

**UNDERGRADUATE MBBS AND BDS STUDENTS' OPINION BASED SURVEY ON CURRENT TEACHING PRACTICES IN PHARMACOLOGY AND CHANGES RECOMMENDED FOR BETTERMENT OF THE SAME**

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**ABSTRACT: CONTEXT:** Pharmacology is one of the most fundamental subjects in the field of medicine and a good grasp of this subject is vital for any clinical practitioner. The teaching of pharmacology in medical and dental colleges of India has evolved from mere didactic lectures to audio-visual aid based lectures and computer based learning. Evolution of teaching methods is an on-going process and a docent needs proper feedback from the pupils regarding their opinion on what is satisfactory and what needs improvement. **AIMS:** By way of this survey-based study we aim to grasp the MBBS and BDS students' opinion regarding the teaching practices in pharmacology and changes recommended for the betterment of the same. **METHODS AND MATERIALS:** After obtaining due approval of the Institutional Ethics Committee, the study was conducted amongst 2<sup>nd</sup> year exam going MBBS and BDS students of M R Medical College and S Nijalingappa Dental College, Gulbarga, Karnataka in the Department of Pharmacology M R Medical College. An exhaustive questionnaire based survey was prepared of 17 questions with choices ranging from 3-8 different options. **RESULTS AND CONCLUSION:** The result of our study favours the need for pharmacology as a subject to be more clinically oriented as well as being technologically sound. The students overall have a positive outlook of pharmacology (53%) and consider lectures as the most appropriate and helpful teaching method (62%). Introduction of group discussion is one change that is warranted by students overwhelmingly (41%), followed by introduction of clinical pharmacology exercises (31%). A vast majority of the students (70%) found the lectures in pharmacology to be interesting and want them to be more clinically oriented. The importance of pharmacology in clinical decision making is well understood by the majority of students and they aim to act in that behest. Also, we find that computer based learning is a new and important tool coming up in the arsenal of the pharmacology teacher. **KEYWORDS:** Teaching methodology, students opinion, pharmacotherapeutics, clinical pharmacology.

**INTRODUCTION:** Pharmacology is one of the most fundamental subjects in the field of medicine and a good grasp of this subject is vital for any clinical practitioner. Pharmacology forms a bridge between the theory and practice of medicine. Goodman-Gilman states that "The subject of pharmacology is a broad one and embraces the knowledge of the source, physical and chemical properties, compounding, physiological actions, absorption, fate, and excretion, and therapeutic uses of drugs".<sup>1</sup>

The concepts learnt in pharmacology are extremely vital in the ever important formative years of a healthcare professional. As a subject, pharmacology aims to equip the armamentarium of the clinicians with knowledge essential for the correct and appropriate practice of medicine.

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The field of pharmacology and therapeutics go hand in glove and therefore are better presented to the medical student as pharmacotherapeutics.

Horizontal integration of pharmacology with subjects like pathology, microbiology etc., along with vertical integration with clinical subjects is the correct approach for distribution of knowledge. This approach makes the subject even more relevant as the student is able to make connections of the theoretical aspect of pharmacology with clinical practice of medicine.

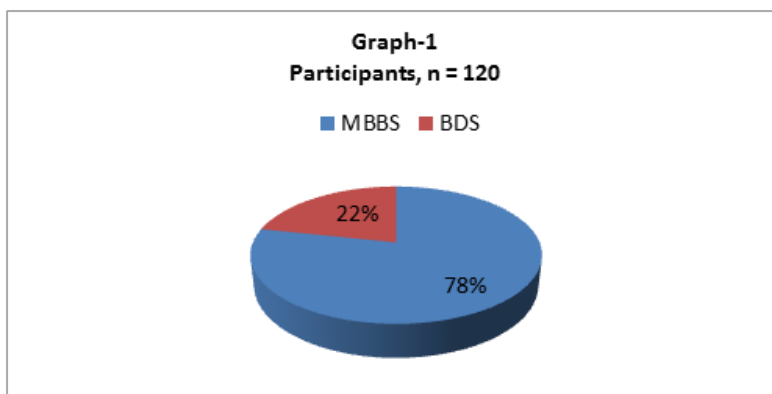
The teaching of pharmacology in medical and dental colleges of India has evolved from mere didactic lectures to audio-visual aid based lectures and computer based learning. Evolution of teaching methods is an on-going process and a docent needs proper feedback from the pupils regarding their opinion on what is satisfactory and what needs improvement. Research supports the viewpoint that a learner's experiences are invaluable for assessment of teaching methodology.<sup>2</sup>

Thus, by way of this survey-based study we aim to grasp the MBBS and BDS students' opinion regarding the teaching practices in pharmacology and changes recommended for the betterment of the same.

