



Medical Student's Perception of Diagnostic Surgical Pathology Course: Necessities, Difficulties and Solutions

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Abstract

Background: Students' perceptions and feedback have a significant impact on academic progress. The aim of this study was to determine the perceptions of medical students regarding the surgical pathology course taken by medical students at Northern Border University.

Material and methods: In this cross-sectional study, a questionnaire was given to medical students taking this course. The questionnaire comprised several items on students' attitudes toward surgical pathology. And a five-point Likert scale was used. Data were analysed using Statistical Package for the Social Science (SPSS) v 20 software. Results: One hundred and fifty three questionnaires received from the students were analysed.

Discussion and Conclusions: The answers to the questionnaire showed that 'one size fits all' approach cannot be employed for educating the students. A combination of different strategies and methods helped improve student satisfaction, particularly in regard with case presentation studies and practical's. New strategies were adopted not just for improving academic performance but keeping in mind future clinical practice, enhancing students' understanding and knowledge retention abilities.

Key words: medical student's, perception, diagnostic surgical pathology course: necessities, difficulties and solutions.

Introduction

The role and extent of basic sciences in medical curriculum have undergone several changes over the years. These changes have been designed keeping in mind the need for a balanced and integrated program that will encourage students to embrace deep learning. Medical courses should help impart students with the skill sets needed for professional

competence and personal attributes that would help them to become competent doctors. Heavy and unbalanced curriculum can force students into a cycle of rote learning with no real interest or knowledge gain [1].

In the field of medicine, Pathology sees through the divide between basic science and clinical medicine [2]. Diagnostic surgical

pathology plays a vital role in the identification of many diseases including cancer and a sound understanding of the basic principles involved is essential for efficient for early and accurate diagnosis for efficient patient care [3]. The undergraduate diagnostic surgical pathology curriculum aims to expose medical students to the basics of pathology and its importance in the identification of diseases. This is done by training medical students to be aware of the changes each disease brings about and to be able to interpret and identify the various signs and symptoms [2]. The number of students opting for pathology as career choice has significantly decreased [4,5]. Though no particular reason has been attributed to this, the student's positive or negative experience of the course during the undergraduate program can impact the choice [4]. However, some of the challenges posed include the methods of teaching, attitude of students, availability of relevant study material, course content in addition to the teachers and students themselves.

Considering that student perception and opinions significantly impact their academic progress, it is necessary, our study aims to determine the attitude of undergraduate medical students towards the diagnostic surgical pathology course being taught to them [6]. Through this study, we aim to identify the areas that need improvement in the Diagnostic Surgical Pathology coursework based on student feedback.

Aims and Objectives

The primary objective of this study was to design and use a questionnaire-based survey to assess the satisfaction levels of undergraduate medical students undertaking the Diagnostic Surgical Pathology course. The questionnaire was self-designed with 5 major categories under which several questions relevant to the coursework were listed. The response to the questions were used to identify the various

necessities and problems faced by the students and to arrive at suitable conclusions.

Listed below are the elaborate objectives in detail:

1. To analyse the attitude and perception of medical students towards Diagnostic Surgical Pathology course.
2. To identify the problems faced by medical students taking Diagnostic Surgical Pathology course
3. To identify the necessity of the Diagnostic Surgical Pathology course in the undergraduate medical curriculum.
4. Identify effective strategies to improve the Diagnostic Surgical Pathology course in the undergraduate medical curriculum.

Material and Methods:

The study was undertaken by giving the participants validated and self-designed questionnaire to the undergraduate medical students in the 5th year of their program. The total number of participants in this study was 153 (n = 153). The survey included questions that aimed to determine interest levels of the students and if they found the coursework fulfilling and useful. This was done by including five major categories representing course organization, scheduling, teaching-learning process, resources and course satisfaction within the questionnaire. Participants were requested to evaluate the questions under each category and mark their opinions as 'strongly agree, agree, neutral, do not agree or disagree'. Apart from the questionnaire itself, the students were requested to give their feedback and suggestions regarding the problems they encountered during the course. Further, they were asked as to elaborate their opinion on the necessity of Diagnostic Surgical Pathology course to be part of the undergraduate medical curriculum and what are the scopes of improvement. We have compiled the results

for each category and listed them as mean and standard deviation so as to obtain a clearer perspective of how students approached the course.

