ORIGINAL ARTICLE

# Successful Academic Remediation of Undergraduate Medical Students for Exit Examination: Lessons Learned

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## ABSTRACT

**Introduction:** To ensure that they will be the safe health-care providers, the medical schools must guarantee that their students meet the predetermined criteria before graduating. To fulfil this condition, usually a small proportion of students, need remedial training before they could graduate. In October 2018 we designed an academic remediation programme for 24 students who were to re-appear in their Final Professional MBBS Examination (FPE) in March/ April 2019. Aim of the remediation programme was not only to help the students to pass the examination but also to train them as safe future doctors. **Methods:** A rotational programme was drawn to cover all the relevant disciplines. A number of well-planned interventions were applied. A clinical examination in various combinations of a long case, short cases and OSCE stations was conducted at the end of each rotation and the written examination was conducted after completing the full 24 weeks of the programme before they sat in the FPE. **Results:** The five most useful interventions identified in the students' feedback included: "Patient to book approach"; Mentoring; Group study; Mock examinations and Flipped class-rooms. Eighteen of the 24 (75%) students passed the FPE. The five of the six students failed because of the poor performance in the clinical examination. **Conclusion:** Remedial interventions can be successful by having clear goals and directions. Individualized approach in identifying and addressing the issues and by seeking help from the relevant professionals ensures the success.

**Keywords:** Academic remediation, Medical students, Patient to book approach, Final professional examination, Malaysia

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## INTRODUCTION

Medical schools must ensure that the graduating students will be the safe health-care providers. To fulfil this requirement the graduating students must meet predetermined criteria. However, a small number of students do not perform satisfactorily in written or clinical examinations and therefore need additional training before they could graduate. This is an area of concern for medical educators.

UNESCO's definition of academic failure, not only includes students repeating the grade or early dropouts but also those exhibiting decline in their quality of learning (1). Students with academic difficulties have been described as 'problem learners', 'student in difficulty', 'struggling students', 'troublesome learner', 'disruptive student'; and the 'impaired physician' (2-6). The criteria of identifying a problem resident, according to the American Board of Internal Medicine, is a trainee who presents with a problem noteworthy enough to warrant the intervention by someone with power and authority such as chief resident or director of the programme (7). Vaughn et al. (8) use the term 'struggling student' to describe a learner whose performance does not reflect his or her real or potential capabilities. This failure to perform could be due to problems related to intellectual, emotional or personality difficulties or misuse of substance (3). Steinert defines a 'problem learner' as a trainee or a student who fails to fulfil the requirements of the training programme because of poor knowledge, behaviour or psychomotor skills (5).

An academic failure of up to 12% have been reported in Iranian medical students (9,10). The number rose to 22.3% in pre-clinical students of Urmia University in Azerbaijan (11). The prevalence of 'problem learner' varied from 5.8% in a Psychiatry programme (12) to 9.1% in Family Medicine programme (13).

Academic failure is not just an individual's problem, it also gravely affects the society at large; in particular the failure of medical students whose level of graduation and competence directly affects the health and lives of people (14, 15). Apart from being a social issue, academic failure of medical students results in a significant economic burden for the society (16).

It has been shown that the levels of achievement in medical degree examinations can foretell subsequent attainments of the respective students on the licensing & postgraduate examinations and standard of clinical competence (17,18). It has also been testified that medical students with poor performance during training ultimately become poorly performing health care providers (19,20). Reporting about the UK undergraduate medical students who did not perform well in their written or clinical examinations in the earlier part of the course, Cleland et al. noted that these students continued to perform unsatisfactorily in the subsequent years and also in the final examinations (21,22). These observations clearly demonstrate the significance of early recognition and provision of assistance to those who need it.

Early detection of students' problems and providing appropriate remedies from the very beginning play a positive role in the training and progress of the future health care providers. However, the underperforming students may not be noticed and continue their course without much feedback and assistance or only with little guidance (22-24). Most of the time the feedback is provided after failing a summative assessment and may not identify and address the core issues (24). In addition, multitasking of teaching, clinical services and research commitments as well as dealing with increasing number of students hinders identification and follow-up of struggling students leading to a 'human' gap in the assessment and remediation process (23,25-26).

Remedial assistance is usually provided to medical students or trainees who perform poorly either in written examinations or during clinical assessments. Academic remediation is an interventional programme meant to help poorly performing candidates to rectify their weaknesses so that they can attain positive results in their academic reassessment (27).

