**Background:** Oral and maxillofacial pathology is one of the major courses in basic sciences related to dentistry and medicine. In this, the basis of many clinical sciences is the knowledge of oral and maxillofacial diseases. Since the periodic evaluation is important in identifying issues and solving them, in this study, students' opinions were used to gather useful information for better planning in this course.

The purpose of this study is to investigate students' opinions about oral and maxillofacial pathology course in Mashhad School of Dentistry.

**Methods:** This is a cross-sectional study conducted in Mashhad School of Dentistry in 2009-2010 academic year. All students attending their third years of study or more, who had taken oral and maxillofacial pathology course and were willing to answer the questions participated in the study. The study was done on 250 students, field method was used for data gathering and the data gathering tool was a researcher made questionnaire, and census was used for sampling. After collecting data, they were coded and analyzed by SPSS.

**Results:** According to the results of this study, 63.2% of students had complete to relative satisfaction with the theoretical pathology course, and 81.6% had complete to relative satisfaction with the practical pathology course. Students mentioned the diagnosis of oral diseases as the main application of this course.

**Conclusion:** By using students' opinions about Oral and Maxillofacial Pathology course in this study, in addition to improving students' satisfaction by increasing participation and minor modifications in examination methods, we can hope an improvement in teaching quality.
INTRODUCTION

According to the constitution of the Islamic Republic of Iran and the World Health Organization’s goals, reaching health for the whole nation is necessary. Considering this fact, the main aim of the Ministry of Health and Medical Education is to reach, maintain and improve people’s health. It is obvious that training dentists should be in accordance with this aim (1). The curriculum of dentistry which has been used in dental schools throughout the country has been approved on May 20, 2000. In recent years, reviewing the curriculum of general dentistry seems inevitable, and measures have been taken in this regard. The new curriculum has been introduced to schools of dentistry (2). Periodic evaluation of the curriculum is of great importance in identifying issues and solving them.

Since students are the main receivers of dentistry education and directly face its issues, their experiences and points of view about the content, structure and quality of education are considered as a main part of quality control of the curriculum, its evaluation and a great resource for decision making (3, 4).

Oral and maxillofacial pathology deals with the nature and features of diseases concerning the oral and maxillofacial region. Thus, pathology is important regarding health care in medicine and dentistry. It is obvious that all dentists, general and specialist, should have adequate information about pathogenesis, clinical presentations, treatment and prognosis of oral diseases (5).

In the curriculum of dentistry, pathology is considered as an important basic science relating dentistry to medicine and is the basis of learning many principles of clinical courses. In the current curriculum, this course has six theoretical and practical units, and in the new curriculum, along with the practical course, the theoretical course includes systemic diseases, diagnostic dentistry, tooth decay, pulp and periapical diseases, which deals with the origin, diagnosis, control and management of patients with lesions in oral and maxillofacial region and its reports are considered as gold standard in diagnosis (5, 6). A study by Gregoriam in 2002 showed the importance of basic sciences in solving clinical issues by dentists. Pathology, as a theoretical science, has a close connection with the clinic. Today, many new methods as tissue biochemistry, electron microscope and radioisotope are available for pathologic studies (7).

Since students are rather uninterested in learning the material of this course, efforts should be made in this regard so that they learn better. A study by Jahantigh et al. in 2010 investigating educational needs of restorative dentistry by alumni opinions showed that there are some deficiencies in the restorative course (2). In the study of Sanatkhani et al. regarding students' opinions about teaching and evaluation method in clinical courses in Mashhad School of Dentistry, students believed that there is no significant difference in teaching and evaluation methods among different departments (8). Henzi investigated the dentistry curriculum in different schools of dentistry in the United States and Canada in 2007 and concluded that students are satisfied with their educational experiences in general (9). Unfortunately, no study has been done about basic sciences.

Investigating students’ opinions helps better planning to improve the educational quality of the pathology course by modifying the volume, content, number of units and teaching hours of the course. In a study by Moezi in 2009, 89% of the participated students confirmed the efficiency of evaluation by professor and 53% believed this has positive impacts and mentioned scientific knowledge and teaching method as features of a good professor (10).

The purpose of this study was to investigate students’ opinions about oral and maxillofacial pathology course in Mashhad School of Dentistry in 2009-2010 academic year to be a basis for future studies.

METHODS

This is a cross-sectional research conducted on 250 students of Mashhad School of Dentistry who were passing their third to sixth years of study in 2009-2010 academic year. Census was used for sampling. All students in their third to sixth years of study, either were passing or have passed the pathology course, and were willing to answer the questions participated the study. Students who have passed oral and maxillofacial pathology in other universities were not participated. Also, students could be excluded from the research while answering the questions if they were not willing to continue. Field method was used for data gathering, and data gathering tool was a researcher made questionnaire consisted of 21 questions, which was designed by consulting with oral and maxillofacial pathology members of faculty. The questionnaire was consisted of closed and open-ended questions covering different aspects of teaching oral and maxillofacial pathology.

