Effect of an Educational Intervention on Knowledge and Perception Regarding Rational Medicine Use and Self-medication

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ABSTRACT

Background: Rational use of medicines is important for safe and cost-effective pharmacotherapy. However, nearly half of the medicines available in the market may be used irrationally. The present study assessed the perceptions and knowledge about rational medicine use and responsible self-medication among participants before and after an educational intervention at KIST Medical College, Lalitpur.

Methods: An educational module was conducted among healthcare professionals, media personnel and female community health volunteers. The questionnaire was administered before and immediately after the module. The areas addressed were rational medicine use, ethical prescribing, rational drug use situation in Nepal, pharmaceutical promotion, rational self-medication, safe use of antibiotics, and drug use problems in Nepal.

Results: Among healthcare professionals, the rational drug use situation in Nepal and the total score significantly increased post-intervention (p<0.05). Among media personnel the mean scores increased significantly in pharmaceutical promotion and drug use problems in Nepal areas but there was a significant decrease in safe use of antibiotics. The pre-intervention pharmaceutical promotion score was significantly higher among healthcare professionals compared to media personnel while the rational self-medication scores were highest among female community health volunteers, safe use of antibiotics scores were highest among the media personnel. Post-intervention the mean pharmaceutical promotion scores was highest among healthcare professionals, rational self-medication scores among female community health volunteers, safe use of antibiotics, drug use problems in Nepal and total scores were highest among the media personnel.

Conclusions: There were differences in the mean pre-intervention scores among different subgroups. A single session may not be enough to bring about significant changes in knowledge and perception. The retention of knowledge could be measured in future studies.

Keywords: Female community health volunteers; health care professionals; media; rational medicine use; self medication.

INTRODUCTION

Medicine use problems are common in Nepal. Issues of polypharmacy, irrational drug combinations, overuse of vitamins and injections are noted.[1] According to the World Health Organization (WHO) nearly half of the medicines available in the market are used irrationally.[2] Rational medicine use can be beneficial and can decrease the financial load for patients who pay out of the pocket for the medicines.[3]

In countries like Nepal, an efficient and cost-effective method is to involve media personnel who can spread the message rapidly to a large group of people. Similarly, FCHVs can be a good source of information for using drugs appropriately in community settings.[4] Similarly, medical interns and nurses as health care professionals can play an important role in using antibiotics and other medicines rationally.[5,6]

The objective was to assess the perceptions and knowledge about rational medicine use and responsible self-medication among participants before and after an educational intervention.

METHODS

This study was carried out in June 2016 and the study area was KIST Medical College teaching hospital, Imadol Village Development Committee (VDC), Lalitpur district, Nepal.

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This study was conducted among participants from three different groups. First group comprised of healthcare professionals (HCPs) including medical interns and nurses working at KIST Medical College. Second group was the media personnel. The third group was female community health volunteers (FCHVs) working at the adjacent health posts. The number of participants was twenty from each group and sixty in total. The sampling method used was convenience sampling and the type of the study was cross sectional. The participation was based on the availability and willingness of the study participants.

A questionnaire was developed based on discussion among the investigators and a review of the literature. Demographic information like gender, age, profession, ethnicity, educational qualifications, and working area was noted. The questionnaire had seven sections under the main theme of rational medicine use. Respondent's knowledge and perception was measured using a set of 36 statements. The different sections were rational drug use (RDU), ethical prescribing (EP), situation of rational drug use in Nepal (SRDUN), pharmaceutical promotion (PP), responsible self-medication (RSM), safe use of antibiotics (SUA) and drug use problems in Nepal (DUPN).

Each section consisted of five statements except the RSM section where there were six statements. The various sections in the questionnaire were developed following a thorough review of literature in the area of rational medicine use in Nepal.[2-5] Scoring of the statements was done by using the following key: (1 = strongly disagree with the statement, 2= disagree with the statement, 3= neutral, 4= agree with the statement, 5= strongly agree with the statement.) Participants were informed to use whole numbers only for scoring.

The section score was obtained by adding the scores for all the statements present in the sections. Similarly, the overall total score was obtained by adding the total scores of all the sections. These scores were obtained both before and after the educational intervention.