In most medical schools the process of remediation is prejudiced by the availability of the resources and the nature of the learners' challenges. The process can usually be adjusted to suit the needs of the students and is conducted in three stages: recognition of the problems; corrective intervention; and reassessment (28-30).

Previous work has proven that remedial interventions help the learners in a variety of academic and non-academic areas/aspects including hard (e.g. physical examination) and soft (e.g. interpersonal and communication) skills, professionalism, self-organisation and management, medical knowledge, higher order thinking and problem-solving skills as well as psychological well-being (27).

In October 2018 we designed an academic remediation programme for 24 students of a School of Medicine (SoM), who were to re-appear in their Final Professional MBBS Examination (FPE) in March/April 2019. Aim of the remediation programme was not only to help the students to pass the examination but also to train them as safe future doctors.

The 5-year MBBS programme at the SoM consists of 2-years of pre-clinical and 3-years of clinical teaching and training. The pre-clinical teaching programme is discipline-based with horizontal integration while clinical teaching programme is specialty-based with little vertical or horizontal integration. Assessment includes three professional examinations – at the end of years 1, 2 and 5 (exit examination). A student has a maximum of 7 years to complete the training and is not allowed to repeat a year more than once.

The exit examination consists of two components – written and clinical. The written examination comprises of multiple-choice questions (MCQs), structured essay questions (SEQs) and modified essay questions (MEQs). The clinical examination includes long case, short cases and multiple OSCE stations. The continuous assessment contributes 40% marks to the FPE and is based on the performance of the students during various postings in clinical years. A student must pass the clinical examination and secure an overall score of 50% or more to qualify for graduation.

In this communication we share our experience of providing academic remediation to undergraduate medical students for their exit examination.

## MATERIALS AND METHODS

Participation in this remedial programme was compulsory for those who wish to re-appear in the FPE and additional fee and charges applied.

Based on personal experiences and literature review a remedial programme was designed with following approaches for intervention. This remedial programme was approved by the SoM and the University Senate.

### Individualized approach

Poor performers are not a homogenous group (31) and to provide an effective remediation individualized approach is needed. We followed the 'framework for working with problem learners' as described in AMEE guidebook no. 76 (32). What is the problem? Whose problem is it? How best to deal with this problem?

All the students were interviewed individually by two

academic staff members: a medical educationist and a psychiatrist. Both of them are practicing clinicians and clinical teachers. They found out following academic and non-academic issues among these students:

- Academic weakness: All except one of them had previously failed multiple times in the end-of module/ posting examinations. Eleven of them had to repeat their 3rd year (first clinical year) course. Nearly half of them had already attempted the FPE twice or more.
- Poor time management: This problem was detected in one third of the students.
- Loner in study: At least one third of the students were not practising or participating in group study.
- Financial problems: Seven of these students were having serious financial problems; five of them were working part time to meet their daily needs as well as to pay the school fee.
- Emotional problems: One fourth of these students had issues like depression and anxiety.
- Family problems: Four of them had family issues including serious medical illnesses in close family members for whom they have to provide care.

To address the academic issues a special remedial programme was organised for these students which ran parallel to the usual teaching/learning schedule. For non-academic issues help was provided through professional councillors including financial and mental health counselling.

**Support from the staff members**

Knowing that running a special remedial programme would increase the workload of both academic and non-academic staff members especially the clinical teachers who were already overworked, a number of meetings were held to garner the support for organizing the additional training sessions. Fortunately, the staff members were willing to go extra miles to help these deserving students.

**Aims of the remedial intervention**

This intervention was aimed not only to improve the performance of the remedial students to the standards required to pass the repeat FPE but also to reinforce the habits and skills of effective lifelong learning and to ensure that they would be safe doctors in future. Special attention was to be given to improvement in knowledge, clinical skills, clinical reasoning and professionalism.

**"No more of the same" approach**

We decided to adopt 'no more of the same' approach (33). The teaching approaches and methods which were applied previously to train these students must be replaced with newer strategies. The didactic, teacher-centred teaching/learning methods were replaced with student-centred teaching/learning approaches. Newer strategies included flipped-class room approaches including team-based and case-based learning sessions. The group-study approach was strongly advocated. However individual students were monitored closely through weekly meetings with their supervisors and mentors.

