

A Survey on Assessing the Knowledge, Attitude and Behavior of Community Pharmacists to Adverse Drug Reaction Related Aspects

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ABSTRACT

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Many hospitalizations in India are due to Adverse Drug Reactions (ADR) and resulting in morbidity and mortality in majority cases in addition to the huge economic burden. A survey was conducted to assess the knowledge, attitude and behavior of community pharmacists towards ADR related aspects. One hundred and twenty eight pharmacists from various community pharmacies in two districts of South India were consented in this survey. A questionnaire was prepared to investigate the knowledge, attitude and behavior of pharmacists regarding ADR reporting and distributed to the identified pharmacies. The data was collected and analyzed by ANOVA and t-test. Out of 342 community pharmacies approached, 128 (37.4%) community pharmacists consented to be part of the survey and the questionnaire given was filled and returned by them. Out of these respondents, only 39 (30.5%) pharmacists had knowledge about ADRs, 15 (11.7%) and 14 (10.9%) were aware of National Pharmacovigilance Program (NPP) and regional reporting centers respectively. Only 54 (43%) agreed that ADR reporting is a professional responsibility of pharmacists and none of the respondents reported ADRs. The main reason for not reporting any ADR was 'they did not know how to report' and 'did not feel its beneficial'. This survey revealed that the community pharmacists were having least scores towards knowledge, attitude and behavior on ADRs in Indian Scenario.

Keywords: ADRs, National Pharmacovigilance Centre, Pharmacovigilance, Community Pharmacist.

INTRODUCTION

WHO defines adverse drug reaction (ADR) as "a response to a drug which is noxious and unintended, and which occurs at doses normally used in man for the prophylaxis, diagnosis or therapy of disease, or for the modification of physiological functions". Pharmacovigilance is an integral part of drug therapy. In India, pharmacovigilance is still in its infancy stage. Indian reports on ADR monitoring have been very few. India has not reported a single instance of medicinal side effects from drugs for the last three years to an international drug monitoring database set up by the World Health Organization (WHO). Pharmacists can play a fundamental role in ADR monitoring and reporting, although the factors that affect under reporting among these professionals are unknown.¹ Under reporting could occur due to several reasons like lack of awareness, lack of an effective pharmacovigilance programme, failure on the part of the health care professionals to report an adverse event, or failure to recognize the previous unknown adverse event. Pharmacists as drug experts are expected to have knowledge regarding the safety related

aspects of drugs, and reporting ADRs to health authorities. It would be worth to assess their knowledge and behavior on drug safety related aspects. A study conducted in Gujarat to know about community pharmacist's knowledge and attitude towards pharmacovigilance and adverse drug reactions revealed that only 62% of the pharmacists had knowledge about pharmacovigilance, only 34% pharmacists knew the centers of pharmacovigilance in India. Many studies were conducted to know about the medical practitioners and hospital pharmacist's contribution in ADR reporting.³ This survey study was conducted to understand the attitudes and reporting behavior of community pharmacists and also to assess the knowledge of basic aspects of drugs safety.

MATERIALS AND METHODS

This study was a prospective, questionnaire based survey conducted for a period of 8 months in different community pharmacies of two districts of Karnataka state. A suitable questionnaire was designed and prepared by referring literature and administered to community pharmacists. The questionnaire contains the demographics details of community pharmacists, knowledge, attitude and behavior of community pharmacists regarding ADRs. The questionnaire was administered by the investigator personally to the community pharmacist to obtain the response. The scoring

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pattern was 2 marks for correct answers, 1 for partial answers and 0 for the wrong answers for Knowledge assessment. For behavioral assessment 2 marks were given for providing the positive answers, zero was given for negative responses. In the section of attitude on ADR reporting, the following scoring pattern was followed, 5 marks for strongly agree, 4 for agree, 3 for disagree, 2 for strongly disagree and 1 for not sure. The results were analyzed statistically by using ANOVA and t-test to find the significance difference between two characteristics calculated by biostatistician. The study approved by the institutional ethics committee of the institute.

