



Research Article

EFFECT OF ASSESSMENT FEEDBACK ON ACADEMIC PERFORMANCE OF PHASE I MBBS STUDENTS

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ABSTRACT

Introduction: Competency based medical education (CBME) curriculum recommends feedback following formative assessment, but it is not fully implemented due to multiple factors. As a result, most of the times, either feedback is not given or its given in a generalized manner. **Materials & Methods:** Study was conducted in 62 Phase I MBBS students who scored less than 50 percentage in physiology for the 1st internal examination. They were divided into 2 groups. Following formative assessments, students in a group offered individual structured feedback and B group general feedback. Another assessment on all these topics was conducted and their performance was compared to the previous. Student's perception was studied by a self administered questionnaire using a 5 point Likert scale and 2 open ended questions. Statistical analysis was done using unpaired t test and p value <0.05 was taken as significant. **Results:** In group A, the mean assessment scores increased after the individual structured feedback which was found to be statistically significant (p value 0.002). In group B, the mean assessment scores after general feedback was lowered which was also showing significance statistically (p value of 0.000). Majority of them gave positive response about individual feedback. **Conclusion:** Individual structured feedback helped the students to improve their academic performance where as general feedback had a negative effect. The positive response from the students shows that they were receptive to the feedback if it is given individually and in a structured manner.

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INTRODUCTION

Feedback has prime importance in education and medical education is no exception. In order to achieve competence, the medical graduate should achieve milestones in different phases of medical education and feedback plays an important role in that. Feedback is defined as specific information about the difference between a trainee's observed performance and a given standard with the target of achieving improvement in performance of the trainee.¹ Feedback not only provides learners with information on past performance and reassurance regarding the competencies achieved, but also helps to identify areas for improvement, reinforce desirable actions, promote reflection and ultimately aids in effective learning. It helps the learners to understand the gap between the actual and desired performance, measures to fill that gap and motivates the learner towards the desired outcome. In the absence of proper feedback, learners will have to rely on self assessment and as they are inexperienced, may not be able to identify their own strengths and weaknesses consistently and problems with clinical competence go uncorrected.^{2,3}

Even though feedback was an integral part of many fields like engineering, business and corporate sectors since many decades, the term feedback was introduced into medical education by Jack Ende in 1983. According to him, it is the information about a learner's activity which is intended to

guide the future performance.⁷ There are many characteristics of a good feedback. It should focus on the performance, should be clear and specific, delivered in non-judgmental language, should emphasize positive aspects, be descriptive rather than evaluative and should suggest measures for improvement.⁸ Different methods used commonly for giving feedback are feedback sandwich, Ask-Tell-Ask, Pendleton rules, 1-minute preceptor technique and PEARLS.^{6,9}

There are many studies showing the importance of feedback on learning.^{9,10} The usefulness of giving constructive feedback to medical students at the time of clinical teaching has been well documented and is found to be effective in acquiring and developing clinical skills, communication skills and professional bedside manner by medical students.^{11,12} Twelve tips for providing effective feedback to undergraduate and graduate trainees in clinical environment is explained by Ramani S and Krackov SK in 2012.³ In another study conducted by Vaidehi Aetal to study the impact of feedback on the performance of undergraduate students on practical classes found that it has a beneficial effect.¹³

Although Competency based medical education (CBME) curriculum recommends feedback following formative assessment, it is not fully implemented due to multiple factors. Lack of awareness of the faculty about what constitutes effective feedback, how and when it is to be delivered, what

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are the needs and benefits, lack of communication skills, reluctance due to fear of negative response, time constraints are some of the factors^{4,5}. As a result, most of the times, either feedback is not given or its given in a generalized manner. So an attempt is made to find out the impact of individual structured feedback following assessments, on subsequent academic performance of undergraduate medical students when compared to general feedback.

MATERIALS AND METHODS

Longitudinal observational study conducted in 62 first MBBS students at Azeezia Institute of medical sciences & research from June 2022 to December 2022.

Inclusion criteria

Phase I MBBS students scored less than 50% marks in 1st internal assessment in Physiology and willing to participate in all the sessions.

Exclusion criteria

Students who were unable to getting the approval from the institutional ethics committee (letter no. AEC/REV/2022/06) & informed consent, Phase I MBBS students who scored less than 50 percentage in physiology for the 1st internal examination were equally divided into 2 groups A and B , by convenience sampling. Formative assessments were conducted for 3 consecutive weeks for the topics taken during the previous week of the exam .The topics were from cardiovascular system and respiratory system. Following the 1st formative assessment, students in a group offered individual feedback in a structured manner by Pendleton rules by the same faculty. The faculty started the feedback by asking the learner to tell about what he has written well or his own strengths. Then, the faculty provided some insight. A discussion of weakness points done in the same way. Then both of them together made an action plan for improvement.

