Original Article

Self-Reported Competence in evaluation of Oral Pathological lesions among Dental Graduates of Lahore, Pakistan

Wajiha Alamgir, Uzma Jabbar Khan, Adeel Haider, Adan Zahoor and Fatima Shams

ABSTRACT

Objective: The study was aimed to assess the self-reported competence of dental graduates with basic dental qualification regarding examination of oral and maxillofacial pathologies and provide a comparison of this competence between private and public sector dental graduates of Lahore, Pakistan.

Study Design: cross-sectional descriptive study

Place and Duration of Study: This study was conducted at the among dental graduates of private sector i.e. University Dental College, The University of Lahore and among public sector graduates i.e. de' Montmorency College of Dentistry, Lahore from March 2023 to August 2023.

Methods: A multi-institutional cross-sectional descriptive study was conducted comprising of dental professionals with basic dental qualification of both private and public sector from March till August 2023.The data was collected through non-probability convenience sampling technique using a self-administered questionnaire which was developed in line with four levels of progression of Miller's Pyramid.

Results: Total of 196 dental professionals participated in the study with females (n=125, 63.80%) and those in the age category of below 30 years (n= 138, 70%) in majority with preponderance of house officers (n=133, 67.9%). Nearly half of the total participants were independent in communicating with the patients and addressing their concerns (n=91, 46.4%). Majority of the participants were able to examine a patient with suspicious oral lesion (n=75, 38.3%) as well as salivary glands and lymph nodes examination (n=66, 33.7%) only under supervision. Mainstream of the participants were only knowledgeable about surgical sieve to assemble a list of differential diagnosis (n=70, 35.7%),

Conclusion: The study population was found to be competent in communication skills, history taking and general oral examination. However in the remaining domains, majority of the respondents either merely possessed knowledge or needed supervision to perform the skill.

Key Words: Clinical competence, Clinical examination, Oral pathology

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INTRODUCTION

The complex process of training a dentist presents various challenges, particularly the need for a robust institutional foundation [1]. The academic journey of dental students is progressive that encompasses distinct educational phases, starting with theoretical phase and advancing through pre-clinical and para-clinical training that culminates in clinical education [2,3].

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The ultimate goal of undergraduate dental education is to produce competent dental professionals who possess the foundational scientific knowledge, clinical skills and aptitude essential for an independent practice [4].

Alongside performing routine procedures in the dental chair, the responsibilities of dental practitioners are extensive. Proficiency in oral and maxillofacial pathology- a specialty that involves the evaluation and diagnosis of abnormalities in oral tissues, jaw bones and related structures - is an essential skill set given that the oral cavity is not limited to teeth [5]. Mastery of this discipline is crucial for identifying potentially significant conditions and ensuring patient safety and well-being in daily clinical practice[6,7].

Dental boards worldwide outline professional competencies for dentists to achieve during a year-long internship for transition from dental student to independent practitioner[1,7]. Dental graduates must demonstrate competency in patient well-being, ensuring safety and satisfaction through self-assessment, focusing on strengths and areas for improvement[3,4].

Numerous studies have been conducted in Pakistan and other regions of the world to investigate the self-reported competence of dental graduates in a variety of subspecialties with respect to a multitude of dental procedures. Nevertheless, no study has been conducted to assess dental graduates' proficiency based on the clinical examination of oral and maxillofacial pathologies. The most insightful form of this evaluation frequently involves self-assessment, in which graduates critically contemplate on their own readiness and identify areas for further development.

To fill this knowledge gap, the present study is aimed to assess the self-reported competence of dental graduates with basic dental qualification regarding examination of oral and maxillofacial pathologies and provide a comparison of this competence between private and public sector dental graduates of Lahore, Pakistan.

METHODS

A multi-institutional cross-sectional descriptive study was conducted among dental graduates of private sector i.e. University Dental College, The University of Lahore and among public sector graduates i.e. de' Montmorency College of Dentistry, Lahore from March 2023 to August 2023. The data was collected through non-probability convenience sampling technique following the approval of Institutional Ethical Committee. Informed consent was taken from all participants prior to data collection.