RESULTS

Among 342 community pharmacies approached, 128 community pharmacists consented to participate in the study and the response rate of the study was 37.42%. Out of 128 community pharmacists, 107 (83.6%) were male, and 21 (16.4%) were female. Majority of the community pharmacists 69 (53.9%) were in the age group of 21-30 years and only 3 (2.3%) pharmacists were in the age group of 51-60 years. The mean age of the respondents was found to be 31.77 ± 7.89 years. Pharmacists with Diploma in pharmacy education were 115 (89.8%) and 13 (10.2%) pharmacists were graduated in pharmacy. The mean years of experience of the pharmacist was found to be 7.99 ± 5.83 years. Seventy nine (61.6%) pharmacists had an experience between 2-10 years and were more in number (Table 1).

Table 1: Demographic details of community pharmacists

	Number of respondents (N=128)	Percentage(%)
Gender		
Male	107	83.6
Female	21	16.4
Age (in years)		
21-30	69	53.9
31-40	39	30.5
41-50	17	13.3
51-60	3	2.3
Mean \pm SD:	31.77 ± 7.89	
Educational background		
D Pharma	115	89.8
B Parma	12	9.4
M Parma	1	0.8
Years of experience		
<2.0	17	13.3
2.0-5.0	36	28.1
6.0-10.0	43	33.6
11.0-20.0	28	21.9
>20.0	4	3.1
Mean \pm SD:	7.99 ± 5.83	

Knowledge:

Among the respondents only 39 (30.5%) were able to answer correctly for the definition of ADRs and 37 (28.9) knew about probability and preventability of ADRs. Majority 56 (43.8%) of the respondents were aware of the most common ADRs that occurs due to use of NSAIDs and 48 (37.5%) respondents knew about the metallic taste that is caused by the use of Metronidazole. Only 44 (34.4%) consented pharmacists knew about the common ADR that is caused by the use of Anti-tubercular drugs (Table 2).

Table 2: Comparison of knowledge in community pharmacists towards ADRs

Knowledge questions	Number of correct response given by community pharmacists	Percentage
What is an adverse drug reaction (ADR)?	39	30.5
Which among the statements regarding ADRs is CORRECT?	37	28.9
The MOST common ADR with anti tubercular drugs includes	44	34.4
Use of NSAIDs for a long time can cause	56	43.8
A common side effect while administering inhaled corticosteroids includes	46	35.9
Dry cough is a common side effect of	29	22.6
Metallic taste is most commonly observed with	48	37.5

Behavior:

All the respondents had observed ADRs in their practice but none of them have reported to any of the regional reporting centers. Forty six (35.9%) community pharmacists had reported ADRs that they have observed either to drug representatives or treating physicians. 120 (93.8%) respondents guided the patients to stop the drug or to report to the physician. Forty (31.3%) respondents counseled the patients regarding ADRs of the drugs while dispensing (Table 3).

Attitude:

Only 17 (13.28%) respondents felt that pharmacist is a qualified health care professional to report ADRs and 52 (40.62%) responded that only doctors could report (Table 4).

Among the 128 respondents, only 15 (11.71%) knew about the National Pharmacovigilance Programme (NPP) and 14 (10.93%) were aware of regional reporting centers. When the respondents were asked to express their level of agreements to some of the ADR related concerns, the results were obtained as shown in table 3. Only 55 (43.0%) respondents agreed that ADR reporting is a professional responsibility of the

Table 3: Comparison of attitude of community pharmacists towards ADRs

Attitude assessment questions	Strongly Agree	Agree	Strongly disagree	Disagree	Not sure
ADR reporting is professional obligation of pharmacists	16(12.5%)	39(30.5%)	20(15.6%)	40(31.3%)	13(10.2%)
Systemic monitoring and reporting of ADR is important after drug is marketed	30(23.4%)	42(32.8%)	25(19.5%)	13(10.2%)	18(14.1%)
ADR reporting should be made compulsory	20(15.6%)	25(19.5%)	24(18.8%)	28(21.9%)	31(24.2%)
ADR reporting should be made voluntary	25(19.5%)	43(33.6%)	16(12.5%)	19(14.8%)	25(19.5%)
Pharmacist should consult the physician before reporting of ADR	30(23.4%)	36(28.1%)	12(9.4%)	14(10.9%)	36(28.1%)

pharmacists and 66 (51.5%) responded that pharmacist should consult physician before reporting an ADR, which is not obligatory according to the NPP of India (Table 4).

