



EVALUATING THE KNOWLEDGE ABOUT ROUTE OF DRUG ADMINISTRATION AMONG NURSING STUDENTS USING PRE AND POST-TEST

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ABSTRACT

Present study was aimed to evaluate the knowledge of II year undergraduate Nursing students about routes of drug administration using pre and post-test with multiple choice questions. B.Sc Nursing students attending II year pharmacology classes on the first day were included. Ten multiple choice questions from routes of drug administration were distributed to the students prior to the lecture for answering, followed by didactic power point lecture. At the end of the class, same ten questions were given and answers were collected. Data were analyzed using paired t test in SPSS 19 version. Pre and post-test marks were analyzed using paired t test which showed highly significant p value (0.0001) indicating higher score in the post-test than pre-test. Pre-test and post-test with multiple choice questions is one of the effective methods in the didactic lecture to improve attention and knowledge among students.

Key words: *Pre-test, Post-test, pharmacology, nursing students, drugs, route of administration.*



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INTRODUCTION

Pharmacology is a medical science which deals with drugs. It is an ever changing field with new drugs being persistently introduced. The knowledge of pharmacology is vital for all those who deal with drugs apart from medical practitioners. Nursing fraternity are directly involved in administering the drugs and observe the patients on drug therapy, hence considered as the forefront care takers in the health care system. It becomes mandatory that, nurses should have in- depth knowledge of pharmacology. This makes the need for including pharmacology as a separate subject in the undergraduate nursing curriculum. Successful medical teaching requires different teaching methodologies like didactic lectures, computer assisted learning, small group discussions, student seminars, Socratic methods, integrated and flipped classroom teaching methods in the medical education which helps to impart knowledge to the students^{1,2}. Teachers can adopt an ideal teaching-learning environment by implementing a variety of teaching methods and styles which plays a crucial role during student period to understand the subject and make an impact in the medical field. There are two categories of assessment tools such as direct and indirect measures for evaluating student's performance. Direct methods include capstone courses, course-embedded assessment, standardized tests, locally developed tests, portfolio evaluation, pre- and post-tests³. Present study was aimed to evaluate the

knowledge of II year undergraduate nursing students about routes of drug administration using pre and post-test with multiple choice questions (MCQs).

METHODS

Total of 43 B.Sc Nursing students attending II year pharmacology classes on the first day were included in the present study. Ten multiple choice questions (MCQs) from the chapter of routes of drug administration were specifically designed based on the positive and negative worded stem pattern⁴ for the single and best answer varieties and it was verified and validated by Head of the department of Pharmacology, SRM MCH & RC (Table 1). These questions were distributed to the students prior to the lecture and one minute was given to answer each question, followed by didactic power point lecture. At the end of the class, same ten MCQs with same duration of time was given and answers were collected. Data was entered in excel sheet and analyzed using SPSS 19 version. Paired t test was used and p value of < 0.05 was used to estimate the statistical significance in the present study.

RESULTS

Pre and post-test marks of 43 students (Figure 1) was analyzed using paired t test which showed highly significant p value (0.0001) (Table.2)

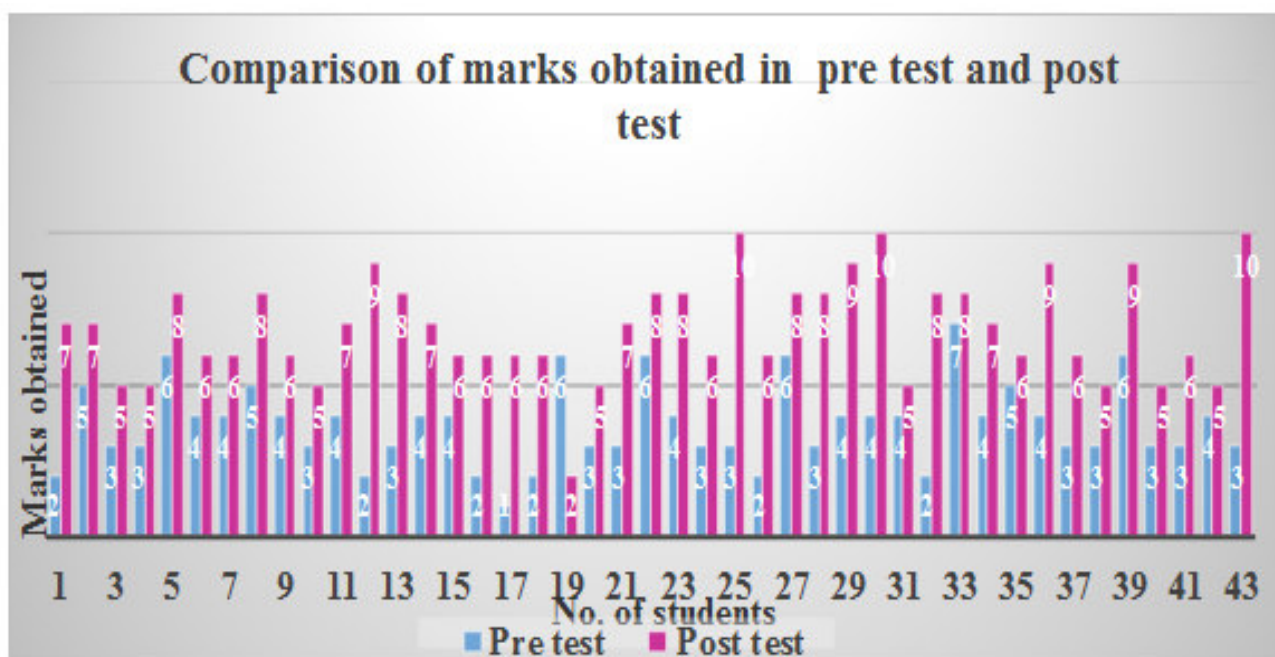


Figure 1
Comparison of marks obtained in Pre-test and Post-test

Table 1
Positive and negative worded stem pattern.

