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Educational sessions on assessing rationality of prescriptions: Student feedback

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Abstract

Introduction: Sessions on rational use of medicines are being conducted at the Manipal College of Medical Sciences, Pokhara, Nepal. Recently, sessions on analyzing rationality of prescriptions have been introduced. The present study was carried out to obtain information on the attitudes of preclinical medical students towards the sessions and note association, if any, of the attitudes with the respondents' characteristics.

Methods: Student feedback was collected using an anonymous, self-administered questionnaire. The student attitudes were measured using a modified Likert-type scale. The median total score was calculated and association was determined using appropriate statistical tests.

Results: The overall response rate was 73.5% (164 of the 223 students). Indians and Nepalese were the common nationalities and majority of respondents were urban and self-financing. No association was observed of the score with demographic characteristics.

Conclusion: The overall student response was positive and the sessions should be continued and strengthened.

Keywords: *Pharmacology teaching, rationality of prescriptions, rational use of medicines, student attitudes*

Introduction

Rational use of medicines (RUM) requires that patient receive medications appropriate to their clinical needs, in doses that meet their own requirements, for an adequate period of time, and at the lowest cost to them and their community (Management Sciences for Health, 1997). Irrational use of medicines is a documented global problem (Hogerzeil, 1995). Problem-based training in pharmacotherapy in undergraduate medical education has been recommended as an approach to improve drug use in developing countries (Laing, Hogerzeil, & Ross-Degnan, 2001).

Prescribing is the primary intervention that most doctors offer to influence their patients' health (Maxwell & Walley, 2003). Most medical graduates will require a firm grounding in the principles of therapeutics to learn about future developments in drug therapy (Maxwell & Walley, 2003). The ability to prescribe appropriate drugs for a disease condition and to deliver drug-related and disease-related information in a meaningful way to the patient has been considered an important transferable skill in pharmacology (Shankar, Mishra, Sehnoy, & Partha, 2003).

The Manipal College of Medical Sciences (MCOMS) is affiliated to Kathmandu University for the undergraduate medical course (MBBS). The college admits 150 students each year in two batches of 75 students each. The basic science subjects of anatomy, physiology, biochemistry, pathology, microbiology, pharmacology and community medicine are taught in an integrated organ system based manner during the first four semesters.

A mixture of didactic lectures and problem-stimulated learning is used to teach pharmacology.

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At MCOMS, during the practical sessions, the students discuss the therapeutic problems, list the major therapeutic objectives, verify the suitability of their P-drugs for individual patients, write a prescription, start the treatment and communicate with the patient (Shankar et al., 2004). The six step process of rational treatment (De Vries, Henning, Hogerzeil, & Fresle, 1994) is followed in our institution.

Recently, we have introduced sessions on analyzing rationality of prescriptions during the PSL sessions. Students analyze the rationality of the given set of prescriptions in small groups. Choice of drugs, use of vitamins and tonics and use of antibiotics are analyzed critically. Economic considerations are an important parameter. The present study was carried out to obtain information on the attitudes of students towards the sessions. The objectives of the study were to:

(a) obtain information on the attitudes of the second, third and fourth semester students towards the sessions on analyzing the rationality of prescriptions;
(b) obtain the opinion of the student respondents on the strengths and weaknesses of the sessions and suggestions for improvement; and
(c) note the association, if any, of the attitudes with the respondent's personal characteristics.

Methods

The second, third and fourth semester medical students were divided into small groups of seven students each and each group was given a set of five prescriptions to analyze critically. The students were familiar with the principles of prescription writing and they were briefed about the different criteria to be kept in mind while analyzing the rationality of prescriptions. The average cost of drugs per prescription was calculated using the price list made available from the hospital pharmacy and the economic aspects of prescribing were emphasized. The groups were given a period of one hour for the analysis and after one hour the different groups presented their findings. The facilitators raised various points and summed up the general rules of good prescribing. For the pharmacology practical sessions, the students are divided into two groups of 37 students each and each group was further subdivided into five subgroups. The exercise was repeated after a three week period.

The demographic information collected were age, sex, semester of study, nationality and place of family residence. The method of financing medical education, profession of father and mother and medium of instruction at school were noted. The respondents were asked whether they were members of any social service organization. The opinion of the respondents regarding the sessions on analyzing rationality of prescriptions was obtained by measuring their agreement with a set of 10 statements using a modified Likert type scale. The total score was calculated. Items are shown in Box 1.

Box 1:

Sessions on assessing rationality of prescriptions

Age: Sex: M/F Nationality: Semester:

Occupation of parents: Father: Mother:

Govt. selected/self-financing

For the following statements score using the following key (1 = strongly disagree with the statement, 2 = disagree with the statement, 3 = neutral, 4 = agree with the statement, 5 = strongly agrees with the statement.) Use whole numbers only.