B group students received general feedback on their performance when distributing the answer sheets. Each of them received general comments like “good, not satisfactory, needs improvement etc ”. These feedback sessions were done during the afternoon hours which was scheduled for small group discussions when students were coming as 2 batches in 2 consecutive days per week. This procedure was repeated for three weekly assessments. Another assessment on all these topics was conducted and their performance was compared to the previous and looked for any improvement in those who received individual structured feedback.

Student’s perception was studied by a self administered questionnaire using a 5 point Likert scale with 10 questions and 2 open ended questions at the end of the study. Statistical analysis was done using SPSS 20. Unpaired t test was done and p value <0.05 was taken as significant .Responses from perception questionnaire were expressed as percentages and represented as bar charts. In order to avoid ethical issues, after the completion of the study, B group students were also given individual structured feedback and the assessment scores were not considered for calculation of internal assessment scores.

RESULT

Out of the 64 students enrolled in the study, one student did not attend all the feedback sessions and another student did not appear for the exam after the feedback sessions so both

were excluded from the study .So the number of participants became 62 with 31 each in group A and B. Out of the 62 participants, 17 were males and 45 were females. In group A, mean assessment scores before the feedback was 36.23 +/- 9.486 and after the individual structured feedback it became 43.13 +/- 13.048 and it was found to be statistically significant (p value 0.002) (Fig. 1). In group B , the mean assessment scores before feedback was 33.52 +/- 10.328and after general feedback mean was lowered to 30.94 +/- 12.997 which was also showing significance statistically (p value of 0.000) (Fig. 2). Mean and std deviations of the weekly assessment for which feedback was given for group A and B are given in table1.

Table 1 Mean of Assessment scores (in percentage)

Weekly assessment	Group A		Group B	
	Mean	Std. Deviation	Mean	Std. Deviation
Assessment 1	35.39	20.182	33.13	20.625
Assessment 2	43.44	19.153	31.29	15.597
Assessment 3	29.84	19.364	25.4	18.732

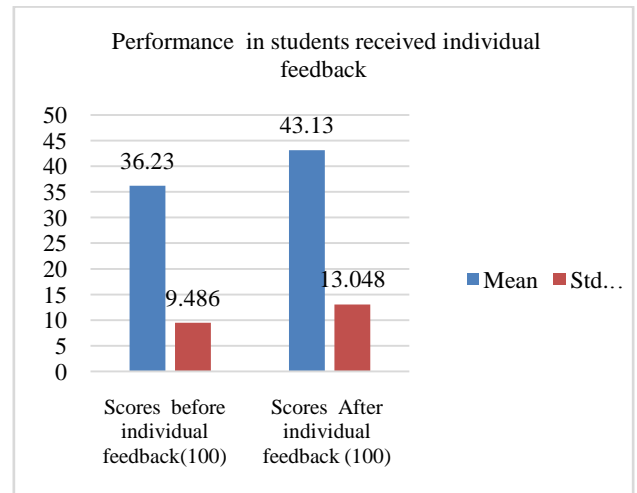


Fig. 1 performance in students received individual feedback

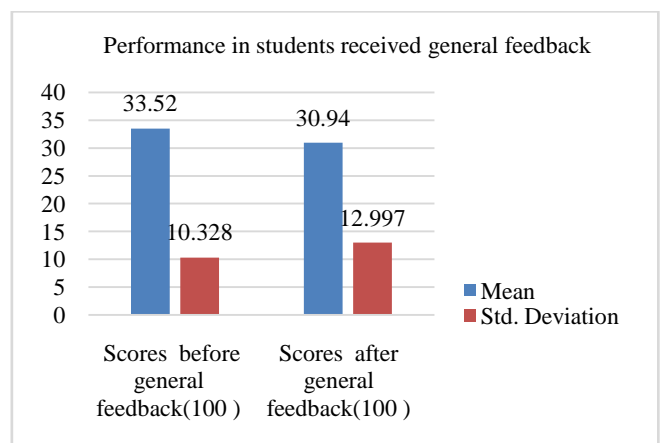


Fig. 2 performance in students received general feedback

Majority of the students gave positive response about individual structured feedback. All of them responded that individual feedback is a useful method for effective learning (62.5% gave the response as strongly agree & 37.5% agree). 90.6% responded that individual feedback helps in better understanding of the topic. 87.6% agreed that feedback made them more interested in the topic, helped them in performing well in the exam and helped in improving the confidence

level. 75% agreed that it helps in time management. Even though some had the opinion that it caused anxiety about their performance (43.8%) and consumed too much of time (6.3%), they also agreed that individual feedback was effective and beneficial to them. 93.8% responded that this method of individual feedback was effective and beneficial to them and 84.4% said that it can be used in other subjects as well. 3.1% gave the additional comments like it made them feel that they were well looked after and helped them to improve in the areas where they were weak (Fig. 3).

