The Effect of Interactive Group Discussion among Physicians to Promote Rational use of Drugs

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Abstract

Background and purpose: *Rational use of drugs remains a problem in Iran. Polypharmacy, overuse of antibiotic, misuse and overuse of injections, short consulting time and poor patient compliance are common patterns of irrational use of drugs in Eastern Azarbydjan - Iran. Concerning the promotion of rational use of drugs, this study aimed the effect of educational intervention as interactive group discussion on prescribing behavior of Tabriz Northwest physicians.*

Methods: *Fifty one general physicians from private and public sectors in Northwest of Tabriz were selected randomly and their prescriptions were analyzed. A questionnaire with 8 close questions was completed for each prescription to investigate all aspects of prescribing patterns. By a professional software the information of the prescriptions was analyzed and drug prescribing indicators such as percentage of patients receiving antibiotics, glucocorticoids and other drug groups were determined. The method of intervention included focus group and interactive group discussions. Focus group was built in group of health professionals to collect training material using pre-intervention results for interactive group discussion. The physicians were divided into two groups of control and intervention groups. Following pre-intervention study the physicians of intervention group were discussed and trained in one-day interactive group discussion course using pre-intervention data and educational materials obtained from the focus group discussion.*

Results: *The results of pre-intervention study showed that the average number of drugs in each prescription was 3.82. The percentage of patients receiving antibiotics, corticosteroids and injections were 40.81, 25.94 and 58.04 %, respectively. The results of this survey show great differences from WHO and international standards. Following the intervention the indicators were similar in both intervened and non-intervened groups and also were same as the pre-intervention results.*

Conclusion: *The results of this study show that a very close and effective method of training program as an interactive group discussion has no beneficial effects on improving rational prescription behavior of general physicians involved in this study. To promote rational prescription the underlying factors must be considered more.*

Keywords: *Rational use of drugs, Interactive group discussion, Focus group discussion.*

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Introduction

Many developing countries have a limited budget allocated to health care especially for drug procurement. Therefore it is imperative to optimize expenditures for drug purchases by selecting an essential drug list and promoting the rational use of drugs. Essential drugs are selected

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to fulfill the real needs of the majority of the population in diagnostic, prophylactic, therapeutic and rehabilitative services using criteria of risk-benefit ratio, cost-effectiveness, quality, practical administration as well as patient compliance and acceptance (1-4). Inappropriate, ineffective and inefficient use of drugs commonly occurs at health facilities in developing and developed countries (5-6). Common types of irrational use of drugs include non-compliance with physicians' prescription, self-medication with prescription drugs, overuse and misuse of antibiotics, overuse of injections and overuse of relatively safe drugs, use of unnecessary expensive drugs and poor patient compliance (6-9).

Many individuals or factors influence the irrational use of drugs such as patients, prescribers, the workplace environment, the supply system including industry and pharmacy influences, government regulation, drug information and misinformation (10-15). In addition to optimizing the use of limited budget, promoting the rational use of drugs aims to improve quality, increase accessibility and equity of health and medical care for the community. Successful interventions have been made to improve the drug use internationally (2,5,6). Educational approaches attempt to inform or persuade prescribers, dispensers, or patients to use drugs in the proper, rational and efficient way. There are many types of this approach such as in-service training, face-to-face education, small group discussions, seminars, workshops and printed education materials (16-19).

The purpose of education and training of prescribers and dispensers is to improve knowledge and change habits. Lack of knowledge and poor habits are often underlying factors for irrational drug use. One important foundation for long-term improvement in drug use is improving the quality of pre-service training about therapeutics (18,19). Some studies have shown that a short, interactive, problem-oriented training course using appropriate training materials significantly improved drug prescribing practices (20). For example one study on the impact of short course in pharmacotheraphy for undergraduate medical students was conducted. That study was carried out in 7 universities in Groningen (Netherlands), Katmandu (Nepal), Lagos (Nigeria), New Castle (Australia), New Delhi (India) and Yogyakarta (Indonesia). Result showed that the students from the intervention group prescribed significantly better than controls in all patient problems presented (21).

Face to face education or persuasion is a common intervention strategy. It consists of interactive group discussions for prescribers and / or and patients. The principle of this method is to talk directly to practicing prescribers and patients about appropriate drug use. Approaches based on face-to-face contact are educational outreach, patient education and influencing opinion leaders. This method provides information to physicians about drugs that are often used inappropriately and to promote their replacement with more therapeutic alternatives (2,16).

