LEARNING APPROACHES OF MEDICAL STUDENTS IN A GOVERNMENT MEDICAL COLLEGE, WEST BENGAL

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ABSTRACT

Background: Pharmacology is an interesting subject, always on the lookout for better treatment modalities. Therefore understanding the basics of pharmacology will help both future medical research and treatment of the patients. Learning approaches of medical students strongly influence the outcome of examination and play a vital role in their career. This study assessed the awareness of students regarding the importance of understanding using the Approaches and Study Skills Inventory for Students (ASSIST) questionnaire. **Material & Methods:** Total twenty-two medical students participated in this study. The variable which was used for comparison was gender and language of communication in school. **Results:** The score of Deep and Strategic was significantly more than superficial score among the medical students at p-value <0.05. The Deep learning approach score was found to be significantly higher in a student with a non-English background as compared with students with English as a medium of communication in school at p-value <0.05. **Conclusion:** This study identified the learning approaches of medical students. Identifying students learning approaches can help to improve the educational resources aimed at promoting the importance of understanding.
Keywords: learning approaches, understanding, university medical education

INTRODUCTION

Pharmacology is taught in the second year of MBBS. This subject lays down the pharmacological basics of therapeutics. Thus understanding is of paramount importance in pharmacology. Understanding will give better results in the examination, medical research and overall patient care.

Medical education has two main problems: the vast amount of information and limited time. Therefore resources must be optimized so as to channelize the entire focus on understanding the basics and common medical conditions. Understanding the subject significantly improves the student chances of passing the subject as compared to rote memorization.

There are basically three ways a subject can be learnt by the student: Understanding the subject – the deep approach of studying, Rote memorization- superficial approach of studying and finally combination –the strategic approach of studying. **(1)** In medical education, it is found that chances of failure are high in students who are engaging in superficial approach to studying.

Once the students know their approach to studying, they can work on it to focus on understanding. This will make their journey of medical education more

enjoyable. Same way teachers can work to focus on understanding while guiding the students. This will provide better guidance to students.

A number of tools are being developed to assess the student's approaches to studying. One such tool of assessment is ASSIST- Approaches and study skills Inventory for Students. ASSIST is a questionnaire which explores the students views to studying: Focus on Understanding the Subject, Focus on getting Highest Marks possible in the subject, Focus on Passing the subject by just memorization. **(2, 3)** Based on the student's response, the analysis is made regarding studying approach of the student.

Very less information is available about students learning approaches in rural medical college. This study aims at understanding the learning approaches in a rural medical college.

METHODS

This study was conducted from April to June 2018. Total Twenty-two medical students of second-year MBBS, Malda Medical College and Hospital took part. The participation was voluntary and data collected was kept confidential.

Study Questionnaire-ASSIST

ASSIST tool - questionnaire has been used for assessment. The ASSIST questionnaire was answered by the participants during a lecture class. The questionnaire consisted of 66 items. In analysing student for a Deep approach to studying questions focussed on seeking meaning, relating ideas, use of evidence and interest in ideas. While analysing student for a strategic approach to studying questions focussed on the organised study. Finally for analysis of the surface approach to studying questions focused on lack of purpose, unrelated memorizing, syllabus-bound and fear of failure. Finally, the Teaching Preferences of the participants was also assessed.

Scoring system: Total 66 questions was asked and each item was evaluated on a five-point scale (5 = agree, 4 = agree somewhat, 3= unsure, 2 = disagree somewhat, 1 = disagree).

The questions were read out to the participants and the participants marked the most appropriate response in the proforma. The study was approved by Institutional Ethics Committee, Malda Medical Medical College, Malda, Government of West Bengal. The data was calculated using online statistical data analysis software: social science statistics.

RESULTS

Demographic data:

The age of the participants ranged from 18 to 22 years. Total twenty-two students participated. Among the participants, there were nine males and thirteen females. Eight students attended the school in which the official language of communication was English, the remaining fourteen students attended school in which vernacular language was the official language of communication. The vernacular languages were Urdu and Bengali.

Predominant learning approach:

Total score and Mean score of three learning approaches that is deep, strategic and superficial were calculated. Mean score of three approaches of learning Deep, Strategic and Superficial was 79 %, 77%, and 70% respectively. The p-value was .001118. The result is significant at p <0.01. Overall the score of Deep and Strategic was more than superficial score. In Eighteen students the score of Deep and Strategic was more than superficial score. In four students superficial score was more than Deep and Strategic score.

