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Relooking the curriculum and assessment in undergraduate pathology

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Abstract:

INTRODUCTION: Pathology is basic science, and steps are being taken to integrate the clinical sciences in undergraduate pathology curriculum. The present study was undertaken with the aim to assess the need for revision of the undergraduate pathology curriculum with a focus on assessment methods.

MATERIALS AND METHODS: This study included a questionnaire-based, anonymous, survey in a 5-point Likert-type scale for undergraduate students who have completed pathology subject including the interns and a qualitative approach through interviews and focus group discussions from the pathology senior residents and faculties using the essentialist thematic analysis.

RESULTS: There were a total of 109 feedbacks from undergraduate students and also the interns. A total of 10 feedbacks from the senior residents and faculties were analyzed. About 70%–90% of the students were satisfied with the pathology curriculum and teaching and clinical integration in pathology. However, only 52.3% of students felt morphology being extremely important as compared to 80% of faculties, showing a discrepancy between the students' perception of the importance of morphology and that of the faculties.

CONCLUSION: Although both students and faculties find the curriculum adequate, it is suggested that teaching could be made more clinical oriented. The assessment based on morphology should be given less emphasis during the assessment.

Keywords:

Curriculum, pathology, undergraduate

Introduction

Pathology is one of the core subjects in the undergraduate curriculum that links basic science with clinical medicine.^[1] Regarding the subject of pathology, the General Medical Council has emphasized that medical graduates "must know about and understand ... abnormal structure and function, including the natural history of human diseases."^[2]

There is a growing intent among medical educators to move away from the traditional

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discipline-based curricula toward integrated curricula.^[1,2] The motive of such integrated curricula is to help undergraduate students decipher the clinical relevance of the basic sciences, to integrate the knowledge of basic sciences with other subjects, and to apply the same to make clinical decisions.^[1,3]

In India, undergraduate medical education has remained more or less static with no effective changes in the curricula.^[4] Steps are being taken to bring the changes to integrate the clinical sciences in undergraduate pathology curriculum.^[4] However, as the undergraduate pathology curriculum is

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envisioned to undergo change, so are the assessment methods that need to change with them.^[5] The present study was undertaken to assess the need for revision of the undergraduate pathology curriculum with a focus on assessment methods.

Materials and Methods

The present study targeted all the undergraduate students (200 in number) and the pathology faculties (10 in number) of the institute. All the undergraduate students and the faculties were approached.

This study included a questionnaire-based, anonymous survey in a 5-point Likert-type scale for undergraduate students. The inclusion criterion included those who had completed the subject of pathology including the interns. The exclusion criteria included those who refused to take part in the study and those who gave incomplete responses. We received a total of 109 complete responses from the undergraduate students, who have completed the subject of pathology including the interns.

We adopted a qualitative approach through interviews and focus group discussion to generate acceptable, practical suggestions from the pathology senior residents and faculties. Ten faculties including six senior residents and junior faculties and four senior faculties were interviewed. Interviews included both specific and open-ended questions [Table 1]. An essentialist thematic analysis was used, focusing on the ideas, experiences, opinions, and meanings presented by the participants.

The questionnaire on percentage weightage given during assessment to topics in pathology by faculties was made similar to the questionnaire circulated to the undergraduate students on which topic in pathology contributed most to their clinical competence, so as to enable us to make a comparison between the faculties' and the students' perception of the importance of each topic clinically. The questionnaire was designed to assess all topics that were taught in the pathology curriculum, such as general pathology, etiopathogenesis, risk factors and prevention, clinical features and complications, morphology (i.e., gross and microscopy), and laboratory investigations and interpretation. It was difficult to do an analytical test to compare the responses between the faculties and students since both the groups were different with different sample sizes. Hence, the results were highlighted in the descriptive analysis depicted in the form of a bar diagram.

Verbal consent of the participation was obtained and the participants were given an overview as to the purpose and aim of this study before proceeding. All students' responses were collected anonymously, and all students

were aware of their right to decline participation in the study.

Results

Responses from undergraduate students including interns

We received a total of 109 complete responses from the undergraduate students, who have completed the subject of pathology including the interns [Table 2].

The majority of the responders (90.8%) agreed that the pathology curriculum was adequate, whereas more than half of the students (53.2%) were neutral regarding the content being overloaded with information. Around 29.4% agreed that it was overloaded with information. Most of the students (76.1%) agreed that the curriculum content and the examination content matched closely. Regarding the integration between pathology teaching and clinical teaching, the majority of the students (69.8%) agreed that it was satisfactory and most of the students (68.8%) agreed that the present pathology curriculum prepared them adequately for clinical work.

Responses from faculties and senior residents

With a total of 10 participants, qualitative data were collected from the views of the junior faculties and senior residents of pathology as focus group discussions ($n = 6$) and views of the senior faculties ($n = 4$) as open interviews.

