

## A Survey Study Of Undergraduate Dental Students' Perception Of Pathology Course In Damascus University (Dental Students' Perception Of Pathology Course)

Research Article

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### Abstract

With COVID-19 widespread flooding all over the world, the entire medical practice as well as medical education has been effected by this pandemic spread. Efficient and clear understanding of pathology, which the basic science that investigates the etiology and pathogenic mechanisms of diseases, during this period is necessary to orient medical educators in their endeavor in planning new medical curriculum.

**Aim of study:** to evaluate students' perception of pathology course in the undergraduate stage in Syrian universities.

**Study design:** A survey study for students of medicine and dentistry was conducted using questionnaire that was delivered to the students electronically.

**Results:** 248 responses distributed to 47% of males and 53% of females. Most of them (54.7%) pointed out to the overloaded of curricula with information that is repeated in other courses. Whereas, (50.6%) agreed that the assessment methods are reliable. Still participants revealed not to choose pathology as a future career because they prefer other specialties.

**Conclusion:** We concluded that despite some weaknesses that the teaching of the pathology curricula suffers from, it still retains its importance as a specialty even if some sectors need further modifications, but it maintains many positive points as to the assessment methods and the comprehensiveness of the topics it provides.

**Keywords:** Pathology; Curricula; Syria; Undergraduate.

### Introduction

Sir William Osler once said: "As is our pathology so is our practice"; we cannot practice medicine successfully and effectively without understanding the causative factors and pathogenic mechanisms of diseases. The importance of studying a pathology in the undergraduate stage is still under debating. Some supporters of the idea of eliminating the pathology course in the undergraduate stage, argue that in medical practice more attention must be paid to the communication with patients, moreover that a greater understanding of the basic of diseases has not improved in the long term the rates of mortality and morbidity. In contrast, those who oppose that idea insists that proper communication among colleagues and latter with patients depends on a correct understanding of the medical language of pathology. [1]

Curricula in medical education have been changed in the seventies of twentieth centuries with the continuation of the division into the preclinical and clinical stages, and students view of the pre-clinical stage as bored stage and irrelevant to the real world practice. Medical education departments were established in all medical colleges in the early eighties, as well as the movement from traditional education to student-based education and encouraging students to acquire the concept of lifelong learning (LLL: life-long learning) as well as self-directed learning (SDL: self-directed learning). [2] Many papers investigated the methods of teaching pathology at the undergraduate stage. For example, in the United Kingdom, education has been shifting from the traditional teaching methods as non-interactive lectures to problem-based learning, emphasis on clinical correlations, and in meanwhile it has moved away from teaching courses as separated modules: Pathology, pharmacokinetics, biochemistry, etc. [3]. Problem-based edu-

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cation is one of the educational approaches that enable student to learn by linking him to clinical problems in which he searches to reach the relevant information after studying the case and searching for solutions. The student is given the opportunity to track the case, study and solve it within an interactive and cooperative environment, it enhances the retention of information and its later application in daily life practice. [4, 5]

## Materials and Methods

### Sample study

The population includes a representative sample of medical college students in the Syrian community; third, fourth, fifth and sixth year (the years they are studying pathology) who are subjected to inclusion and exclusion criteria.

### Ethical approval

We have received an institutional ethical approval by experts in the scientific council. (No: 1512201113)

### Inclusion criteria

1. Participant must be one of the students of the medical college in Syria.
2. Participant must have studied a general and / or systemic pathology course.

### Exclusion criteria

1. Failed the exam one or more times
2. To be graduated

### Data collection

The title of the research, its affiliation, an overview of the research, and the importance of the student's participation in the study were presented at the beginning of the questionnaire. Then a group of questions relating to the gender, academic year, and the average degree in the pathology were introduced, followed by the questions related to our research. The data were collected during the first three months of 2021.

### The questionnaire module

A closed and open questionnaire was designed. The closed questionnaire included 8 questions (table 1). The questions considered the theoretical lectures and practical sessions, as well as the assess-

ment methods (exam).

In the analysis of the results in closed-questionnaire, we rely on a scale consisting of five scores (Likert tool) from 1 to 5, so that the degree of agreement of the student and the sentence in question increases with the increase in the value of the number (Strongly agree, agree, neutral, disagree, strongly disagree). When analyzing the results, the answer was assigned a value of 5 strongly agree and gradually decreased to a value of 1 for positive question and vice versa.

The open questionnaire included seven questions (table 2), which dealt with the methods preferred by students in teaching process, as well as the optimal methods of testing for both theoretical and practical session. Then there is a group of questions about the student's desire to specialize in pathology after graduation, and if his answer is no, what are the reasons. Then concluded with two questions about whether the course needs changes and what are the proposed changes.

