

Confidence Level among Undergraduate Dental Cohorts Regarding Restorative Dentistry: A Descriptive Study

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Abstract

Background: Monitoring the confidence of students in completing clinical tasks by dental institutions could serve to assess their preparedness for future independent clinical practice. *Aim:* To obtain information regarding the confidence level exhibited by clinical dental students in various aspects of restorative dentistry. *Study setting and design:* The cross-sectional descriptive study was conducted among the final year undergraduate dental students and interns of 2 dental colleges in Mangaluru, South Kanara. *Materials and methods:* Self administered questionnaires were distributed among 293 final year undergraduate dental students and interns. The cohorts were asked to score their level of confidence in 15 aspects of restorative dentistry using Likert's 5 point scale. *Statistical analysis used:* The descriptive statistics was calculated using the SPSS version 20.0 and Mann Whitney test was applied to assess the association. The level of statistical significance was kept at $p < 0.05$. *Results:* The response rate for the survey was 100%. Interns showed higher confidence levels in almost all aspects of restorative dentistry particularly in diagnosis ($p = 0.028$), pre-operative procedures ($p = 0.000$), manipulation of glass ionomer cement ($p = 0.043$) and dental composite ($p = 0.000$). Final year students and interns were comparably confident in restorative procedures ($p = 0.111$) except for management of inadvertent pulp exposure in which interns showed greater confidence ($p = 0.003$). Both interns and final year students exhibited low confidence in management of complex situations ($p = 0.217$). *Conclusion:* Interns exhibited high confidence in restorative dentistry when compared to final years. Further training in management of complex situations could be of definite advantage.

Keywords: Confidence Level; Dental Education; Restorative Dentistry.

Introduction

Restorative dentistry deals with rehabilitation of the dentition so as to fulfil the functional and aesthetic requirements of the individual. The clinician needs to undergo intense clinical and practical training and acquire in-depth knowledge about the diseases of teeth and the surrounding tissues to achieve high levels of proficiency to deliver restorative treatment.

The dental curriculum should be constantly updated in information as well as teaching methodology to create competent dental professionals who are confident to face the prospect of independent practice at the end of graduation [1]. But the present education system is still primarily dependent on didactic teaching and quota based systems rather than problem-based teaching. The need of the hour is to assess whether the students feel competent enough under the current mode of dental education system.

It is a well-known fact that one cannot improve what one cannot assess. Self-assessment becomes an essential tool among dental professionals and dental students in improving clinical proficiency and competence. Regular and unbiased self-evaluation is an essential feature of competency based education [2]. Matheos et al had suggested that self-assessment can enable the individual to define his or her learning need in the pursuit of excellence [3]. By having an accurate perception of one's own knowledge and

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skills, the dental undergraduate student can work towards gaining increased competence in areas where it is found to be lacking [4].

Different dental schools all across the world have varying prerequisites for graduation in each discipline of dentistry. In addition, the number of training hours and number of treatment cases that a student is supposed to complete in order to graduate, vary among the dental schools [5]. In the discipline of Restorative Dentistry, an undergraduate student needs to develop adeptness in diagnosis of diseases of the tooth and supporting structures, restoring the tooth using various restorative materials like dental amalgam, glass ionomer cement, dental composite resins and diagnosis and treatment of pulpally involved teeth [6]. Youngson et al stated that there should be a robust method to see that these objectives are met in the undergraduate dental program [7]. But there is no known parameter against which an undergraduate student can be assessed about their confidence and preparedness for future independent restorative clinical practice.

The questionnaire study aimed to enable the dental undergraduate students or interns to self-assess their knowledge and skills in terms of their confidence levels in various aspects of restorative dentistry.

Materials and Methods

A descriptive cross sectional study was conducted in October 2015 using a self administered questionnaire after obtaining approval from the Institutional Ethics Committee (IEC no. 15088). There was no standardized validated questionnaire available to assess confidence level in restorative dentistry; hence a structured questionnaire was formulated. The clarity of the given questionnaire had been assessed prior to commencement of the study, by two experts and corrections were incorporated. The validity and reliability of the questionnaire was achieved by pre-testing the questionnaire on 10 respondents.

