Academic Counselling:
Impact of an Intervention Program on Medical Students of Pharmacology

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Abstract: Background: Students are anxious and stressed during exams; so are not able to perform well in them. Counselling has been found to improve performance of students. Hence, we wanted to conduct academic counselling for medical students and evaluate it. Objective: To improve performance of medical students in exams through academic counselling (AC). Method: Faculty was trained on conducting AC through role play. A pre-test was taken to assess the baseline knowledge of students. AC of students was conducted. A post-test was then taken for the students. Marks of pre-test and post test were compared to see for improvement of students following our intervention. Feedback was taken from students on the effectiveness of counselling using a questionnaire based on 5-point Likert scale. Feedback was also taken from faculty. Results and interpretation: There was a marked improvement in post-test marks of students who underwent counselling. Feedback from students and faculties was positive. Conclusion: Faculty can guide students on study skills through AC. It can be conducted as formative feedback at mid-term or following internal exams of students. [Sukhlecha A et al NJIRM 2012; 3(2) : 82-85]
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Introduction: In India, the students in medical schools are not able to perform up to their expectations in exams as they have a very little guidance on ways to study in a professional institute. Anxiety or tension is common before exams. Depression is common in students following exam results forcing some of them to take extreme steps. There is a need of staff who can skilfully know the problems of these students and give them proper information and advice.

A good teacher is one who has many qualities like warmth, genuineness, empathy (i.e. ability to sense feelings of students) and can counsel students. [1-3] Counselling, has been found to improve academic performance of poor performers. [3] We wanted to try the same in our set up. We also wanted to see if counselling could excel the average students.

Material and Methods:: The study was approved by institutional ethics committee. Written informed consent was taken from students for participating in the study. We had conducted a similar study prior to this study on another batch of students and found it feasible, yielding good results. [4] Hence, we continued academic counselling (AC) on another

batch of students with a little modification in the methodology which was used in the previous study. Our study was conducted for a period of two months (from January 2010 to February 2010).

A total of 174 second year medical students participated in the study. A topic of Pharmacology was covered through a series of ten lectures. Here we taught the topic of "Autonomic Nervous System". A pre-test was conducted which consisted of pre-validated Multiple Choice Questions (MCQs). There were twenty MCQs consisting of one mark each conducted for students following final lecture of that topic. The test was to assess the knowledge the students gained through lectures. The answers were to be encircled on the test sheets itself and returned. There were ten different sets of papers (coded) with same MCQs but differently sequenced. We ensured that neighbouring students did not have same test paper. The students were required to write their roll number (to pair with post test) and age on MCQ sheets. The identity was used exclusively for the purpose of study.

Both the counsellors and students were blinded to test marks and group distribution. Randomization and scoring of students was done by a faculty who

was not conducting the study. Disclosure of marks was with-held until all counselling sessions were completed. In order to have similar baseline characteristics in study population, three main categories were considered: students getting less than 50% marks in pre-test as low scorers, 75% and above as high scorers and 50% or in between 50% and 75% as middle scorers.

The low scorer group was randomized equally to either study group (Counselled L) or controls (Uncounselled L). Similarly, middle scorers were randomized equally to either study group (Counselled M) or controls (Uncounselled M) to see if AC makes them excel further. The high scorers were counselled but not included in our analysis as our main target was to improve performance of low and average scoring students.

Training the faculty: Two faculties had already received training on counselling from a recognized institute. They trained the other faculties. Demonstration of bad counselling followed by good counselling was done through a role play. We used simulated students for training the faculty. Observers (trained faculty) were present with a check list to see that faculty who is getting trained, conducted counselling methodically. Training was given on providing information, advise and counselling to the students. The process was: listening to student's problem, asking open ended questions, acknowledging and then reflecting to what the student had said. Finally, the counsellor was trained on structuring the problem and advising the student. In this manner, three other faculties got trained for counselling.

Conducting counselling: Each student was given a counselling time of about 10-15 minutes. He/she was provided with an atmosphere wherein he/she could express himself/herself freely. The students were provided with information and support regarding coursework expectations, reference books, exam pattern, learning and study skills. They were also briefed on a few practical and communication skills. They were guided on areas to focus on in the topic of autonomic nervous system in relation to exam. Their clinical relevance was also explained.

They were given time to express the problems they faced. Areas where the students' problem went beyond academic counselling, they were referred to the concerned specialist. Feedback was taken from them on an anonymous questionnaire with items framed on a 5- point Likert scale (scores ranging from a maximum of 5.0 to a minimum of 1.0). Once AC was completed for Counselled L and Counselled M groups, a post test was taken after a week. The questions, marking and timing in post-test were same as pre-test.