The questionnaire included questions based on knowledge and perception studies about rational medicine use in Nepal.[4] Manuscripts and published papers describing similar research and methodological issues were also studied.[3,5-6] After finalizing the statements, these were further discussed with other faculty members of the pharmacology department of KIST Medical College for their comments and suggestions. Readability and ease of comprehension of statements was used for face validity. The questionnaire was developed in English, and then translated into Nepali for better understanding by the respondents.

Educational intervention was conducted among participants. The areas addressed were rational drug use, ethical prescribing, rational drug use situation in Nepal, pharmaceutical promotion, rational self-medication, safe use of antibiotics, and drug use problems in Nepal which is the same as the areas addressed in the questionnaire. The duration of the educational program was 6 hours for each group of participants. While the areas addressed were broadly similar for the different groups, the sessions were activity-based and the responses from and participation of the respondents influenced the level of the discussion. The facilitators were experienced in adult, activity-based learning and ensured that the participants were active and the educational objectives of the sessions were addressed. The language used for sharing the information was Nepali for media personnel and female community health volunteers for better understanding. For the HCPs a mixture of English and Nepali was used.

The FCHV were recruited by disseminating the information about the training programme to the respective wards of the Imadol VDC. Depending on availability and interest, the participants were sent by the various wards. The media people were recruited on the basis of their experience in the field of health journalism and their availability. Similarly, the interns and nurses were recruited from those working at KIST Medical College depending on their availability and interest from the hospital management.

The sample size calculation formula was not used to calculate the sample size. The number of participants was fixed at twenty participants per day taking into consideration the resources available.

A total of three days was assigned for the program. The resource persons were from department of pharmacology, KIST Medical College, Institute of Medicine, Nepalese Army Institute of Health Sciences and also from Department of Drug Administration (DDA).

The questionnaire was self-administered to the participants at the time of registration as a pre test and immediately after the training program as a post test. The bias was reduced as the questionnaire was self-administered and so interviewer bias was reduced.

The collected data were analyzed using SPSS version 19.0 for Windows. The knowledge, and perception scores and the total scores were tested for normality of distribution using one sample Kolmogorov-Smirnov test. The samples were noted to follow a normal distribution and mean was calculated as a measure of central tendency, standard deviation as a measure of variance and parametric tests were used for comparison between different subgroups

of respondents and for comparison of scores pre and post-intervention. A p value less than 0.05 was taken as statistically significant.

This study was approved by the Institutional Research Committee of KIST Medical College. All participants were informed about the aims and objectives of the study and invited to participate. Verbal informed consent was obtained from all participants.

RESULTS

Sixty individuals (Twenty each from media personnel, HCPs and FCHVs) participated. Among the media participants, 9 (45%) were male and 11 (55%) were female; for FCHVs, all the twenty participants were female. Among HCPs, 4 (20%) were male whereas, 16 (80%) were female. Maximum participants from the media group and HCPs were of age group 20-30 years. Similarly, for the female community health volunteers group, maximum participants were between 30-40 years of age. Participants from the media and FCHVs had a work experience of 5-10 years whereas for HCPs, the experience was less than 5 years. Majority of participants from FCHVs and HCPs were of Newar ethnicity. Table 1 show the demographics of the respondents who participated in the study.

Table 1. Demographic characteristics of respondents (n=20)

Characteristic	Media Personnel Number(%)	FCHVs Number (%)	Healthcare Professionals Number(%)
Gender			
Male	9 (45)	0 (0)	4 (20)
Female	11 (55)	20 (100)	16 (80)
Age (in years)			
Below 20	1 (5)	1 (5)	0 (0)
20-30	10 (50)	7 (35)	19 (95)
30-40	8 (40)	10 (50)	1 (5)
40-50	1 (5)	2 (10)	0 (0)
Experience (in years)			
2-5 Years	8 (40)	5 (25)	2 (60)
5-10 Years	9 (45)	10 (50)	6 (30)
>10 Years	3 (15)	5 (25)	2 (10)
Ethnicity			
Brahmin	5 (25)	1 (5)	4 (20)
Chetri	7 (40)	6 (30)	9 (45)
Newar	6 (30)	13 (65)	5 (25)
Others	1 (5)	0 (0)	2 (10)

Table 2 shows mean scores before and after intervention for FCHVs. Similarly, Table 3 shows mean scores before and after intervention for HCPs and Table 4 shows the same for media personnel. The scores before and after the intervention were compared using paired samples t-test. Table 5 shows various categories of scores among the three groups of participants pre-intervention and Table 6 shows various categories of scores among the three groups of participants post-intervention.