**MATERIALS AND METHODS:** After obtaining due approval of the Institutional Ethics Committee, the study was conducted amongst 2<sup>nd</sup> year exam going MBBS and BDS students of M R Medical College and S. Nijalingappa Dental College, Gulbarga, Karnataka in the Department of Pharmacology M R Medical College in September 2014. An exhaustive questionnaire based survey was prepared of 17 questions with choices ranging from 3-8 different options. The questionnaire was derived and inspired from previous studies done in this field<sup>3-5</sup> and was modified according to the current relevance. The survey was conducted after pharmacology lectures and practical's in the department itself and was deemed optional for the participating students. The data was collected and tabulated in an anonymous fashion to avoid any conflicts and bias. The survey questionnaire is attached in the appendix section of this research article.

**Statistical Analysis:** Descriptive statistics were employed for evaluation of the data. Frequency of data was expressed as percentage wherever applicable. MS Excel 2010 was utilized in the statistical analysis of the data.

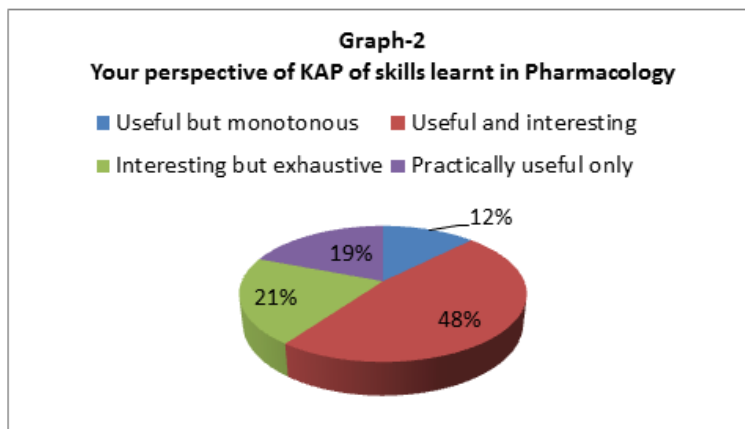
**OBSERVATIONS AND RESULTS:** For our study, we enrolled a total of 120 students (MBBS n=94 i.e. 78% and BDS n=26 i.e. 22%). Ten students in total did attempt the questionnaire in full and were therefore excluded from the statistical analysis (Graph-1).



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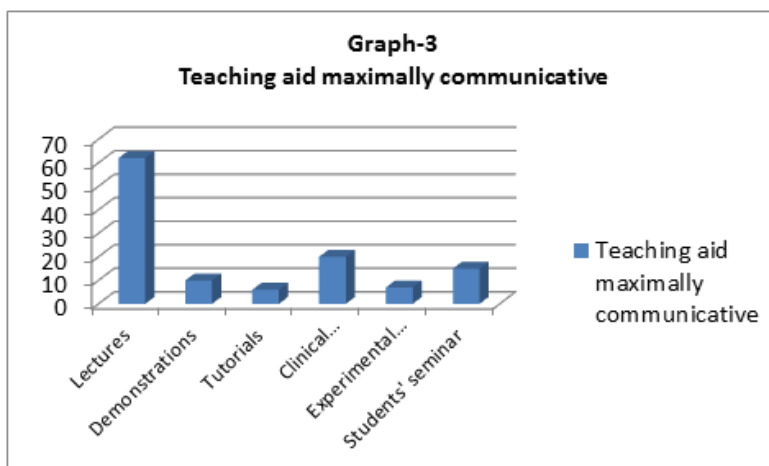
Prior to introduction in 2<sup>nd</sup> year of medical education, 44% of the participants answered that they had an idea about the subject and dealings of pharmacology. Also a majority of the students (53%) had a positive outlook of the subject.

When asked about their seniors' opinion regarding pharmacology as a subject, 33% of the students answered it as interesting but exhaustive; however when the same was evaluated as their own opinion regarding the subject, 48% found it to be useful and interesting (Graph-2). This gives a favorable positive outlook of the subject amongst the current crop of students when compared to their senior students.



General pharmacology (28%), autonomic nervous system pharmacology (27%) and cardiovascular system pharmacology (24%) were the most favoured topics amongst the students. However, when questioned about which topic held most promise for a practicing physician, a whopping 90% of the respondents' went with general pharmacology. This point very well depicts that the students are aware of the importance that general pharmacology knowledge holds for a clinician.

Sixty two per cent of the students found lectures as the most communicative method of teaching in pharmacology. Tutorials (6%) and experimental pharmacology exercises (7%) were considered the least effective teaching module by the students (Graph-3).