After obtaining written informed consent, the questionnaires were distributed among 293 final year dental students and interns of two Dental colleges of Mangaluru. Confidentiality of the participating dental students and interns was preserved.

The questionnaire consisted of two parts, the first section being a series of demographic questions such as age, gender and whether the participant was a final year undergraduate student or an intern. The

second section consisted of a list of 15 specific aspects in the discipline of restorative dentistry, each of which had been assigned a confidence rating by the student. A Likert's five point scale was used to assess confidence with a range from 1 (very little confidence), 2 (little confidence), 3 (neutral), 4 (confident), 5 (very confident). The 15 aspects could be further grouped under five sub-headings for analytic purposes namely diagnosis, pre-operative procedures, operative procedures, material manipulation and management of complex situations. The data was coded and analysed using the SPSS version 20.0. The descriptive statistics was calculated and Mann Whitney test was applied to assess the association. The level of statistical significance was kept at $p < 0.05$.

Results

The overall response rate was 100%. 51.8% of the participants were final year students and 48.1% were interns. The average age of the respondents was 21-25 years. A score of 3 and below was indicative of low confidence.

Interns showed generally a higher level of confidence in almost all aspects of restorative dentistry except in the domain of management of inadvertent pulp exposure (2.93 ± 0.97), dealing with medically compromised patients (2.82 ± 0.95), handling of medical/dental emergencies (2.57 ± 1.01) (Table 1).

Interns showed significantly higher confidence as compared to final year students with regard to clinical diagnosis ($p=0.028$), especially in the area of clinical diagnosis of pulpal pathology ($p=0.010$). They also showed greater confidence in various aspects of pre-operative procedures like asepsis, infection control, isolation and administration of local anaesthesia ($p=0.000$). The final year students showed lower confidence in managing inadvertent pulp exposure when compared to interns ($p=0.003$) but were equally confident in performing other restorative procedures. Interns showed significantly greater confidence in handling of restorative materials like glass ionomer cement ($p=0.043$) and resin composite ($p=0.000$) when compared to students (Table 1).

There was no significant difference between interns and final years in the management of medically compromised patients whereas the confidence levels was low among both interns and final years in handling medical/dental emergencies, Overall, interns exhibited significantly higher confidence levels ($p=0.000$) (Table 1).

Table 1: Confidence levels of Interns, Final year dental students in Restorative Dentistry

Sl. No	Procedure	Mean ± Standard Deviation		P value
		Interns	Final years	
1	Clinical diagnosis of dental caries	3.96 ± 0.76	2.13 ± 0.83	0.300
2	Clinical diagnosis of pulpal pathology	3.27 ± 0.86	2.99 ± 0.94	0.010
3	Intra-oral radiographic interpretation	3.38 ± 0.87	3.19 ± 0.99	0.084
	Diagnosis	10.60±2.06	10.04±2.29	0.028
4	Asepsis,infection control	4.07 ± 0.80	3.74 ± 0.87	0.001
5	Isolation	3.87 ± 0.92	3.61 ± 0.92	0.020
6	Administration of local anaesthesia	3.73 ± 0.94	2.35 ± 1.16	0.000
	Pre-Operative Procedures	11.66 ± 2.14	9.75 ± 2.23	0.000
7	Tooth preparation	3.52 ± 1.11	3.55 ± 0.95	0.853
8	Caries removal	3.91 ± 0.82	3.81 ± 0.83	0.339
9	Management in case of inadvertent pulp exposure	2.93 ± 0.97	2.57 ± 1.05	0.003
	Operative Procedures	10.36 ± 2.28	9.93 ± 2.28	0.111
10	Manipulation of dental cements	3.62 ± 0.89	3.59 ± 0.95	0.776
11	Placement of Amalgam restoration	4.01 ± 0.74	4.03 ± 0.81	0.836
12	Placement of Glass Ionomer Cement restoration	4.02 ± 0.78	3.81 ± 0.94	0.043
13	Placement of Composite restoration	3.77 ± 0.90	2.72 ± 1.29	0.000
	Material Manipulation	15.42 ± 2.74	14.19 ± 3.25	0.001
14	Dealing with medically compromised patients	2.82 ± 0.95	2.77 ± 1.12	0.647
15	Handling medical/dental emergencies	2.57 ± 1.01	2.32 ± 1.09	0.047
	Complex Situations	5.39 ± 1.80	5.10 ± 2.06	0.217
	Cumulative Confidence Level	53.45 ± 8.88	49.05 ± 10.08	0.000