Another educational approach, focus group discussion, attempts to explore the underlying causes of irrational use of drugs. Results are then used to develop specific interventions (16). A study done in Indonesia showed that a small group discussion was effective in improving irrational use of drugs in acute diarrhea. Also a small-group face-to-face educational intervention had greater effect in reducing the inappropriate use of drugs than a large-group formal seminar away from the work-site (22). Interactive group discussion is a form of behavioral intervention. A variety of persons with different motives interact in a discussion led by an expert facilitator. This method is a modification of a standard group psychotherapeutic technique, but it has not previously been used to alter prescribing behavior. A study from Indonesia about the efficacy of the interactive group discussion demonstrated a significant decrease in injection use from 69.5% to 42.3 % in the intervention group compared to decrease from 75.6% to 67.1% among controls. The conclusions of the study were that interactive group discussion significantly reduced the overuse of injections and had long term impact as well as injections were not substituted for other drugs (23).

The present study examined the problems of drug use in Northwest of Tabriz-Iran and aimed to

investigate the effect of educational intervention as an interactive group discussion on prescribing behavior of the physicians.

Methods

Prescribing surrey

Fifty one general physicians from private and public sectors in Northwest of Tabriz were selected randomly and their prescriptions were analyzed. The prescribing survey used retrospective cases sampled randomly from Tabriz Khadamat Darmany Insurance Organization archive, including maximum 50 prescription issued by each physician during September 2002. A total of 2297 prescription were collected in this stage. A questionnaire with 8 close questions was completed for each prescription to investigate all aspects of prescribing patterns. These were based on yes or not answer and 0-1 point scores attained from a standardized questionnaire. By professional software the information of the prescriptions was analyzed and drug prescribing indicators such as percentage of patients receiving antibiotics, glucocorticoids, injections and other drug groups were determined. Data were collected by staff from the Drug Affair Office of Tabriz University of Medical Sciences who had been specially trained in methods recommended by WHO for collecting this type of data in health facilities. Data collectors were blind to the study condition. Data collection was supervised and the accuracy of data validated by members of the study team.

Design

The method of intervention included two stages, focus group and interactive group discussions. Before the intervention, educational materials were developed, and qualitative assessments (i.e. focus group discussions—FGD) were conducted with prescribers. Focus group was built in-group of health professionals, including five general physicians out of the study, university lecturers and health policy makers, to collect training material using pre-intervention results for the interactive group discussion. These discussions were designed to determine beliefs and perceptions on the rational prescription and use of drugs. FGD was conducted by an experienced and trained scientist (pharmacologist), and involved 15 participants.

The physicians were randomly divided into two groups. Prescribers from Group 1 (26 physicians) underwent an interactive group discussion intervention on the rational prescription. Prescribers from Group 2 (25 physicians) acted as a control group, and during the study period they did not participate in any educational program.

Following pre-intervention study the physicians of test (under intervention) group were discussed and trained in one-day interactive group discussion course (July 2003) using pre-intervention data and educational materials obtained from focus group discussion.

Evaluation

To evaluate the impact of interactive group discussion on prescribing practices, prescribing surveys were conducted 3 months after the intervention, exactly the same as the pre-intervention period, for both intervened and control groups (September 2003).

Data analysis

All results are expressed as Mean±SEM. One-way ANOVA with student newman keuls post test was carried out to test any differences between the mean values of different groups. The Chi square with Yates correction was used to compare the data presented as percentage. The differences between groups were considered significant at a level of $p<0.05$.

Results

The results of the study are organized in the following categories: prescribing patterns before intervention, findings obtained during the FGDs, and prescribing patterns after intervention.

Pre-intervention results

There were 2297 prescriptions included for analysis, collected from 51 general physicians' files before the intervention. The prescriptions attained score 0.75±0.14 out of 1. The score was calculated from questionnaires evaluating the correct principles of prescription writing including

patient name, date of the order, name, dosage form, strength and quantity of the drugs, and directions for use. The dosage forms and strength of the medicines were mentioned in 86.1% and 57% of the prescriptions, respectively. 87.7% of the prescriptions were readable and in 16.7% of the prescriptions at least one of the items was unreadable. Only in 38% of the cases the name of the drugs were written correctly and completely. In 10.4 percent of the prescriptions none of the items was written correct or complete. The directions for use for all items of the prescription were regarded in 68.4% of the cases. 4.5% of the prescriptions contained no direction for any ordered items. Only in 26.4 percent of the objects the directions for use of all drugs were complete and correct. In this stage of the study, the average number of drugs per prescription in Northwest of Tabriz was 3.82 and 21.7% of the patients received 5 or more drugs per prescription. In most of the prescriptions (93.7%) the drugs were ordered by generic names. The analysis of data from pre-intervention period also showed that 40.81 percent of patients received antibiotics including penicillins, cephalosporins, and aminoglycosides. Glucocorticoids, cardiovascular medicines and non steroidal anti inflammatory drugs (NSADs) were prescribed 25.94%, 67.205 and 24.74%, respectively. Injection use was widespread, where, 58.04 percent of the patients received injections.

