

Evaluation of Medical students perception on Personal Drug Selection for improving prospective Medical Education: A situational Analysis from Manipal College of Medical Sciences, Pokhara, Nepal

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ABSTRACT

Background: Personal (P) drug selection is an important part of the pharmacology teaching and learning session. Most of the textbooks that are commonly followed by the medical schools of Nepal merely tell about the concepts of P drug selection. P drug selection lets students to think and make decisions about the drugs prescribed. The main objective of the study was to find the Medical students perspective of P- Drug selection from a medical college of Nepal.

Methods: This cross sectional questionnaires based study was carried out at Manipal College of Medical Sciences, Pokhara, Nepal from July 2008- July 2013. Chi square test and Odds Ratio were used for analytical purpose. Questionnaire validation tests showed that the Alpha Cronbach was 0.72.

Results: P drug selection is an important part of MBBS curriculum, which was reflected by 74.9% of the medical students. Most of the students, around 82% responded that P drug is for a disease and 85% students felt that time should be increased for the exercise. Around 90.1% students felt that P drug selection gives knowledge of the full chapter and 90.1% of the students found it difficult to find out the cost of the drugs from different brands.

Conclusion: The overall views of medical students on P drug selection were positive. The teaching and learning activity of P Drug Selection needs improvement in certain areas. In this exercise a student learns the rationale drug usage for a particular disease objectively and in an unbiased manner. With proper amendments in the teaching and learning methodology of P drug selection students can think and make decisions about the prescription writing, furthermore can reduce the chances of irrational prescribing by the future doctors.

Keywords: P Drug, Rational Medicines, Nepal

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Background

In Nepal MBBS Curriculum is four and half year course. Pharmacology is taught in the first two years of the course.¹ Personal (P) drug selection is an important part of the pharmacology teaching and learning session. This exercise is practiced when a medical student enters into the second year of MBBS course at Manipal College of Medical Sciences. The activity of P drug selection can reduce irrational prescribing which common problem across the world.²

Most of the time it is found that student cannot follow the concepts of P drug. Most of the textbooks that are commonly followed by the medical schools of Nepal merely tell about the concepts of P drug selection. Guide to good prescribing and teachers guide to good prescription gives a good knowledge regarding the concepts of P drug.^{3,4} The practical exercise of P Drug selection helps to prescribe medicines based on objective criteria of efficacy, safety, cost, convenience/suitability and unbiased sources of medicine information. At present the P-drug selection is carried out at very few medical schools of Nepal namely MCOMS, KISTMC⁵ and IOM in Nepal. Traditional pharmacology teaching and learning methodology does not train the students to think and make decisions about the prescription writing.⁶ The main objective of the study was to find the Medical students perspective of P- Drug selection from a medical school of Nepal.

Methods

Study design and the participants:

This was a cross sectional questionnaires based study which was conducted at Manipal College of Medical Sciences, Pokhara, Nepal.

Data collection:

The study was carried out between 1st July 2008- 1st July 2013 at Manipal College of Medical Sciences, Pokhara, Nepal. Data was collected when student entered into the second year of the MBBS course and it was collected for five consecutive years. The collected data includes demographic details such as gender (male and female), Nationality (Indian, Srilankan and Nepalese students). Questionnaire validation tests showed that the Alpha Cronbach was 0.72.

Inclusion criteria:

All the medical students when entered into the second year of the MBBS course were included in the study from a period of 1st July 2008- 1st July 2013 at Manipal College of Medical Sciences, Pokhara, Nepal.

Response rate:

Out of 712 students, 605 students filled the questionnaires properly and completely which indicates overall response rate of 84.97%.

Exclusion criteria:

The questionnaire was rejected based on the incomplete filling of the form and absence of the students from the class.

Sample size calculation: For 95% confidence interval and significance level $\alpha = 5\%$, $P = 70\%$, $Q = 30\%$, allowable error = 10% of P. P is the proportion or % of the students found P drug selection as an important part of MBBS Curriculum [Outcome measure of main variable]. Q is the complement of P. [$Q = 100 - P$]. The required sample size was 428. Prior to the study a pilot study was done in 50 students and it was found that 70% of the students found P drug selection as an important part of MBBS Curriculum. We got an adequate sample size of 605.⁷

Outcome Variable:

The main outcome variable was whether P drug selection is an important lesson in MBBS Curriculum (yes/no), P drug is for patient or doctor, time of selection of P drug is to be increased (yes/no), Difficult to find out which portion of P drug (efficacy, safety, convenience, cost), P drug selection gives knowledge about the full chapter (yes/ no).