For validation, the questionnaire was presented to four faculty members of the oral and maxillofacial pathology department and their opinions were included in the questionnaire. To investigate the reliability of the questionnaire, a pilot study was conducted on 40 students in two sessions with two-week intervals; the reliability coefficient was upper than 70 percent. In the second semester of the 2009-2010 academic year, unnamed questionnaires were distributed among students of third, fourth, fifth and sixth years. Students were informed about the subject and goals of the questionnaire before filling it. After gathering the questionnaires, they were coded (multiple choice questions were coded based on the number of choices) and were descriptively analyzed using statistical software and tests.

Variables investigated in this study were the students’ attitudes toward different aspects of theoretical and practical courses of oral and maxillofacial pathology, and their success rate in passing the course, which were calculated using the frequency of answers to each question. These questions were about students’ opinions regarding the necessity of passing oral and maxillofacial pathology course, the number of course units, schedule, teaching method, examination method, application in other fields of dentistry, and the effectiveness of this course in diagnosis and treatment of patients.
Most students (68.8%) believed that it is better to pass theoretical and practical pathology in the third year, like the current curriculum. (Table 2).

Most students were relatively satisfied with the teaching methods (Table 3). Regarding educational improvement methods, 42.9% of students chose quizzes, 16.5% chose only lecturing, 8.2% chose question and answer, and 25.3% chose teacher-student participation.

Regarding the evaluation methods, most students (86.6%) preferred multiple-choice questions (Table 4).

Regarding the application of oral pathology course’s results in other dentistry fields, students believed that it is mostly applicable in the diagnosis of oral diseases and least in prosthesis (Table 5).

Regarding the necessity of oral pathology in dentistry, the following topics were believed to have the most importance respectively: identifying diseases of the oral cavity and maxillofacial diseases (25%), no necessity (18.7%) and identifying pathologic lesions microscopically and how to diagnose them (14.6%, Table 6).

**DISCUSSION**

Periodic investigation of teaching and evaluation methods is significantly important in identifying issues and solving them.

---

### Table 1. Students’ opinions about the number of units of theoretical and practical pathology course

<table>
<thead>
<tr>
<th>Course</th>
<th>Is low n (%)</th>
<th>Is high n (%)</th>
<th>Is appropriate n (%)</th>
<th>have no idea n (%)</th>
<th>Total n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theoretical pathology 1 and 2</td>
<td>15 (6)</td>
<td>106 (42.4)</td>
<td>101 (40.4)</td>
<td>28 (11.2)</td>
<td>250 (100)</td>
</tr>
<tr>
<td>Practical pathology 1 and 2</td>
<td>25 (10)</td>
<td>64 (25.6)</td>
<td>136 (54.4)</td>
<td>25 (10)</td>
<td>250 (100)</td>
</tr>
</tbody>
</table>

---

### Table 2. Students’ opinions about years when it is more appropriate to pass theoretical and practical oral pathology

<table>
<thead>
<tr>
<th>Students’ opinions</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same as current curriculum</td>
<td>172 (68.8)</td>
</tr>
<tr>
<td>Should be continued to fourth year</td>
<td>38 (15.2)</td>
</tr>
<tr>
<td>Should be continued to fifth year</td>
<td>23 (9.2)</td>
</tr>
<tr>
<td>Should be continued to sixth year</td>
<td>17 (6.8)</td>
</tr>
<tr>
<td>Total</td>
<td>250 (100)</td>
</tr>
</tbody>
</table>

---

### Table 3. Students’ satisfaction with the methods of offering courses in theoretical and practical pathology

<table>
<thead>
<tr>
<th>Course</th>
<th>Completely satisfied n (%)</th>
<th>Relatively satisfied n (%)</th>
<th>Unsatisfied n (%)</th>
<th>Total n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theoretical Pathology</td>
<td>13 (5.2)</td>
<td>145 (58)</td>
<td>92 (36.8)</td>
<td>250 (100)</td>
</tr>
<tr>
<td>Practical Pathology</td>
<td>33 (13.2)</td>
<td>162 (68.4)</td>
<td>55 (22)</td>
<td>250 (100)</td>
</tr>
</tbody>
</table>
Universities should constantly improve their educational quality (11). In Iran, first efforts for continuous evaluation of higher education were made in 1978 (8). In some studies, opinions of graduate dentists were used to evaluate educational system. Stewardson et al. investigated the ability of dentists in root canal therapy using their own feedbacks; subjects believed that their problem is mostly due to being unfamiliar with new techniques and equipment (12).

In 2011 Sivamalai et al. investigated teaching pathology using online digital microscope based on feedbacks of 53 medical students of James Cook University in their fourth and fifth years (13). Semyari et al. conducted a study in 2002 to investigate the efficiency of restorative and periodontology departments in reaching educational goals; the results showed that a review in curriculum and educational system seems necessary (14).

