



ORIGINAL RESEARCH ARTICLE

DENTAL STUDENTS' PERCEPTION TOWARDS INTERNAL MEDICINE

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Received: 20 Oct, 2021

Accepted: 26 Nov, 2021

Published: 25 Dec, 2021

**Key words:** Dental Students; Internal medicine; Perception.

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DOI: <https://doi.org/10.54530/jcmc.552>

**Citation**

Shrestha DS. Dental students' perception towards internal medicine. Journal of Chitwan Medical College. 2021;11(38):64-8.



Peer Reviewed

**ABSTRACT**

**Background:** A qualified dental surgeon is expected to be well versed in the essentials of medicine. However, many factors may affect their interest level, which may determine how well they learn to be a competent practitioner. This study aimed at understanding the interest of students towards internal medicine and to explore ways for enhancing their interest.

**Methods:** It was cross-sectional study conducted amongst students from third year, fourth year and internship at People's Dental College and Hospital after Institutional Review Committee approval. The study took place during February 2021 to March 2021. SPSS version 21 was used to perform Chi square test to see association of different variables.

**Results:** Most students (93.7%) were interested in internal medicine. Cardiovascular and respiratory system were most interesting topics. Total 86.7% students agreed that learnings in medicine will be useful. However, 47.6% and 49.7% didn't think that the knowledge and skills they acquire would be enough for them. Most favored combining different teaching learning methods to increase understanding and interaction. Overall, 65% of students felt time allotted for internal medicine was inadequate and 40.2% proposed to include it in third and fourth years. Majority (51%) recommended more emphasis on practical classes and demonstration.

**Conclusions:** Combining different teaching learning methods appealing to the participants should be used to enhance their understanding and to increase interaction. Revision at the end of lecture is necessary. Increased years of teaching with focus on applied knowledge, enhanced clinical exposure and practical placements during internship would be helpful.

**INTRODUCTION**

Dentistry and medicine are very closely related, to the extent that some even consider dentistry as a specialty of medicine. A systemically ill patient may develop oral symptoms and seek consult with the dental surgeon. Holistic care would demand a good foundation of solid medical knowledge, which is expected from dental students to be a competent practitioner.<sup>1,2</sup> Supporting this fact the number of internal diseases, disorders and syndromes (IMDDSs) encountered in dental practice is found to increase. Dentists have often reported to feel ill prepared for the management of IMDDSs by their undergraduate dental training. It has been suggested that there is an increased need to focus on IMDDSs encountered by dental students to increase the effectiveness of internal medicine training.<sup>3</sup>

The students undertaking the bachelor of dental sciences (BDS) under the Tribhuvan University in their curriculum have subjects in internal medicine in their third year. A competent dental surgeon is expected to be well versed in the essentials of medicine. However, many factors may affect their interest in the field, which may determine how well they are versed in learning the basics to be a competent practitioner.

Thus, this study aims at exploring dental students' perception regarding internal medicine and also, to determine ways to enhance their interest.

**METHODS**

A cross sectional study was conducted after the study proposal was approved by the Institutional Review Committee of Peoples Dental College and Hospital (PDCH). The research was conducted through a validated questionnaire tool that was distributed to the study participants which was filled by the participants in their classroom and submitted back. The study took place amongst the students in the session of 2077/2078 during the months of February 2021 to March 2021. The research was conducted amongst the dental students in their third year, fourth year and in their internship at PDCH. These comprised of students who had been taught subjects of Internal medicine.

Those on leave during the study and those who did not provide consent were excluded from the study. Those who didn't feel comfortable answering the questions and decided not to return the questionnaire were given full autonomy to discontinue. Hence, all the 143 students who consented for the study,

amongst the 162 students belonging to third year, fourth year and those in their internship at PDCH were included. Census sampling method was adopted for the study.