**"Patient to the book" approach**

To make the training more relevant and to optimally utilize the limited duration of the remedial training programme the "patient to book approach" was promoted i.e. each student was asked to clerk at least three patients every day; identify "learning issues" and study about these issues on the same day. The three patients should be selected in relation to three different body systems such as cardiovascular system, gastrointestinal system and central nervous systems. It should be ensured that all the systems are covered during a specific posting and not only the particular illnesses but relevant differential diagnoses should also be learnt.

It was emphasized that to fully comprehend the disease mechanisms and to justify the medical or surgical intervention the students must understand the pathophysiology and pathogenesis of the diseases rather than merely memorizing the text.

**Mentoring support**

Every student was assigned a mentor whom they must meet every week and also whenever they need any assistance. Mentors assisted the students to get access to any facilities or counsellors as and when needed such as for poor interpersonal skills or unprofessional behaviours, depression, anxiety, inability to comprehend and reluctance to be a member of the group, poor time management, learning and organizational skills, fear of failing, mental or physical health issues, family and personal problems or academic difficulties. Mentors also checked if students were addressing their own identified "learning issues".

**Reflection**

Every student was required to write a short report reflecting upon the activities of the week, their level of participation and contribution in teaching/learning activities, strengths and weaknesses and the ways to address them. Were they able to work well as a team member? Were they able to address their "learning issues" identified during case clerking? Were they able to meet their targets? Are they satisfied with their progress? Did they ask for help when needed? Did they get adequate assistance when they required it? What is the plan for the coming week?

**Feedback**

Frequent and timely feedback was given both by the teachers, supervisors and mentors. There were frequent contacts between teachers and the mentors about the progress and issues of individual students.

After every teaching/learning session both general and specific feedback was provided to students addressing

their level of knowledge, presentation skills and the way they answered the questions.

**Time management**

The time management was one of the common problems among this group of students and thus were provided appropriate counselling. Each student was asked to chart down his/her routine daily activities on a typical day and the time spent on each activity. This helped them to identify the chunks of time that were being spent uselessly or wasted during the day. Moreover, they were advised to be task-oriented rather than time-oriented i.e. the aim should be to achieve the target e.g. reading one article or a chapter – no matter how long does it take – rather than to spend two hours studying.

**Communication / presentation skills**

One of the problems identified was poor communication and presenting skills. Some of the students, in spite of knowing the answers very well, were unable to reply properly. Students were asked to make presentations to their peers and answer their questions in the presence of the supervisors. At the end of each such session feedback along with suggestions to improve the presentation was provided. The students were also encouraged to take turns to present the clinical cases to their peers.

The students were aware that during clinical examination (especially long-case examination where they take history from the real patient and OSCE where they have to communicate with the simulated patients), the patients were requested to give feedback about the students' behaviour and communication skills. This feedback from patients contributes up to 10% marks in the clinical examination.

## RESULTS

The students were highly appreciative of the help and guidance they received from the lecturers and the overall plan and conduct of the remedial programme. "We were never provided such assistance and looked after so well before" during the MBBS course. The five most useful interventions identified in the students' feedback included: patient to book approach; mentoring; group study; mock examinations; flipped class-rooms.

Eighteen of the 24 (75%) students passed the FPE. The success rate was similar to the regular batch of the students. Five of the six students failed because of the poor performance in the clinical examination. The remaining one student, though passed clinical but could not get the overall passing marks because of poor performance in the continuous assessment.

## DISCUSSION

Academic remediation is an interventional programme specifically conducted to help learners facing academic challenges. The aim of this exercise was to assist candidates to achieve the desired outcomes in the repeat assessment (27) and to prevent poorly performing learners from becoming poorly performing clinicians (31).

The multifaceted patterns of assessment in medical schools may allow the struggling students to continue with little or no guidance and support (32). The clinical supervisors are often hesitant to fail poorly performing candidates (26). Thus, students' learning difficulties remain unresolved, resulting in repeated failures and poor performance. Such students in our case also had scraped through all the previous years' assessments and had already made an unsuccessful attempt/s at the exit examination i.e. FPE. For few of them this was the last chance, failure in this attempt would be the end of their career in medicine. So, we were facing a high-stake situation and needed to be very thorough and meticulous in our endeavour to train these students to raise their level of competence to the satisfaction of the examiners.

Based on the literature review and our own previous experiences an elaborate and intensive plan was conceived which was discussed at the school level and approved by the School Academic Committee. The six-months remedial plan covered all the usual modules and postings relevant to FPE which these students were going to participate.

