

Performance of medical students is reflection of gender and learning style

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Objective: To determine learning styles of students of 3rd year MBBS with special focus on gender and its correlation with the performance in examinations.

Methodology: A descriptive study was conducted at Islamic International Medical College and VARK questionnaire was used to assess the performance in exams. The obtained marks of students were divided into three groups: Group I = 50-60%, Group II = 60-70% and Group III = 70-80%. All data was analyzed by SPSS v. 21.

Results: Out of 100 students, 83.5% students had unimodal while 16.5% had multimodal learning

style. Among unimodal style, auditory and kinesthetic (29.7% each) were the common learning styles. Among girls, 35% had preference for kinesthetic and auditory style while visual style was least common (3%). The kinesthetic and visual students were found to be high achievers in class. The listeners were found to be mediocre. The readers did not show good performance.

Conclusion: Performance of medical students is related to the learning style and gender. (Rawal Med J 2014;40: 104-106).

Key words: Learning style, performance, gender, medical students.

INTRODUCTION

Learning style of an individual describes a process through which a learner registers, retains, recalls and reproduces a certain information whenever needed.¹ Learning style is one of the important factors that affect personal academic competencies.² Proper and planned modification of teaching methodologies will fulfill the learning needs of students.³ There is an inter-individual variation in learning process of students.⁴ There are four different sensory modalities of learning: visual, auditory, read-write and kinesthetic.⁵ Kinesthetic learner prefers dissections for gross anatomy, role play and labs to learn skills.⁶

A student may be uni or multimodal learner. A unimodal learner depends upon only one sensory modality for learning.⁷ Our students mostly have multimodal learning approach. On the other hand, teachers usually adopt that teaching style which satisfies their own demand for learning.⁸ A balance between demands of students and class environment leads to an effective learning.⁹ Previously, age, gender and socioeconomic group of a student were considered important for learning but now focus has been shifted to learning style of a student.¹⁰ The

medical students need transfer of knowledge in a way, which can help them to retain the content and use it during their clinical practice.¹¹ A successful student stems from a balanced teaching based on knowledge, attitude and skills.^{12,13} A strong relationship may exist between learning styles and examination performance.¹⁴ The researchers have used various learning style inventories.¹⁵ In this study, our objective was to determine relationship between gender, performance and learning style of students of 3rd year MBBS.

METHODOLOGY

This descriptive study was conducted in the Department of anatomy, Islamic International Medical College, Rawalpindi, Pakistan, after the permission of IRC. VARK questionnaires 7.2 of 16 multiple choice questions with an additional point of "gender" was distributed among students. Each question consists of four possible options: visual, auditory, read-write and kinesthetic. Learning style was analyzed and compared with annual results. The obtained marks of students were divided into three groups: Group I (below average) = 50-60%, Group II (mediocre) = 60-70% and Group III (high

achievers) =70-80%. All data were analyzed by SPSS v. 21. A chi square test (X^2 test) was used to establish a relationship between gender and learning style while Kruskal-Wallis test was performed to establish an association between the learning style and the performance of the student.

RESULTS

The strength of class was 100, response rate was 91%. 63 females and 28 males returned questionnaire. Uni modal learning style was seen 87% girls and 75% boys. Among unimodal style, auditory and kinesthetic (29.7% each) were the common (Table 1) ($p=0.02$). Among 91 students, kinesthetic and auditory style (35% each) was common among of girls and visual style was least common (3%) among girls.

Table 1. Distribution of learning style among girls and boys.

Gender	Unimodal				Multimodal	P
	Auditory	Kinesthetic	Reading	Visual		
Girls (n=63)	34.9%	34.9%	14.3%	3.2%	12.7%	0.02*
Boys (n=28)	17.9%	17.9%	21.4%	17.9%	25.0%	
Total (n=91)	29.7%	29.7%	16.5%	7.7%	16.5%	

*(X^2 test)

Table 2. Relationship between learning style and annual performance.

Learning style	Performance in annual exams				P
	50-60% below average	60-70% mediocre	70-80% high achiever	Total	
Kinesthetic	2	17	8	27	0.005**
Auditory	7	18	2	27	
Reading	7	7	1	15	
Mixed	5	9	1	15	
Visual	0	6	1	7	
Total	21	57	13	91	

** (Kruskal Wallis test)

The relationship between learning style and performance of students was established through kruskal Wallis test. The test showed the significant value of 0.005. About 62% students were included in mediocre group while 23% and 14% were found in below average group. Students with auditory and reading learning style got below average marks. Students with kinesthetic and auditory were found

mostly in mediocre group while only kinesthetic style was predominant in high achievers. The visual and multimodal learners were mostly mediocre while readers were mostly in mediocre and below average (Table 2).

DISCUSSION

In every class, students have different learning styles. Improvement in the learning of student demands the appropriate changes in teaching strategy.¹⁶ Any desirable change in teaching strategy will assist each student to progress in his studies.¹⁷ Therefore, teaching modals are very important in concept's building of students. The altered teaching methodology will provide students with more favorable teaching environment.¹⁸

Most of the studies have shown preponderance of multimodal learning style.¹⁹ In our study, unimodal style was predominant both in girls and boys 87% and 75%, respectively. The girls usually show unimodal learning preference,¹⁰ which matches with our results. High prevalence of boys (25%) among multimodal group matches with other studies.^{10,13} These students don't sit in the class for their learning but they actually rely on listening lectures, discussion in SGDs and enhance their skills in skill labs. In our study, more boys were in this group reflecting the capability of boys to adjust with different teaching designs.

A higher ratio of unimodal learners in our study highlights the importance of criterion for selection of teaching methodology. A high percentage of unimodal students, although contrary to other studies,^{10,13,19} may be justified by teaching strategies used in our schools. Keeping in mind the effect of diversity of learning styles on learning of students, teachers shall adopt a strategy which may satisfies all of them.²⁰ The readers (16.5%) need more attention as they mostly get below average marks (Table 2).

The students with auditory style (34.9%) were either in below average or mediocre group. These students rely on lectures, SGDs and peer assisted learning (PAL). In traditional way of teaching, lecturing is a source of passive learning²¹ and may attract only listeners. Addition of small session of brainstorming, audience participation and short

videos during lecture²² will convert a long didactic lecture into source of learning for all learners. The kinesthetic were dominant in class with highest ratio (34%) and best performance, which matches other studies.^{7,19} The mediocre visual learners (7%) like in other studies^{7,19} were few in number. Small videos, interesting pictures and modals can be provided to increment their learning. The learning habit of students is an important issue because any disparity in the teaching strategy and learning style will result in loss of interest in class, depression and poor performance.²³

CONCLUSION

The students have different learning styles. Prevalence of these styles is different among boys and girls. Learning styles of students influence the performance of medical students.

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