Inclusion criteria comprised of dental house surgeons, general dentists and postgraduate trainees who have completed basic dental qualification, while dental students and specialist dentists who have completed postgraduate qualifications were excluded.

A total of 196 questionnaires were distributed to the participants fulfilling the inclusion criteria.

Figure No. 1: Miller's triangle of Clinical competence

Questionnaire: A self-administered questionnaire was developed in line with the four levels of progression - Knows, Knows how, Shows how and Does - from basic knowledge to clinical performance as established in Miller's Pyramid; a framework proposed by George miller in 1990 for assessing clinical competence (Fig.1). The questionnaire was divided into two sections and contained 21 close-ended items. The first segment focused on demographics, while the second part was divided into four domains: history, clinical examination, radiographic examination and differential diagnosis.

The questionnaire items were based on all the required competencies of Oral and Maxillofacial Pathology. The responses were reported on 4 levels of Miller's pyramid ranging from Knowledge, Capability, Performance and Action.

The study utilized SPSS version 25 for data entry and analysis with Chi-Square test for statistical significance. A reliability analysis of questionnaire revealed Chronbach's-alpha value 0.916.

RESULTS

Total of 196 dental graduates participated in the study, out of which 36.20% (n=71) were male and 63.80% (n=125) were female. Majority of the participants (n= 138, 70%) were in the age category of below 30 years followed by11.20% (n=22) with an age range between 31 to 35 years.

The largest proportion of respondents in the present study were house officers (n=133, 67.9%) followed by postgraduate residents (n=26, 13.3%) and private practitioners (n=37, 18.9%).

Nearly half of the total participants were independent in communicating with the patients and addressing their concerns (n=91, 46.4%) as well as in taking adequate medical and oral health history (n=109, 55.6%) (Table 1). A statistically significant correlation was found between work experience and ability to communicate (p=0.001) and history taking (p=0.015).

In first domain of history taking, a significant proportion of graduates believed they were able to examine a patient with suspicious oral lesion only under supervision (n=75, 38.3%) (Table 1). A significant association was found between work experience and ability to examine patients with suspicious oral lesion (p=0.007).

In the domain of clinical examination, mainstream of the respondents (n=83, 42.3%) revealed that they were able to follow the steps of examination on patient independently (Fig. 2). A statistically significant correlation was found between work experience and ability to follow the steps of examination (p=0.001). Most of the respondents (n=80, 40.8%) believed that they were able to perform comprehensive extra oral examination independently (Fig.2). This area of competency was significantly associated with work experience, designation and practice sector (p=0.001, p=0.012, p=0.01) respectively. The independent ability of the participants to identify extra oral swelling and lesion was reported by large proportion of graduates (n=62, 31.61%) (Fig. 2). A significant association was found between respondents work experience and their ability to identify extra oral swelling (p=0.004). Considerable proportion of graduates (n=66, 33.7%) affirmed that they require supervision to examine salivary glands and lymph nodes of head and neck

region (Fig. 2). A statistically significant correlation was seen between participants' work experience, designation and practice sector with this competence (p=0.046, p=0.049, p=0.049) respectively. A comparable ratio of respondents (n=76, 38.8%) reported their independent ability to differentiate between normal and altered oral mucosa (Fig. 2) that revealed statistically significant association with work experience (p=0.030).

Regarding mouth mapping, majority of the respondents (n=64, 32.7%) believed that they required supervision for this aspect of clinical examination. The independent ability of the participants to identify morphological soft tissue changes and hard tissue changes was stated by large proportion of respondents (n=63, 32.1%) and (n=70, 35%) respectively. (Fig.2).

Responses of the radiographic examination revealed that the bulk of the participants possess an independent ability in the relevant competencies which include interpretation of normal anatomical landmarks (n=85, 43.4%), identification of normal and altered bone pattern (n=78, 39.8%) and identification of different radiolucent and radiopaque patterns on radiograph (n=83, 42.3%) (Table 1). A statistically significant correlation was revealed between work experience and ability to identify bone pattern (p=0.030) and radiographic patterns (p=0.042).