Table 2: Mean scores among FCHVs before and after the intervention

Characteristic	Mean score (STD Deviation)	P-value
Rational Drug Use		
Before Intervention	17.2 (1.60)	0.594
After Intervention	16.9 (2.02)	
Ethical Prescribing		
Before Intervention	17.5(2.76)	0.335
After Intervention	18.2 (1.97)	
Situation of rational drug use in Nepal		
Before Intervention	18.6 (4.21)	
After Intervention	19.2 (1.83)	0.556
Pharmaceutical Promotion		
Before Intervention	17.7(1.94)	
After Intervention	18.3 (1.38)	0.330
Responsible Self- medication		
Before Intervention	20.1 (2.35)	
After Intervention	18.6 (3.18)	0.086
Safe use of antibiotics		
Before Intervention	16.9(1.66)	
After Intervention	15.7 (2.44)	0.079
Drug use problems in Nepal		
Before Intervention	18.1(2.84)	
After Intervention	17.0(2.12)	0.252
Total score		
Before Intervention	126.26 (6.25)	0.361
After Intervention	124.05(7.35)	

Table 3. Mean scores among Media Personnel before and after the intervention.

Characteristic	Mean score (STD Deviation)	P-value
Rational Drug Use		
Before Intervention	16.4 (2.25)	0.097
After Intervention	20.5 (1.99)	
Ethical Prescribing		
Before Intervention	18.2 (3.33)	0.628
After Intervention	18.65 (2.47)	
Situation of rational drug use in Nepal		

Before Intervention	18.8 (2.36	0.044
After Intervention	20.2 (1.99)	
Pharmaceutical Promotion		
Before Intervention	19.9(4.02)	0.523
After Intervention	20.5 (2.25)	
Responsible Self- medication		
Before Intervention	17.8 (2.96)	0.298
After Intervention	16.7 (3.76)	
Safe use of antibiotics		
Before Intervention	17.2 (1.98)	0.067
After Intervention	19.2 (2.88)	
Drug use problems in Nepal		
Before Intervention	17.2 (2.94)	0.067
After Intervention	19.2 (2.84)	
Total score		
Before Intervention	125.7 (10.34)	0.020
After Intervention	135.05(13.34)	

Table 4: Mean scores before and after the intervention among Healthcare Professionals

Characteristic	Mean score (STD Deviation)	P-value
Rational Drug Use		
Before Intervention	16.4 (2.25)	

After Intervention	20.3 (10.27)	0.332
Ethical Prescribing		
Before Intervention	18.2(3.33)	
After Intervention	18.6 (2.47)	0.294
Situation of rational drug use in Nepal		
Before Intervention	18.8 (2.38)	
After Intervention	20.2 (1.99)	0.615
Pharmaceutical Promotion		
Before Intervention	17.4 (2.41)	
After Intervention	20.2 (1.91)	0.001
Responsible Self- medication		
Before Intervention	17.8 (2.96)	
After Intervention	16.7 (3.74)	0.754
Safe use of antibiotics		
Before Intervention	19.0 (2.67)	
After Intervention	16.0 (3.57)	0.008
Drug use problems in Nepal		
Before Intervention	18.45 (2.70)	
After Intervention	21.5 (2.87)	0.005
Total score		
Before Intervention	125.7 (10.34)	
After Intervention	135.0(13.34)	0.743

Table 5: Various categories of scores pre-intervention among the three groups of participants

Variable	Categories	Mean score	p-value	Post hoc P value (if significant in ANOVA)	Groups involved
Rational drug use	FCHVs	17.2	0.107	Not applicable	None
	Media	17.9			
	HCPs	18.2			
Ethical prescribing	FCHVs	17.5			
	Media	17.8	0.746	Not applicable	None
	HCPs	18.2			
Situation of Rational drug use in Nepal	FCHVs	18.6	0.418		
	Media	19.8		Not applicable	None
	HCPs	18.8			
Pharmaceutical promotion	FCHVs	17.7	0.019		Media,
	Media	17.4			HCPs
	HCPs	19.9		0.025	
Responsible Self-medication	FCHVs	20.1	0.009	0.012	FCHVs,
	Media	19.75			HCPs
	HCPs	17.8		0.039	Media,
Safe use of antibiotics	FCHVs	16.9	0.026	0.033	HCPs
	Media	19.0			FCHVs,
	HCPs	17.2			media
Drug use problems in Nepal	FCHVs	18.1	0.397	Not applicable	None
	Media	18.4			
	HCPs	17.2			

