SESSIONS ON RATIONAL USE OF MEDICINES: STUDENT FEEDBACK

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Summary

Irrational use of medicines reduces the quality of medical care and wastes resources. At the Manipal College of Medical Sciences, Pokhara, Nepal analyzing prescriptions using drug use indicators, evaluating drug advertisements, critical analysis of journal articles, selection of personal drugs for disease conditions, writing prescriptions and conveying information to the patient are some of the educational activities carried out. Information on the attitudes of students towards the different exercises was obtained and any association of attitudes with respondent's personal characteristics was noted. Student attitudes towards different practical exercises were noted using a Liekert-type scale among fourth and second semester students. The median attitude scores and the interquartile range were calculated. The association of median score with personal characteristics was determined using appropriate non-parametric tests ($p<0.05$). Fifty-eight second semester and 68 fourth semester students successfully completed the questionnaire. Forty-six respondents were Nepalese, 67 were Indians and 13 were Sri Lankans. The median total score was 61 (maximum possible score of 90) and was higher among boys ($p=0.009$). The fourth semester students felt that the sessions were more relevant to the problems of South Asia. The overall attitude was positive and the suggestions elicited will be considered in designing future sessions.

Key words: Drug use review, Educational activities, Essential drugs, Pharmaceutical economics, Prescriptions

Irrational use of medicines is a documented global problem [1,2]. In Nepal, common drug use problems are polypharmacy and overuse of antibiotics and injections [3]. Rational use of medicines (RUM) demands that patients receive the right drugs, in the right dose, through the right route for the right length of time, at an appropriate price and that appropriate information be given to the patients [4]. Inappropriate prescribing reduces the quality of medical care and leads to a waste of resources. A variety of educational and administrative approaches have been tried to improve prescribing [5]. Implementing problem-based training in pharmacotherapy in undergraduate medical education based on national standard treatment guidelines (STGs) is an important recommendation [5].

Till recently the majority of medical schools spent less than 1% of total teaching time on prescribing issues, with the majority spent on making a diagnosis [6]. There has been little focus on the process of prescribing which involves making correct decisions about the choice of medication and individualizing it for a patient [6]. Traditional teaching in pharmacology is characterized by memorization of details about drug classes and individual compounds and poorly equips students with the skills necessary to rationalize drug treatment in practice [7,8].

A number of initiatives have been carried out all over the world to improve the teaching of pharmacology and therapeutics. The core principles of rational therapeutics were described by Nierenberg more than 15 years ago [9]. A core curriculum in clinical pharmacology for medical students was recently described [10]. In the United Kingdom the recently revised Tomorrow's Doctors [11] emphasizes that students must be adequately prepared to prescribe drugs when they graduate and emphasizes a firm grounding in the principles of clinical pharmacology and therapeutics.

In Nepal, the Institute of Medicine in Kathmandu had shown that a short problem-orientated pharmacotherapy package can be successfully integrated with regular pharmacology teaching [12]. The revised curriculum of Kathmandu University emphasizes the process of rational prescribing [13]. The pharmacology practical sessions are designed with an objective that students will be able to write an appropriate and correct prescription for a patient [13].

The Manipal College of Medical Sciences (MCOMS), Pokhara, Nepal is affiliated to Kathmandu University for undergraduate medical (MBBS) courses. The college used to admit 100 students once a year. However, since August 2003, the college admits two batches of 75 students each in January and August. Pharmacology is taught during the first four semesters with other basic science subjects in an integrated, organ-system based manner. Students should be able to solve simple problems in therapeutics, prescribe appropriate drugs for a disease condition and to deliver drug-related and disease-related information to the patient [14]. Practical teaching is problem-stimulated, activity-based and takes place in small groups.

Analyzing prescriptions using the World Health Organization (WHO)/International Network for Rational Use of Drugs (INRUD) drug use indicators, evaluating drug advertisements and other drug promotional material, critical analysis of journal articles, selection of personal drugs (P-drugs) for disease conditions, writing prescriptions and conveying information to the patient are some of the exercises. These sessions have been in progress for more than two years. The sessions are based on the WHO guide to good prescribing [15] and the WHO ethical criteria for medicinal drug promotion [16]. The Teacher's guide to good prescribing [17] was also used. We had not formally assessed student attitudes towards the sessions and had not obtained feedback on measures to improve the sessions. Informal feedback was obtained periodically. Hence the present study was carried out. The objectives of the study were to:

1) obtain information on the attitudes of the students towards different exercises carried out during the sessions on RUM
2) note any association of the attitudes with personal characteristics of the respondents and
3) obtain suggestions to improve and strengthen the sessions.