In the last domain of formulation of differential diagnoses, mainstream of the participants were knowledgeable about surgical sieve to assemble a list of differential diagnosis (n=70, 35.7%). Furthermore, a sizeable proportion of the respondents (n=63, 32.1%) were able to devise a comprehensive referral plan independently (Table 1) and carried a statistically significant correlation with work experience (p=0.000).

A service sector-based comparison of self-reported competencies of the study participants revealed that public sector graduates were more competent holistically except in documentation of the clinical findings and interpretation of anatomical radiographic landmarks where private sector respondents were more proficient (Table 2).

A significant statistical association was observed between the practice sector of participants and ability to perform extra oral examination (p=0.012), examination of head and neck lymph nodes and salivary glands (p=0.049) and ability to identify morphological hard tissue changes (p=0.001). (Table 2).

Table No. 1: Frequency and percentage distribution of competencies

Study items	Responses n (%)			
	Knows (Knowledge)	**Knows how (Capability)**	**Shows how (Performance under supervision)**	**Does (Action/ Independent)**
History Taking				
1. Ability to effectively communicate with the patients and address their concerns	15 (7.7%)	55 (28.1%)	35 (17.9%)	91 (46.4%)
2. Ability to take adequate medical & oral health history	13 (6.6%)	58 (29.6%)	16 (8.2%)	109 (55.6%)
Radiographic Examination				
3. Ability to interpret the normal anatomical landmarks on radiograph	12 (6.1%)	53 (27.0%)	46 (23.5%)	85 (43.4%)
4. Ability to identify normal and altered bone pattern n radiograph	13 (6.6%)	42 (21.4%)	63 (32.1%)	78 (39.8%)
5. Ability to identify different radiolucent and radiopaque patterns on radiograph	17 (8.7%)	45 (23.0)	51 (26.0%)	83 (42.3%)
Differential Diagnosis				
6. Considering surgical sieve while developing differential diagnosis	70 (35.7%)	33 (16.8%)	58 (29.6%)	35 (17.9%)
7. Ability to formulate differential diagnosis	23 (11.7%)	49 (25.0%)	59 (30.1%)	65 (33.2%)
8. Applied knowledge of diagnostic framework	44 (22.4%)	47 (24.0%)	59 (30.1%)	46 (23.5%)
9. Ability to devise comprehensive referral plan	31 (15.8%)	40 (20.4%)	62 (31.6%)	63 (32.1%)

Table No. 2: Comparison between public and private sector competencies

Study items	Public Sector (Independently)	Private Sector (Independently)	p-value
1.Ability to communicate effectively	48%	43.5%	0.355
2.Ability to take adequate medical & oral health history	58.3%	50.7%	0.787
3.Ability to examine a patient with suspicious oral lesion	30.7%	24.6%	0.272
4.Follow the steps of examination while examining a patient	45.7%	36.2%	0.119
5.Ability to perform comprehensive extra oral examination	43.3%	36.2%	*0.012
6.Ability to identify extra oral swelling & lesion	33.9%	27,5%	0.185
7.Ability to examine head & neck lymph nodes & salivary glands	28.3%	24.6%	*0.049
8. Ability to differentiate between normal and altered oral mucosa	41.7%	33.23%	0.456
9. Ability to perform mouth mapping effectively	33.9%	27.5%	0.420
10. Proficiency in identifying morphological soft tissue changes	33.1%	30.4%	0.337
11. Ability to identify morphological hard tissue changes	40.9%	26.1%	*0.001
12. Ability to appropriately describe the characteristics of the lesion	31.5%	29%	0.892
13. Ability to correlate history with clinical findings	37.8%	34.8%	0.544
14. Proficiency in documenting the clinical findings	38.6%	40.6%	0.741
15. Ability to interpret the normal anatomical landmarks on radiograph	43.3%	43.5%	0.590
16. Ability to identify normal and altered bone pattern n radiograph	41.7%	36.2%	0.268
17.Ability to identify different radiolucent and radiopaque patterns on radiograph	46.5%	34.8%	0.080
18. Considering surgical sieve while developing differential diagnosis	19.7%	14.5%	0.106
19. Ability to formulate differential diagnosis	36.2%	27.5%	0.604
20. Applied knowledge of diagnostic framework	26%	18.8%	0.644
21. Ability to devise comprehensive referral plan	34.6%	27.5%	0.199