Focus group discussion findings

Before the interactive group discussion intervention, a focus discussion group was built in-group of five general physicians out of the study, university lecturers, health professionals and policy makers, to collect training material using pre-intervention results for the interactive group discussion. In this group the results of pre-intervention study were presented and discussed. This discussion was conducted by experienced and educated conductors to determine beliefs and perceptions on the problems of drug use in Tabriz. All in this group believed that fundamental reformation in the structure of the drug and therapy system is the most effective way to promote rational use of drugs. However, the main goal of this focus group was collection of the educational material and proposals to conduct the face to face interactive group discussion in the next stage of the study. The findings were utilized in preparing the intervention messages. In this focus group discussion some underlying factors encouraging the irrational prescription of drugs were mentiond as:

Poor pharmacotherapy teaching for undergraduate medical students, lack of knowledge and poor habits are often underlying factors for irrational drug use.

Lack of Standard Treatment Guidelines

Different drugs are prescribed because of the worries regarding the precise etiology of the disease

Low income of general physicians so, to attract more patients, drugs are prescribed to meet the demand of the patients and to ensure their satisfaction

When the patients are admitted to the physicians office or pharmacy, prescribers think that they ought to prescribe something to lessen the pain or prevent probable infections

Lack of referral system

Economical problems and monetary incentives persuade physicians and pharmacists to promote irrational use of drugs

Lack of effective and programmed continues educations and printed material for health professionals

Lack of monitoring of prescribing practices

Lack of patients education and information about drugs and their strong belief in the efficacy of injections and antibiotics,

Interactive group discussion results

Twenty one of 51 physicians were involved in interactive group discussion and the others considered as control group. Physicians from the intervention group were discussed in one day workshop with the details of the pre-intervention results. To change and improve the prescribing habit of the physicians in order to promote rational prescription, reduction of number of items per prescription, considering principles of correct prescription writing, reduction of administration of antibiotics, glucocorticoids and injections the following subjects were discussed and lectured:

Review of examples of the prescriptions
Principles of prescription writing
Necessity of rational prescription and use of drugs
Impact of irrational use of drugs
Common errors in prescribing
Rational use of antibiotics
Rational prescription of injections
Glucocortiods therapy, why, where, how and how long

Post-intervention results

Three month after intervention, prescriptions from intervention group (1135 prescriptions) and control group (1084 prescriptions) were analyzed. Figure 1 shows the average number of drugs per prescription, prescribed by physicians from intervention and control groups, and all physicians before intervention. There was no change in the average number of drugs prescribed in intervention group (3.76 items per prescription) compared to controls (3.71 items per prescription) following the interactive group discussions. However, a slight but not significant decline was seen before (3.82 items per prescription) and after intervention.

Compared to baseline, there was a tendency towards a decreased use of antibiotics after the intervention in both intervened and control groups (figure 2). In the control group antibiotic prescription decreased from 40.81 % in baseline (pre-intervention) to 37.19%, while in the group of prescribers who attended the interactive group discussion antibiotic prescription was 38.86%. The changes however, were not statistically significant ($P > 0.05$) in and between groups. Similarly, the percentages of glucocorticoids prescription statistically was the same in the intervention group (23.55%) and control (26.57%) compared to pre-intervention period (25.94%; figure 2). The study and control groups were similar during intervention period in rate of injection use (57.71% of patients in the study group vs. 54.78% among controls). The percentage of injection prescription was 58.04% before intervention. None of these differences were statistically significant (figure 2).

Considering correct principles of prescription, physicians from interactive group discussion group attained score 0.78±0.1 out of 1, which showed a slight but not significant improvement compared to post-intervention control group (0.75±0.13) and pre-intervention period (0.75±0.14, figure 3).

Figure 1. Average number of drugs per prescription, prescribed by general physicians from northwest of Tabriz in pre-interventional period and in study and control groups before and after interactional group discussions.

