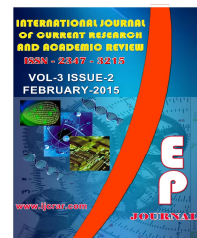




International Journal of Current Research and Academic Review

ISSN: 2347-3215 Volume 3 Number 2 (February-2015) pp. 86-91

www.ijcrar.com



The prospective assessment of remedial intervention on improvement of academic performance of at risk second year medical students in pharmacology

Yogeeta S.C.Walke*, Lois James Samuel and Padmanabh V Rataboli

Dept. of Pharmacology Goa Medical College Bambolim, Goa, India

*Corresponding author

KEYWORDS

Remedial intervention;
academic performance;
improvement;
assessment

A B S T R A C T

In Goa Medical College we observed that some students had performed poorly in Pharmacology in their second year third semester exam. Poor performance ultimately leads to failure in final year and drop out from the college. In order to break this vicious cycle we decided to offer these students some additional help. Out of 148 students, 66 students who had performed poorly in their exam were randomly divided into study group and control group. 33 students participated in structured study group that was facilitated by the faculty for the period of six months. The study group met twice weekly for one hour each time. Control group received only standard academic support whereas study group in addition to standard academic support also participated in small group discussion, written test, tutorials and viva voce. Results There was a significant improvement in performance of the students in the study group as compared to control group by using one tail t test method. Conclusion There was improvement in the academic performance of the students in the study group. These boosted their confidence and self esteem. In addition, a rapport was developed between the students and the faculty which on one hand helped the students to come forward with their difficulties and on the other hand it helped the faculty to address their individual need. Therefore we strongly recommend that all the medical colleges should have remedial program to help the students do well in their academics.

Introduction

In almost every medical college, there are some students who struggle to achieve the academic goals [1]. The increasing numbers and the diversity of students bring about a problem of proportionate increase in the dropout rates of students.

Many students entering higher education are not well equipped to face the challenges in their academic life; hence there is an urgent need of active support to these struggling students. In recent times there is an upsurge of various research in remedial programme however, there are many a lacunae in the

clear cut guide lines for providing support system to these students [2].

The major contributing factor for the under performance of the students is the academic workload which is compounded by other factors such as health problems, family issues and difficulty in social adjustment. Some students may have no affinity for medicine but may have opted for it under duress and therefore may not be motivated [3]. Students' academic problems may remain unsolved, leading to a vicious cycle of repeated failure and under performance [4].

Students who repeatedly fail in the exams, although allowed to reappear without remedial intervention, are often unable to achieve long-term success. Few successful remediation programmes have been reported in the medical education literature, however there are no specific guidelines about how best to execute remedial intervention, and hence a further research into details of effective, reproducible strategies for remediation of underperforming medical students is the need of the hour[5]. According to Janet Yates there are three things to be apprehensive about the underperformance of the students. Firstly the student may suffer substantial personal or financial hardship as a result of exam failures .Secondly there is a burden on the faculty and the university, with unnecessary time spent on meeting and advising the struggling students and setting additional exams. Thirdly, societal loss when a sponsored student drops out [3]. Jennifer Cleland stated that weak students are unable to discern their difficulties and seek timely guidance, so the responsibility largely rests on faculty to identify and intervene through remedial program. Remediation can be defined as the act or process of rectifying deficiency. Remediation usually consists of

three steps – diagnosis, remedial intervention, and re-testing. Based on the requirement the methods of implication may vary in different institutions. Most of the institutions have developed remediation program according to staff convenience, interest and individual student requirement [6]. Participating underperforming medical students have opined in the past that remedial intervention should be mandatory, works best in small stable groups wherein the teaching is fostered by sincere teachers. Remedial programme should be flexible enough to accommodate the cognitive and affective requirement of the students. Thus, from the students' purview it became clear that remedial intervention is a complex process, in which needy students, devoted teachers, syllabus and institution all play an important role[7,8].

In this scenario we decided to introduce remedial programme for second year medical students in Goa Medical College who require help in the subject of pharmacology.