All the participants agreed that there is no need for a change in the curriculum. However, they felt that there is a need for more interaction in didactic lectures, integration with clinical subjects, and taking immediate short feedbacks after each class. One faculty mentioned that "we concentrate on teaching pathogenesis and how

Table 1: Questions for the interview with open-ended questions and focus group discussions

Question number	Question
1	A. What is your opinion regarding the existing pattern of pathology curriculum - do you feel we need a change? B. If you agree, what are the changes required to be introduced?
2	A. Do you think integration between pathology teaching and clinical teaching is satisfactory? B. If you do not agree, what steps could be introduced in bridging the gap between pathology teaching and clinical teaching?
3	A. Do you think it is necessary to classify the syllabus of each disease into must know, desirable to know and nice to know areas? B. Why?
4	A. What are your views regarding the existing pattern of practical assessment and viva voce? B. What are the changes required to be introduced?

Table 2: Response from undergraduate students including interns

Question	5 - Strongly agree (%)	4 - Agree (%)	3 - Neutral (%)	2 - Disagree (%)	1 - Strongly disagree (%)
Do you think pathology syllabus content is adequate?	31.2	59.6	6.4	1.8	1
Do you think the content was overloaded with information?	5.5	23.9	53.2	15.6	1.8
Do you think pathology syllabus content and examination content matched closely?	21.1	55	20.2	3.7	-
Do you think integration between pathology teaching and clinical is satisfactory?	29.4	40.4	20.2	8.2	1.8
Does the present pathology prepare you adequately for clinical work?	18.3	50.5	28.4	1.8	1

to diagnose but maybe if we instead start by telling the students why we need to study this disease and why we need to diagnose with its significance to management, it would make pathology much more interesting to the students."

The senior faculties also had similar views and stressed on integration as a means to improve pathology teaching.

All felt that there is a certain level of integration between clinical and pathology teaching; however, it may be improved by integration with the clinical subjects. One faculty suggested holding of mock clinicopathological correlations classes for every system of pathology so as to make the students understand the significance of pathology and attendance for the same should be made mandatory. The verbatim response by a senior faculty on the question on integration pathology and clinical teaching in the interview was "The pathology faculties should integrate the clinical part from their own side, as it is too early for the clinicians to take classes along with the pathologists. The pathologists should make it more problem-based learning (PBL) and more clinical oriented. When the students are in prefinal and final years, the clinical faculty can do the integrated classes and invite the pathology faculty as then the students will be more prepared to understand the importance of pathology."

All agreed that it is important to classify the pathology curriculum into must-know areas, mainly because the pathology curriculum is quite extensive and this would help in focusing the contents of the curriculum, thereby reducing the stress on students, and also help the weaker students. One faculty pointed out that "If we classify them, it will ease their burden" and one senior resident stated that "When we were students, we tried to classify it ourselves. If the teachers do it while teaching, it would be better." Another senior resident also mentioned that "we often read books written by foreign authors and what is important for them may not be so in our country, so it is better for the teachers to lay stress on the must know areas including the common disorders prevalent in our country."

Regarding the existing pattern of practical assessment, four out of six junior faculties including senior residents considered it to be alright. However, some of the verbatim as quoted by a faculty was "They should

be able to identify gross specimens and instruments, but as far as slides are concerned, I don't consider it is necessary for an undergraduate to identify the slides. We show them a considerable amount of slides, but I think that at undergraduate level slides can be scrapped off from assessment because most are not becoming pathologists and sensitization at theory classes is more than enough." One of the senior faculties opined that "I feel it should be more clinical oriented, like clinical charts for certain systems, and less hardcore pathology for undergraduates. At their level, they should understand pathology and not function like pathologists."

Weightage given during assessment to topics in pathology

The percentage of weightage given during assessment to topics in pathology both by the students and by the faculties is depicted in Table 3. On analysis of Table 3, the main discrepancy, which can be pointed out, is in the weightage given by the students and by the faculties to the importance of morphology. Only 52.3% of students felt morphology being extremely important as compared to 80% of the faculties, showing a discrepancy between the students' perception of the importance of morphology and that of the faculties [Figure 1].

Discussion

Conventionally, pathology refers to tissue pathology and is broadly divided into "general" and "systemic" pathology.^[5] General pathology includes disease mechanisms, whereas systemic pathology describes the pathological processes and their consequences system-wise.^[5] At present, there is more emphasis on integrating pathology teaching with clinical sciences so that the students learn the clinical relevance early.^[5] In the present study also, all the faculty participants were of the view that integration would go a long way in improving pathology teaching and helping the students understand the clinical relevance. This conforms to the desire of the Medical Council of India to incorporate integration of the undergraduate curricula so that the students have a comprehensive approach to learning.^[6]

In integrated curricula, the principles of general and systemic pathology are implied. This has led to widespread fear that pathology will cease to exist as a

Table 3: Percentage weightage given by students for clinical utility in different topics of pathology and given by faculties on the same topics during assessment of students