Gender Comparison:

The learning approaches of the male and female participants were compared by using students t-test. There was no statistically significance between scores of male and female students at a p-value of < 0.05.

The language of communication in school:

The learning approaches of the English medium school and non-English medium school participants were compared by using students-t-test. The p-value

of <0.05 was considered to be statistically significant. In deep approach use of evidence parameter and the total deep score was significantly more in non-English as compared to English. In strategic approach achieving parameter was significantly more in non-English as compared to English. There was no statistically significant difference in total strategic score in English vs non-English.

DISCUSSION

Medical education is based on scientific evidence obtained from clinical trials. The clinical trials lay the foundation of medical textbooks. The medical textbooks and other medical literature consist of the vast amount of information. The medical students have a limited time to master this huge information. Due to this, it is of paramount importance that the students focus on understanding the medical information. Understanding will help them to enjoy the journey of medical education.

To understand the learning approaches of medical students we have to take into account the pre-university studying habits. Before joining the medical college the students spend two years in Class 11 & 12 preparing for the medical entrance examination. During this period students concentrate mostly on clearing entrance. They take help of various methods online websites, devices like tablets, books written by different private tutorials. The sole aim of most of the private tutorials is to make money by selling study materials. In these preparatory years of pre-university students are mostly forced to rote memorize the subject without any understanding. **(4, 5, 6)**

Once the students enter the university, the scenario completely changes. The medical literature is vast and the time is limited. Therefore to excel in medical education thorough understanding is essential. Students must know that deep studying approach can remarkably improve their academic performance. So, students and teachers must orient themselves so that the ultimate aim of understanding the subject is achieved. For example while learning about penicillin and its mechanism of action. A superficial approach would be just to state that penicillin inhibits bacterial cell wall synthesis. Penicillin acts against bacteria

like streptococcus etc. and ineffective in infection caused by Atypical bacteria. In course of time student will forget this information and will not understand the clinical significance. In contrast to this deep approach would show by schematic diagram the site of action of penicillin, the difference between typical bacteria and atypical bacteria in the context of the cell wall. Thus students will understand that penicillin is effective in those bacteria in which cell wall is present. But in atypical bacteria, the cell wall is absent due to this penicillin are ineffective. Therefore to act against atypical bacteria different groups of antibiotics are useful like Macrolides. This understanding in the basic mechanism of action of penicillin can bring about a paradigm shift in the academic environment. **(7,8,9)** The deep approach should be inculcated right at the beginning of university medical education and followed throughout medical education.

Students may not be aware of these learning approaches. This is particularly true in a rural setup, where interaction with the international community is limited. Therefore it is important to sensitize the students about the learning approaches. Once they are sensitized about the learning approaches and need of deep approach in university education- better overall performance in terms of grades and attitude of students. This exercise also gives teachers an opportunity to motivate the students for practical application of the lessons taught in the lecture class and required changes can be considered. **(10)**

ASSIST tool showed that in eighteen students the score of Deep and Strategic was more than superficial score. The superficial approach is used only by four students. Now, this is encouraging news both for students and teachers. Next step in the journey of medical education would be to focus more on understanding that is predominant approach should be deep. Another important step is once the students with the superficial approach are identified they should be given guidance to instil in them the importance of understanding. An interactive session between faculty and students can lead to fruitful results.

Another interesting aspect which this study showed is that students with Non-English medium schooling spent more time and energy in understanding the subject as compared to students with an English background. The total deep score approach was significantly more in Non-English background students as compared to English background students. The possible explanation of this finding could be that they look up in an online dictionary or hard copy dictionary to understand the meaning of English words. However, more information is required regarding pre-university studying habits and present socio-economic factors to understand this finding. A larger group of participants can throw more light in this situation.

Finally, on coming to the gender comparison of the participants score. There was no statistically significant difference between the score of male versus female in deep, strategic and superficial approaches to studying. Thus this shows that there no difference between male and female students as far approach to studying is concerned. This is an important finding because this negates a common social thinking which often has a role in categorizing a particular gender to be more oriented towards rote memorizing. Thus study shows that all students – males and females have the full potential for understanding the medical subjects.

As we had discussed earlier that ASSIST questionnaire is answered voluntarily by the students. Now a limitation of this method of approach is that student while answering the questions will always think about the approved answer. This approved answer approach may not reflect the actual thought process and the real studying habits of the students. So this ASSIST questionnaire can be used to acquire baseline information about the students. Then the faculty and students have to set out mutual agreed understanding key points. The methods of achieving understanding key points- interactive sessions, lectures, and mock tests. The ASSIST study can be instrumental in starting a new venture of understanding in this journey of medical education.