Table 1: Course Contact Hours (per semester) for Diagnostic Surgical Pathology Course

No.	Activity	Planned	Actual
1	Lecture	12	12
2	Laboratory/Studio	4	4
3	Tutorial	1	1
4	PBL	4	4
5	Case presentations	2	2
Total		23	23

Table 2: Course Learning Outcomes Assessment were done on the given format for our Surgical Pathology Course

Course learning Outcomes (CLOs)	PLOs Code	Assessment Methods	Assessment Results		Comment on Assessment Results
			Target Level/ Criterion for Success	Actual Level	
1 Knowledge :					
1.1 Write the safety precaution regarding the dealing with the surgical specimens and the different sources of error in the pathological diagnosis	K2	Written Exam			
1.2 List the morphologic features, grading, prognosis of benign and malignant lesions and their common markers.	K2				
2 Skills:					
2.1 Apply the basic pathology diagnostic techniques (macroscopic and microscopic examination, FNAC) and proper reporting of results.	S2	OSPE/ Case Presentations/ Assignments			
3 Competence :					
3.1 Communicate properly with colleagues and facilitators	C1	OSPE/ Case Presentations/ PBL /			
3.2 Operate self-learning from updated medical information from different approved sources in the web.	C2				

Course learning Outcomes (CLOs)	PLOs Code	Assessment Methods	Assessment Results		Comment on Assessment Results
			Target Level/ Criterion for Success	Actual Level	
3.3 Interpret the results of clinical laboratory data for proper problem solving and decision making	C3	Assignments			

Table 3: Feedback form used for our Diagnostic Surgical Pathology Course:

A	Various Aspects of the Course	Strongly agree	Agree	Don't know	Disagree	Strongly disagree
1	COURSE ORGANIZATION					
a	- Course was well organized					
b	- Contents of the course were integrated					
2	TIME-TABLING (lectures, Practicals, SDL, etc)					
a	- topics – interesting					
b	- course completed on time					
3	TEACHING-LEARNING:					
3.1	Lectures:					
b	- effective					
c	- lecturers - punctual					
d	- no problem with PowerPoints presentation					
3.2	Case presentation's:					
a	- Interesting					
b	- better given as lectures					
3.3	Practicals:					
a	- smoothly conducted					
b	- PowerPoints presentation - not necessary					
c	- venue/laboratory was suitable					
3.4	PBL(Problem-based learning):					
a	- questions (tests) help in my learning					
b	- discussion helps to clarify unclear concepts					
c	- useful / effective					

3.5	Assignment:					
	-suitable for learning					
	-selected topics useful and interesting					
	-Better to replace it with another learning method					
4	Resources	Excellent	Good	Satisfied	Unsatisfied	Poor
a	Lecture note					
5	As a whole .. I find the course					

Statistical analysis:

The responses obtained through the questionnaire were suitably categorized and tabulated for further analysis. The percentage of students who answered in the positive and negative for each section were calculated individually. ‘Strongly agree’ and ‘agree’ were considered as positive responses and ‘do not agree’ and ‘strongly disagree’ were considered as negative responses. The data thus obtained were processed as mean and standard deviation.

CHI-SQUARE TEST

Chi-square analysis was employed to compare the correlation between the various discrete variables of the study. The extent of correlation was presented using column percentages and p values ($p \leq 0.05$ indicated statistical significance).

Results

The overall perception towards the Diagnostic Surgical Pathology course work was positive. Out of the 153 participants, 68.3% students liked the course while, 19.77% disliked the course (Graph 2). The data collected based on the responses to the questionnaire were converted to percentages (Table 1).

This data was further presented as mean and standard deviation in order to ascertain the overall response of the students (Table 2).

a) Student profile

The self-validated questionnaire was completed by 153 medical students who were in the 5th year of their undergraduate program. Of this 50.98% of the students were male and 49.02% were female (Graph 1).

b) Teaching methods and resources

Four teaching methods were considered for the sake of this survey. This included lecture, case-based method, practical method and problem-based method (PBL). Lecture was the most preferred teaching method with 31.08% of the students opting for it (Graph 3), followed by PBL methodology which was chosen by 28.95%.