Methods

The study was carried out among the second and fourth semester students at the Manipal College of Medical Sciences (MCOMS), Pokhara, Nepal during the month of October 2004. These students had been exposed to sessions on rational use of medicines (RUM) and were going to appear in the University examinations in December 2004. One hundred fourth semester and 75 second semester students were invited to participate in the study.

A questionnaire was administered to the students during the practical sessions in pharmacology. Anonymity of the student respondents was maintained. Demographic information about the student respondents was collected. The sex, nationality and semester of study were noted. Information on the medium of instruction at school, occupation of parents and the place of residence was recorded. The future plans and proposed subject of specialization were noted. The proposed area of future practice and the attitude towards RUM sessions in future were recorded. The questionnaire used is shown in the appendix.

Student attitudes towards the various practical exercises carried out during the RUM sessions was elicited using a Liekert-type scale. Analyzing prescriptions using the WHO/ INRUD drug use indicators, evaluation of drug advertisements and promotional material, P-drug concept and selection of P-drugs for different disease conditions, critical analysis of journal articles, prescription writing and conveying drug and non-drug information to patients were the exercises carried out. For each exercise, we invited two suggestions to make the sessions more useful, enjoyable and relevant. We also collected information on whether the students had read 'WHO guide to good prescribing' and 'WHO ethical criteria for medicinal drug promotion'. The agreement of students with the

statement 'The rational use of medicines sessions were relevant to the problems of south Asia' was assessed.

For each individual respondent, the scores for the statements under each exercise were added together to get the total score for that exercise. The scores of the different exercises were added together to get the total score for an individual respondent. For each exercise the median attitude scores and the interquartile range were calculated. The median total attitude score for the five exercises was determined. The association of median scores with demographic and other characteristics of the respondents, if any, was determined. Mann-Whitney test was used for dichotomous variables and Kruskal-Wallis test for the others. A p value less than 0.05 were taken as statistically significant.

The suggestions were noted and the most frequently appearing suggestions were collated to get an idea about emerging trends.

Results

Fifty-eight of the 75 second semester (77.3%) and 68 of the 100 fourth semester (68%) participated in the study and successfully completed the questionnaire. Seventy-four students were male. Forty-six respondents were Nepalese, 67 were Indians and 13 were Sri Lankans. The demographic and personal characteristics of the respondents are shown in Table I.

Table I: Demographic and personal characteristics of the student respondents

Characteristic	Number (percentage)
Sex Male	74 (58.7)
Female	52 (41.3)
Nationality Nepalese	46 (36.5)
Indian	67 (53.2)
Sri Lankan	13 (10.3)
Semester Second	58 (46)
Fourth	68 (54)
Medium of instruction at school*	
English	103 (81.7)
Vernacular	22 (17.5)
Occupation of parents*	
Both parents are doctors	13 (10.3)
One parent doctor	30 (23.8)
None are doctors	81 (64.3)
Place of family residence*	
Metro city	55 (43.6)
Non-metro city	38 (30.1)
Small town	21 (16.7)
Village	9 (7.1)

Future plan* General practitioner	14 (11.1)
Specialist	101 (80.1)
Proposed subject of specialization*	
Medical specialities	38 (30.1)
Surgical pecialities	38 (30.1)
Basic sciences	6 (4.8)
I plan to be working in a*	
Medical college	23 (18.2)
Corporate hospital	46 (36.5)
Private practice	41 (32.5)
Others	6 (4.8)
Area of future practice*	
Urban	83 (65.9)
Rural	28 (22.2)
I would like future sessions on RUM	
Yes	112 (88.9)
No	12 (9.5)
Attend events sponsored by the industry	
Yes	109 (86.5)
No	17 (13.5)
Accept free gifts	
Yes	67 (53.2)
No	58 (46)

∗ Not all respondents may have answered the question

The median scores for the five categories of exercises covered during the RUM sessions and the interquartile ranges are shown in Table II. The median and interquartile range for the total scores is also shown. The scores were lower for the exercises on drug use indicators and for the statement that the sessions were relevant to the problems of south Asia.