1. The sessions on assessing the rationality of prescriptions were interesting and informative.
2. The sessions had well-defined learning objectives.
3. The sessions drew upon our existing pharmacology knowledge.
4. The sessions would help me to prescribe drugs rationally in my future practice.
5. The sessions were interactive and the facilitators fulfilled their roles effectively.
6. The sessions made me aware of common errors of prescribing.
7. The RUM objectives outlined in the session are important for developing countries.
8. If I do not prescribe vitamins and tonics the patient will not be satisfied.
9. The prescriptions used in the sessions were appropriate.
10. I would like similar sessions during the clinical years of training.

Enumerate **TWO** important strengths and weaknesses of the sessions.

Give *TWO* suggestions to improve the teaching and learning of this exercise.

The respondents were asked to enumerate the two important strengths and weaknesses of the sessions. They were asked to give two suggestions to improve the teaching and learning of the exercise.

The median total score and the interquartile range were calculated. The association of the total score with demographic characteristics, if any was determined. Mann–Whitney *U*-test was used for dichotomous variables and Kruskal–Wallis test for the others ($p < 0.05$). SPSS for Windows version 9 was used for the statistical analysis.

Results

Student feedback was obtained using an anonymous self-administered questionnaire at the end of the second session. The students were informed about the objectives of the study and were invited to participate. The questionnaire was piloted in 10 fifth semester students who had been exposed to a similar exercise. The Cronbach's alpha of the questionnaire was 0.68. Their data was not taken up for further analysis. Responses from the second, third and fourth semester students who successfully completed the questionnaire were taken up for analysis.

The questionnaire was administered during the month of August 2005. Out of the total of 223 students, 164 (overall response rate of 73.5%) successfully completed the study. Fifty-seven of the 75 second semester (76%), fifty-five of the 74 third semester (74.3%) and 52 of the 74 fourth semester students (70.3%) participated. The demographic characteristics of the respondents are shown in Table I. The two common nationalities were Nepalese and Indian and the majority of respondents were self-financing.

Table I. Demographic characteristics of respondents.

Characteristic	*N* (percentage)
Sex	
Male	90 (54.9)
Female	74 (45.1)
Semester of study	
Second	57 (34.8)
Third	55(33.5)
Fourth	52 (31.7)
Nationality	
Nepalese	60(36.6)
Indian	80(48.8)
Sri Lankan	21(12.8)
Others	3(1.8)
Financing	
Government selected	33(20.1)
Self-financing	131(79.9)
Place of residence	
Urban	145(88.4)
Rural	19 (11.6)
Profession of father	
Doctor	41(25)
Non-doctor	122(74.4)
Missing	1
Profession of mother	
Doctor	34(20.7)
Housewife	96(58.5)
Other professions	33(20.1)
Missing	1
Medium of instruction at school	
English	145(89)
Vernacular	18 (11)
Missing	1

Table II. Median total score according to selected demographic characteristics.

Characteristics	Total score Median (minimum, maximum)	*P*-value
Sex		
Male	38(26,48)	0.237
Female	38.5(28, 47)	
Semester of study		
Second	40(30,47)	0.203
Third	36(26,48)	
Fourth	38(30,45)	
Nationality		
Nepalese	37(26,48)	0.203
Indian	39(28,47)	
Sri Lankan	38(30,45)	
Others	37(34,38)	
Financing		
Government selected	37(26,45)	0.188
Self-financing	38(28,48)	
Place of residence		
Urban	38(26,48)	0.304
Rural	38(31,43)	
Medium of instruction at school		
English	38(26,48)	0.670
Vernacular	37(31,45)	

The majority of the respondents were from urban areas and were educated in English medium schools.

The median total score for the ten statements was 38 and the interquartile range was 5. The low interquartile range indicates that the dispersion of the total score about the median was less. Fifty percent of the median total scores had a value between 33 and 43. The median total score was higher among female respondents but the difference was not significant. The sample size was low and the difference noted was slight. The median total score according to selected demographic variables is shown in Table II. There was no significant difference in the total score with any of the demographic variables. The students from different subgroups with respect to demography and personal characteristics had a similar attitude towards the sessions. However, the sample size was small and differences may be noted with a larger sample size.

The strengths of the sessions were that they made respondents aware of the importance of rational prescribing and aware of the common errors in prescribing. Other strengths included interesting and informative content and that learning was group and activity based. The students were of the opinion that the sessions would help them in their future career.

The weaknesses were that sometimes the sessions were too long and boring and not every member of the group participated equally. In some cases the

prescriptions given were not linked to the existing knowledge level of the students.