The common problems of academic weakness, poor time management, psychiatric illnesses and family stress which we noted in our students have been reported by other researchers as well (12,13). While we found ourselves ready to deal with issues such as academic weakness and time-management, managing non-academic issues was beyond our capacity and we decided to seek help from the relevant professional counsellors. For financial issues we sought help from counsellors in the finance department of the University.

To address the academic deficiencies, the 24 students were divided into two groups and a separate rotational programme was drawn to cover all the relevant disciplines. More time was spent in disciplines such as medicine, surgery, paediatrics and obstetrics and gynaecology than in radiology, otorhinolaryngology, ophthalmology or anaesthesiology. The rotational programme also included psychiatry, community medicine, forensic medicine and emergency medicine postings. A clinical examination in various combinations of a long case, short cases and OSCE stations was conducted at the end of each posting. The written examination of major disciplines was conducted after completing the full 24 weeks of the programme.

Running a parallel remedial programme requires extra resources and affects the smooth running of an academic

programme (34). A strong support and commitment of already overworked academic and non-academic staff members is required to manage the load of additional classes, assessments, monitoring, mentoring and counselling. We were lucky to get the full support from all the relevant quarters. Each clinical discipline identified a focus person to act as a supervisor as well as manage the student rotation. All the other staff members in the particular discipline contributed in teaching/ learning activities and assessment.

To achieve reasonable success with the specific problems of the students, the remedial interventions must precisely define the objectives and intended outcomes (35) for each student (36). The aim of this remedial programme was not only to improve the performance of students to a level required to pass the examination but also to reinforce the life-long learning skills and equip them with knowledge, skills and attitudes to be safe house officers/interns. The school did not want to use its scarce resources to support progression of weak students to potentially weak doctors (19,20) particularly when reports in the literature indicate that the faculty members usually hesitate to fail the remedial students (26). To address this issue the remedial students were assessed using the same processes, standards and criteria as used for regular students.

Generally, remedial programmes tend to repeat 'more of the same', as if an intensive course of knowledge or skills teaching and training. However, we agree with the view (37,38) that if a particular teaching/learning method did not help the students to learn at the first instance, repeating the same approach is unlikely to help. We adopted different teaching/learning approaches than during the previous teaching programmes. We shifted from teacher-centred to student-centred approach and followed the concept of flipped class-room teaching. We conducted sessions to promote application of the previously learned knowledge, on solving the problems using team-based and case-based learning methods. We also helped students to strategize their preparation for assessment. We make them realise that by obtaining good marks in continuous assessment, they would help themselves to pass the written examinations easily.

"Patient to book approach" was another strategy to prepare quickly and confidently for the upcoming assessment consisting of both clinical and written examinations. This approach promoted the relevance of learning. By clerking the patients with common illnesses and learning about these illnesses and their differential diagnoses students were able to cover the core topics in real situations. This approach also reduced the load of learning about the rare conditions and fear of too much to cover for the examination. More over learning about the pathophysiology and pathogenesis of these illness promoted logical approach to investigate and treat the patients rather than simply memorising the facts.

Mentoring played a crucial role by helping the students cope with both academic and non-academic issues and thus alleviate unnecessary stress and anxiety. As lack of professional behaviour is a common cause of failure in medical students (39,40) this aspect was adequately addressed during the mentoring sessions. Other issues addressed during mentoring sessions included: flawed learning approaches, substandard planning and poor self-manging skills, emotional problems and significant personal issues. Other factors that can cause difficulty in learning such as fatigue, anxiety of facing the unfavourable results again, family issues, personal problems along with academic difficulties (41-43) were sought and addressed appropriately. The students liked these sessions and were appreciative of their mentors' efforts to address their concerns quickly and efficiently.

Reflective learning was a salient feature of this remedial programme. The students were able to recognize their strengths and weaknesses as well as the academic areas that need more attention. Reflection helped in self-regulation. The highly self-controlled students are likely to be more successful academically than those learners who lack or have poor self-control over the learning process (44).

## CONCLUSION

Remedial interventions can be successful by having clear goals and directions. Individualized approach in identifying and addressing the issues and by seeking help from the relevant professionals and providing adequate guidance and resources ensures the success. "Patient to book approach", mentoring, group study and student-centred approaches (including reflective learning and flipped class-room) were found to be most useful strategies by the successful students.

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