Explanatory variables:

Factors which were taken into consideration at individual level were gender (male and Nationality (Indian, Srilankan and Nepali) of the medical students.

Ethical committee approval:

The Research was conducted in accordance to latest version of the Declaration of Helsinki⁸. Prior the study, ethical committee approval was taken from the institutional ethical committee, Manipal Teaching hospital, Pokhara, Nepal.

Data management and statistical analysis:

The data collected was analyzed using Statistical Package for the Social Sciences (SPSS) for Windows Version 20.0 (SPSS Inc; Chicago, IL, USA). Chi square test was used to observe the relationship between different variables and strength of the relationship with logistic regression. We calculated odds ratios and their 95% confidence intervals (95% CI). $p < 0.05$ was considered as statistically significant.

Results

Out of 605 students, male were 57.9% and rest were females. As per as Nationality, 46.6% of the students were Nepalese followed by Srilankan 21.5% and Indian 31.9% respectively. About 74.9% of the medical students felt P drug selection is an important part of MBBS curriculum. 82% responded that P drug is for a disease. Among all students 85% students felt that time should be increased. 90.1% students felt that P drug selection gives knowledge of the full chapter, whereas 90.1% of the students found it difficult to find out the cost of the drugs from different brands (Table 1).

Table 1: Frequency of Gender and Nationality of the medical students and P Drug Selection

| | | n= 605 | Percentages |
|------------------------|---|--------|-------------|
| Gender | Female | 255 | 42.1% |
| | Male | 350 | 57.9% |
| Nationality | Nepalese | 282 | 46.6% |
| | Srilankan | 130 | 21.5% |
| | Indian | 193 | 31.9% |
| P Drug Selection | Important Lesson for MBBS Curriculum | 453 | 74.9% |
| | Not an Important Lesson for MBBS Curriculum | 152 | 25.1% |
| | For patient | 109 | 18% |
| | For Disease | 496 | 82% |
| | Time to be increased | 514 | 85% |
| Difficult to calculate | Gives knowledge of the full chapter | 545 | 90.1% |
| | Efficacy | 33 | 5.5% |
| | Safety | 17 | 2.8% |
| | Convenience | 10 | 1.7% |
| | Cost | 545 | 90.1% |

About 80.6% of all male and 67.1% of female students felt P Drug selection is an important lesson for MBBS Curriculum. Interestingly 82% of all students responded as P Drug selection is for a disease whereas 18% thinks that it is for a patient. Most of the student felt that the time given for selection of P Drug is not sufficient and has to be increased 80.4% of all females and 88.3% of all male students. P drug selection gives a full knowledge of the chapter was opted

by most of the students 90.9% boys and 89% of all girls. Most of the student found calculating the cost of drugs from different brands is difficult as compared to find efficacy, safety and convenience (Table 2).

Table 2: Association between P Drug selection and Gender of the students

| Gender | P Drug Selection | | Gives knowledge about the full topic | | Difficult to find out which portion of P drug | | Cost |
|--------|--|-------------------------------------|--------------------------------------|-------------------------|---|-----------|-------------|
| | Not a Important Lesson for MBBS curriculum | Important lesson in MBBS Curriculum | P Drug is for Patients disease | P Drug is for a disease | Yes | No | |
| Female | 84 (32.9%) | 171 (67.1%) | 46 (18.0%) | 209 (82.0%) | 227 (89%) | 28 (11%) | 248 (97.3%) |
| Male | 68 (19.4%) | 282 (80.6%) | 63 (18.0%) | 287 (82.0%) | 318 (90.9%) | 32 (9.1%) | 297 (84.9%) |
| | P=0.000† | | P=0.99× | | P=0.45× | | P=0.000† |

Table 3 revealed that most of the students from different Nationality found P Drug selection as an important lesson. About 27.7% of Srilankan students thought P Drug is for patient. Whereas 85.5% of the Nepalese students responded that P Drug is for a disease. 93.3% of all Nepalese students

† p<0.05, statistically significant, × p>0.05, statistically not significant.

found calculation of costs from different brands was the most difficult portion of P Drug selection (Table 3).