Table 4: Comparison of Behavior of community pharmacists towards to ADRs

Behavior assessment questions	Number of respondents gave positive responses (n=128)	Percentage (%)
Have you reported any ADR that you have observed in a patient during your practice?	46	35.9
When you dispense drugs to the patients, do you advice them regarding the side effects of the drugs?	120	93.8
Do you tell the patient what to do in case if he/she develops a side effect?	32	25.0

There were some barriers for not reporting ADRs. From among the pharmacists involved in the survey, 92 did not know how to report an ADR and 64 pharmacists responded that 'they did not feel ADR reporting would be beneficial (Table 5).

Table 5: Barriers for reporting ADRs

Responses	No. of respondents
Did not know that ADRs needs to be reported	29
Did not know pharmacists can report	45
Did not know how to report	92
Did not know how to get the reporting forms	50
Lack of time to involve in such activities	21
Did not feel that ADR reporting would benefit	64
Because it is an extra work	30
I don't have any benefit by reporting the same	35

Assessment of Knowledge and Behavioral scores in association with demographic parameters:

Assessment of Knowledge and Behavior with age:

Knowledge association is found to be more in the age group 21-30 years i.e. 5.16±2.89 and least was found in the age group of 51-60 with mean score of 3.33±4.16 years. Community pharmacists with age group of 51-60 years had a more positive behavior with score of 6.67±1.16 and least in 41-50 age group pharmacists with 3.76±1.39 (Table 6).

Table 6: Correlation between age, knowledge and behavior of community pharmacists towards ADRs

Age in years	Number of respondents	Knowledge assessment	Behavior assessment
21-30	69	5.16±2.89	4.09±2.01
31-40	39	4.26±2.39	4.05±2.66
41-50	17	3.88±2.06	3.76±1.39
51-60	3	3.33±4.16	6.67±1.16
Total	128	4.67±2.71	4.09±2.17
Significance		F=1.814;P=0.148	F=1.559;P=0.203

Assessment of Knowledge and Behavior with gender:

Association of knowledge in female 21 (5.62±3.01) is more than male 107 (4.49±2.62) and behavior score in female (3.05±2.16) is less than male (4.30±2.12). The knowledge association with gender is suggestively significant P=0.079+ and the behavior is moderately significant (P=0.015*) (Table 7).

Table 7: Correlation between gender, knowledge and behavior of community pharmacists towards ADRs

Gender	Number of respondents	Knowledge assessment	Behavior assessment
Male	107	4.49±2.62	4.30±2.12
Female	21	5.62±3.01	3.05±2.16
Total	128	4.67±2.71	4.09±2.17
Significance		t=1.768; P=0.079+	t=2.462;P=0.015*

Assessment of Knowledge and Behavior with education:

Community pharmacists with D Pharmacy (115) level of education had a good knowledge score of 4.68 ± 2.75 than pharmacists with B Pham/M Pham (13) with score of 4.62 ± 2.36 . Community pharmacists with B Parma/M Parma (13) had a better behavioral scores 5.08 ± 2.66 than pharmacists with D Pharmacy (115) with score of 3.98 ± 2.09 (Table 7).

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Table 8: Association of education with knowledge and behavior assessment

	Number of respondents	Knowledge assessment	Behavior assessment
D Parma	115	4.68 ± 2.75	3.98 ± 2.09
B Parma/M Parma	13	4.62 ± 2.36	5.08 ± 2.66
Total	128	4.67 ± 2.71	4.09 ± 2.17
Significance	-	$t=0.077$; $P=0.937$	$t=1.735$; $P=0.085+$

Assessment of Knowledge and Behavior with years of experience:

Four respondents with experience of more than 20 years (4) had knowledge score of 4.00 ± 1.63 and pharmacists with experience of 2-5 years (36) had maximum knowledge score of 5.50 ± 2.64 . Behavioral assessment score is more in respondents (43) 4.47 ± 2.22 with 5-10 years of experience, and less in the respondents with the experience of 10-20 years (28) 3.71 ± 2.29 (Table 9).