Table II: Median and interquartile range scores

Parameter	Median	Interquartle range
Drug use indicators	10	2
Advertisement evaluation	12	3
P-drug	13	4
Journal article	14	4.25
Prescribing	11	3
South Asia	3	1
Total	61	14

The median total attitude score was significantly higher among boys compared to girls (p=0.009). The fourth-semester students felt that the sessions were more relevant to the problems of South Asia compared to the second semester (p=0.031). The students who were not in favour of attending conferences sponsored by the industry had a higher total score (p=0.006). These are shown in Table III.

Table III: Association of scores with demographic and other characteristics

Parameter	Characteristic	Median (Interquartile range)	P value
Total	Sex Male Female	65 (14.25) 59.5 (12.5)	0.009
South Asia	Semester Second Fourth	3 (1) 4 (1)	0.031
P drug	Residence Metro Non-metro Small town Village	 12 (3) 14 (4.25) 14 (6.5) 17 (5)	0.026
South Asia	Sub. of specialization Medical Surgical Basic sciences	 3 (1) 3 (1) 4 (1)	0.033
Total	Industry conference Yes No	 57 (13.75) 62 (14)	0.006

The male students had a more favourable attitude towards the sessions on P-drug selection but the difference was not significant. The Sri Lankan students had a lower attitude score about the sessions on evaluation of promotional material compared to the other nationalities. The students from villages felt that the sessions were relevant to the health problems of South Asia compared to others.

Only 31 respondents (24.6%) had read the WHO guide to good prescribing while 51 students (40.5%) had read the Ethical criteria for medicinal drug promotion. The students who had read the book on drug promotion felt more strongly that the sessions were relevant to the problems of South Asia compared to those who had not done so.

Among the common suggestions which emerged to make the sessions on Drug use indicators more enjoyable, useful and relevant were to make the sessions more interactive and to carry out field studies in peripheral health institutions. More sessions were required on analysis of drug advertisements and the role of medical representatives should also be emphasized. The P-drug concept and the process of making a list of P-drugs should be covered in greater detail. More journal articles of different types should be covered in critical analysis of journal articles. The prescription writing and

communication sessions should be interactive and more sessions are required. The students were in favour of sessions on evaluation of drug advertisements and prescription writing during internship training. They were also in favour of practical sessions on using the drug use indicators in health care facilities in Kaski district.

Discussion

At MCOMS, a hybrid approach to teaching pharmacology is followed with didactic lectures and problem-stimulated learning (PSL) sessions [18]. PSL sessions are of two and a half hours duration and are held once a week. The sessions are utilized for different exercises which will help students use medicines more rationally in their future career.

We have an international student body and this is reflected in the nationality of the respondents. There is horizontal integration among different basic science departments and to some extent, vertical integration with the clinical departments. There is no teaching in Therapeutics during the clinical years of training and like in India, the respective clinical departments are supposed to teach therapeutics [19].

A number of innovations have been carried out in pharmacology teaching and learning in both developed and developing countries [20,21,22]. There is an increasing emphasis on clinical reasoning and a more patient-oriented approach. Inquisitive learning in small groups and opportunities for self-directed learning are emphasized.

The WHO/INRUD indicators are helpful in evaluating drug use in primary healthcare facilities. These indicators will help doctors and other health personnel audit prescribing patterns. The low median score for this exercise is a matter of concern. More interactive sessions and carrying out the exercise in peripheral health facilities have been suggested. This will help the students become more familiar with calculating and interpreting the drug use indicators. They will also become aware of prescribing habits in peripheral health institutions and develop an idea of the importance of drug use indicators for audit in practice. We are considering tying up with the department of Community Medicine of our institution to strengthen this exercise.

The sessions on evaluation of drug promotional materials have been appreciated by the students. Pharmaceutical companies are heavily involved in aggressive drug promotion, with a clear aim to change the prescribing habits of physicians and to encourage self-medication by patients [23]. Information from the pharmaceutical industry is readily available but often emphasizes only the positive aspects of their products [15]. Disentanglement of doctors from drug companies is a growing concept all over the world [24] and we strongly emphasize this in the sessions. The students are taught to analyze the graphs in pharmaceutical advertisements according to the criteria set out by the organization, No Free Lunch [25]. The exercise is activity based and carried out in small groups with the WHO ethical criteria as the guideline [16]. We have recently started role plays to teach the students about optimizing time spent with medical representatives.

The sessions on P-drug selection had a favourable attitude. The six-step process of rational treatment [15,17] and the process of selecting personal drugs (P-drugs) for different diseases are emphasized. The facilitator gives a brief outline of the P-drug concept and then the students select P-drugs for different diseases in small groups. We found the process elucidated by Joshi and Jayawickramarajah in the problem-orientated

pharmacotherapy package to be helpful [12]. The P-drug approach has been recommended to improve prescribing [26,27]. The concept of P-drugs should be emphasized more and we are in the process of revamping the exercise on P-drug selection.