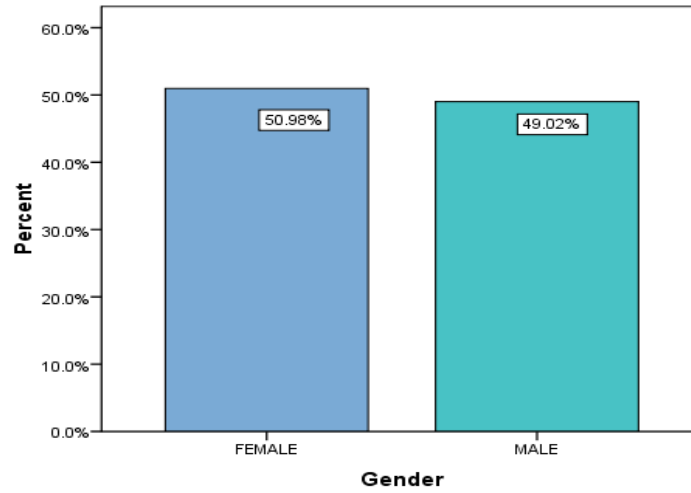
Consequently, lecture notes were the most relied upon resource material with 71.9% (Graph 4) students opting to use them over other available study material.

c) Overall attitude

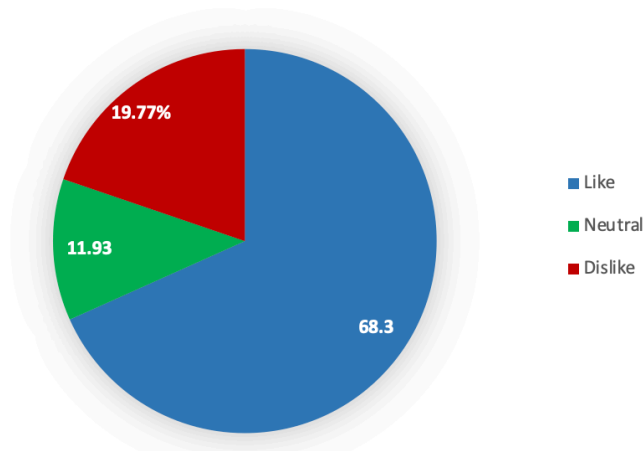
On the whole 94 students (61.44 %) out of the 153 students who were part of the survey were of the opinion that they felt the coursework was whole, fulfilling and complete while around 25 (16.34%) students strongly felt in the negative.

The chi-square analysis (Graph 6, Table 3) of gender with respect to the results of the questionnaire showed a statistically significant correlation between gender and the positive attitude towards the diagnostic surgical pathology course ($p = 0.059$).