*p-value < 0.05 is considered statistically significant

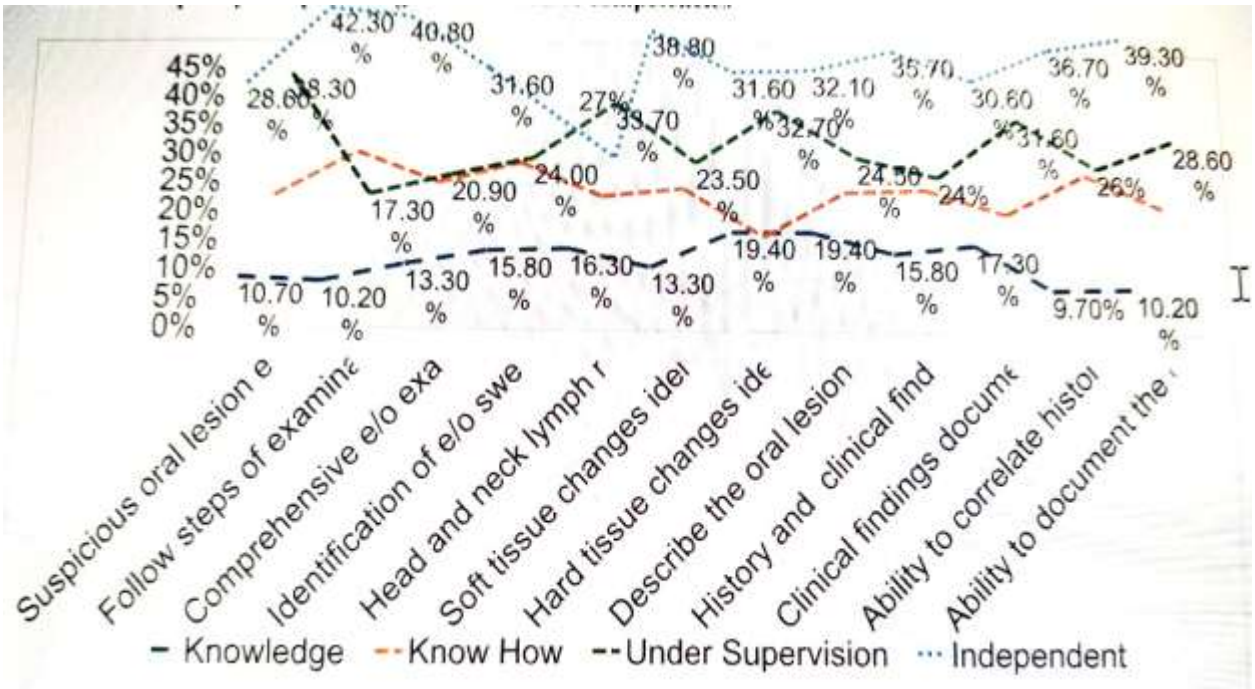

Figure No. 2: Percentage distribution of clinical examination competencies

DISCUSSION

The capacity to precisely identify and diagnose oral pathological lesions is a critical skill for any dental practitioner, as it serves as a bridge between theoretical knowledge and real-world clinical performance[8]. All sub-specialties of dentistry hold paramount importance; however Oral and Maxillofacial Pathology is the only discipline of dentistry that embodies the integration of basic sciences and clinical dentistry [9].

The objective of the study was to investigate dental graduates' transition from training to independent practice in Lahore, Pakistan, focusing on self-assessment and comparing private and public sector competencies, emphasizing the importance of structured training programs.

The preponderance of participants in this study were female (63.8%, n=125). The age group of 30 years was represented by the greatest number of participants (85.7%, n=71) The sample was representative of dental graduates from both public and private dental colleges in Lahore. Majority of the participants (67.9%, n=133) were house officers.

