

Comparison of blended and lecture teaching methods of satisfaction in introduction to clinical medical students (pathophysiology level)

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Background: An important stage in medical training is pathophysiology level. There is a question among medical teachers that conventional methods of teaching is sufficient for learning. There is a purpose among teachers to find a way to improve the quality of medical teaching. The aim of this study was to compare lecture and blended methods to each other.

Methods: 121 medical students of Mashhad University of medical science in this quasi-experimental study were enrolled. These students had selected kidney pathophysiology course in the academic year 2016. The teachers randomly divided into two groups as lecture group and blended group. Finally, the student's satisfaction was assessed with in the two groups were evaluated. The questionnaire assessed by Likert scale. The data were analyzed through INSTAT software using t-test.

Results: According to questionnaire results students believed that the blended method leads to more interest to class (62%), better knowledge per durability (72.3%), better relationship between teachers and students (58.7%), better explanation (68.6%), and more friendly atmosphere of class (47.1%).

Conclusions: According to the results of this study blended teaching method increased students' satisfaction. This method can be used in teaching kidney physiopathology.

Keywords: Pathophysiology, Blended method, Medical student, Questionnaire

مقایسه روشهای تلفیقی و سخنرانی بر رضایتمندی دانشجویان پزشکی در درس فیزیوپاتولوژی بیماریهای کلیه

مقایسه روشهای تلفیقی و سخنرانی بر رضایتمندی دانشجویان پزشکی در درس فیزیوپاتولوژی بیماریهای کلیه

زمینه و هدف: مقطع فیزیوپاتولوژی یک مرحله ی مهم در آموزش دوره پزشکی می باشد. در این مرحله علائم و نشانه های بیماریها و روشهای تشخیصی آنها آموزش داده می شود. یافتن راهی برای بالا بردن آموزش یکی از مهمترین اهداف مدرسین رشته علوم پزشکی می باشد. این مطالعه به بررسی تفاوت تدریس به روش متداول (سخنرانی) با روش تلفیقی (سخنرانی، معرفی بیمار) می پردازد. **روش:** این مطالعه ی نیمه تجربی بر روی ۱۲۱ دانشجوی پزشکی مقطع فیزیوپاتولوژی دانشگاه علوم پزشکی مشهد در نیمسال دوم ۹۴-۹۵ انجام گرفت. مدرسین به صورت تصادفی به دو گروه تقسیم شدند. گروه اول از روش تدریس متداول و گروه دوم از روش تلفیقی جهت تدریس استفاده کردند. بنا به نظر مدیر گروه و اعضای گروه سعی بر این شد که مطالب از نظر دشواری به طور یکسان بین دو گروه تقسیم شوند. در انتها با استفاده از پرسشنامه میزان رضایتمندی دانشجویان مورد ارزیابی قرار گرفت. تجزیه و تحلیل داده ها با استفاده از نرم افزار SPSS و با مقیاس لیکرت و با استفاده از آنالیز آماری t-test انجام گرفت.

یافته ها: بنا بر نظر دانشجویان روش آموزش تلفیقی باعث افزایش علاقمندی (۶۲٪)، تعامل بیشتر دانشجو با مدرس (۵۸٪/۷)، توضیح بهتر بیماری توسط مدرس (۶۸٪/۶)، جالب تر و دوستانه تر شدن فضای کلاس (۴۷٪/۱) و ماندگاری بیشتر مطالب (۷۲٪/۸)، می شود و نشان دهنده ی این است که روش آموزش تلفیقی باعث افزایش رضایتمندی در دانشجویان شده است (P value < 0.001).

نتیجه گیری: روش آموزش تلفیقی افزایش رضایتمندی در دانشجویان پزشکی در مقطع فیزیوپاتولوژی در درس بیماریهای کلیه می شود و این روش می تواند در تدریس فیزیوپاتولوژی کلیه بکار گرفته شود.