Positive worded stem pattern	Negative worded stem pattern
1. Which of the following injection is painless ? a) Intravenous b) Intramuscular c) Intradermal d) Dermojet	1. Liver is bypassed in all of the following routes EXCEPT a) Oral route b) Sublingual route c) Intravenous route d) Intramuscular route
2. Degree of needle insertion for intramuscular injection a) 90° b) 45° c) 25° d) 15°	2. The INCORRECT statement of sublingual route is a) Bypasses liver b) Faster onset of action c) Large doses needed d) Irritant drugs cannot be given
3. Bioavailability is 100% with a) Oral route b) Intravenous route c) Transdermal route d) Rectal route	3. The following drugs are given by rectal route EXCEPT a) Paracetamol b) Diazepam c) Pantoprazole d) Enema
4. BCG vaccine is given by a) Intradermal route b) Sublingual route c) Intravenous route d) Intramuscular route	
5. Abscess formation is more common with _____ route a) Intrarectal route b) Oral c) Intravenous route d) Intramuscular route	
6. Commonest route of insulin administration a) Intradermal route b) Subcutaneous route c) Intravenous route d) Intramuscular route	
7. Which route is preferred in hypovolemic shock a) Intradermal route b) Sublingual route c) Intravenous route d) Intramuscular route	

Table 2
Paired t test results

Group	Pre-test	Post-test	P value
Number of students	43	43	
Mean	3.70	6.84	
SD	1.34	1.69	0.0001*
SEM	0.20	0.26	

*p value is highly significant.

DISCUSSION

Nursing students are directly involved in the drug administration and are supposed to know merits, demerits of each route. Since the students have completed the first year of nursing curriculum, present study was aimed to assess the basic knowledge about the routes of drug administration. Pre-test and post-test is one of the easy method of analyzing the students performance after didactic lecture³. This method will help to improve the mode of teaching, teaching evaluation and efficiency of instructor. It also helps the students to concentrate on particular aspects in the lecture class since they are familiar with the pre-test questions which helps them to reproduce better during the post-test^{5,6,7}. Properly constructed MCQs helps in objective testing

that can measure the knowledge, understanding, relevance, and analytic capacity.⁸ In the present study, post-test results were statistically significant compared to pre-test ($p < 0.0001$) which is in association with a study conducted by Husain et al, 2010⁷. This could be explained on the basis of more concentration on pre-test question in the lecture class by both instructor as well as students. Scoring of marks in multiple choice questions seems to be more, compared to structured essay questions even though these two formats, test the different talents of the students⁹. This study helps in provoking the student's attention with pre-test prior to the lecture class which concludes that, addition of pre-test and post-test session in the regular lecture class will help the students to achieve considerable knowledge¹⁰.

CONCLUSION

Medical education is the main part of educational research. Several teaching methodologies are followed in the medical education system. Pre-test and post-test with multiple choice questions are the one of the

effective and easy method to improve attention and knowledge among students during the lecture class.

CONFLICTS OF INTEREST

Conflicts of interest declared none.

REFERENCES

1. Westberg J and Jason H. Fostering learning in small groups. Springer publishing Co. Inc., New York. 1996.
2. Constantinou P, Daane S, Dev P. Transforming information for computer-aided instruction: using a Socratic Dialogue method to teach gross anatomy. Proc Annu Symp Comput Appl Med Care. 1994:1043.
3. Dobbie A, Rhodes M, Tysinger JW, Freeman J. Using a modified nominal group technique as a curriculum evaluation tool. Fam Med. 2004; 36(6):402-6.
4. Braddom CL. A brief guide to writing better test questions. Am J Phys Med Rehabil. 1997;76:514– 516.
5. Botash AS, Galloway AE, Booth T, et al. Continuing medical education in child sexual Abuse: cognitive gains but not expertise. Arch Pediatr Adolesc Med 2005; 159(6): 561-6.
6. Hake RR. Interactive-engagement versus traditional methods: A six-thousand-student survey of mechanics test data for introductory physics courses. Am J Phys. 1998; 66 (1):64-74.
7. Husain NEOSA, Abdelhalim IMO. Pre/post-testing in evaluation of students' gain of content knowledge from a blood and lymph course. Sudan JMS.2010;5(1):39-44.
8. Kemp JE, Morrison GR, Ross SM. Developing evaluation instruments. In: Designing effective instruction. New York, NY: MacMillan College Publishing; 1994, p. 180–213.
9. Sharma HS , Mutalik MM. Comparison between student scores in multiple choice questions and structured essay questions at III MBBS examination in otorhinolaryngology in a medical college in Mauritius. Int J Pharm Bio Sci 2014; 5(4): (B) 1195 – 1202.
10. Mohanram AM, Zhong Q, Singh T, Jagadeesh A. Evaluating the effectiveness of Pre-test and Post-test model of active learning in a medical school. The FASEB Journal.2015; 29(1): Supplement 928.4.

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