Examination of oral cavity and related diseases by a medical student: Is the curriculum adequate?

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ABSTRACT

Knowledge regarding oral cavity and diagnosis of diseases is important for a medical student. As patients usually consult their physicians for any disease, a thorough knowledge of oral diseases can help in timely diagnosis and treatment. We designed a study to assess effectiveness of the existing curriculum with regards to confidence of medical graduates in examination and diagnosis of diseases related to the oral cavity and maxillofacial region. A multi-centric, cross-sectional study was done. Data was collected through self reported questionnaire from three hundred medical students from three universities of Nepal. Frequency, proportion, chi square tests and odds ratios were used to interpret the data to bring the final result. More than half (62.7%) of the medical students were taught to examine oral cavity and a large proportion (57.7%) had performed oral cavity examination on a patient. Among the medical students who did examine oral cavity of patients expressed highest confidence in diagnosis of dental caries (76.3%) followed by dental abscess (64.2%) and fracture of mandible (51.4%). More than 80 percent of the medical students believed that their training was inadequate with respect to diagnosis of oral diseases and conditions. The perceived inadequacy of curriculum and inability to diagnose majority of oral/dental conditions points towards the need for improvement and innovation in existing pattern of under graduate medical education in Nepal with respect to oral health.

Keywords: curriculum, medical students, oral cavity examination.

INTRODUCTION

Much has been written recently about the holistic approach to patient care but awareness of oral disease and the need for routine mouth care have both been largely neglected by many doctors.[1] Examination of the oral cavity is not routinely taught in medical schools, and research shows that medical graduates are less likely to identify and treat a number of oral or dental conditions than dental graduates.[2] We have come a long way from the times when dentistry i.e. "what dentists do" was often misunderstood by colleagues in general medicine. We live in an era where there is greater correspondence and interaction between the faculty of medicine and dentistry. In spite of this realization, there are few opportunities for clinical graduates to learn to examine the oral cavity, so highlighting the need for education and experience at undergraduate level forms the basis for future diagnosis. For too long diseases have been attached to specialties and subsequently have been given limited attention in medical curricula.[3] In Nepal, medical students are required to attend their postings in various dental departments to increase their awareness regarding various oral/dental conditions which they might face in their future clinical practice, to make them competent in diagnosis, management and referral of oral/dental patients and more importantly to make the undergraduates understand dynamics of different specialties. After all, early detection and a reduction in diagnostic delay are key to improving survival, which requires clinicians to be knowledgeable and to be equipped with the necessary clinical skills.[4] In Nepal, the production of medical graduates is much more compared to dental graduates. There is wider availability of physician services and greater perceived need for medical care. With low availability and utilization of dental care providers, the responsibility for oral cavity examination, management and timely referal falls on the physicians as well. Furthermore, research shows that even when dentists perform more number of oral cavity examinations, high-risk patients like oral cancers are normally attended by the physicians.[5] Thus, it seems imperative for the medical professionals to get trained in the field of oral/dental diseases to reduce diagnostic delay to achieve earlier detection which is a cornerstone to improve health outcomes and patient satisfaction. Keeping this in mind, a multi-centric study was designed to assess and compare confidence of medical students of three different universities in diagnosis of diseases

Table 1: Training and supervision of the medical students for oral cavity examination

	BPKIHS (n=100)	KU (n=100)	TU (n =100)	Total (n=300)
Taught to examine oral cavity				
a. Yes	60	43	83	186(62.0%)
b. No	40	57	17	114(38.0%)
Ever performed oral cavity examination on a patient	39	54	80	173(57.7%)
a. Yes	61	46	20	127 (2.3%)
b. No				
Number of times of oral cavity examination (Median, Inter Quartile Range)	3 (2 – 4)	5 (3 -10)	4(3– 6.75)	4 (3 – 6)
Supervision by doctor/dentist during examination	(n =39) 09(23.1%)	(n=54) 08 (14.8%)	(n = 80) 03 (03.6%)	(n=173) 20 (11.6%)
a. Never	19(48.7%)	38 (70.4%)	41 (51.4%)	98 (56.6%)
b. Sometimes	11(28.2%)	08 (14.8%)	36 (45.0%)	55 (31.8%)
c. Always				

related to oral cavity and maxillofacial region after completion of their dental postings. We also made an attempt to know their perception regarding the adequacy of current curriculum with regards to oral health and explore reasons for not examining the oral cavity till date. We believe that this assessment and comparison will provide some idea regarding the need for revision of present medical curricula in Nepal.