واژه های کلیدی: دوره ی فیزیوپاتولوژی، روش تلفیقی، دانشجویان پزشکی، معرفی بیمار

توسیع و هدف: این مرحله فیزیوپاتولوژی در مرحله مرسه در آموزش پزشکی در این مرحله بتلفی طالب المعلومات الأساسية عن علائم الأمراض وأسابب العلاج. إن الحصول على أساليب ترغف المستوى التعليمي هو من أهم أهداف المدرسين في المجال الطبي. تهدف هذه الدراسة إلى المقارنة بين أسلوب التدريس المتداول (المحاضرة) و بين الأسلوب التليفي (المحاضرة - تعريف المريض).

الأسلوب: أجريت هذه الدراسة النصف تجريبية على ۱۲۱ من طلبة الطب في مرحلة الفيزيولوجيا. في جامعة مشهد للعلوم الطبية. في النصف الثاني من عام ۹۴-۹۵ تم تقسيم المدرسين إلى فريقين بشكل عشوائي القسم الأول استخدام أسلوب التدريس المتداول و الثاني استخدم الأسلوب التليفي و حسب نظر مدرس وأعضاء المجموعة تم اختيار مستوى صعوبة المادة بشكل متساوي بين الفريقين و في النهاية تم استخدام استمارات تعدد مستوى الرضا عند الطلاب. تم تحليل المطبات بواسطة برنامج SPSS مع استخدام مقياس ليكرت و الاختبار التحليلي T-test

النتائج: بناء على وجهة نظر الطلاب. إن الأسلوب التليفي رفع مستوى العلاقة ۶۲٪، التعامل الأكثر بين الطالب والمدرس ۵۸٪، التوضيح الأفضل للمرض بواسطة الاستاذ ۶۸٪، وجود بيئة أليفة بين الطلاب في قاعة المحاضرة ۴۷٪، ترغيب المعلومات بشكل أفضل ۷۲٪، وهذا يشير إلى أن الأسلوب التليفي رفع مستوى الرضا عند الطلاب P value < 0.001

الاستنتاج: الأسلوب التليفي رفع مستوى الرضا عند طلاب الطب في مادة الفيزيولوجيا للأمراض الكلى و يمكننا استعمال هذا الأسلوب في مادة الكلى. **الكلمات المفتاح:** دورة الفيزيولوجيا - الأسلوب التليفي - طلاب الطب - تعريف المريض.

گردے کی بیماریوں میں فیزیوپیتھالوجی کے موضوع کے تحت مشترکہ روشوں اور لکچر کا طلباء کی رضایت میں موازنہ

بیگ گراونٹ: فیزیوپیتھالوجی کا موضوع میڈیکل نصاب میں ایک اہم موضوع شمار ہوتا ہے۔ اس موضوع میں بیماریوں کی علامتوں اور بیماریوں کی تشخیص کی روشیں سکھائی جاتی ہیں۔ اس موضوع میں تعلیم کو بہتر بنانا میڈیکل تعلیم کا ایک اہم ترین هدف ہے۔ یہ تحقیق رائج روش تدریس اور مشترکہ روشوں سے تدریس کا جائزہ لیتی ہے۔ **روش:** اس تحقیق میں مشہد یونیورسٹی آف میڈیکل سائنس کے ایک سو بیس طلباء نے شرکت کی جن کا تعلق دوپزار سولہ اور دوپزار سترہ میں فیزیوپیتھالوجی کی کلاسوں سے تھا۔ انہیں رینڈم طریقوں سے دو گروہوں میں تقسیم کیا گیا۔ پہلے گروہ کو رائج روش سے پڑھایا گیا جبکہ دوسرے گروہ کو مشترکہ روشوں سے تعلیم دی گئی۔ آخر میں ایک سوالنامہ دیا گیا جس میں دونوں روشوں سے ان کی رضا مندی جاننے کی کوشش کی گئی۔ ڈیٹا کا تجزیہ ایس پی ایس ایس سافٹ ویئر، لائیکرٹ اسکیل اور ٹی ٹسٹ سے کیا گیا۔

نتیجے: طلباء نے مشترکہ روشوں کو زیادہ پسند کیا ہے۔ لکچر کی جامع وضاحتوں سے کلاس کا ماحول دوستانہ بن جاتا ہے اور اس سے یہ پتہ چلتا ہے طلباء مشترکہ روشوں سے زیادہ راضی ہیں۔