### Validation of the content

The questionnaire was presented to a scientific committee consisting of a group of professors of pathology (appendix 1). Then the questionnaire was distributed to a random sample of students (20 medical students) in the form of an interview to ensure the clarity and comprehensiveness of the questionnaire questions.

After ensuring the clarity of the questions and analyzing the results of the pilot study, we made the required adjustments then it was published on the electronic platforms of medical colleges in Syria.

### Statistical analysis

We used SPSS software (version 22) to enter data and performed descriptive and analytical statistical study.

## Results

We obtained 248 responses distributed to 47% of males and 53% of females. 84.6% of the participants completed the required courses while 12.6% have not completed all the courses yet.

As for the average score of the student in the course, it was 11.3% of the sample, whose scores ranged between 60-70, and 36.8% had a grade between 71-80 and 41.3%, and their mark was between 81-90 and finally 10.5% of the sample scored between-91 100.

**Table 1. The questions in the closed questionnaire.**

Theoretical lectures include clinical correlations
No practical importance for this course in comparison with other courses
Some information in this course is repeated in other courses
I will consider pathology in my list for specialization in future
Exam questions corresponding to the scientific content during the academic year
The theoretical sessions is enough no need to practical sessions
I always feel unable to handle with microscope and histologic sections
There is a convergence of scientific issues between theoretical and practical sessions

**Table 2. The Questions In The Open Questionnaire.**

What's the teaching methods you prefer for the theoretical sessions
What's the most suitable exam methods in theoretical sessions
What's the most suitable exam methods in practical sessions
Do you choose pathology as specialization?
If your answer for previous question was "no" what's the reason?
Do you think the current pathology curricula need changes?
If you answer for previous questions was "yes" what's the needed changed?

**Appendix 1. Scientific Committee Participated In The Validation Of The Questionnaire.**

Name	Email	Affiliation
AnasRabata	424335@mail.muni.cz	Assistant prof. Masaryk university, Brno, Czech republic
KindaAssod	Kinda.assoud86@gmail.com	Master in pathology, Damascus university doctor at Alasad Hospital
MohsenaAldobel	aldebalmohsena@gmail.com	Master in oral pathology, Damascus university

**Table 3. Mann-Whitney test result for comparing frequencies between males and females in the questionnaire questions.**

	Repeated of information in other courses	Practical significance of the course	the proportion of future orientation in the specialty	Corresponding between practical and theoretical session	Theoretical sessions are enough
Z	-2.225	-2.432	-2.9	-2.724	-1.91
Asymp. Sig. (2-tailed)	0.026	0.015	0.004	0.006	0.056
Sig.	sig	sig	Sig	sig	No sig

**Table 4. The Kruskal Wallis test table shows the relationship between the questionnaire questions and the student's score on the course.**

	Repeated of information in other courses	the proportion of future orientation in the specialty	The level of exam questions	Corresponding between practical and theoretical session	Theoretical sessions are enough	Difficulty in using microscope
df	3	3	3	3	3	3
Asymp. Sig.	0.263	0	0	0	0.009	0.023
Sig.	No sig	sig	sig	sig	sig	Sig

**The results of closed questionnaire**

Most of the sample agrees as to presence of clinical correlation in the theoretical sessions. While participants showed that there is no practical significant of pathology in the daily practice. The majority of participants agreed that there is overlapping in the information between pathology and other courses. The responses varied about considering pathology as a future career.

Almost all the participants revealed that the exam was reliable and rational. The corresponding between theoretical and practical sessions was a subject of agreement between participants. As well as, there is an agreement as to the need to the practical sessions in addition to the theoretical ones.

The Mann-Whitney Frequency Comparison Test shows statisti-

cally significant differences in (repeated information in other courses, the practical importance of pathology, the degree of compatibility of scientific topics between theoretical and practical sessions, the future orientation to choose pathology as specialty)  $p < 0.05$  between the two groups of males and females. (table 4)

The Kruskal Wallis test shows that at the 95% confidence level there are statistically significant differences in the practical importance of pathology, the fit of questions with different levels of students, sufficiency of the theoretical part, the difficulty of dealing with the microscope; when the student's rate was low. ( $p < 0.05$ ). (table 5)

As for the responses in the open questionnaire questions, the results were as follows:

The participants expressed their opinion of the preferred meth-

ods of teaching, and the result was:

- 65.1% expressed their desire for a presentation of clinical cases and discussion of them during the theoretical and practical sessions
- 28.9% expressed their desire to have periodic tours to hospitals and their laboratories in order to have the clinical correlation of the theoretical lectures.
- 3% encouraged lecturing and teaching online
- 3% expressed their support for the traditional lectures.