Total	FCHVs	126.2	0.235	Not applicable	None
	Media	130.1			
	HCPs	125.7			

Table 6. Various categories of scores post-intervention among the three groups of participants.					
Variable	Categories	Mean score	p-value	Post hoc P value (if significant in ANOVA)	Groups involved
Rational drug use Post	FCHVs	17.2	0.372	Not applicable	None
	Media	17.9			
	HCPs	18.2			
Ethical Prescribing Post	FCHVs	17.5	0.838	Not applicable	None
	Media	17.8			
	HCPs	18.2			
Situation of Rational drug use in Nepal post	FCHVs	18.6	0.096	Not applicable	None
	Media	19.8			
	HCPs	18.8			
Pharmaceutical promotion post	FCHVs	17.7	0.001	0.006	FCHVs, media
	Media	17.4			FCHVs, HCPs
	HCPs	19.9		0.001	HCPs, media
Responsible self-medication post	FCHVs	20.1	0.001	<0.001	FCHVs, HCPs
	Media	19.7			
	HCPs	17.8			
Safe use of antibiotics post	FCHVs	16.9	0.001	0.001	HCPs, media
	Media	19.0			
	HCPs	17.2		0.003	FCHVs, media
Drug use problems in Nepal post	FCHVs	18.1	0.001	<0.001	
	Media	18.4			
	HCPs	17.2		0.025	
Total post	FCHVs	126.2	0.001	0.002	FCHVs, HCPs
	Media	130.1			FCHVs, media
	HCPs	125.7		0.013	HCPs, FCHVs

There was no significant difference in the mean subcategory/section and total scores before and after the intervention among FCHVs. The total score before intervention was 126.26 and after the intervention the score was 124.05. Among media personnel, the RDUN scores significantly increased (from 18.8 to 20.2), and the total score increased from 125.7 to 135.05. Among HCPs the mean PP score increased significantly from 17.4 to 20.2 and DUPN scores increased significantly from 18.45 to 21.5 but there was a significant decrease in SUA scores from 19.0 to 16.0.

The pre-intervention PP score was significantly higher among HCPs compared to media personnel (19.9 as compared to 17.4) while the RSM scores were highest among FCHVs and media personnel compared to HCPs. The mean score was 20.1 among FCHVs, 19.75 among media personnel and 17.8 among HCPs. SUA scores were highest among the media (19.0). The score was significantly higher compared to the 16.9 among FCHVs.

Post-intervention the PP scores was significantly higher among HCPs (19.9) and FCHVs (17.7) compared to that among media personnel (17.4). The RSM scores were significantly higher among FCHVs (20.1) compared to media (19.75) and HCPs (17.8). SUA scores were significantly higher among Media (19.0) and HCPs (17.2) compared to FCHVs (16.9). DUPN scores post-intervention were 18.1 among FCHVs, 18.4 among media and only 17.2 among HCPs. The total scores were 126.2 among FCHVs, 130.1 among media personnel and 125.7 among HCPs.

DISCUSSION

Medicines are often used irrationally all over the world.[7-13] There are many reasons for irrational use of medicines like unethical and irrational prescribing, inappropriate self-medication, and inappropriate use

of antibiotics. Aggressive pharmaceutical promotion by various pharmaceutical companies can also promote irrational medicine use.[14] In the Nepalese context, weak enforcement of medicines regulation can also contributes to the irrational use of medicine.[15]

Most respondents were female and belonged to a younger age group. All FCHVs were of course female. The study was conducted in the Kathmandu valley and the institution has a number of female medical students and doctors. The location may account for the majority of the respondents being of Newar ethnicity.

Though most scores had increased among FCHVs, the increase was not statistically significant. Certain scores had declined and the short duration of the training session may be partly responsible. Also the post-session feedback was obtained in the evening immediately after the conclusion of the workshop and this may have affected the scores.

Among media personnel the mean PP and DUPN scores increased significantly but there was a significant decrease in SUA. Among other topics, the sessions were tailored to provide participants with knowledge about pharmaceutical promotion and drug use problems in the country. The scores for the media personnel improved significantly for safe use of antibiotics after the intervention. The increase in scores in these sections may have accounted for the significant increase in total score post-intervention. The sessions for the three groups of participants were facilitated by the same facilitator/s on the three days. The only difference could have been in the group work and group participation. There is a possibility that different groups may have explored these issues at different levels.