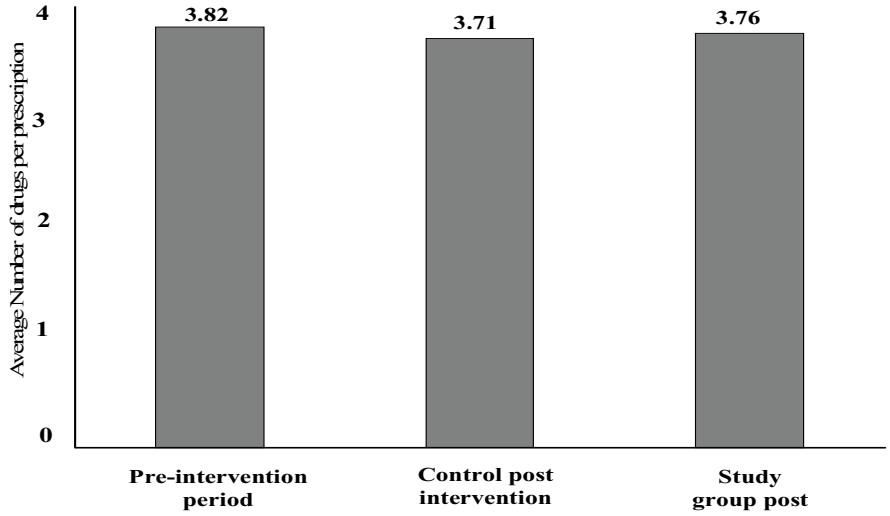


Figure 2. Percentage of drugs prescription by general physicians from northwest of Tabriz, in pre-intervention period and in study and control groups before and after interactional group discussions

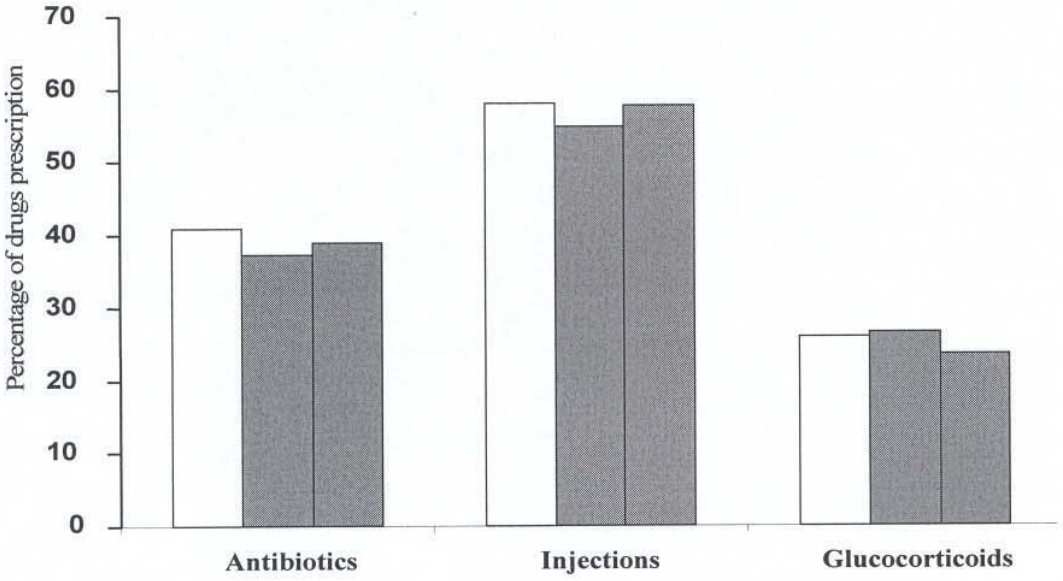
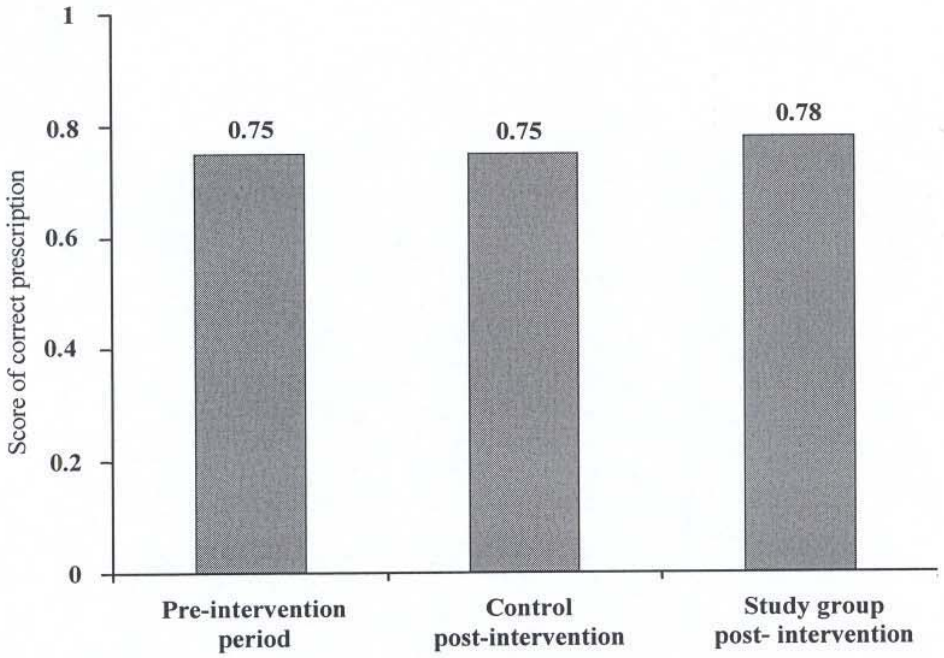