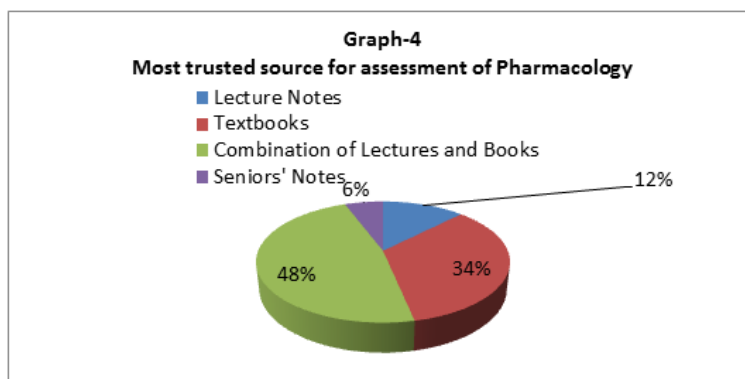


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When asked about their opinion regarding changes in current teaching methodology, 41% of the respondents wanted introduction of group discussion and 31% students wanted introduction of more clinical pharmacology exercises.

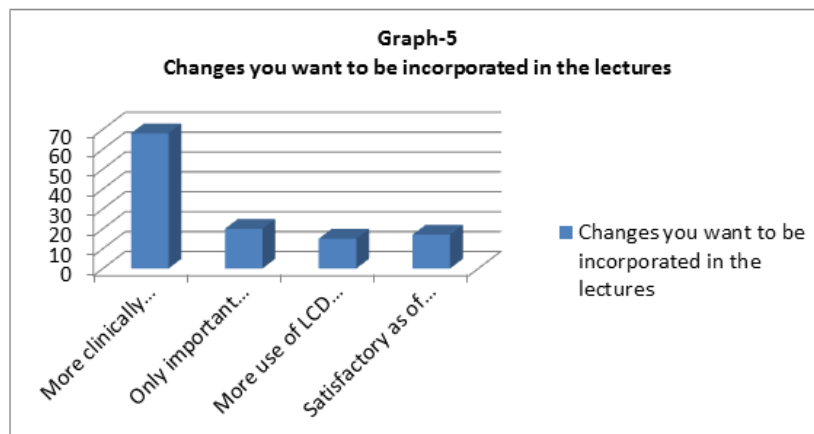
Considering reference text books, an overwhelming majority of the students (67%) preferred Essentials of Medical Pharmacology by KD Tripathi as their book of choice, the 2<sup>nd</sup> most popular book in this category being Handbook of Pharmacology by Tara Shanbag. Also was noted that a vast number of students (81%) still preferred hard copy of the text book over electronic versions.

A combination of lectures and text book review was considered the most helpful tool by students in their quest of knowledge in pharmacology (48%), however 34% students preferred reading from text books alone (Graph-4).



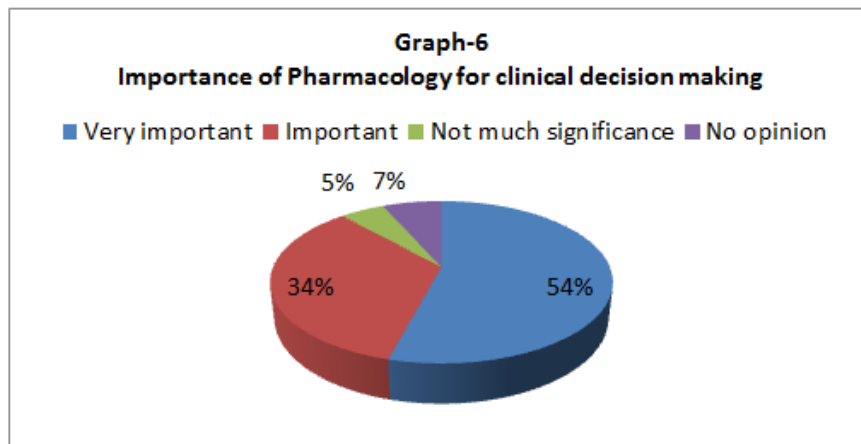
When enquired about their pattern of studying pharmacology, 57% students replied that they were regular in their studies. Only 6% of the participants replied that they preferred studying pharmacology only during exam times.

On enquiring of their assessment of pharmacology lectures, a majority of the students (70%) found them to be interesting over the rest 30% who voted them to be monotonous. Also was noted the fact that 68% of the repliers' wanted the lectures to be more clinically oriented rather than just mundane text book knowledge. Other changes the students looked forward to be coverage of only important topics (20%) and increased use of LCD projector during lectures (15%). Seventeen per cent of the respondents were satisfied with the current state of lectures in pharmacology and warranted no further changes (Graph-5).