MATERIALS AND METHODS

A multi-centric, cross sectional study was conducted among medical students from three different universities namely B.P. Koirala Institute of Health Sciences, Kathmandu University and Tribhuwan University of Nepal. The medical students who had completed their dental posting and agreed to participate in the study were included in the study. Purposive sampling technique was used and data from 100 students from each university were recorded using self-reported questionnaires. The questionnaire consisted of multiple choice, multiple response and open ended questions. Information regarding their duration of posting, training and confidence in diagnosis of oral conditions and diseases, and perception regarding adequacy of the current curricula and training were recorded. The students who performed examination of the oral cavity at least once were asked the questions regarding confidence of diagnosis while those who did not gave reasons for non-examination. The descriptive data has been expressed in frequency, percentage and displayed through frequency distribution table. Comparison between the three universities has been done with the help of Chi-Squared test and Odds ratios with confidence intervals. The level of significance is set at 5%. All the reported P- values are two sided. Ethical clearance was taken from Institutional Ethical Review Board (IERB) of BPKIHS. Informed written consent was taken from all the students who participated in the study.

Table 2: Departments involved in clinical teaching of oral/dental conditions (multiple responses).

Name of the department	BPKIHS (n=39)	KU (n=54)	TU (n =80)	Total (n=173)
Oral & Maxillofacial Surgery	14 (35.8%)	06 (11.1%)	57 (71.2%)	77 (44.5%)
ENT Surgery	19 (48.7%)	22 (40.7%)	14 (17.5%)	55 (31.8%)
Plastic Surgery	04 (10.3%)	00 (00.0%)	00 (00.0%)	04 (02.3%)
Emergency Medicine	07 (17.9%)	03 (05.5%)	04 (05.0%)	14 (08.0%)
General Surgery	18 (46.1%)	01 (01.8%)	08 (10.0%)	27 (15.6%)
General Medicine	17 (43.6%)	04 (07.4%)	04 (05.0%)	25(14.5%)
Dermatology	02 (05.1%)	00 (00.0%)	02 (02.5%)	04 (02.3%)
General Practice	08 (20.5%)	01 (01.8%)	15 (18.7%)	24 (13.9%)

Table 3: Percentage distribution and odd ratios regarding confidence in diagnosis of oral conditions among medical students of three universities.

Oral Conditions	University	Count	Percent	Odds Ratio	95% CI	P value
Cancer of the Lip or Oral Cavity	BPKIHS	18	46.2%	----		
	KU	16	29.6%	2.04	0.86 – 4.80	0.25
	TU	31	38.8%	1.35	0.63 – 2.94	
	Total	65	37.6%			
Oral Manifestation of Dermatological Disease	BPKIHS	19	48.7%	----		
	KU	14	25.9%	2.71	1.13 – 6.50	0.77
	TU	29	36.3%	1.67	0.76 – 3.62	
	Total	62	35.8%			
Oral Manifestation of Gastrointestinal Disease	BPKIHS	17	43.6%	----	**1.09 – 6.66**	**0.01**
	KU	12	22.2%	**2.70**	0.29 – 1.37	
	TU	44	55.0%	0.63		
	Total	73	42.2%			
Oral Manifestation of Hematological Disease	BPKIHS	17	43.6%	----		
	KU	17	31.5%	1.68	0.71 – 3.95	0.44
	TU	32	40.0%	1.15	0.53 – 2.51	
	Total	66	38.2%			
Oral Manifestation of Facial Trauma	BPKIHS	17	43.6%	----		
	KU	15	27.8%	2.01	0.84 – 4.79	0.28
	TU	27	33.8%	1.16	0.53 – 2.52	
	Total	59	34.1%			
Oral Mucosal Abnormality	BPKIHS	18	46.2%	-----		
	KU	18	33.3%	1.71	0.73 – 3.99	0.06
	TU	43	53.8%	0.74	0.34 – 1.59	
	Total	79	45.6%			
Dental Caries	BPKIHS	29	74.4%	**-----**	**1.18 – 7.09**	**<0.01**
	KU	27	50.0%	**2.90**	**0.04 – 0.52**	
	TU	76	95.0%	**0.15**		
	Total	132	76.3%			
Normal Variants of Oral Anatomy	BPKIHS	15	38.5%	----		
	KU	17	31.5%	1.36	0.57 – 3.22	0.09
	TU	40	50.0%	0.63	0.29 – 1.36	
	Total	72	41.6%			
Dental Abscess	BPKIHS	17	43.6%	**----**		
	KU	21	38.9%	1.21	0.53 – 2.80	**<0.01**
	TU	73	91.3%	**0.07**	**0.02 – 0.20**	
	Total	111	64.2%			
Fracture of Maxilla	BPKIHS	18	46.2%	----		
	KU	12	22.2%	**3.00**	**1.22 – 7.37**	**<0.01**
	TU	29	36.3%	1.50	0.69 – 3.27	
	Total	59	34.1%			
Fracture of Mandible	BPKIHS	25	64.1%	-----		
	KU	15	27.8%	**4.65**	**1.91 – 11.25**	**0.04**
	TU	49	61.3%	1.13	0.52 – 2.49	
	Total	89	51.4%			
All the conditions	BPKIHS	04	10.2%	-----		
	KU	12	22.2%	0.40	0.11 – 1.35	**0.001**
	TU	26	32.5%	**0.23**	**0.07 – 0.73**	
	Total	44	25.4%			
None of the conditions	BPKIHS	01	02.6%	-----		
	KU	21	38.9%	**0.04**	**0.005 – 0.32**	**0.02**
	TU	01	01.2%	2.07	0.12 – 34.14	
	Total	23	13.3%			