When asked about the best assessment methods in the theoretical sessions:

- 59% expressed their support for the method of presenting a clinical case, followed by a set of interrelated questions related to that case
- 35.7% preferred multiple-choice questions
- A very small percentage supported the essay questions

As for the best assessment methods in the practical sessions (Arranged in descending order)

- To identify the microscopic slides (55%)
- Oral interviews (33.3%)
- Discussing each student in a seminar (30.1%)

### Choosing pathology as a specialization for the future

Most of the students answered that they do not choose pathology as a specialization for the future (53%), followed by a class that does not know whether they will choose it as a specialization (31.3%), while only a small percentage answered that it is possible to choose it as a specialization for the future (15.7%)

### Reason for refusal to choose pathology as a specialty

- 36.6% because of their love for another specialty
- 36% prefer the specialty that enables them to have direct contact with the patient
- 23.3% see it as a boring major
- 3.5% answered that they were not able to obtain high marks in the course during the academic years

### Need to change

Regarding the course's need for changes, 51.6% of the students answered that the course does not need changes, while 48.4% of the students expressed the need for changes.

## Discussion

Pathology has lost in the last decade the brightest that distinguished it among all specialties, and some opinions were approved after its importance as a course in medical education, while others insisted on its pivotal role in understanding all diseases.[1] Over the

years, pathology has undergone many changes. This has witnessed the transition in specialization choices among the graduates that moved away from pathology to specialties with direct connection with patients [6, 7]. In Syria, the teaching of pathology in the faculties of medicine is divided into two parts: general pathology and systemic pathology. General pathology is concerned with the study the basic of diseases and their mechanisms. As for systemic pathology, it studies diseases of the organs and systems. The practical part of the course depends on introducing the student to the histologic slides related to the lesions that are studying. Our study covered three main cores: theoretical sessions, practical sessions, and assessments methods (exams). The participants' responses answered that there is a repetition of information between the pathology course and other courses during the academic years ((69.7%). Participants (61.9%) revealed that they would not choose pathology as specialty in the future, and this is consistent with the study (Al-Nemer, 2019) where only 8.7% of the participants in that study expressed the possibility of choosing pathology as a specialty in the future [8].

The participants' view of the pathology curriculum was generally positive, and this is in agreement with the study of (Khonglah), although the sample's opinions were directed towards the necessity of linking with clinical cases and daily life practice. [9]

As for the closed questionnaire, participants showed that the best method they prefer in theoretical lecture would be discussion of clinical cases in the lectures is the most appropriate method of education in their opinion, and also a very small percentage expressed their support for the traditional method, unlike the study that was conducted at King bin Faisal University in the Kingdom of Saudi Arabia, in which participants pointed out to their compatibility with the traditional lectures [8]. As for the assessment methods, a high percentage of participants expressed their desire about the exams to be a clinical case with a set of questions related to it, followed by a group that supported multiple-choice questions. As for the practical examinations, 17.3% of the sample believed that the examinations based on the identification of histologic slides are sufficient, while the rest of the sample expressed the need to involve other methods such as oral interviews and short clinical essay questions. This is in line with another study in which the participants indicated that the practical examination should not be limited to the identification of tissue [9]. Accordingly, it is necessary to develop an alternative study plan to the traditional way and moving toward integration and competency based medical education (CBME) which is one of the main factors that motivate students to take responsibility for self-development and develop self-learning skills. Part of the responsibility also falls on the teacher, who must intervene and provide a helping hand in guiding students at the appropriate time by focusing on the application of knowledge and not the acquisition of knowledge. Teachers must create appropriate educational opportunities for students, provide students with references and provide constructive feedback during the practical or practical stages. [10, 11]. This will support the ongoing orientation in medical education toward the competency-based medical education. The definition of the term competencies varied according to the World Health Organization over the decades, but all of them included as the totality of knowledge, skills and personal experiences that help a person to continuously improve his performance and work more effectively. It focused on a behavioral act for the human being to perform and be complementary to the professional work (task/activity)

[12]. Although medical education has had many successes over the past century, health care has often been described as unsafe and of poor quality. Unfortunately, doctors are not sufficiently prepared for the practice. Here emerged a growing interest in competency-based medical education as an approach to help reform medical education. As a set of advanced concepts, principles, tools and approaches that can enable important reforms in medical education and this in turn enables the best outcomes for patients. It is the basic concept medical educators should take into consideration whenever they are about to develop pathology curricula or any other medical course [13, 14].

## Conclusion

We concluded that despite the overall positive outlook for the undergraduate pathology course, there are a set of weaknesses such as redundancy and narration in information and lack of clinical correlation. This is what led us to develop a new curriculum plan based on the main competencies that the student must acquire, taking into account the comprehensiveness of knowledge, skills and attitude, as well as developing a future vision towards integrating of this course with other complementary courses.

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## Conflict of Interest

The authors have no conflicts of interest to declare. All co-authors have seen and agree with the contents of the manuscript and there is no financial interest to report. We certify that the submission is original work and is not under review at any other publication.

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