In current investigation, less than half of the participants (n=91, 46%) reported being capable of communicating independently with patients. This is in contrast with the finding of Adam et al., where a vast majority (n=60, 92.3%) of participants from Otago University exhibited independent communication skills[10]. Additionally, 55.6% (n=109) of dental graduates in this study were independent in obtaining and interpreting a comprehensive medical and dental history which are incongruous with the study conducted by Bokhari et al., where a substantial majority (78%, n=153) was competent in the recording and interpretation of patients' medical histories [9].

It is imperative for the dentists to conduct comprehensive examinations for patients with suspicious oral lesions to prevent severe health complications and poor outcomes[11,12]. The present investigation demonstrated that less than half (n=56, 28.6%) of graduates were capable of conducting the examination independently. This is consistent with the results of Kumar et al., where only 24% of dental personnel were capable of independently identifying suspicious oral mucosal lesions[13]. In the current study, 40.8% (n=80) of participants were able to conduct extraoral examination. This is contrary with the findings of Glass et al., where a majority (96%) of general practitioners routinely examine extraoral sites[14].

A thorough clinical examination is not confined to oral structures, it includes palpation of lymph nodes of head and neck region and inspecting the salivary glands [15]. In the present study a lesser number of graduates (n=53, 27%) claimed that they can examine lymph nodes and salivary glands independently, which is contrary to the findings of Omer et al., where 47.3% of the respondents responded that they examine lymph nodes in suspected oral cancer patients [16].

Oral cavity is the face of some of the systemic diseases, it is essential to focus on mucosal alteration and perform complete examination of any mucosal variation. The ability to differentiate between normal and altered oral mucosa independently was seen in nearly half (n=76, 38.8%) of the graduates in the present study which was comparable to the finding of the study by Gaballah et al, where less than half of the study participants (n=151,15.2%) out of total 350 were able to identify the oral mucosal variation[12]. Lesser number of graduates (n=60, 30.9%) affirmed that they were proficient in describing the characteristics of a lesion which is in line with the results of Gaballah et al where a comparable number of the participants (n=57, 8.2%) were able to describe the lesion independently[12].

Clinical documentation is crucial for effective communication among dental professionals, legal protection, facilitating accurate diagnosis, treatment planning, and follow-up. In the current investigation, only 39.3% (n=77) of dental graduates considered themselves proficient in documenting clinical findings. This contrasts with the results of Alsoghier et al., where 71% of respondents were competent in documenting patient clinical notes[11].

Dental graduates should possess the skills to accurately assess abnormalities on radiographs, as they are crucial diagnostic tools for various anatomical structures and pathologies. In the current study 43.4% respondents (n=85) stated that they are competent in interpreting the normal anatomical landmarks on radiographs which is far less than the result of Qazi et al who demonstrated that 63.6% of the dentists were able to interpret dental radiographic findings[1].

The surgical sieve facilitates a structured analytical approach allowing clinicians to consider a range of differential diagnosis[18]. In the present study, an unexpected proportion of respondents (n=70, 35.7%) claimed that they only have knowledge on formulating differential diagnosis considering surgical sieve which contrasts with the finding of Bokhari et al where majority of the participants reported that they are well prepared in making differential diagnosis[9].

The study revealed that young dental professionals are struggling with transitioning from academic learning to independent practice, particularly in identifying oral lesions, ensuring comprehensive clinical documentation, and applying diagnostic skills. To improve quality of dental care, mentorship is needed along with practical training and self-assessment.

CONCLUSION

The present study highlights the strengths and weaknesses of dental graduate of Lahore, Pakistan regarding oral pathological examination. The study population was found to be competent in

communication skills, history taking and general oral examination. However, majority of the respondents had merely knowledge regarding examination of oral pathologies, surgical sieve and formulation of differential diagnosis and required supervision in these tasks. The study highlighted the need of implementing suitable educational strategies to enhance graduates' proficiency in examining Oro-facial pathologies, thereby preparing them for independent practice.

Author's Contribution:

Concept & Design of Study:	Wajiha Alamgir
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Final Approval of version:	By all above authors

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