INTEGRATING A NEW ASSESSMENT STRATEGY TO IMPROVE DIDACTIC OUTCOME AND SELF LEARNING IN PHARMACOTHERAPY COURSES IN ISTANBUL KEMERBURGAZ UNIVERSITY

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Abstract
Introduction:
Pretest/posttest evaluation is a concise and effective direct evaluation tool that aids to improve student self learning.
Methods:
Pretest was administered before providing all pharmacotherapy topic information. Posttest was done after tutoring the topic. Pretest/posttest questions were similar. Handbook and lecture notes were provided. The tests were developped according to different outcome measures that are relevant to student achievements such as tapping memory, problem solving and comprehension. The students' marks for the pre- and post-test were compared for four weeks and the change in the pretest marks weekly were assessed using paired samples - T test.
Results:
Significant differences between students' marks in the pretest appeared weekly, while the difference between pre- and post-test was significant only in the first week and declined in the following weeks.
Conclusion:
Pretest/posttest pharmacotherapy evaluation tool approved its effectivety in improvement of student self learning. Integration of this tool in the other pharmacotherapy courses is highly recommended.

Keywords: assessment strategy, pharmacotherapy, self learning.

INTRODUCTION

Active learning strategies in pharmacy education are commonly used in United States[1] and may be more effective than traditional, didactic lectures[2]. Istanbul Kemerburgaz University (IKU) and the University of Colorado (CU) have collaborated to develop a progressive pharmacotherapy course that was patient-centered and used active learning strategies.

Three CU faculty members developed the content of pharmacotherapy I course, structure, learning methods, assessments, and evaluations were patient-centered and incorporated contemporary educational approaches that are not very common in Turkey. The CU faculty traveled to Istanbul to teach the course in Spring 2015. Faculty at IKU participated in all course preparations, sessions, activities, and evaluations. The course was condensed into five weeks. The daily structure included 4 hours of knowledge acquisition and application including didactic lectures, case discussions, group assessments, and student-directed learning activities and two hours of communication-based activities. Evaluations include eleven quizzes, three assessments of communication skills, and one final examination.

During our observation of Pharmacotherapy I course, we noticed that students were dependent mainly on the information they recieved from their teachers. Their ability to derive the important information from lecture notes and handbook were very weak. They always required instructions from their teachers.

During the preparation for Pharmacotherapy I and II courses, in order to improve self learning and life long learning skills of students, we decided to implement pre-test assessment and therefore introduced pretest/posttest evaluation method.

Pretest/posttest evaluation is a concise and effective direct evaluation tool that aids to improve students' self and life long learning skills. It also increases the attendence of students. Pretest evaluates the knowledge/skill level before the student is instructed about all relevant information.

METHODS

Students were supplied by whole study materials which include handbook and lecture notes and informed about the topic that will be instructed during following week. The questions in pre- and post-tests were prepated according to different outcome measures that are relevant to student achievements such as tapping memory, problem solving and comprehension. Questions asked in pre- and post-tests were strongly similar in structure and content. The students' marks for the pre- and post- test were compared for four weeks and the change in pretest marks were assessed using paired samples - T test. The students' marks for the pre- and post- test were compared for four weeks and the change in the pretest marks weekly were assessed using paired samples - T test.

To measure students attitudes towards the course evaluation criteria, students were requested to complete a seven-item questionnaire regarding the evaluation method of the course, using a 5 point Likert scale (strongly agree to strongly disagree) Table I.

Table I: Pretest/Posttest student's evaluation survey

No		Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
1	The pre/post test method of evaluation is more preferred than single mid term exam.					
2	The pre/post test evaluation method improve my self learning skills					
3	The pre/post test method is the one way to ensure the continuity of education					
4	The pre/posttest questions are concentrated in the main topic outcomes					
5	Pre/post help me determine where is my skill and knowledge deficiencies exist and where they most frequently develop.					
6	Pre/post test method is more time and effort consuming					
7	recommended using pretest /posttest evaluation method for the following pharmacotherapy courses					

RESULTS

Weekly students' marks for pretests were compared and a statistically significant difference was found between the first and second weeks. Although the differences were not significant between second and third week, it continued to be significant between the third and fourth week and there is great significance between the first week and fourth week as seen in Table II.

The differences between pretests and post tests were found significant only in the first week as seen in Table III.

Concerning student attitudes; 61,3 % of students agreed or strongly agreed that the pre/post test method of evaluation is more preferred than a single mid term examination, 67,8% agreed or strongly agreed that the pre/post test evaluation method improved their self learning skills, 38,7% neither agreed nor disagreed.

Approximately half of the students agreed or strongly agreed that the pre/posttest questions were focused on main outcomes of the topic. Of the students, 67,7% agreed or strongly agreed that pre/post tests helped them determine their weaknesses in their knowledge and skills,74,2% agreed or strongly agreed that pre/post test method is time and effort consuming and 45,2% agreed or strongly agreed to recommend to use this technique for the following pharmacotherapy courses (Table IV).

We also observed an increase in their attendences with the implementation of pre/post test strategy (data not shown).

Table II: student's pretests comparison

Pretests	Mean	Std.deviation	P value
First week pretest	3,07	+_ 2,37	0,00*
Second week pretest	4,79	+_ 3,52	
Second week pretest	4,79	+_ 3,5	0,906
Third week pretest	4,72	+_ 4,1	
Third week pretest	5	+_ 4	0,019*
Fourth week pretest	5,9	+_ 4,1	
First week pretest	3,19	+_2,31	0,001*
Fourth week pretest	5,93	+_4,16	

Table III: Student's pretests/postests comparison

Tests	Mea n	Std.deviation	P value
First week pretest	6,35	+_ 2,29	0,00*
First week post test	8,86	+_ 1,11	
Second week pretest	4,16	+_1,62	0,582
Second week posttest	4,91	+_1,5	
Third week pretest	7,2	+_ 2,4	0,961
Third week posttest	7,2	+_ 1,54	
Fourth week pretest	8,8	+_1,06	0,596
Fourth week post test	8,71	+_0 ,76	

Table IV: Studen's Attitude Towards Pretests/Posttests Evaluation method

Question NO.	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
1	29%	32,3%	16,1%	9,7%	6,5%
2	22,6%	45,2%	16,1%	6,5%	3,2%
3	9,7%	22,6%	38,7%	16,1%	6,5%
4	3,2%	45,2%	22,6%	16,1%	6,5%
5	12,9%	54,8%	16,1%	9,7%	0%
6	45,2%	29%	9,7%	9,7%	0%
7	19,4%	25,8%	29%	12,9%	6,5%

DISCUSSION

The pre/post test method is a way to ensure the continuity of education. The fact that there was a weekly improvement in the students' pretest results, indicates improvement in their ability of self learning and derive the important knowledge from textbooks and lecture notes. The students started to develop their own strategies for self learning by making proper summaries, monitoring and evaluating their own performance. With time the students became able to derive required learning outcomes by themselfs, and the differences between pretest and posttest marks declined with time.

The fact that students had a positive attittude towards this method of evaluation as they prefered it more than midterm examinations, could suggest that they were more self motivated and satisfied by the improvement of their self learning and life long learning skills, even though it required more effort and preparation/study time.

CONCLUSION

The results of this study could suggest that pretest/posttest pharmacotherapy evaluation tool can be effective in the improvement of student self learning, self motivation, satisfaction and attendence. Integration of this tool in other pharmacotherapy courses is highly recommended.

REFERENCES

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