The suggestions for improvement were to make the sessions more interactive and have more number of similar sessions. Some respondents wanted the sessions to be carried out in the field after randomly selecting prescriptions from clinics and hospitals. The students wanted prior intimation about the sessions so that they could come prepared.

Discussion

Teaching therapeutics in medical schools has usually been drug centred and prescribing was usually something one picked up by watching the behaviour of others (Shakib & George, 2003). There has been little focus on the process of prescribing which involves choosing correct medications and individualizing it for patients. Orienting undergraduate medical students to the concept of rational prescribing is an important strategy to improve drug use (Joshi & Jayawickramarajah, 1996). The revised curriculum of Kathmandu university emphasizes the process of rational prescribing. The pharmacology practical sessions are designed to provide a systematic approach to prescribing and are designed with an objective that students will be able to write an appropriate and correct prescription for a patient (Kathmandu University, 2001).

In the United Kingdom, a key learning objective in clinical pharmacology and therapeutics is that graduates be competent to prescribe safely and effectively and should be able to assimilate information about new drug developments throughout their professional career (Maxwell & Walley, 2003). Problem-based or problem-oriented learning in pharmacology is gaining ground all over the world (Flockhart, Yasuda, Pezullo, & Knollmann, 2002; Maxwell & Walley, 2003; Barakzai, 2004; Tisonova et al., 2005; Dunaway, 2005). The arguments in favour of problem-based pharmacotherapy teaching are: (a) pharmacotherapy is a skill and it is more than knowledge alone. The six steps of the process of rational prescribing are best taught through problem-based teaching in small groups; (b) knowledge of current drugs is not enough for a life-long professional career; and, (c) problem-based pharmacotherapy in some cases can lead to an integrated curriculum with PBL (Hogerzeil et al., 2001).

Analyzing the rationality of prescriptions makes students aware of the common errors of prescribing. The use of antibiotics, vitamins, minerals and tonics were analyzed critically. The economic impact of irrational use of medicines was discussed. Avoiding antibiotics in predominantly viral infections, prescribing a complete course of antibiotics and using older antibiotics if the organisms continue to be sensitive were emphasized. Two of the sample prescriptions given to the student groups are shown in Table III. In the first prescription among the problems noted were the use of antibiotics for a predominantly viral infection, the use of antimotility agents and the use of a tonic without a definite indication. The problems in the second prescription were the use of multivitamins and the use of an expensive cephalosporin where an oral fluoroquinolone like ciprofloxacin may have been effective. Prescribing by brand names was another drawback.

Table III. Examples of prescriptions given to the students for analysis.

Mr. ABC	Age: 82	Address: XYZ street, Kathmandu
Diagnosis: acute gastroenteritis Rx Inj. Ampicillin 500 mg i/v st. T.Erythromycin 500 mg Q 6h × 7d Bayer's tonic 2 tsf tid × 7d Cap. Lomotil 1 tid × 3d		
		Dr MNOP MBBS
Miss. XYZ	Age: 26	Address: ABC Street, Colombo
Diagnosis: enteric fever Rx T. Paracetamol 500 mg tid × 3d Inj. Maxicef 1 g tid × 7d Cap. Evion 1 OD × 30 d Cap. Cartipro 1 OD × 30 d Cap. Becosules 1 OD × 30 d		
		Dr XYZ

The overall student opinion about the sessions was positive and no significant association of the score with demographic characteristics was seen. Activity based learning in groups was regarded as one of the strengths of the exercise. In an American university, students appreciated the use of team learning (Dunaway, 2005). Active learning strategies were also used in other universities (Enoglu & Uresin, 2003; Tisonova et al., 2005).

Training in pharmacotherapy during the clinical years of study has been introduced in many medical schools (Tofovic, Branch, Jackson, Cressman, & Kost, 1998; Karaalp, Akici, Kocabasoglu, & Oktay, 2003). Such training will reemphasize the concepts of rational prescribing. It is essential that prescribing skills taught during the undergraduate phase be reinforced during the clinical attachments (Hogerzeil et al., 2001). Pharmacotherapy training in the clinical phase should be problem-based (with a focus on common conditions), interdisciplinary and constantly referring to standards treatment guidelines and essential drug lists (Laing et al., 2001). In our institution, sessions on

RUM can be considered during the clinical years and during internship training.

In a medical school in Turkey, prescription audit sessions were found to be a useful adjunct to rational pharmacotherapy education (Akici, Goren, Avpak, Terzioglu, & Oktay, 2005). Analyzing rationality of prescriptions can be an adjunct to teaching RUM. The sessions should be continued and strengthened. Similar sessions may be considered during the clinical years and internship training as already discussed.

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