Discussion

Questionnaires evaluating the knowledge, attitude and confidence of the students, aid in bridging the chasm between students and the educationist so as to overcome the obstacles faced by the students and improve the standard of education being provided. Unfortunately, this has not received adequate attention in the course programme in most dental institutions [8].

Self-confidence is a psychological character-istic that reflects a person’s trust in his or her ability to complete a task effectively and efficiently [9]. Although competence could be more applicable to the practice of dentistry, the concept of confidence as a manifestation of competence should not be trivialized [10]. As Cowpe et al. noted, confidence is one of the most important characteristics the newly graduated dentists should develop as they stand at the threshold of independent practice. Self-confidence comes from acquiring knowledge and skills through wide and varied experience. A high confidence level generally indicates that the student or intern has successfully worked with a certain number of clinical cases and gained approval from instructors, which is a reflection of competence to certain extent. Moreover, it is highly essential for educators to assess students’ confidence in every subject. Honey et al. reported that regular monitoring of the confidence levels of students in completing clinical tasks could place the dental institutions in a better position to

overcome any deficits in confidence before graduation. Their study indicated that low confidence levels could reveal inadequacy in qualitative and quantitative dental training [9]. A questionnaire was used as a tool in this study to poll students and help in their self-assessment as well as evaluation of the training [11].

The present study revealed an improvement in confidence levels as the years of study progressed. This was in agreement with the studies done by Murray et. al and Davey et al. [10,12]. The low confidence levels exhibited by the final year students in diagnosis of dental caries and pulpal pathology, administration of local anaesthesia, placement of composite restorations was seen to show improvement among the interns. This could be attributed to the role of increased clinical experience and exposure when it comes to putting theory into practice.

The interns were found lacking in confidence in the management of inadvertent pulp exposure probably because of technique sensitivity involved in pulp capping and the risk of requiring root canal treatment eventually in case of failure. The interns also exhibited low confidence levels in management of medically compromised patients as well as handling medical/dental emergencies. This could be due to reduced exposure to such scenarios. This could also prove to be a valuable pointer indicating the need for continued education programs so as to better equip the interns as they near the end of their

undergraduate course. Incorporation of the competency based approach to dental education where individual student learning curves are allowed to vary based on practicality could positively boost the competence as well as the confidence levels of the graduating dental interns [14].

As earlier stated, this study only assessed the confidence levels of the interns and final year students. Similar studies were conducted by Honey et al [1] and Tanalp et al [5], that evaluated the confidence level of dental undergraduates rather than the competence. Khanagar et al said that although self administered questionnaires have been extensively employed for data collection about self perceived dental competencies and confidence levels, a certain amount of bias could be incorporated due to over-estimation of one's own abilities. A more accurate evaluation of the student competency could be obtained from a teacher/instructor [13].

This study conducted to assess confidence levels could be further extended to various streams of Dentistry and could be coupled with objective tests to assess the competence levels as well.

Conclusion

Within the limitations of the present study, the interns showed a greater confidence level regarding restorative dentistry when compared to the final year undergraduate students due to increased and varied clinical exposure. Problem-based approaches as well specific training in management of complex clinical situations could be employed to address the deficits in confidence among graduating interns.

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