Among HCPs the scores for drug use problems in Nepal and pharmaceutical promotion increased significantly. However, the scores for Responsible Self-medication and safe use of antibiotics decreased after the intervention. These may have accounted for the non-significant increase in total scores following the intervention.

Due to various reasons, not all the health care delivery centers are staffed by HCPs in Nepal. Hence, self-medication is a very commonly seen drug use problem in Nepal.[16] The concept of a pill for every ill is common among the general public.[17,18] Antibiotics are commonly misused and overused in certain self-limiting conditions like sore throat leading to irrational use of antibiotics.[19]

The pre-intervention PP score was significantly higher among HCPs compared to media while the RSM scores were highest among FCHVs, SUA scores were highest among the media. This was similar to a study done in Nepal where household women and FCHVs were involved.[20,21] Some diseases can be self-limiting without requiring the use of medicines, but use of medicines is seen in many of these cases, especially self-medication with antibiotics, which is quite common in Nepal.[16,22]

This result was similar to that in a publication on policy perspectives on medicines by WHO for promoting rational drug use.[23-25] This publication mentions various factors responsible for irrational use of medicines including antimicrobial resistance and non compliance to the prescribed medicine. Improvement in the scores showed that the media group was convinced about the safe use of antibiotics and their role for spreading the message among the general public.

People demand medicine like vitamins and tonics for being physically and mentally strong. Some people have a belief that using antibiotics can help their condition heal faster.[26,27] Similarly, injections are always better for rapid cure of the disease.[1,5] There is generally a communication gap between the prescriber and the patient about the safe use of medicines. Patients may not understand the instructions and sometimes may not follow the advice properly. This type of use and belief among the people can promote irrational use of medicines and, the media has an important role to disseminate the appropriate message to the readers about the safe and rational use of medicines.[28,29]

Post-intervention, the pharmaceutical promotion score was highest among HCPs. HCPs have previous knowledge about the subject which is addressed to varying extent in the curricula. Responsible self-medication scores were highest among FCHVs. FCHVs are integral members of the community they serve and are very aware about self-medication. Safe use of antibiotics and drug use problems in Nepal scores were highest among the media. Having had the highest scores in various sections post-intervention the total score was also significantly higher among the media.

FCHVs can also be an important messenger for relaying the message of rational medicine use at the community level. The HCPs have a major responsibility for promoting safe and rational use of medicines. HCPs had an improved scores for rational drug situation in Nepal and also the total scores before and after intervention and this finding was important as the steps during prescribing may also be an factor which can impact the quality of health care services delivery and wrong steps can lead to irrational drug therapy.[30] HCPs are an important group of people who are responsible for safe prescribing and dispensing.[31-32] Hence, the role of FCHVs, and other HCPs can be considered to be as vital in providing rational treatment.

A study examining medicine awareness training among school teachers and journalists has also mentioned improvement in knowledge and awareness among the journalists and other participants which is very similar to our study.[33] Educating people through various methods like, leaflets about the medicines use, radio and TV programs, road shows with dramas can be an important for disseminating information about rational use of medicines. Recently, Nepal Medical Council and other health councils have recommended a mandatory continuing medical education session on rational use of medicines for all the registered health care professionals of Nepal. This can further enhance and strengthen the concept of rational use and responsible self medication in the community and the country.

The study had limitations. The number of participants per day was fixed at 20 considering the venue, number of resource persons, and the desirability to provide individual attention and promote interaction among the participants. Formula for sample size calculation was not used. This could impact the strength and generalizability of the study. The questionnaire used was developed by the authors and tested for readability and ease of comprehension among other faculty members. The instrument was not pilot tested among the study participants. The questionnaire was translated from English to Nepali but was not back translated from Nepali to English.

CONCLUSIONS

There were differences in the mean pre-intervention and post-intervention scores among different subgroups. There was no significant increase in scores among FCHVs while some scores increased among media personnel and HCPs. A single session may not be enough to promote significant changes in knowledge and perception. Longer sessions may be required but will be complicated by logistic issues. The retention of knowledge could be measured in future studies. Appropriate and rational medicine use can promote safe drug use in Nepal and could play an important role in decreasing the morbidity and mortality along with the disease burden.

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