سفارشات: مشترکہ روشوں سے طلباء کو فائدہ پہنچتا ہے اسی وجہ سے یہ سفارش کی جاتی ہے کہ فیزیوپیتھالوجی کے سبق میں اس روش سے استفادہ کیا جائے۔

کلیدی الفاظ: فیزیوپیتھالوجی، مشترکہ روش، رائج روش

INTRODUCTION

An important step in medical training is pathophysiology level. This step is intermediate between basic science and practical training courses. In this level signs and symptoms of disease and diagnostic methods is taught.

According to the importance of learning before medical training, every strategy and method that raises the level of education at this point helps improve training. One of the important questions between university teachers is: whether teaching method based on speech is enough to educate students and enhance their motivation to study or not. Currently teaching based on lecture method is most commonly used in medical courses.

One of the main aspects of effective teaching is an evaluation of the learning process and clinical training. It helps identify strengths and weaknesses of the training (1). Teaching through speech is unilateral transfers the content from the teachers to the students. In this way, students will receive a high volume of content in a short time.

The disadvantage of this method of teaching is lowering the level of material retention, fatigue and malaise students and loss of motivation to study (2).

Problem based learning (PBL) is one of the valid methods of teaching (3). In this way a case is presented and the students respond to questions step by step and finally come to recognize. This way causes more participation of the students. Instead of being a passive listener, a student is actively participating in the discussion. Studies have shown that Students in PBL method have Greater emphasis on the use of journals and the Internet and laboratory. Also Studies Resource chosen by students themselves and the sense of competition among students is high in this method (4).

In a study conducted at Harvard University Students shows that the durability of the material in PBL method was higher than conventional teaching methods and the scores were higher and stress was less (5).

Problem-based learning is not a new strategy, however, this student-centered method is widely used as a teaching method preferred by universities (6).

A study on 45 female students studying in the 5th semester of basic science course, showed that: In student-centered teaching methods students' grades and level of interest as _____

compared to Lecture was more (7).

On the other hand, the results of some studies found that students who are using PBL compared to the ones who are using the conventional method are less prepared for their exams (8-9-10).

Research has shown that the blended method is the most effective teaching method. (3) by merger lectures with case presentation and discussion can be used of the advantages of both methods (11).

In earlier studies, this method is used in the teaching of physiology (12), drug administration skills (3), and teaching critical topics for medical students (2), and teaching biochemistry (13).

In this study, we examined blended method with the conventional teaching methods on student satisfaction.

METHODS

This descriptive –analytical study was conducted during 2015-2016 to 121 pathophysiology level of medical students.

All medical students in pathophysiology level during 2015-2016 were enrolled. The subjects taught were divided into two groups. According to the opinion of the teachers Lessons were at the same level. in terms of difficulty and complexity. In the first group, the conventional lecture method and in the second group the blended method was used. In blended method in addition to lectures at the end of the debate, a case was presented and students answered step by step to the questions about signs, symptoms and diagnostic approach.

The data were collected via researcher made questionnaire. The questionnaire included two parts. Part I demographic question and part 2, 6 item regarding satisfaction.

Part 2 included positive effect and negative effect. Positive effect, including: more interest in class, better knowledge perdurability, better relationship between teachers and students, better explanation and more friendly atmosphere of class. Negative effect, including: more inducing stress and more lesson difficulty. The questionnaire was based on Likert-style. Rating questionnaire items were: very low, low, medium, high and very high. Its validity was confirmed by the comments of the Department of Nephrology and the reliability was confirmed by the test retest method.

EXCEL software for data entry and for data analysis, SPSS Ver.16 was used. For statistical analysis Likert scale by using t-test were used.