Table 9: Association of years of experience with knowledge and behavior assessment

Years of experience	Number of respondents	Knowledge assessment	Behavior assessment
<2.0	17	5.41 ± 3.79	3.76 ± 2.11
2.0-5.0	36	5.50 ± 2.64	4.11 ± 2.08
6.0-10.0	43	4.19 ± 2.90	4.47 ± 2.22
11.0-20.0	28	4.00 ± 2.49	3.71 ± 2.29
>20.0	4	4.00 ± 1.63	4.00 ± 2.31
Total	128	4.67 ± 2.71	4.09 ± 2.17
Significance		$F=2.067$; $P=0.089+$	$t=0.621$; $P=0.649$

DISCUSSION

The survey questionnaire was designed and prepared by referring previous studies conducted in abroad.^{4,7} According to our knowledge, this is the first survey in Karnataka state to evaluate knowledge, attitude and behaviors of community pharmacists towards ADR related aspects. However, the main limitation of the study was the poor response rate from community pharmacists and the response rate was found to be 37.4%. The low participation rate in the study and failure to answer some questions (especially for the definition of pharmacovigilance and ADR) may be due to poor knowledge of the term 'pharmacovigilance'. The ADR reporting rate was found to be nil in our study. Especially, none have reported to regional reporting centers but there was a high reporting rate to the medical representatives and physicians which may be indicative of an even lower level of pharmacovigilance awareness among the study population. Our study showed that age, gender or experience does not influence ADR reporting and found to have similar results with a previous study from Istanbul.⁴ It was previously shown that knowledge and attitudes exerted a strong influence on ADR reporting.⁵ By interpreting the present study, we believe that the low rate of ADR reporting may be secondary to poor knowledge about ADR related aspects. The comparison between the socio demographic details of the respondents showed that the pharmacists within the age group of 21-30 years and with least experience had more knowledge about ADRs and pharmacovigilance compared to elder respondents with age group of 51-60 years and experience with more than 20 years. On the other hand, the parameters like gender, qualification did not have any significant difference in the knowledge of the respondents. However, attitudes are potentially modifiable variables. Hence, Granas et al⁶ has shown that an educational program can significantly modify pharmacist reporting-related attitudes and influence the ADR reporting behavior into a positive manner.

In the study conducted by Toklu HZ in Istanbul reported that the reasons for not reporting the ADRs were lack of time, different care priorities, uncertainty about the drug causing ADR, difficulty in accessing forms, lack of awareness of requirements for reporting and lack of understanding the purpose of spontaneous reporting systems.⁴ In our study, the explanation for not reporting ADRs by the pharmacists was similar to the above mentioned reasons. Large number (92) of respondents detailed that they 'did not know how to report ADRs' and second reason was that they 'did not feel ADR reporting was beneficial' and the other common reasons were 'did not know how to get reporting forms', 'did not know pharmacists can report', 'did not know ADRs need to be reported' and 'lack of time'.

In the developing countries, since the pharmacists are free healthcare consultants and they are easily accessed, patients always prefer to contact pharmacists in case of any drug suspected reaction. Therefore, pharmacists need to be actively involved in the surveillance of drug safety issues within the context of their practices. The pharmacist's role in pharmacovigilance may vary from country to country, but the professional responsibility is the same.

CONCLUSION

The results of the present study showed that the majority of the community pharmacists have insufficient knowledge about ADRs and pharmacovigilance program. Since there is a need of pharmacovigilance in the community pharmacy, under and postgraduate educational programs about ADR reporting and pharmacovigilance practice need to be included in the curriculum to improve ADR reporting.

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