A self-designed instrument with 20 questions, was developed to collect information regarding general characteristics, preferences for various teaching learning methodologies and attitude towards internal medicine. Informed consent was obtained from all the participants and self-answerable questionnaire was distributed to them, which was collected once filled. Questionnaire was tested by piloting it on 10% of sample size population consisting of BDS graduates from PDCH. The questionnaire was discussed with two lecturers of internal medicine at PDCH as experts. They rated the questionnaire as to its content, construct and external validity. The questions to which both the lecturers agreed upon were included with any suggested modifications.

The questionnaire was in English since all PDCH graduates, lecturers and students were versed in written and oral English. The internal consistency of the questionnaire was estimated by the Cronbach's alpha value. The questions with Cronbach's alpha value above 0.7 were included in the questionnaire.

The data was entered using MS excel and analyzed using SPSS software version 21 to derive our desired descriptive and inferential statistical findings. Chi square test was performed to see association of different variables.

**RESULTS**

Majority of participants 77.6 % were female and 18.9 % were males. Most of them (44.1%) were doing their internship, 31.5 % were in their third year and 24.5 % were in their fourth year. The age distribution of the participants was ranging from 20 years to 27 years with a mean age of 23.32 years and standard deviation (SD) of 1.64 (Table 1).

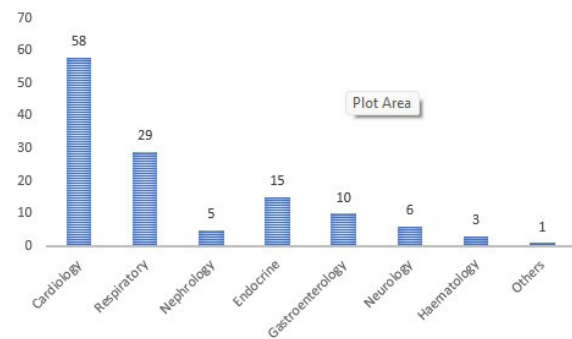
**Table 1: General characteristics of the dental students**

Characteristics	N (%)
<b>Gender</b>	
Male	27 (18.9)
Female	111 (77.6)
Non-response	5 (3.5)
<b>Education</b>	
Third year	45 (31.5)
Fourth year	35 (24.5)
Internship	63 (44.1)
<b>Age</b>	
Range (years)	20-27
Mean years ± SD	23.32 ± 1.64

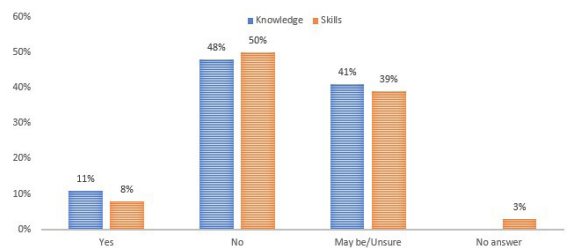
Majority 134 (94.36%) were interested in internal medicine, 8 (5.6%) were not interested and one respondent did not answer (Figure 1).

Regarding the most interesting system in internal medicine 58 (43.3%) chose cardiology followed by respiratory system

(21.6%), endocrine (11.2%), gastroenterology (7.5%), neurology (4.5%), nephrology (3.7%), hematology (2.2 %), musculoskeletal system (0.7%) and 4.5% did not answer (Figure 2).

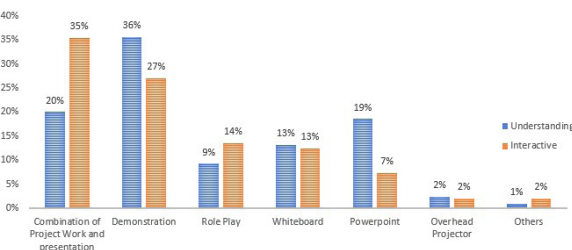


**Figure 1: Dental students' preferred systems in internal medicine**



**Figure 2: Dental students' thought on sufficiency of acquired knowledge and skills to practice once they graduate**

Majority 124 (86.7%) agreed that the subject matters learned in internal medicine will be useful to them for their future practice. However, 47.6% and 49.7 % didn't think that the knowledge and skills they acquire would be enough for them.