Materials and Methods

The study was observational and prospective that utilised a sample of second year medical students. Permission of Institutional Ethics Committee was duly sought to carry out the study. Out of 148 second year medical students we identified 66 students who scored less than 40% marks in 3rd semester exam. We invited them to participate in the randomised control trial. Participants were randomly assigned to remedial intervention group (study group) or to a control group. Control group received only standard academic support whereas study group in addition to standard academic support also participated in small group discussion, written test, tutorials and viva voce.

The following strategy was implemented. The study group met twice a week for one hour duration. The students had to read the topic according to their academic schedule for each week. The topic was then discussed in more detail and their doubts were clarified. This was followed by either a written test or viva voce to enhance their cognition. The above procedure was carried out weekly over a period of six months. Thus we closely monitored their academic progression and simultaneously completed fourth semester portion without disrupting their academic schedule. Towards the end of the study the students in the study group were invited to fill a feedback form to offer their comments on the remedial programme.

Result and Discussion

t-Test: Two-Sample Assuming Equal Variances

Table 1

	CONTROL DIFFERENCE	STUDY DIFFERENCE
Mean	7.575757576	10.21212121
SD	5.285773	7.347438
Variance	27.93939394	53.98484848
Observations	33	33

Pooled Variance	40.96212121
Hypothesized Mean Difference	0
Df	64
t Stat	-1.67323163
P(T<=t) one-tail	0.04958164
t Critical one-tail	1.669013025
P(T<=t) two-tail	0.09916328
t Critical two-tail	1.997729654

There was a significant improvement in performance of the students in the study group as compared to control group by using one tail t test method.

Evaluation of feedback forms

96% students agreed that extra guidance in pharmacology helped them to understand the topic better. Extra guidance generated interest in the subject in 63% students and 82% students were motivated to study the subject better.

It helped 89% students in revising the topic better and to develop a better rapport with the teacher. 89% students agreed that such classes should be conducted in future.

As per Medical Council of India guidelines, the subject of pharmacology is taught in the second year of their MBBS course for a period of one and half years. Pharmacology curriculum encompasses three semesters 3rd, 4th and 5th. Pharmacology is a vast and volatile subject and hence a regular disciplined study is mandatory to understand the basic concept of drugs. But some students who are intelligent but indisciplined procrastinate studies and accumulate vast portion before exams and perform poorly. Under these circumstances, remedial intervention provided a consistent learning approach which accounted for their excellent performance.

We identified academically underperforming students based on their 3rd semester exam performance. They were subsequently enrolled in the remedial intervention programme for a period of six months duration and their performance was assessed in 4th semester exam.

The students who had performed poorly in their third semester exam showed significant improvement in their fourth semester exam after remedial intervention. Cleland et al also noticed a similar improvement in the performance of the students in their study after remedial intervention. Students who received remedial intervention in that study also scored higher marks as compared to the students who had not received any remedial intervention [4].

We used the routine third semester exam to identify the students who scored less than 40% marks and fourth semester exam to assess their improvement. We avoided any other extra tests to identify the weaker students or to assess their performance. Feedback given by the students for improving the teaching method suggested that more written tests and MCQs should be conducted and previous exam papers should be discussed. Extra guidance should be given to the students at the beginning of 3RD semester. Each topic should be discussed in more detail. All students must be involved in the discussion, doubts of each student must be clarified and students should be directed to study on regular basis. Thus the study indicates that remedial intervention given to the underperforming students improves their performance in the subsequent exams.

Remedial intervention demands substantial time (Sayer et al. 2002; Hauer et al. 2008) [9,10] and dedicated faculty to become efficacious (Hauer et al. 2008) [10]. Long-term follow-up of remedial intervention is required to assess their ultimate clinical performance (Hamby et al. 2006; Hauer et al. 2008) [10, 11]. Winston in his study realised that remedial intervention for underperformers may help to overcome the stigma of failure whereas Cohen suggested that remedial program should be modified to cater to individual student requirement such

as language, communication and inter-professional skills [8,12].

