

## METHODOLOGY OF FEEDBACK SYSTEM IN EVALUATING THE FORMATIVE ASSESSMENT IN UNDERGRADUATE MEDICAL EDUCATION 2<sup>ND</sup>-YEAR PHARMACOLOGY: CONCEPTS, IMPLEMENTATIONS, AND HURDLES

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### ABSTRACT

The aim and objective of the study was to determine the teaching methods and their pros and cons that predominate in students in understanding and scoring in formative and summative assessments. Pharmacology is a course that needs extra care in this direction as this field is ever-changing. It is very difficult for a student to remember the classification of drugs, names, pharmacokinetics, pharmacodynamics, indications, contraindications, side effects, and adverse drug reactions. The present study focuses on the mental level and the economical aspects of the persons involved in the establishment of the medical college.

**Keywords:** Pharmacology, Feedback, Evaluation, Medical, Education.

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### INTRODUCTION

The subject of pharmacology is always been an interesting and eye catching for the medical fraternity. In this regards, numerous of research and reviews are been published in the past to observe the perception of the medical faculty and students today's this subject [1-4]. The session-wise data collection is being carried out in the current research study. This session was unique in the sense that they were to complete the course in 11 months only. Their teaching was carried out by objectives and competencies. There is a flood of knowledge that comes to pharmacology. In our study, there were 119 students and one was drop out. There were three class tests, two terminals and one send up during 2021 who appeared in 2022. Some students did not appear in tests or terminals but in the final formative assessment maximum students appeared. At the end of the session, some were having less attendance and maximum students were not up to the mark, not only in our subject but also in microbiology and pathology too. From department, 36 students were dropped as per their assessment records, but it was decided that final formative assessment is taken as the final assessment before this session is called as send up. In this examination, only 16 students were failing. Dean of the medial college put up the case in high powered committee, college council allotted 1 month 15 days to faculty to prepare the students through feedback processes both in theory as well as practical [5,6]. This process served two advantages to make them eligible both in attendance and in theory and practical for the summative assessment.

### METHODS

A prospective study was carried out from April 2020 to February 2022. One hundred and twenty students of 2<sup>nd</sup> year session 2019, first CBME batch who appeared after 11 months for the summative assessment, were included and there was one drop out case so only 119 students were included. Pharmacology classes were delivered four classes in a week and four practical sessions comprising 2 h of two batches of one class. Other than CAL laboratory practical work is bare minimum for teaching. Skill development was given maximum time for autonomic nervous system, cardiovascular system, and general pharmacology.

Basics and terminology were the main areas where the thrust was made. Roster of the classes is already uploaded on website but in addition to that monthly rosters were issued by the department well advance and are uploaded on WhatsApp group of students and faculty. Teaching roster is also put on notice board for the information of all stakeholders. Since practical course in clinical pharmacology, clinical pharmacy, experimental pharmacology, and prescription was the topics in practical sessions. There were five faculties including Sr. tutor and 24 students' group of five were formed and were given to each faculty in 1 month. The groups were assigned on the basis of Latin square method. This is to make a homogeneous teaching learning among the students. Almost 90% syllabus was completed. The pattern of examination was made them to understand from the day 1st of session as per the CBME. Still each topic was discussed in threadbare such as long questions, short questions, very short questions, multiple choice questions (MCQs), and problems directed study as is given at the end of the lesson on Essential Medical Pharmacology, 8th Edition. Pharmacokinetics problems and P-Drug problems were taught nicely. Class tests were taken chapter wise, that is, general pharmacology and peripheral nervous system, terminal tests T1 or T2 comprised 100 marks each and the last formative assessment was scheduled as per the summative assessments. It consisted of Paper A and Paper B comprised 100 marks each and practical consisted of 80 marks plus 20 marks of viva voce. In the send up test, 119 papers were circulated to each faculty to check one allotted question in a paper so that there is no bias in marking the papers. Viva voce was performed and each student was interviewed based on specific chapters and all the 119 students were attended by the entire faculty. After summing the marks, 36 students were absent from either class tests of terminal tests. Out of these 36 students, 28 were failing and eight were passing. However, in the final formative that, we called as send up only 16 were failing and all were taken for teaching for one and a half month. Their practice in theory and practical sessions was carried through WhatsApp Group. Their feedback was taken on weekly basis. They showed improvement both in theory as well as practical. Their attendance also improved in this prospective method.

## RESULTS

There were 119 students in our study. Some students who were failing either in class tests or terminal tests were included in send up or final formative assessment. Those students who were absent or failing in these examinations were reexamined and those students whose attendance were not standard or up to the mark, were recalled for extra classes at the end of session before summative assessment. Moreover, 16 students who were failing in send up were prepared rigorously for theory as well as practical. They were given long questions, short questions, very short questions, problems like objective structured clinical examinations, MCQs. etc. As per the guidelines from dean and recommendations of the college council along with the other departments such as pathology and microbiology, feedback from students were satisfactorily recorded and some online teaching learning sessions were carried out on these students. There was almost 1 month and 15 days to carry out this practice. All these students did well and were included in the final formative assessment or send up test. We did not carry out the result of formative assessment in the missing data for those students who missed the tests during the session and who were not eligible to appear for the summative test. We included the final formative assessment for our results because it was carried out as replica of summative assessment. It comprised theory 200 marks comprising two papers of 100 marks each on the pattern of model paper which was designed by the HPU and practical 100 marks.

In the send up or final formative assessment, in Table 1, 79 students (66.4%) obtained 50–60 marks. Forty students (33.6%) obtained 61–70 marks. Table 2 in theory attendance 12 students (10.08%) got 71–80%, 33 students (27.73%) obtained 81–90%, and maximum 74 students (62.18) were included in 91–100%. It is below 100%, it denotes the range. In Table 3, in practical, 88 students (73.95%) were included in 81–90% range. Only 31 students (26.05%) were having 91–100% attendance.