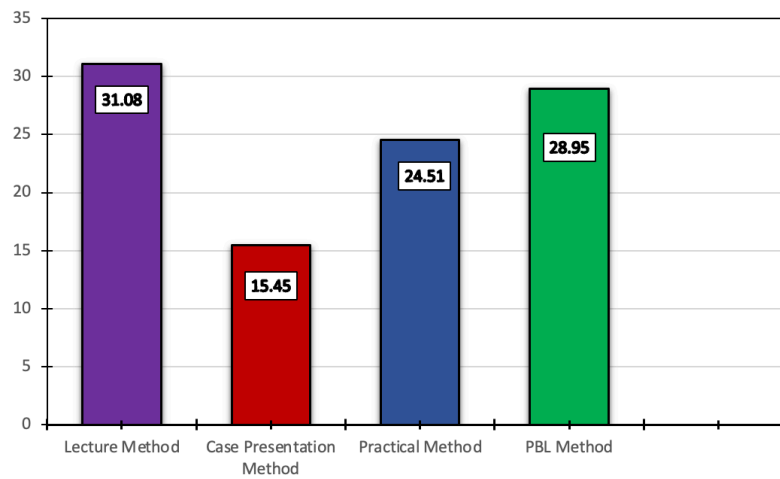
Graph 1: Percentage of Male and Female



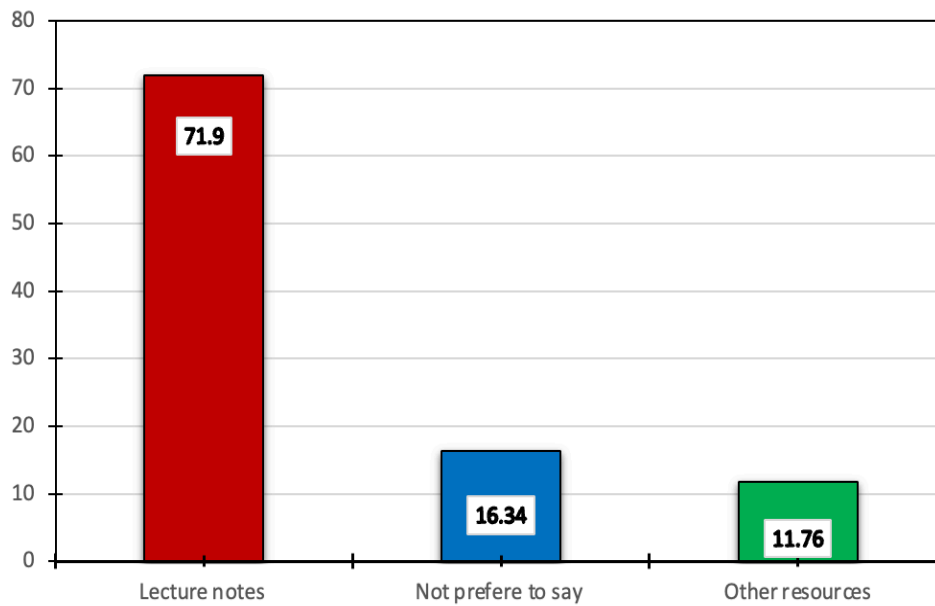
Graph 2: How much students like the course



Graph 3: Teaching methods liked by students

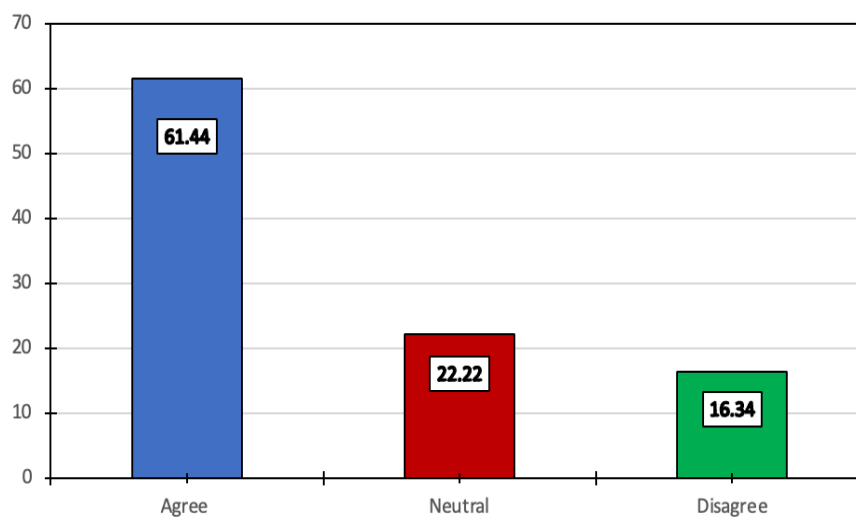


Graph 4: Type of notes used by students

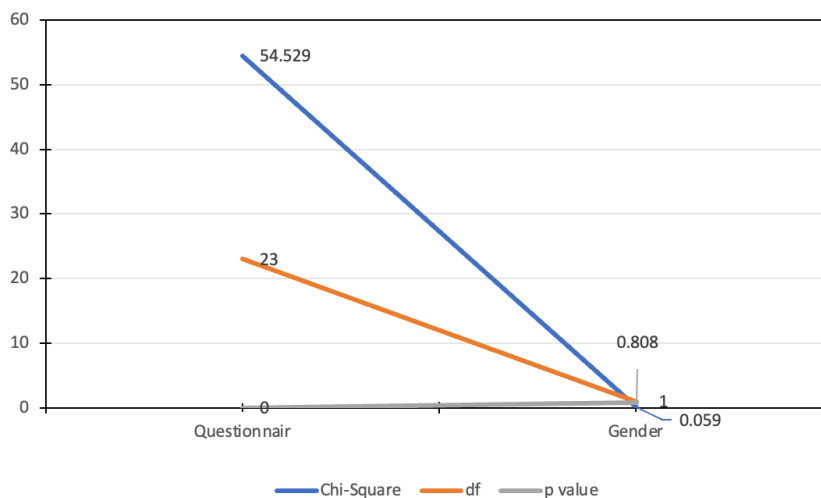


	Questionnaire	Gender
Chi-Square	54.529	0.059
df	23	1
p value	0	0.808

Graph 5: Percentage of students found this course as a whole



Graph 6: Chi-square test on Questionnaire an Gender



Discussions:

One of the biggest issues faced by medical educators is teaching pathology, a subject with a high visual content. Both "traditional" and "non-traditional" methods have been employed and modalities like the use of audio-visual tools and the use of both modern technology and conventional drawing methods have all been extensively used to teach the course. In order to maximize students' retention of the pathology knowledge they require in their clinical practice, numerous integrated curricula have been tried and adopted (Haspel et al., 2012; Malau-Aduli et al.; Atukorala & Atapattu, 2015; Lisk et al., 2016). However, little is known about the actual challenges the students encounter while attempting to spot morphologic changes in pathological tissues, and these challenges require a methodical approach. Competencies in practical histopathology may provide difficulties.