Table 3: Association between P Drug selection and Nationality of the students

| Nationality | Not a Important Lesson for MBBS curriculum | Important lesson in MBBS Curriculum | P Drug Selection | | | | Difficult to find out which portion of P drug | Cost | |
|-------------|--|-------------------------------------|---|------------|--------------------------------------|------------|---|----------|-------------|
| | | | Time for selection of P drug is to be increased | | Gives knowledge about the full topic | | | | |
| | | | Yes | No | Yes | No | | | |
| Nepali | 80 (28.4%) | 202 (71.6%) | 239 (84.8%) | 43 (15.2%) | 250 (88.7%) | 32 (11.3%) | 6 (3.1%) | 1 (0.5%) | 180 (93.3%) |
| Srilankan | 47 (36.2%) | 83 (63.8%) | 103 (79.2%) | 27 (20.8%) | 117 (90%) | 13 (10%) | 8 (6.2%) | 4 (3.1%) | 116 (89.2%) |
| Indian | 25 (13%) | 168 (87%) | 172 (89.1%) | 21 (10.9%) | 178 (92.2%) | 15 (7.8%) | 6 (3.1%) | 1 (0.5%) | 180 (93.3%) |
| | | P=0.000 † | | P=0.051 × | | P=0.44 × | | | P=0.409 × |

† p<0.05, statistically significant, × p>0.05, statistically not significant.

Determinants of P drug selection by logistic regression:

Male students considered that P drug selection as an important lesson for MBBS curriculum 2.037 times as compared to females [OR 2.037, 95% (CI 1.404, 2.955)]. Male students [OR 1.838, 95% (CI 1.173, 2.880)] opted for more time 1.838 times for selection of P drug as compared to females (Table 4).

Table 4: Logistic Regression table of P Drug Selection

| | Important lesson in MBBS Curriculum | Time for selection of P drug is to be increased |
|--------|-------------------------------------|---|
| Gender | Odds Ratio (Confidence Interval) | Odds Ratio (Confidence Interval) |
| Female | 1 | 1 |
| Male | 2.037 (1.404, 2.955) † | 1.838 (1.173, 2.880) † |

† p<0.05, statistically significant, × p>0.05, statistically not significant.

Discussion

Around 3/4th of the medical students felt P drug selection is an important part of MBBS curriculum. Similar findings were found by Banerjee et al in 2009.⁹ This is because P Drug selection is an exercise where a student learns the rationale drug usage for a particular disease objectively and in an unbiased manner.¹⁰

Most of the students felt That P drug selection gives knowledge of the full chapter on which P drug is being selected. This is because medical students during the exercise of selecting P drug for a particular disease should know about all the drugs related to that topic. They need to select the group of drugs based on the four criteria's of Efficacy, Safety, Cost, Convenience/suitability and student has to follow extensive steps of P drug selection.^{3,11}

Most students responded as P Drug selection is for a disease whereas 18% thinks that it is for a patient. Similar findings were also found by Shankar PR which has shown that around 25% of the students were confused whether it is for doctor or the patient.¹² This area needs to be addressed and with proper amendments in the teaching and learning methodology of P drug selection this misconception and confusion among the students can be reduced.

Time management was a problem faced by most of the students. Around 85% students felt that time should be increased. For giving scores on the efficacy Pharmacokinetics and Pharmacodynamics of the drugs has to be considered. For comparing the safety the adverse effects of the drugs, drug interactions has to be taken into the consideration

Around 90.1% of the students found it difficult to find out the cost of the drugs from different brands as compared with efficacy, safety and convenience. For comparing the Cost of drugs from different brands the total cost of the treatment should be calculated rather than the cost of per unit and the cheapest available brand is usually selected. For comparing the convenience availability of drugs, whether the drug is injection or oral medication, frequency of administration of a drug has to be considered. For getting

information regarding the availability of the medicines in Nepal, Nepalese National Formulary is usually consulted by the students.^{13, 14} Calculating the cost of all the drugs is a time taking process. Time for selection of P drug should be at least for 60 minutes for any disease so that a student doesn't feel time constrain and they can perform the exercise smoothly. Usually at MCOMS student use CIMS, Drug Today, Nepal Drug Review are used to calculate the cost. It could be due to the fact that the basic science medical is not exposed to the hospital and the pharmacy. This problem can be improved by periodic duty of the basic science medical students in the hospital and in the hospital pharmacy.¹²

Conclusion

The overall views of medical students on P drug selection were positive. The teaching and learning activity of P Drug Selection needs improvement in certain areas. In this exercise a student learns the rationale drug usage for a particular disease objectively and in an unbiased manner. With proper amendments in the teaching and learning methodology of P drug selection students can think and make decisions about the prescription writing which can reduce the chances of irrational prescribing by the future doctors.

Recommendations

Exercise of P Drug selection is carried out at basic science students who are studying pharmacology. P Drug selection can be implemented in the clinical side students who are studying Medicine, which can help the student to promote the rationale usage of medicine with the support of the clinicians. Interns can be also be benefited with this exercise by choosing the rationale drug for a particular disease objectively and in an unbiased manner.

List of abbreviations

MCOMS- Manipal College of Medical Sciences, IOM- Institute of Medicine, KISTMC- KIST Medical College

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