In the summative assessment, the result has been declared recently, was the first batch through CBME is given in Table 4, in which three candidates were declared fail and 116 were declare pass. Only 2.52% dropped in the summative assessment and rest 97.48% passed. This summative test was conducted by the HPU University and the two

**Table 1: Theory/practical marks assessment**

Marks distribution	Number of students	Percentage
50–60	79	66.4
61–70	40	33.6

**Table 2: Theory attendance assessment**

Attendance distribution	Number of students	Percentage
71–80	12	10.08
81–90	33	27.73
91–100	74	62.18

**Table 3: Practical attendance assessment**

Attendance distribution	Number of students	Percentage
81–90	88	73.95
91–100	31	26.05

**Table 4: Result range of the students**

Number of students	Class percentage ratio	Percentage range
21	17.65	50–60
64	53.78	61–70
31	26.05	71–80

external examiners were called from outside the Himachal University from different states. They conducted the practical examination on three consecutive days in fair and confidential ways. In Table 4, the results suggested that 21 students (17.65%) got 50–60% marks, 64 students (53.78%) got 61–70%, and 31 students (26.05%) got 71–80% marks.

## DISCUSSION AND CONCLUSION

Pharmacology subject is very difficult and is flooded with new drugs. Their mechanism of action, off label use, repurposing, indication, and contraindication is very difficult to remember at the graduate level. 1424 pharmacologists participated in a survey and they discussed CBME, implementation. 90.3% responded. Sensitization workshop makes awareness among the faculty. Lack of training about CBME was the most cited reason of non-preparedness. About 70.8% pharmacologists expressed concern in reducing the teaching hours as the syllabus of pharmacology is vast and training of teachers to implement the CBME is very important [7]. In our department, three faculty members are CBME trained and all of them are resource persons and deliver talks on CBME through MEU of Dr RKGMC-Hamirpur HP. It is adequate to emphasize the academic need of reviewing the teaching program from time to time and making adequate modifications to keep pace with progress in the subject to cope with the requirements of the beneficiaries. This study assesses the need that assessed feedback of 2<sup>nd</sup> year medical students on teaching learning methodology and evaluation methods in pharmacology [8,9]. Sixteen students who were not up to standard for the summative examination were prepared and their feedback was taken for one and a half month period in different ways and they were given problems which they solved on daily basis and showed the good result in the final formative assessment and thereof in the summative assessment where only three students were declared fail.

Formative assessment is described as the process of appraising, judging, or evaluating student's work or performance and using this to shape and improve students. Quality of feedback is very important in CBME. Many factors are important in feedback, which are to create good academic atmosphere in the department, lack of motivation from students and faculty. Administration of the college has to play an important role in this regard. Dean and principal of college have played a good role to carry out the feedback from 12 students who were initially stopped to appear for the summative assessment. There is a need to develop a system of feedback at national level to get the homogeneous results in both formative as well as summative assessment. Feedback is the single most important factor that has shown to have the maximum impact on student learning and accomplishment [10,11]. The quality of feedback given to the learner is of prime importance. Its technical aspect appropriateness, accessibility, catalytic, and inspiring value to the learner [11] are largely responsible for its positive or negative pedagogical connotations. The feedback provided is only useful to the recipient to its specific, accurate, timely, and clear, focused on the attainable and expressed in a way which will encourage a person to reflect on his learning and feel the necessity to change [12]. To ensure quality feedback given in formative assessment, teachers need to be trained and an environment conducive to such a culture be facilitated. The educator must also be sensitized to the psychological needs of the recipient [13]. No matter how well intension the formative assessment is, its effectiveness is reduced, if students are not appropriately informed of what is expected from them [12].

According to Cohen, feedback is one of the most instructionally powerful and least understood features in instructional design. It is highly technical task and it cannot be assumed that faculty members who are experienced in teaching are also geared to provide feedback, a process that can either build or shatter a learner's self-efficacy. It should not be regarded as an implicit activity or as a routine part of student teaching [14]. Students training are very important. Since the opportunity to improve is one of the factors that determine the usefulness of the activity, the students must be taught how to receive

the feedback, acknowledge his deficiencies, and bridge the gap in learning through active initiatives [12].

Regulatory body has formulated eligibility criteria for the students to appear in summative assessment [15]. Apart from their performance in internal assessment, a significant weight age has been given toward maintaining the requisite attendance. As per recent norms, an undergraduate should have a mandatory attendance of 75% in theory and 80% in practical/clinical in being eligible to appear for the summative assessment in a specific subject [15]. In our study also, we made every student eligible for the summative assessment by delivering more classes to 16 students and to those who were deficient in theory/practical attendance. There is a great correlation that students with better attendance accomplished good performance than that of the students with less attendance [16,17]. As it is well known fact that in any field, students tend to have little attention span unless the teaching session is interspersed with some of the other kind of interactions to ensure that students remain engaged throughout the learning period [18]. The clause of meeting attendance for being eligible for the summative assessment is a must in many ways to ensure that students remain involved in their learning process. However, there is definite scope to modify the attendance norms depending on the type of sessions and whether the proposed knowledge and skills can be acquired within the four walls of a class or by the student on their own [19]. It is important to assess the feedback of 2<sup>nd</sup> year medical students on teaching learning methodology and evaluation [20]. A survey of Italian doctors has considered the pharmacology teaching that they received to be theoretical and opined that more time and attention should be devoted to issues more closely related to clinical practice [21,22].

#### CONFLICTS OF INTEREST

Nil.

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