Diagnostic surgical pathology course aims to create a basic understanding of the key principles of surgical pathology and the processes involved in accurate students among undergraduate medical students [2]. Hence it is essential that students are genuinely interested and benefit from the coursework. Students tend to adopt the approach of deep learning when

the curriculum offered them a choice in the method and topic of study [1]. Thus, assessing the students' attitude and interest towards a particular course is essential for developing a balanced curriculum that will impart not just knowledge but to pique their interest to explore it further is a necessity.

The overall findings from this questionnaire-based survey gives a picture of reassurance as most of the students found the course to be complete, useful and effective. A second look at the results show the necessities of students and the problems faced by them. Though the general feedback was positive, the survey has laid bare the ways in which the course can be improved and made beneficial to all the students, not just the majority.

The answers to the questionnaire showed that 'one size fits all' approach cannot be employed for educating the students. A combination of different strategies and methods helped improve student satisfaction, particularly in regard with case presentation studies and practical's. New strategies were adopted not just for improving academic performance but keeping in mind future clinical practice, enhancing students' understanding and knowledge retention abilities.

PBL has been proved to be an effective tool in medical education. However, employing additional methods like learning using flipped classroom in coalescence can benefit students immensely [7]. Case presentations were also done with more consideration. Though, most students opted for case presentations as lectures, a significant population disagreed with the approach.

The surgical pathology course is crucial for giving medical students the fundamental understanding of disease processes they require. In our study, a significant portion of students expressed interest in this course. This was greater than the figures reported earlier studies. [8-9].

According to reports, the second-year pathology course's influence on students' attitudes about pathology was minimal without training medical students about pathology practice and extending into the clinical years [10]. Input from pathologists in preclinical years courses is also required [11]. Many respondents favoured learning pathology as a crash course alongside other clinical subjects, which was equivalent to previous studies[8-9].The effectiveness of integrated curricula in teaching laboratory medicine has been demonstrated to increase medical students' satisfaction and comprehension [12].A key learning objective that improves students' knowledge and comprehension is the knowledge about the morphology of illness [13].Additionally, it may be useful to integrate it with learning techniques like virtual microscopy.

To modify students' perceptions of the clinical significance of diagnostic pathology, more work may be necessary [14].Numerous integrated curricula have been tried and tested from a pathology perspective in an effort to maximize students' memory of the pathology knowledge they require in their clinical practice [15-18].However, little is known about the actual challenges the students

encounter while attempting to spot morphologic changes in pathological tissues, and these challenges require a methodical approach. Competencies in practical histopathology may provide difficulties.

For instance, a study found that between 1999 and 2009, pathologists' average case loads for cancer cases increased significantly. This shortfall led researchers to draw the conclusion that it is necessary to check the quality of pathology practice [19]. Keeping pathology hidden from graduating medical students, in the eyes of medical students, causes them to disregard pathology and refuse pathology residency. To better understand the value of pathology in clinical practice and the benefits of being a pathologist, it is necessary to integrate pathology into the clinical clerkships [20].

Our study aims to ascertain medical students' perceptions as well as their feedback about the course, taking into account that student perceptions and feedback have a significant impact on academic progress. A better understanding of this course in relation to other specialities and an increase in the perceived benefits of course may result from successful implementation of the course by trying to find any challenges encountered based on the students feedback.

Conclusions:

Academic achievement is significantly influenced by the opinions and evaluations of students. The purpose of this study was to find out how medical students felt about the Diagnostic surgical Pathology course. In this cross-sectional study, medical students were given a questionnaire asking students about their attitudes toward this course.

The data thus collected can facilitate the teaching methodology and curriculum design to adapt the students' requirements and keep in line with the changing trends in diagnostic Pathology. This will impart better knowledge

retention among students and kindle their interest in the subject to move them to explore it further

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