After the post-test, AC was conducted for controls (Uncounselled L and Uncounselled M groups) and high scorers for ethical reasons. Feedback was taken from them also. Feedback was taken from faculty through focus group discussion.

Analysis: Comparison of mean pre- test and post test marks was done using paired t test. Improvement rate was analysed statistically by Fisher's exact test and Yates continuity corrected chi-square test using Graph Pad Prism Version 5.01 software. $P<0.5$ was considered statistically significant.

Result: The groups were comparable with respect to pre-test scores and age [Table1].

Table1: Comparison of baseline characters of students

Character	Low scorers, n= 81			Middle scorers, n= 79		
	Counselled L n=41	Uncounselled L n=40	$P^{\$}$	Counselled M n=40	Uncounselled M n=39	$P^{\$}$
Pre-test marks	7.1 ±1.39 (35.5)	7.1 ±1.46 (35.5)	0.94	12.03±1.37 (60.2)	12.08±1.46 (60.4)	0.87
Mean age (years)	19± 0.80	18.98±0.78	0.89	18.98±0.79	19±0.78	0.89

Values are mean ± SD, $^{\$}$unpaired t test, Value in parentheses is mean percent of marks

Out of 174 students who were invited for study, there were 14 students who scored 75% and above marks in pre-test. Of the remaining 160 students, 81 students had scored below 50% and 79 students had scored 50% or between 50% and 75% in pre-test. All these students also attended the post test.

For the purpose of our analysis, we considered 160 students who were present in both pre and post tests (low and middle scorers). The distribution and mean marks of each group along with standard deviation are given in Table 2.

Table 2: Mean pre-test and post test marks in different groups

Category	Groups	Pre-test	Post test	P#	% Mean difference
Low scorers	Counselled L , n=41	7.1 ± 1.39 (35.5)	11.22 ± 1.67 (56.1)	<0.0001	20.6
	Uncounselled L, n=40	7.1 ± 1.46 (35.5)	7.23 ± 1.56 (36.2)	0.057	0.7
Middle scorers	Counselled M, n=40	12.03 ±1.37 (60.2)	13.98 ± 1.56 (69.9)	<0.0001	9.7
	Uncounselled M, n=39	12.08 ±1.46 (60.4)	12.23 ± 1.63 (61.2)	0.032	0.8

Values are mean ± SD, # paired t test, Value in parentheses is mean percent of marks

The improvement rate in counselled students (n=41+40=81) was 93.8% compared to improvement rate of 11.4% in uncounselled students (n=40+39=79), Relative risk (95% CI) was 8.24 (4.44 to 15.27), chi square test, p<0.001 which is highly significant. This shows that our intervention was effective.

Students' feedback: From feedback forms, the mean score for each item was above 3.9; the overall mean score of students (n=160) was 4.03. This is a favourable score which indicates that the students were

satisfied with our intervention. Answering to open ended questions, 40% of students
mentioned that they had difficulty in coping up with English language. These students had vernacular medium till high school

Faculty feedback: 80% of faculty (n=20) opined that following AC, students have learnt better study skills and had an overall improvement in academics. There were some suggestions that AC can be conducted after every internal exam mainly, for underachievers.

Discussion: In our study, the percent mean difference of marks between pre and post test in the counselled L (20.6%) and counselled M (9.7%) groups show a large difference (p<0.0001 in each)

which is highly significant. [Table 2] The improvement observed in uncounselled L group was 0.7% (p=0.057) which is not significant. In uncounselled M group, the difference was 0.8% (p=0.032) which is significant. However, this improvement is less when compared to the large improvement seen following counselling in middle scorers. This improvement in uncounselled M group could be because of a number of other factors which have influence on student learning like peer group learning or the habit of regular reading in some students.

A study in Iran shows that counselling improved the mean grades of students in the experimental group, compared with those of students in the control group (0.27 against -1.43, p = 0.014; and 1.87 against -0.40, p = 0.009; respectively). [5] Another study mentions that in a counselling program which was focused on school success and behaviours related to achievement, 83% showed academic improvement and 76% of those who were failing, improved and passed classes. [6]

A study done in United States shows that by combining a 'pre-test' and instructors' formal evaluation session comments, students with insufficient knowledge can be identified early; formative feedback and timely remedial measures can be given to them. [3] Faculty can guide students on study skills through AC. As a result, the students

are more focussed in exam preparation leading to better result in exams.

Limitations: The limitations of MCQ tests also apply to this study Students were tested only on cognitive domain (knowledge)
There could be learning from other factors in the interval between pre and post test which could have influenced post test marks

Conclusion: In our study, following AC, overall marks of students in exams were improved by 20.6% (n=81) in low scorer group and 9.7% (n=79) in middle scorer group. AC can be taken up at mid-term or following internal exams of students as a part of formative feedback.

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