**Figure 3: Preferred teaching method by dental students for both understanding and interaction**

The students responded that to help understand a subject matter, demonstration was most useful (36%) followed by project works/presentations (20%), powerpoint (19%), whiteboard (13%), roleplay (9%), overhead projector (2%) and others (1%). As for the most interactive method majority felt project work/ presentations (35%) were the most interactive tool followed by demonstrations (27%), roleplay (14%), whiteboard (13%), powerpoint (7%), overhead projector (2%) and others (2%).

The majority of respondents favored combining different teaching learning methods to help increase their understanding

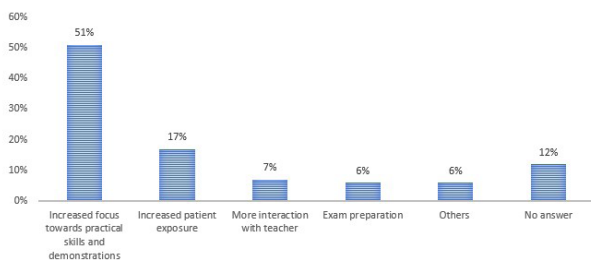
(97.2%) and interaction (91.6%). Combination of demonstration and project works as the most preferred combination for both.

**Table 2: Most preferred reading material by dental students**

Preferred reading material	N (%)
Standard Textbooks	65 (45.5)
Self-prepared notes	64 (44.8)
Teacher's notes	12 (8.4)
Internet	1 (0.7)
No answer	1 (0.7)

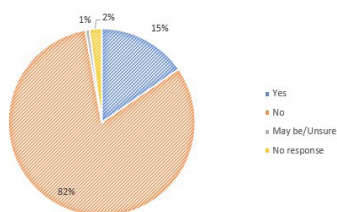
When inquired about their most preferred reading material, 65 respondents (45.5%) chose standard text books, 64 respondents (44.8%) chose self-prepared notes, 12 respondents (8.4%) chose teacher's notes, one respondent (0.7%) chose internet and one respondent (0.7%) did not answer.

Regarding the need for revision at the end of lecture, all the 143 respondents (100%) agreed that it was necessary. One hundred and forty respondents (97.9%) agreed that incorporation of clinical scenarios during theory classes were helpful, two respondents didn't agree to this and one chose not to answer. The respondents when asked about the ideal time for a lecture session, 103 (72%) chose 30 to 45 minutes, 39 (27.3%) chose 45 minutes to one hour and one respondent chose less than 30 minutes to be the ideal time.



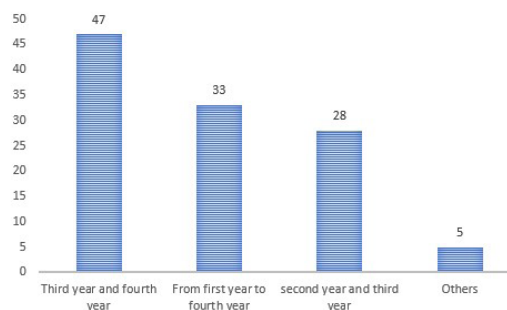
**Figure 4: Dental students' suggestions to improve interest in internal medicine**

Regarding what could be done to improve their interest in internal medicine, 71 respondents (51%) replied emphasis on developing their practical skills and demonstrations, 25 (17.5%) felt increased patient exposure could be helpful, 10 respondents (7%) emphasized on more interaction with teacher, eight respondents (5.6%) focused more on examination preparation, five respondents (3.5%) answered that the teaching should be focused to dental practices, three respondents (2.1%) pointed out on the need for more years of internal medicine teaching and two respondents (1.4%) wished for more clinical postings.