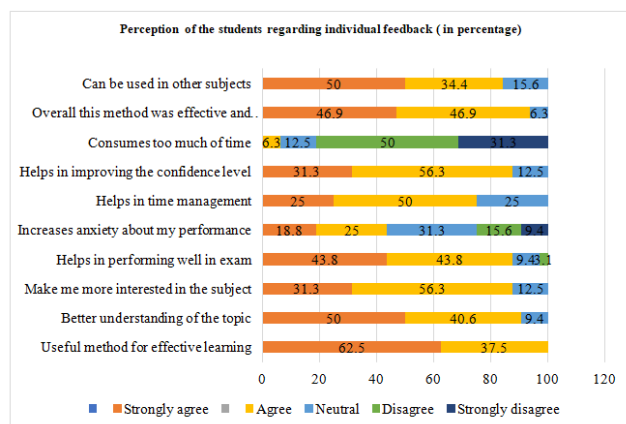


Fig. 3 Perception of students on individual feedback after assessment

DISCUSSION

From 2019 admission onwards, the curriculum has changed to a Competency based one and all medical colleges in India have tried to implement the same. Competency based medical education recommends feedback as an integral part of the new curriculum. Feedback makes effective change in the learner by giving them a clear understanding of their strengths and weaknesses. It gives them a perception of their knowledge, skills and attitude which are the three important domains of learning. The present study was carried out in first professional MBBS students with the intension of finding out the effect of individual structured feedback in medical students when compared to general feedback, especially in low achievers in the first sessional examination. The results showed a significant increase in assessment scores in those who received individual structured feedback but a significant decrease in those who received general feedback which was unexpected. From this it is evident that individual structured feedback has a significant effect on the academic performance of the students and general feedback is not useful as a feedback method. So if feedback has to be given to the students, it should be individual feedback in a structured manner to be effective. Individual, timely and structured feedback probably facilitated their learning process by increasing their involvement in learning and also would have changed their attitude towards learning. Similar results are shown by studies conducted by Aggarwal *et al* in which they studied the effect of various type of feedback in one group with another group in which no form of feedback was given.¹⁴ Another study by Bajaj *et al* also have similar results.¹⁵ In the present study, the comparison was done to a group receiving general feedback, but it became evident that general feedback donot have a positive effect rather a negative one and so there is no use of giving general feedback which is a new finding. This may be because students donot take it seriously when they get a general feedback on performance. Students need to

know what they have done well, were they went wrong and how to improve. It also emphasizes the importance of the facilitator in learning.

Regarding the gender difference, only 30% male and 70% females got admitted to MBBS this year and out of which 17 males (56.7%) and 45 females (64.2%) scored less than 50% and became the participants of the study. The more percentage in female population was due to the fact that more females are getting qualified and taking up medical profession when compared to males which may be getting reflected here also.

The perception of the students regarding individual feedback showed a positive response in majority of the items. All of them agreed that it is a useful method for effective learning and also helped in time management during learning as well as in exams. Even though some of them had the opinion that it increases anxiety about their performance, they were also agreeing that it is effective and beneficial to them. Majority were of the opinion that it increases their performance during exams and their confidence level. This shows that the students are highly responsive towards individual structured feedback and they want feedback after each assessment in all subjects. This can be compared to the study of Bajaj *et al* in third semester medical students which stated that students were satisfied with the feedback process as they felt positive and motivated to do hard work.¹⁵

As the feedback was given immediately following assessment it was very effective and there are studies proving that timely feedback is having more effect than feedback given at a later date.¹⁵

Challenges

It was time consuming to give individual feedback. Investigator and the students had to spend more time in the evening after the class hours as the session was planned to complete in two days every week so that they will get enough time to prepare for the next assessment.

Limitations of the study

This study was conducted in the low achievers of a formative assessment of a single institution. Even though this study was conducted in low achievers so that the effect will be more evident, more studies on feedback should be conducted involving all the students with a third group who were not receiving any type of feedback.

CONCLUSION

Individual, structured feedback following assessments enhances learning and definitely improves the academic performance of MBBS students. It will help the learner to develop skills in planning, assessing own performance, taking measures to improve etc which will help in becoming a lifelong learner as demanded by CBME and ultimately making a clinically competent professional. Responses from students shows that they are receptive to feedback if its given individually and in a structured manner. Session on feedback has to be conducted to faculties of the various departments so that they will come to know about the importance of feedback in medical education and also the different methods of feedbacks which will help them to adopt the one which is feasible for their subject.

Conflicts of interest: Nil

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