Most studies about dentistry curriculum are conducted on professional institutions, alumni, faculty members, educational officials and dentists. There are few studies focusing on opinions of dentistry students (15). It seems that it is a better idea to evaluate educational system using students’ opinions, since they are currently facing the issues, therefore they can easily offer their opinions and solutions. Furthermore, students are more easily accessible which makes the information richer and increases validity and reliability. Henzi et al. investigated curriculum of some dental schools of North America in 2007 (9). In this study we investigated students’ opinions about different educational aspects of oral pathology course. The data gathering tool was questionnaire. The advantage of questionnaire is that it is more affordable and less time consuming and gathers a rather large amount of information. Also, it is easier to analyze questionnaire’s data compared to other methods (3).

In the curriculum of Mashhad School of Dentistry, there are...
Opinions about Oral and Maxillofacial Pathology Course

two theoretical pathology courses (2 units each) and two practical pathology courses (1 unit each). Most students believed that the number of units for theoretical pathology courses 1 and 2 is too high and only 6% mentioned that this number is low, whereas for practical pathology courses 1 and 2, most students (54.4%) believed the number is appropriate. More than half of all students (52%) believed that the volume of the pathology course material is not in accordance with its number of units (each unit equivalent to 17 hours) and it’s heavy. To explain this, we can say that most students emphasize on clinical sciences and are less willing to basic sciences, which arises the need to put more emphasis on informing students about the importance of basic sciences. No study was found that have covered all mentioned factors. It seems that the abundance and wideness of the course material along with lots of memorizing subjects can explain why students are uninterested in this course which leads to failure in gaining proper grades. According to the results of this study, more that 63% of students were moderately to completely satisfied with the teaching method of theoretical pathology course, and 82% with the teaching method of practical pathology course. Also, students were more satisfied with the teaching method of practical pathology course which may show that students are more willing to perform practical tasks. Thus, theoretical courses must be taught with methods that attracts students.

Mojabi’s study in 2002 in Ghazvin Dental School showed that 43.3% of students were satisfied with their pathology department. Also in this study, 43.3% of students evaluated the planning of practical course as moderate (16). Semyari et al. in 2003 most students had more issues in the theoretical courses of restorative than in practical courses (14).

According to this study, students mentioned these methods as the best to improve educational quality, respectively: periodic examinations, teacher-student participation, and only lecturing. In a study by Talebi et al. in 2010, 67% of students believed that in teaching clinical pathology, question and answer method is more effective than traditional method, 36.5% of students mentioned that learning through group discussion is more effective than lecturing, whereas 30% were not satisfied with group discussion (17). Current study showed that only 8.2% of students were satisfied with the question and answer method, whereas 42.9% believed that periodic examination is more appropriate in improving educational quality. In a study by Delaram et al. in 2009, 57.6% of participated faculty members used lecturing and question and answer method, 10.8% used only lecturing method and the rest used a combination of these along with lectures by students, group discussion, problem solving, ward rounds and practical training (18).

According to this study, pathology course findings are most applicable in these fields, respectively: oral diseases diagnosis, oral radiology, oral and maxillofacial surgery, whereas they are least applicable in these fields, respectively: prosthesis, restorative, and orthodontics. Although it seems that pathology has no direct relationship with other fields of dentistry, it does not mean that this field is not necessary for general dentists. Since general dentists are the first who visit oral patients, it is very essential for them to be familiar with pathology for screening and early detection of malignant lesions. As Gorganian mentioned in a study in 2002 that increase in theoretical information of dentists leads to better solving of clinical issues, and pathology, as a theoretical science, has a close connection with clinic (7).

**Conclusion:** According to this study, 86.6% of students preferred multiple-choice questions for the examination, and only 1.6% preferred OSCE questions. In a study by Noohi et al. in 2008, 84.3% of clinical faculty members participated in the study mentioned evaluation of clinical skills through OSCE as essential (19). In the study of Delaram et al. most faculty members used written tests and multiple-choice questions and 38.2% always held mid-term examinations and 88.3% considered final examination as the most important evaluation method (18).

Considering unique features of the pathology course, like being basic, difficult material and low income, measures should be taken to attract more people to continue education in this field.

According to the results of this study, students mentioned these reasons for failure in pathology course, respectively: being uninterested in the course material, difficult material, and difficult examinations. Most students believed that the number of units of theoretical pathology course is high, whereas for the practical pathology course, number of units is inappropriate. This study showed that most students are satisfied with teaching method of theoretical and practical pathology and suggested periodic examinations, teacher-student participation as methods to improve educational quality and mentioned multiple-choice questions as the best examination method.

Students believed that pathology course is mostly applicable in oral diseases diagnosis, oral radiology, and oral and maxillofacial surgery and mostly believed that the pathology course materials were rarely used in diagnosing and treatment of patients.

**ACKNOWLEDGEMENTS**

This article is taken from the thesis 2460. We highly appreciate the research deputy of Mashhad University of Medical Sciences for sponsoring this study.

**Conflict of Interest:** Authors declared no conflict of interest.
REFERENCES

18. Delaram M, Forouzandeh N. Students' evaluation methods by academic staff in Shahrekord University of Medical Sciences. Strides In Development of Medical Education, Journal of Medical Education Development Center of Kerman University of Medical Sciences 2010, 7(1): 51-6. (Persian).