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When asked about their viewpoint of the importance of pharmacology in clinical decision making, a majority of the students (54%) voted it to be of paramount importance. Only 5% of the repliers considered pharmacology to be of not much significance in clinical decision making strategy (Graph-6).



When investigated on their preferences for experimental pharmacology, 46% of the students wanted animal experiments and 32% favoured computer based learning.

**DISCUSSION:** The result of this student held-up most of the current views and norms regarding teaching of pharmacology as a subject at undergraduate level. However, there were some startling and unanticipated responses as well. Thus we infer that the conduct of this survey sheds light at important points regarding teaching methodology of our subject to MBBS and BDS students.

The Medical Council of India has many times emphasized the integration of teaching of pharmacology with internal medicine.<sup>6</sup> Also one has to carefully integrate the subject horizontally as well as vertically with other subjects at medical and dental undergraduate levels.

From our study we infer that a majority of the students had an idea about pharmacology as a subject prior to its introduction in the 2<sup>nd</sup> year of their undergraduate studies. However, for the limited students who divulged that they were not very well aware about the dealings of this subject (24%), we opine that a basis for it be set up in the 1<sup>st</sup> year of medical studies itself.

In our study we see that a majority of a students preferred general pharmacology (28%) and also opined it to be of utmost importance in the practice of clinical medicine. This finding is different when we compare our study to that conducted by Chavda et al in a government medical college of Surat in 2011. Chavda et al<sup>7</sup> found that students favoured cardiovascular pharmacology (22.55%), however in our study cardiovascular pharmacology was the 3<sup>rd</sup> most preferred topic in pharmacology for students.

Sixty two per cent of the students from our study favoured lectures as the single most communicative teaching method. This finding is in concordance with a similar study conducted by Sekhri in 2013.<sup>8</sup> Tutorials were however considered the least effective teaching aid in our study which is in sharp contrast to the study conducted by Sekhri in which 76% students' favoured tutorials as a valid and effective teaching method. Students seminars also found disfavor amongst the participants and is represented in similar studies.<sup>9,10</sup>

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Introduction of group discussion was validated by 41% of the respondents in our survey based study and 31% wanted the lectures to be more clinically oriented. This shows a similar response as that obtained by Garg et al<sup>11</sup> who also inferred that the students requested more of clinical orientation and introduction and concepts of pharmacotherapeutics in the lecture module. Thus we infer that clinical pharmacology which was earlier given a step-motherly treatment is now fast catching up in the mainstream. Along with this, practical as well as few lecture conduction at patient bedside is warranted so that students have a better idea about the bridging function of pharmacology between diagnosis and treatment of any pathology.

Our students overwhelmingly preferred Essentials of Medical Pharmacology by KD Tripathi as their text book of choice and had an inclination towards the hard copy version of books compared to electronic versions (e-books). This indicates that although students have access to newer reading methods, the age old trusted method of hard copy text book reading still holds true in the majority of the cases. A combination of lectures and notes was the preferred method of study and thus again underlines the importance that lectures hold in the teaching methodology of pharmacology. From our study we also find that a majority of the students regularly studied the subject which highlights the students' awareness regarding the importance of the subject as well the interest it manages to garner from them.

A majority of the respondents understood the importance that pharmacology holds for clinical decision making. Therefore the importance of the subject as not merely a theoretical one to that being clinically driven and patient focused is well imprinted in the minds of the students.

While considering experimental pharmacology, we feel the need to make practical's more clinically and bed side oriented so as to provide the students with better grasp of the subject and the plethora of connections it has with the clinical practice of medicine. Also, unlike in the study conducted by Garg et al where not one student responded in favour of computer assisted learning, we find that 32% of our participants favoured inclusion of this module in the current teaching methodology.

**CONCLUSION:** The result of our study favours the need for pharmacology as a subject to be more clinically oriented as well as being technologically sound. The students overall have a positive outlook of pharmacology (53%) and consider lectures as the most appropriate and helpful teaching method (62%).

Introduction of group discussion is one change that is warranted by students overwhelmingly (41%), followed by introduction of clinical pharmacology exercises (31%). A vast majority of the students (70%) found the lectures in pharmacology to be interesting and want them to be more clinically oriented. The importance of pharmacology in clinical decision making is well understood by the majority of students and they aim to act in that behest. Also, we find that computer based learning is a new and important tool coming up in the arsenal of the pharmacology teacher.

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