A couple of students from study group performed exceptionally well in their 4th semester exam and attributed it to the extra time spent in learning pharmacology. These students could be inherently intelligent but disinterested. Extra individual faculty approach motivated them to put in the efforts and make use of their intelligence which has translated into better performance. We interestingly noticed that some students in control group also showed improvement which could be due to following reasons. Students in control group could be intelligent but may have not performed well in 3rd semester due to lack of interest in the subject which may have gradually improved later on in 4th semester. Another reason could have been that these students may have got indirectly motivated to study looking at their contemporaries who were given extra help. In our study we also identified that some student inspite of remedial intervention did not perform very well which could be due to inherent inability to grasp and retain the subject matter.

Yates in her study identified a number of students , mostly females who had not performed well in their preclinical years but their performance improved significantly in the later course. These students may have got motivated later by patient contact and ward-based work [3]. Paul Garrud in his study noticed that academically underperforming students may struggle throughout their course in medicine [13]. Reeve and Sibii agreed that in remedial intervention, the mentors role is pivotal. Personalised attention, psychological support, healthy relationship contributed by the faculty provides safe and conducive environment for learning [14, 15].

Karen E Hauer noted that many participants attributed the success of the remedial program to the individual attention provided by the faculty, which is also supported by the findings in the literature. Remedial intervention has great influence on the learner when it is tailored individually, highly interactive and conveyed in a meaningful manner. Students' motivation can be augmented by providing variations and innovations in teaching method and incorporating activities such as role play in their remedial intervention [10].

Conclusion

There was significant improvement in the academic performance of the students in the study group. Remedial intervention can work wonders if the underperforming students are identified at the right time, given timely guidance by the faculty and are motivated to study. Therefore each medical college must develop their own interventional programme for the welfare of the students and to avoid any failures and dropouts in future

References

1. PAMELA DEVOE, Lessons learned from a study-group pilot program for medical students perceived to be 'at risk'
2. Kalman A Winston Remediation of at-risk medical students: theory in action *BMC Medical Education* 2013, 13:132 doi:10.1186/1472-6920-13-132
3. Janet Yates Development of a 'toolkit' to identify medical students at risk of failure to thrive on the course: an exploratory retrospective case study. *BMC Medical Education* 2011, 11:95 doi:10.1186/1472-6920-11-95
4. Cleland J, Arnold R, Chesser A. Failing finals is often a surprise for the student but not the teacher: Identifying difficulties and supporting students with academic difficulties. *Med Teach* 2005 27:504–508.
5. Kalman A. Winston. The role of the teacher in remediating at-risk medical students. *Medical Teacher* 2012, Vol. 34, No. 11
6. Jennifer Cleland et al. A remedial intervention linked to a formative assessment is effective in terms of improving student performance in subsequent degree Examinations. *Medical teacher* 2010; 32: e185–e190
7. Cook DA, Bordage G, Schmidt HG. Description, justification and clarification: A framework for classifying the purposes of research in medical education. *Med Educ* 2008; 42: 128–133
8. Winston KA, Van Der Vleuten CPM, Scherpbier AJJA. At-risk medical students: Implications of students' voice for the theory and practice of remediation. *Med Educ* 2010b; 44: 1038–1047.
9. Sayer MM, De Saintonge M, Evans D, Wood D. Support for students with academic difficulties. *Med Educ* 2002 36:643–650.
10. Hauer KE, Teherani A, Irby DM, Kerr KM, O'Sullivan PS. Approaches to medical student remediation after a comprehensive clinical skills examination. *Med Educ* 2008 42:104–112.
11. Hamby H, Prasad K, Anderson MB, Scherpbier et al. BEME systematic review: Predictive values of measurements obtained in medical schools and future performance in medical practice. *Med Teach* 2006 28:103–116.

12. Cohen D, Rollnick S, Smail S, Kinnersley P, Houston H, Edwards K: Communication, stress and distress: evolution of an individual support programme for medical students and doctors. *Med Educ* 2005, 39:476-481.
13. Paul Garrud and Janet Yates. Profiling strugglers in a graduate-entry medicine course at Nottingham: a retrospective case study *BMC Medical Education* 2012, 12:124 doi:10.1186/1472-6920-12-124
14. Reeve JM. Why teachers adopt a controlling motivating style toward students and how they can become more autonomy supportive. *Educ Psychol* 2009; 44(3)159–175
15. Sibii R. Conceptualizing teacher immediacy through the ‘companion’ metaphor. *Teach High Educ* 2010; 15(5)531–542