**Figure 5: Satisfaction of dental students on teaching internal medicine in third year only**

Regarding the time allotted for teaching internal medicine, 93 respondents (65%) answered it was inadequate, 45 respondents (31.5%) answered it was adequate and 5 respondents (3.5%) did not answer. One hundred and seventeen respondents (81.8%) answered that it was not enough to teach internal medicine in the third year alone, 22 respondents (15.4%) felt it was enough, one respondent (0.7%) was unsure and three respondents did not answer.



**Figure 6: Suggestions on incorporating subject of internal medicine into years of education**

Majority of the respondents 47 (40.2%) proposed internal medicine to be taught in third and fourth years, 33 (28.2%) proposed from first to fourth year, 28 (23.9%) proposed second year and third year, five (4.3%) had a different response and four (3.4%) respondents did not respond.

Most respondents 91 (63.6%) felt the curriculum was adequate, 46 respondents (32.2%) answered it was not adequate and six respondents (4.2%) had no response. Amongst those who felt the curriculum was inadequate, 19 (41.3%) proposed to focus on more practical classes with increased patient exposure and clinical interaction, 13 (28.3%) respondents proposed that the curriculum should be more practical and be based on dental practices, two (4.3%) respondents proposed to focus on life saving skills for possible emergencies to be encountered by a dental surgeon and 12 (26.1%) of respondents did not respond.

Among the participants 97 (67.8%) had already appeared for board exams in internal medicine, 45 (31.5%) had not and one respondent did not answer. Majority 77 (79.4%) respondents had passed their board exams in their first attempt whereas 20 (20.6%) could not.

Most participants 117 (81.8%) felt they didn't have enough exposure to required cases and patients, 11 (7.7%) believed they had enough exposure, 14 (9.8%) respondents were unsure about it and one respondent did not respond.

Responding to improve the teaching-learning environment, 61 (42.7%) emphasized on more demonstrations and practical sessions, 19 (13.3%) focused on more interactive classes, 12 (8.4%) pointed out on increased patient exposure, 12 (8.4%) mentioned that friendlier teacher-student relations could be helpful, 6 (4.2%) felt taking regular examinations could be beneficial and 11 respondents had other ideas.

**Table 3: Factors determining interest in subject of internal medicine**

	Interested n(%)	Not Interested n(%)	p-value
Gender			
Male	27 (100)	0 (0)	0.345
Female	103 (93.6)	7 (6.4)	
Age			
<=23 years	74 (100)	0 (0)	0.004
>23 years	56 (88.9)	7 (11.1)	
Level of Education			
Third Year	45 (100)	0 (0)	0.005
Fourth Year	34 (100)	0 (0)	
Intern	55 (87.3)	8 (12.7)	
Appeared in Board Exam			
Yes	88 (91.7)	8 (8.3)	0.055
No	45 (100)	0 (0)	
Cleared Board Exam in first attempt			
Yes	71 (92.2)	6 (7.8)	0.66
No	18 (90.0)	2 (10.0)	

It was found that all the 27 male respondents and 103 (93.6%) of female respondents were interested in internal medicine (p-value=0.34). All 74 respondents of age 23 and below were interested and amongst the respondents of age above 23 years, 56 (88.9%) were interested whereas 7(11.1%) were not interested in the subject (p-value=0.004). All 45 (100%) third year students, 34 (100%) fourth year students and 55 (87.3%) of interns were interested in internal medicine whereas 8 (12.7%) interns were not interested (p-value=0.005). Amongst the respondents who had appeared in their board exams for internal medicine 88 (91.7%) were interested in internal medicine and 8 (8.3%) were not. All 45 (100%) respondents who had not yet appeared in their board exams in internal medicine were interested in internal medicine (p-value=0.055). Amongst the ones who had appeared and cleared their board exams in internal medicine in their first attempt 71 (92.2%) were interested in internal medicine and 6 (7.8%) were not interested. Those who took their board exam in internal medicine but couldn't clear in their first attempt, 18 (90%) were interested in internal medicine and 2 (10%) were not interested (p-value 0.66).