Table 4: Reasons for not examining oral cavity among medical students of three universities of Nepal.

Reasons for non examination	BPKIHS (n=61)	KU (n= 46)	TU (n=20)	Total (n=173)
Lack of opportunity	23 (37.7%)	15 (32.6%)	08 (40.0%)	46 (26.6%)
Not part of curriculum	19 (31.1%)	10 (21.7%)	05 (25.0%)	34 (19.6%)
Not permitted	14 (22.9%)	05 (10.7%)	04 (20.0%)	23 (13.3%)
Lack of interest	05 (08.3%)	16 (34.8%)	03 (15.0%)	24 (13.9%)

RESULTS

Data from 300 medical students of three different medical universities were recorded. More than half of the students were males (66.3%). The duration of posting was two weeks for BPKIHS and TU while was only one week for KU students. In BPKIHS curriculum, the dental posting is in 7th semester while in KU and TU it is done during 8th semester.

Training and supervision of medical students

More than half of the medical students were taught to examine oral cavity and a large proportion did perform oral cavity examination on a patient. However, on an average the frequency of examination was only 4 times during their clinical posting. More than a quarter of students were supervised always and students of TU were supervised more frequently compared to BPKIHS and KU students. (Table 1)

Departments involved in clinical teaching related to oral/dental medicine.

The students from BPKIHS and KU were taught to examine oral cavity mostly in ENT surgery while TU students were taught mostly in department of Oral and Maxillofacial Surgery. (Table 2)

Comparison among medical students regarding confidence in diagnosis of oral/dental conditions

The medical students who did examine oral cavity of patients expressed highest confidence in diagnosis of dental caries followed by dental abscess and fracture of mandible. Only about a quarter of the students had confidence in diagnosing all the oral health conditions. More than one tenth of the patients had no confidence in making even a single diagnosis about any of the mentioned dental/oral conditions. The percentage distribution shows that with respect to all the mentioned conditions, the medical students of TU and BPKIHS had higher confidence in diagnosis them compared to that of KU. Comparison of proportions also reveals that BPKIHS students had higher confidence in diagnosis of cancer of lip/oral cavity, oral manifestations of dermatological diseases, oral manifestations of hematological diseases, oral manifestations of facial trauma, fracture of maxilla and fracture of mandible than KU and TU students. The TU students had highest confidence in diagnosis of oral manifestations of gastrointestinal diseases, oral mucosal abnormality, normal variants of oral anatomy, dental caries and dental abscess. The students of BPKIHS were two times more likely to have confidence in diagnosis of oral manifestation of gastrointestinal diseases compared to KU students (OR 2.70, 95% CI 1.09 – 6.66). With respect to dental caries, the students of BPKIHS had almost three times higher confidence compared to KU students (OR 2.90, 95% CI 1.18 – 7.09), while the odds of confidence were 85 per cent higher among TU students compared to students of BPKIHS (OR 0.15, 95% CI 0.04 – 0.52). Similarly, the odds of confidence in diagnosing dental abscess was 93 per cent higher among TU students compared to that of BPKIHS students (OR 0.07, 95% CI 0.04 – 0.52). In context of confidence in diagnosis of fractures, the BPKIHS students had three times higher odds compared to KU students in relation to maxillary fractures (OR 3.00, 95% CI 1.22 – 7.37). Also, the odds were four times higher in relation to mandibular fractures for BPKIHS students when compared to KU students (OR 4.65, 95% CI 1.91 – 11.25). Compared to BPKIHS, TU students had 77 per cent more likely to be confident in diagnosis of all the oral conditions (OR 0.23, 95% CI 0.07 – 0.73), while KU students were 96 per cent more likely not to diagnose a single oral condition compared to BPKIHS and TU students (OR 0.04, 95%CI 0.005 – 0.32). (Table 3)

Reasons for not examing the oral cavity.