Topics	Students (n=109) Faculty (n=10)	0%-40% weightage	40%-60% weightage	60%-100% weightage
General pathology	Students	15 (13.8)	29 (26.6)	65 (59.6)
	Faculty	3 (30)	2 (20)	5 (50)
Systemic pathology	Students	5 (4.6)	34 (31.2)	70 (64.2)
	Faculty	1 (10)	5 (50)	4 (40)
Risk factors	Students	5 (4.6)	41 (37.6)	63 (57.8)
	Faculty	3 (30)	3 (30)	4 (40)
Clinical features, course and complications	Students	5 (4.6)	18 (16.5)	86 (78.9)
	Faculty	2 (20)	2 (20)	6 (60)
Morphology-gross and microscopy	Students	18 (16.5)	34 (31.2)	57 (52.3)
	Faculty	1 (10)	1 (10)	8 (80)
Laboratory investigations and interpretation	Students	4 (3.7)	24 (22)	81 (74.3)
	Faculty	1 (10)	2 (30)	7 (70)

As compared to 52.3% of students, 80% of the faculties felt morphology being extremely important (60%-100% weightage)

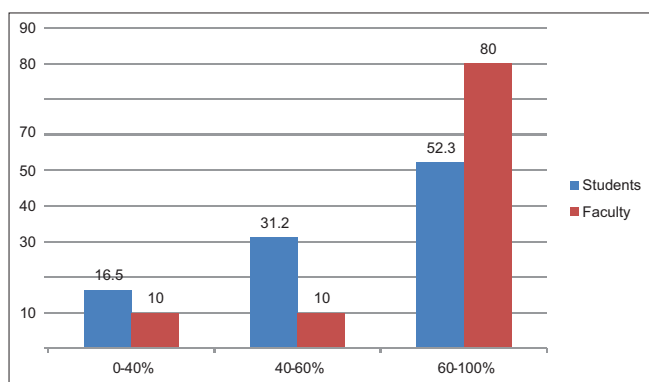


Figure 1: Bar diagram representing weightage given to morphology (gross and microscopy) by students and faculties. As compared to 52.3% of students, 80% of the faculties felt morphology being extremely important (60%–100% weightage)

separate subject.^[7,8] One of the ways to address this issue is to develop a core pathology curriculum, which would be formally taught and assessed.^[2,5] Additional material is considered optional. Another advantage of the core pathology curriculum is that it reduces the burden of information overload on the students.^[9] Similarly, in the present study, it has been emphasized that classifying the syllabus into must know areas will reduce the burden of information overload on some students.

One of the key features of the integrated curricula is the ability to solve problems through PBL.^[10] In the present study, the faculties opined that didactic lectures with the addition of PBL will make the subject more interactive.

One of the most important driving forces of student learning is the assessment.^[11] Practical assessment is an integral part of the pathology course. Conventionally, students learn and obtain practice through the use of gross specimens and slides.^[12] However, as the pathology curriculum is undergoing significant changes, so the assessment methods are bound to change.^[12] Objective structured practical examination for the assessment

of students is already being extensively used in the pathology assessment.^[12] In the present study, one of the senior faculties emphasized the interpretation of clinical charts as a more important tool of assessment in pathology than conventional methods. Another faculty also opined that less emphasis should be given on slides while assessing the undergraduate students. Regarding the weightage given during assessment to topics in pathology, there was a gross discrepancy between the students' and faculties' perception as to the importance of morphology including gross and microscopy.

The present study relied on the interview accounts and focus group discussion from which allowed for in-depth discussion and some practical and applicable suggestions toward improving the undergraduate pathology curriculum. Four main themes that emerged from this study are integration, classification of curriculum, interaction, and modification of assessment. Based on these, the authors recommend the following changes for improvement of the present pathology program: (i) integration of pathology curriculum with clinical sciences, (ii) classification of curriculum into must know, desirable to know and nice to know, (iii) making the mode of teaching more interactive by incorporating PBL along with didactic lectures, and (iv) modifying the assessment methods by giving less weightage to morphology and more weightage to interpretation of clinical charts.

The major limitation of the present study is a small sample size, which was limited to the students and faculties of a single institute. It was based in one medical institute creating bias and limiting the broader consequence of the findings.

Conclusion

The findings offer insights into the subjectivity in imparting the undergraduate pathology curriculum. Both

the students and faculties find the curriculum adequate; however, it is suggested that the delivery /teaching could be made more clinical oriented by integration and PBL. There is a gross discrepancy between the students' and faculties' perception as to the importance of morphology, including gross and microscopy. There is a need for further discussion to see if the assessment of morphology, especially slides, needs to be revised. Teachers should make a conscious effort to base assessment uniformly on all topics in pathology as one faculty stated, "At their level, they should understand pathology and not function as pathologists." Thus, four main themes that emerged from this study are integration with clinical sciences, classification of curriculum, interactive teaching methods, and modification of assessment.

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Conflicts of interest

There are no conflicts of interest.

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