Table 1. Frequency distribution and percentage of students' satisfaction about blended teaching method

	Low and very low	Average	Hard and very hard	Mean	SD
more interest to class	17(14%)	29(24%)	75(62%)	3.6	0.987
better knowledge perdurability	14(11.5%)	19(15.7%)	88(72.8%)	3.45	0.974
better relationship between teachers and students	13(10.7%)	37(30.6%)	71(58.7%)	3.63	0.976
better explanation	10(8.3%)	28(23.1%)	83(68.6%)	2.56	1.347
more friendly atmosphere	15(12.4%)	49(40.5%)	57(47.1%)	3.79	0.957
more stress	50(41.3%)	12(9.9%)	59(48.8%)	3.88	1.018
lesson to look harder	33(27.3%)	43(35.5%)	45(37.2%)	2.69	1.096

Table 2. Students satisfaction and relationship of students gender with satisfaction				
		Mean ± standard deviation	Statistics test	P value
Student satisfaction		3.37 ± 0.637	6.426	<0.001
Differences of opinion between sexes	Female	3.312±0.649	-0.871	0.386
	Male	3.418±0.649		

RESULTS

121 students were enrolled in this study. 63 were female (52%) and 58 were male (48%). They were aged between 20-25 years. According to the questionnaire results as shown in Table 1, Students commented that this method increased the amount of high and very high interest (62%), more interesting and more friendly atmosphere of class (47.1%), more interaction between teachers' and students (58.7%), better explained by the teacher (68.6%) and more durable material (72.8%). On the other hand, 41.3% of the students commented that this method increases the stress in a low amount and 9.9% in an average amount and 48.8% in high and very high amount. The students commented that this method makes the difficulty of the course content to be shown more 27.3% in a low amount and 35.5% in an average amount and 37.2 % in high and very high amount.

The Average of Students Comments on items one, two, three and five were more than three and This means that they had a positive opinion of this technique. The Average of comments in item six was also more than three and According to students' comments, this method increases the stress.

To assess whether this approach is appropriate or not, one sample t-test was used. It was observed that the probability is 0.000 ($P < 0.05$). As shown in Table 2, there were no differences between men and women in terms of satisfaction.

DISCUSSION

The aim of this study was to evaluate the effect of blended method (speech and PBL) on the medical student's satisfaction in pathophysiology level. According to the results of the questionnaires showed that students are satisfied and consider the use of this method, increasing interest in lessons, more friendly atmosphere of class, students has more interaction with teachers, explain the lesson better and increase knowledge perdurability.

The results of this study matched with the results of a study that was conducted by Moore GT on Harvard medical students. According to this study students believed that Problem-based learning promotes learning and increasing content perdurability and reduced stress (5).

In another study by Kaufman and his colleagues concluded that Students using PBL have a more positive attitude towards their teachers and also have a greater incentive to learn more (14).

In another study conducted at the University of McGill, Canada, it was shown that students in a PBL group compared to the conventional education elaborate more and responds better to questions but, commit more mistakes (15).

In a study that was conducted on medical students by Jafari was shown that blended teaching method of strengthening internal motivation, enhances learning and student satisfaction can be used in teaching biochemistry (13). Similarly, in a study by the Khoshnevis Asl and his colleagues on medical students of the fifth and final year satisfaction of PBL was Concluded that students prefer this method to the conventional method of teaching (16).

In another study on 42 medical students who were passing the embryology course, the effects of PBL on students' satisfaction was enrolled and the result was that this method increases focus and satisfaction of the students (17).

In a study that was enrolled by Moradi and her co-workers and compared the PBL method and the conventional method of critical thinking in nursing students, the result was that both conventional and problem-based clinical educations significantly improved nursing students' critical thinking (18).

The strength of this study is to use two methods of lecture and PBL and benefits of each approach. Another strong point is the high volume of samples. Limitations of this study include the impossibility of dividing students into two groups (intervention and control) due to the disruption of the teaching plan and lack of coordination in education of a high volume of students. Another disadvantage is the lack of uniformity in the courses offered in the two groups. However, we tried making the degree of difficulty and complexity of the subjects in both groups the same as each other.

According to the results of this study blended teaching method increased students' satisfaction. This method can be used in teaching kidney physiopathology. Studies are needed to determine the effects of blended method, on the other medical courses, as well as case-control studies on clinical groups are recommended.

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