Lack of opportunity was the most frequent (26.6%) reason among medical students who had not examined the oral cavity. A large proportion (19.6%) of the students believed that oral cavity examination was not part of their curriculum.(Table 4)

Perception regarding adequacy of the current medical curriculum.

More than 80 percent of the medical students believed that their training was inadequate with respect to diagnosis of oral diseases and conditions. The students of KU expressed the inadequacy of the current curriculum in highest proportions followed by TU and BPKIHS. (Fig 1)

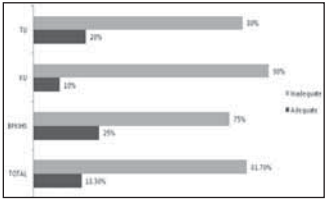

Fig. 1. Perception of medical students regarding adequacy of current curriculum for diagnosis of oral conditions.

DISCUSSION

According to our study, the majority of respondents of all three universities felt their curriculum was inadequate with respect to examination of oral cavity. In comparison to KU and BPKIHS, TU students showed greater confidence in diagnosis of oral/dental conditions. More than half of the medical students were taught to examine oral cavity and a large proportion did perform oral cavity examination on a patient which is very high compared to a UK based study.[3] More than 30 per cent of the medical students did oral cavity examination under supervision in our study which is almost twice of what is reported in the literature.[3] The medical students who did examine oral cavity of patients, expressed highest confidence in diagnosis of dental caries followed by dental abscess and fracture of mandible. Studies have shown that undergraduate students have gaps in their knowledge about the risk factors for oral cancer, preventive measures, and signs associated with early forms of oral malignancy and only 37.6% of medical students who did examine oral cavity had confidence in diagnosing oral cancer in the current study[6, 7]. It has been reported that neither doctors nor medical students are adequately educated about oral diseases, and have a poor awareness regarding oral cancer.[1,2] Further, when compared to dental faculty they are less likely to diagnose oral/dental conditions correctly.[1]

The confidence of KU students in diagnosis of oral/dental conditions is significantly lower than students of BPKIHS and TU. This can be due to the fact that their clinical postings in dental departments lasts only for one week. Another major reason could be that there is no separate evaluation scheme of oral health for students under KU. The reasons for poor performance could be due to lack of training and opportunity for the medical students, which has been recognized by other studies as well.[1] The patients are mostly referred to department of oral and maxillofacial surgery and oral medicine due to which they probably get less exposure in their other clinical postings. Some of the students even felt that it was not part of their curriculum and some were not interested as well. This shows that their knowledge about medical education and curriculum of their university is lacking. More than 80 per cent of the medical students from the three universities of Nepal felt that the current curriculum is inadequate.

The present study did not include all the colleges under KU and TU of Nepal and used a non-probability sampling technique, thus, extrapolation of the results to other medical students and universities which were not involved in the study is a concern. The present study only assessed perception of medical students and did not examine their diagnostic skills to validate the results. The perceived inadequacy of curriculum and inability to diagnose majority of oral/dental conditions points towards the need for improvement and innovation in existing pattern of medical education in Nepal. The training and skills received by doctors during their undergraduate days is pivotal for their successful clinical practice. The undergraduate medical curriculum which familiarizes students with common dental diseases and oral health conditions, should improve their diagnostic competencies. More initiatives can be taken in this direction to reap benefits of increased ability of physicians to recognize oral diseases in all sections of the population which is particularly important in Nepalese context.

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REFERENCES

1. Carter LM, Ogden GR. Oral cancer awareness of undergraduate medical and dental students. *BMC Med Educ* 2007;7:44-51.
2. Gillison ML. Current topics in the epidemiology of oral cavity and oropharyngeal cancers. *Head Neck* 2007;29:779-92.
3. Gomez I, Warnakulasuriya S, Varela-Centelles PI, Lopez-JOmet P, Suarez-Cunqueiro M, Diz-Dios P, Seoane J. Is early diagnosis of oral cancer a feasible objective? Who is to blame for diagnostic delay? *Oral Dis* 2010;16:333-42.
4. McCann PJ, Sweeney MP, Gibson J, Bagg J. Training in oral disease, diagnosis and treatment for medical students and doctors in the United Kingdom. *Brit J Oral Max Surg* 2005;43:61-4.
5. Niriordain R, McCreary C. Oral cancer – current knowledge, practices and implications for training among an Irish general medical practitioner cohort. *Oral Oncol* 2009;45:958-62.
6. Yellowitz JA, Goodman HS. Assessing physicians' and dentists' oral cancer knowledge, opinions and practices. *J Am Dent Assoc* 1995;126:53-60.
7. Shanks LA, Walker TWM, McCann PJ, Kerin MJ. Oral cavity examination: beyond the core curriculum. *Brit J Oral Max Surg* 2011;49:640-42.