Figure 3. Scores of correct prescription writing (out of one) attained by general physicians from northwest of Tabriz, in pre-intervention period and in study and control groups before and after interactional group discussions.



Discussion

The results of this study show that despite relatively considering principles of correct prescribing writing by physicians (score0.75±0.14 from 1), problems remain in the rational use of drugs. Polypharmacy (3.82 drugs per patient), overuse of antibiotic (40.81%), misuse and overuse injections (58 %), and over prescription of glucocorticoids (26%) are common patterns of irrational prescription of drugs in Tabriz. Data from other countries show that average number of drugs per prescription is 3.5 drugs per patient in Indonesia, 1.4 drugs per patient in Bangladesh and 3.8 drugs per patient in Nigeria. The antibiotic use is 43% in Indonesia, 25 % in Bangladesh and 63 % in Sudan. The injection use is 45% in Indonesia, 11 % in Zimbabwe and 36 % in Sudan (24). Reducing irrational use of drugs is not easy since many individuals or factors influence the irrational use of drugs such as lack of standard guidelines, lack of enough knowledge of physicians and pharmacists, low levels of patient's knowledge and habits, ensuring patients' satisfactions, prescribers monetary incentives, the workplace environment, the supply system including industry or pharmacy influences, government regulation, drug information and misinformation.

Training in the rational use of drugs including the use of standard treatment is not a regular feature in health services in Tabriz but it is done in limited cases by Tabriz University of Medical Sciences. Generally implementation of continuous education of physicians and pharmacists is not followed up by continuous monitoring and supervision. The effectiveness of this activity was therefore low. However, the impacts of those activities on rational use of drugs are not known yet since there was limited evaluation of these efforts. Evaluation of all activities should be conducted since the results of evaluation can be used to improve the program.

Educational approaches attempt to inform or persuade prescribers, dispensers, or patients to use drugs in the proper, rational and efficient way and to improve knowledge and change habits. There are many types of this approach such as in-service training, face-to-face education, small group discussions, seminars, workshops and printed education materials.

In this study it was hypothesized that the small interactive group discussion would be more effective in changing knowledge and improving prescribing practice. The study shows that regarding considering the principles of correct prescribing writing the intervention is effective in shifting prescribing practice towards the recommended norms (from pre-intervention score of 0.75±0.14 to 0.78±0.13). However, the small group discussion intervention did not improve the prescription of antibiotics, glucocoriticoids or injections. This shows that in this study the small-group interventions which are more likely to result in behavioural change had no positive impact on prescribing practice. It is likely that the underlying motivations, economical situations and constraints discussed in the result section encouraging the irrational prescription. In our situation the educational interventions for prescribers without solving the underlying problems, fundamental reformation, and improving the quality of pre-service training and education about therapeutics may not enough in improving rational use of drugs and they may not be sustainable since generally these interventions need follow-up and cost more money.

Perhaps other interventions like managerial, regulatory or multiple and long term interventions would be useful to promote more appropriate use of drugs. Also, to increase patient's knowledge and to change the patient's behavior, the Ministry of Health should routinely conduct public campaigns on rational drug use and prescribers should provide face-to-face education to patients at health centers based on printed education material. These require initial work and continuous effort.

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