Another important aspect of university education is

fear, fear of failure. Fear of failure is particularly seen in the superficial approach of learning. Students are not able to concentrate, suffer from anxiety and cannot use their time effectively. The only solution is to avoid the superficial approach of studying. This orientation should be started right at the beginning of the student's university education by devoting time and energy to deep approach **(11)**

CONCLUSION

Pharmacology forms the basis of therapeutic interventions. Understanding the subject plays a pivot role in laying the foundation of modern medical science. It is of critical importance that the students of university medical education should be oriented to focus on understanding the subject. This study found that the score of Deep and Strategic was more than the superficial score in second-year MBBS students of Malda Medical College. This result was statistically significant $p<0.01$.

Medical education is a continuous process and understanding of vital key points should be encouraged throughout the medical career. Learning by understanding is an acquired trait. This study, as well as the vast array of research in medical education, recommends orientation of students towards understanding the subject.

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Table 1: Deep approach to studying - Male vs Female

	Male	Female	t-value	p-value	Significance
Seeking meaning	16.33	15.62	0.61055	0.274188	Not significant
Relating ideas	15.44	15	0.49363	0.313471	Not significant
Use of evidence	16.89	15.92	0.80315	0.215666	Not significant
Interest in Ideas	15.56	16.23	-0.8412	.205091	Not significant
Total Deep score	64.22	62.77	0.49679	.312377	Not significant

Table 2: Strategic approach to studying- Male vs Female

	Male	Female	t-value	p-value	Significance
Organised study	15.11	14.92	0.12905	.449303	Not significant
Time management	14.44	13.38	0.75916	.228306	Not significant
Alertness to assessment demands	15.78	16.23	-0.37663	.355206	Not significant
Achieving	16.5	15.38	0.93093	.181784	Not significant
Monitoring effectiveness	15.89	16.77	-1.16061	.129735	Not significant
Total Strategic score	77.78	76.69	0.24906	0.402927	Not significant

Table 3: Superficial approach to studying- Male vs Female

	Male	Female	t-value	p-value	Significance
Lack of purpose	10.33	9.31	0.75027	.230914	Not significant
Unrelated memorizing	13.44	13.38	0.05512	.478294	Not significant
Syllabus -bound	12.44	12.85	-0.31236	.379	Not significant
Fear of Failure	16.22	16	0.22307	.412871	Not significant
Total Superficial score	56.33	55.23	0.4379	.333077	Not significant

Table 4: Teaching preferences- Male vs Female

	Male	Female	t-value	p-value	significance
Deep	18.11	17	1.38064	0.091313	Not significant
Superficial	14.89	14.15	0.49708	.312278	Not significant

Table 5: Deep-English vs Non-English

	English	Non-English	t-value	p-value	Significance
Seeking meaning	14.38	16.79	-2.21844	.0913	Not significant
Relating ideas	14.25	15.71	-1.69088	.053192	Not significant
Use of evidence	14	17.64	-3.84878	0.000501	significant
Interest in Ideas	15.5	16.21	-0.87175	.196844	Not significant
Total Deep score	58.12	66.36	-3.46083	.001235	significant

Table 6: Strategic – English vs Non-English

	English	Non-English	t-value	p-value	Significance
Organised study	15	15	0	.5	Not significant
Time management	12.62	14.5	-1.35357	.095488	Not significant
Alertness to assessment demands	15.75	16.21	-0.37769	.354819	Not significant
Achieving	13.62	17.14	-3.97891	.00037	significant
Monitoring effectiveness	15.75	16.79	-1.35081	0.095921	Not significant
Total Strategic score	72.75	79.64	-1.64637	0.057656	Not significant

Table 7: Superficial- English vs Non-English

	English	Non-English	t-value	p-value	Significance
Lack of purpose	10.5	9.29	0.87329	.196435	Not significant
Unrelated memorizing	12.5	13.93	-1.34462	.0969	Not significant
Syllabus -bound	13.62	12.14	1.16222	.129415	Not significant
Fear of Failure	17.38	15.36	2.20732	.01957	significant
Total Superficial score	57.75	54.5	1.30967	.102576	Not significant

Table 8: Teaching preferences- English vs Non-English

	English	Non-English	t-value	p-value	significance
Deep	17.25	17.57	-0.37469	.355917	Not significant
Superficial	14.62	14.36	0.17628	.430924	Not significant