantly higher among dental interns as that of dental faculty p-value=0.027<0.05. The responses collected are represented in Table 2.

Regarding the data collected from clinical dental departments, the Oral surgery department showed the highest relevance at 96%, followed by Oral pathology at 95%, Orthodontics at 92.5%, Periodontology at 91.67%, Prosthodontics at 90.91% and Operative dentistry 89.66%. From basic dental departments, Dental materials considered Oral biology most relevant to dentistry with a percentage of 90%, followed by community dentistry at 83.33%.

Furthermore, 80% of all interns believed oral biology was necessary for their future clinical practice as opposed to 70% relevance from the dental faculty; the difference was again nonsignificant (p-value- 0.084). Orthodontic faculty reported oral biology relevant to clinical practice most positive responses of 89.29% as compared to Community Dentistry at 38.6%.

Table- II: Responses of participants

Questions	Responses	Dental Faculty	Dental in terms	P-Value
		n%	n%	
How relevant do you consider oral biology for dentistry?	Median/Not relevant	11(3.80)	5(3.70)	0.989
	Relevant	284(96.30)	130(96.30)	
How relevant do you consider oral biology for dental education?	Median/Not relevant	10(3.40)	6(4.50)	0.591
	Relevant	285(96.60)	129(95.60)	
How relevant do you consider oral biology for clinical training?	Median/Not relevant	63(21.4)	30(22.2)	0.839
	Relevant	232(78.60)	105(77.80)	
How relevant do you consider oral biology for your (future) clinical practice?	Median/Not relevant	59(20)	40(29.6)	0.027
	Relevant	236(80.00)	95(70.40	

Table- III: Perceived relevance of 'Oral Biology' for dentistry, dental education, clinical training

Specialty	Relevance of Oral Biology in dentistry	Relevance of Oral Biology in dental education	Relevance of Oral Biology in clinical training
	n%	n%	n%
Operative	32(89.66)	33(92.86)	31(82.14)
Oral surgery	32(96)	27(84)	20(60.00)
Prosthodontics	23(90.91)	22(86.36)	21(77.27)
Oral Pathology	27(95)	29(100)	21(73.68)
Periodontology	24(91.67)	23(88.89)	25(92.59)
Community Dentistry	31(83.33)	35(92.31)	26(69.23)
Oral Biology	24(86.36)	27(94.74)	22(73.68)
Orthodontics	26(92.59)	27(96.67)	27(96.67)
Dental Materials	25(90.00)	26(92.31)	19(69.23)
Dental Interns	129(98.65)	122(93.16)	102(77.78)
Oral Medicine	16(82.6)	17(86.9)	17(86.9)

DISCUSSION

Knowledge of Basic sciences subjects forms the foundation for dentistry and is an essential prerequisite for proper diagnosis and designing a treatment plan. However, the perception of oral biology for clinical training, practice, and dental education is not well known [17]. After the complete analysis of previous literature, it was evaluated that only a few studies have been done so far to collect the perception of oral biology toward dentistry [12].

Therefore, the current study was designed to probe the perception of dental interns and dental faculty regarding oral biology relevance at clinical and basic dental departments of different dental hospitals. In general, the overall response rate was positive for the questionnaire. Regarding the oral biology relevant to dentistry, our study showed similar results to previous studies done by Kaabi as the majority of dental interns and faculty perceived oral biology as necessary for dentistry [13].

Regarding the perception of clinical dental departments, the Oral surgery department showed the highest relevance, whereas, from basic dental departments, Dental materials considered Oral biology most relevant to dentistry, followed by community dentistry. A study conducted by Chavez VE found that basic knowledge of oral tissues and their healing was necessary for performing surgical procedures in later years.

In the second question, the relevance of interns and faculty was recorded regarding oral biology's role in dental education. Both groups depicted high relevance, with the oral pathology department showing 100% relevance. These results were consistent with a study done by Ali [17].

This might be due to the reason that proper Integration of oral biology with other clinical subjects was necessary for proper understanding and helped the interns and faculty to diagnose the clinical conditions of the oral cavity.

Regarding the perceived relevance of dental interns and faculty in clinical training, it was recorded that dental interns showed more relevance when compared with dental faculty. Among dental faculty, higher relevance was given by Orthodontic faculty. These results were in harmony with the observation of Farooq [4]. This increased perceived relevance from pre-clinical years towards clinical years could be a result of successful improvement with experience, which helps dental clinicians correlate clinical application with the concept of basic dental sciences.

Furthermore, a higher perception was recorded by all interns as compared to dental faculty regarding the question asked about oral biology's importance for their succeeding clinical application and practice. However, Orthodontic faculty reported oral biology as most relevant to clinical practice, and these results were in close association to a study done by Yina [19]. These findings evaluated that current challenges of orthodontic treatment could be possible only by having a better understanding of the histology and morphology of oral tissues.

CONCLUSION

It was concluded from current research that both dental interns and faculty observed oral biology as a pertinent subject to dentistry, dental education, and clinical training. Although a slightly higher relevance was reported by dental interns towards future clinical practice. Future studies directed toward exploring more data from different dental colleges and hospitals could demonstrate a clearer observation regarding the perceived relevance of oral biology by interns and dental faculty.

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Ayesha Fahim: Substantial contributions to the conception and design of the work and final approval of the version to be published.
Tayyaba Nayab Shahid: Acquisition of data for the work.
Ahmad Azhar: Analysis, and interpretation of data.
Ammara Ashiq: Drafting the work for important intellectual content.
Kaynat Jahangir: Interpretation of data.