The process of critical evaluation of medical literature is an important one for practicing clinicians [28]. The various sources of drug information and the process of efficient reading detailed in the WHO guide to good prescribing are emphasized. The design of clinical trials, the validity of the clinical trial design and the clinical and statistical significance of the results are emphasized. The students are taught how to stay up to date about drugs and the information sources available in the drug information center are used for this purpose.

The parts of a good prescription, the steps of rational prescribing and the process of communicating drug and non-drug information to patients are emphasized during the sessions on prescription writing.

The overall attitude of students towards the sessions was positive. This is a welcome sign. The boys had a more positive attitude compared to girls. In previous studies boys had a more favourable perception of the importance of transferable skills in pharmacology [14] while girls had a more favourable opinion regarding the PSL sessions [18]. The fourth semester students had been exposed to the sessions for a longer period of time and this may account for their more positive attitudes. The students not in favour of attending industry sponsored conferences may be having a more positive attitude towards RUM and this may account for their more positive attitude towards the sessions. However, this was not explored in the present study. The number of students who had read the WHO Guide to good prescribing and the WHO Ethical criteria for drug promotion was low. Ensuring more easy accessibility to the books and creating a greater interest and curiosity among the students may be helpful.

The suggestions of the respondents were considered and we have introduced role plays to teach about optimizing time spent with medical representatives and sessions to assess the rationality of prescriptions. The sessions are being made more interactive and more sessions are being introduced.

Our study had many limitations. The number of students enrolled was low. The response rate of the fourth semester students was low. The reasons behind the attitude scores were not explored further. Studies on a larger student population are required and may be carried out in the future.

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Appendix

Sessions on Rational use of Medicines

Sex: M/F **Nationality:**
Medium of instruction at school: English/ Vernacular
Occupation of parents: Father: **Mother:**
Place of residence: Metro city/Non-metro city/Small town/Village
In future I plan to be a General practitioner/ Specialist **Proposed subject of specialization:**
I plan to be working in a medical college/ Corporate hospital/ Private practice/Others (please specify)
Proposed area of future practice: Urban/ Rural
I would like sessions on rational use of medicines during my clinical years: Yes/ No
I will attend conferences, symposia and events organized by the pharmaceutical industry: Yes/ No
I will accept free gifts, souvenirs, mementoes handed out by the industry: Yes/No

Drug use indicators study

For the following statements score from 1 to 5 according to the following scale: 1=strongly disagree with the statement, 2= disagree with the statement, 3=neutral, 4=agree with the statement, 5=strongly agree

I have got a good idea about the WHO/INRUD Drug use indicators.
I am confident of being able to evaluate drug use in health facilities using the indicators.
I would like practical sessions on using the indicators in health facilities in Kaski district.
Suggestions to make the sessions more useful, enjoyable and relevant:
1)
2)

Evaluation of drug advertisements and sources of drug information:

I am confident of being able to critically analyze drug advertisements.
I will be able to critically analyze information presented to me by the medical representative.
I would like sessions during my internship training.
Suggestions to make the sessions more useful, enjoyable and relevant:
1)
2)

P-drug concept and selection of P-drugs for specific diseases:

I am familiar with the P-drug concept.
The P-drug concept will help in rational prescribing in my future practice.
P-drug is a drug ready for action.
I am confident of forming my own personal formulary using the P-drug concept.
Suggestions to make the sessions more useful, enjoyable and relevant:
1)
2)

Critical analysis of journal articles:

I am confident of being able to critically analyze articles from medical journals.
This will be a useful skill in my future practice.
The journal articles selected for the sessions were appropriate.
The difference between absolute and relative risk is clear to me.

Suggestions to make the sessions more useful, enjoyable and relevant:

1)
2)

Assessment of rationality of prescriptions:

I have become familiar with the common types of irrational prescriptions.
Knowing the irrationalities will help me to prescribe more rationally in my future practice.
I would like similar sessions during the clinical years of training.

Suggestions to make the sessions more useful, enjoyable and relevant:

1)
2)

I have read the book 'WHO guide to good prescribing': Yes/ No
I have read the book 'WHO ethical criteria for drug promotion': Yes/ No
The rational use of medicines sessions was relevant to the health problems of South Asia.
Thank you for taking the time to fill this questionnaire. It is much appreciated!