## DISCUSSION

Over the time the teaching learning methodologies have evolved. The more traditional teaching learning methodologies have now been challenged with more innovative methods. With the advent of development in technology and easy accessibility to teaching learning materials by different mediums including the internet, the interest and preference of students have been varied. The learning environment, teaching methodologies, interactions etc. have been found to be instrumental in determining the effectiveness of learning. Ideal teaching learning method has often been directed towards increased involvement, participation and interest of students so as to create active and self-directed learning.<sup>4-6</sup> Teaching is an art

harnessed over time and cumulative experience gained.<sup>7-9</sup> However, with the changing preference of students and with options of so many teaching-learning methodologies, it has been a challenge to devise the most suited approach.<sup>10-13</sup>

It was encouraging to find that majority of the students responded to be interested in internal medicine. The respondent's population was fairly well distributed in terms of age but a significant portion of the respondents were females, most of them were doing their internship and not everyone had appeared for their board exams in internal medicine.

Mehta et al<sup>6</sup> had conducted a study amongst medical students to evaluate different teaching learning methods according to students' preference and perception where like in our study majority of the students were interested in cardiovascular system. The respondents were more interested in combination of traditional and modern teaching learning methods, such that 53% preferred combination of chalk and board with powerpoint. Whereas our study population were interested more in demonstrations and project work/presentations, perhaps pointing towards their interest for active participation.

The majority of respondents were convinced that the subject matters learned in internal medicine will be helpful for their future practice. However, most were not confident that the knowledge and skills they had acquired was enough. The participants mostly felt that the practical exposures to patients and clinical cases were inadequate. This correlates with their believe that the time allocated for internal medicine was not enough and that there should be added years of teaching medicine. The proposed ways to improve the teaching learning environment and to increase their interest in internal medicine were also focused on more clinical exposure and increased interactions. Many students favored revision of curriculum focusing on practical application to dental science. Alvarez et al. also proposes such focused courses with emphasis on communication during pre-clinical studies as a regular part of curriculum.<sup>14</sup>

Comparing the level of interest in internal medicine there was no significant difference according their gender but there was a clear significant variation as per their education level. All the students from third and fourth years were interested in internal medicine but the level of interest amongst the interns were lower and this was statistically significant. This decrease in level of interest seems to develop as the time gap between the formal teaching years of internal medicine increased. The level of interest was highest amongst the ones who were yet to appear for their board exams. The majority of participants who had appeared for their board exams in internal medicine still were quite interested in the subject. What was particularly interesting to note is that amongst the ones who had appeared for their board exams in internal medicine, majority had passed in their first attempt but the level of interest was quite high even in those who couldn't clear in their first attempt. This variation however was not statistically significant. All the respondents who were 23 years or less reported to be interested in the subject. As for those above the age of 23 years, still the majority were interested. These were statistically significant.



Age has been found to play an important role in determining the attitude amongst medical and dental students, in a study conducted by Misra et al.<sup>15</sup>

Teaching learning should be tailored as per the preference of the intended students and appropriate feedbacks can be helpful.<sup>16-19</sup> Szabó et al claim and propose implementation of innovative student-centered course designed in a problem-based learning framework to be beneficial even in traditional teacher-centered educational environment.<sup>20</sup> The mission of education is to prepare students to continue to grow in skill and knowledge. Hence, determining effective ways to enhance their interest level should always be emphasized and implemented.

The study cannot be generalized to the larger population of the dental students as the study has taken account of only the dental students who were enrolled in PDCH during the study period.

## CONCLUSION

A combination of different teaching learning methods appealing to the participants should be used to enhance their understanding and to increase interaction. Revision at the end of lecture is necessary. More time should be allotted for teaching internal medicine to the dental students with focus on applied knowledge. Curriculum revision with focus on dental applications can be helpful. Including subjects of internal medicine in years beyond the third year, with increased clinical exposure and practical placements during internship would be advisable.

**CONFLICT OF INTEREST:** None

**FINANCIAL DISCLOSURE:** None

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