

Original Article

KNOWLEDGE, ATTITUDE AND BEHAVIOR OF COMMUNITY PHARMACISTS TOWARDS ADVERSE DRUG REACTIONS

CH. SINDHUJA*¹, SK. SHAFIYA BEGUM², P. SURYATEJA³, P. SUDHA⁴

^{1,4}Pharm. D Student, ²Faculty, Department of Pharmacy Practice, Chalapathi Institute of Pharmaceutical Sciences, Lam, Guntur 522034, Andhra Pradesh, India, ³Pharm. D student, AU Institute of Pharmaceutical Sciences, Vizag
Email: sindhujamenon19@gmail.com

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ABSTRACT

Objective: The objective of this study was to assess the knowledge, attitude and behavior of community pharmacists towards Adverse Drug Reactions (ADRs).

Methods: A questionnaire based survey was held for a period of one month among community pharmacists in the Amalapuram Mandal of East Godavari District, Andhra Pradesh. Questionnaire containing the demographic details, knowledge, attitude and behavior towards ADRs was used to conduct the study. The collected data were analyzed using statistical tool (SAS).

Results: Out of the 50 community pharmacists Nine (18%) had respondents knowledge about ADRs and Nine (18%) respondents are from the Pharmacy education background. Among the fifty respondents, Four (8%) participants knew about the National Pharmacovigilance Program (NPP) and three (6%) were aware of regional reporting centers.

Conclusion: Our study concluded that the majority of the pharmacists were unaware of Adverse Drug Reactions and the National Pharmacovigilance Program. The survey has shown that community pharmacists in Amalapuram are having least knowledge towards the ADRs.

Keywords: Community Pharmacists, Questionnaire, ADR reporting, Awareness.

INTRODUCTION

Community pharmacists are one of the majority people who will be directly in contact with the patients, being lack of knowledge is one of the reason for the poor prognosis of Pharmacovigilance (PV). Pharmacovigilance, is the science and activities relating to the detection, assessment, understanding and prevention of adverse effects or any other possible drug-related problems [1]. An adverse drug reaction as an appreciably harmful or unpleasant reaction, resulting from an intervention related to the use of a medicinal product, which predicts hazard from future administration and warrants prevention or specific treatment, or alteration of the dosage regimen, or withdrawal of the product [2]. Adverse drug reaction reporting system is an area of drug information that has been given little attention yet. It is possible that drugs produce unanticipated effects [3], therefore death due to drugs is unacceptable. Pharmacists can help in the minimization of these effects by reporting ADRs, because of their close proximity with the patients. Adverse Drug Reactions (ADRs) are one of the barriers making the modern medicine to take a step backward compared with other medical practices. Though active programs such as Pharmacovigilance are implemented, but they are still in infancy due to lack of awareness. Spontaneous reporting of ADRs by the community pharmacists will add a lot to the National Pharmacovigilance Program. In addition to the poor knowledge on drug use and lack of patient counseling and knowledge on reporting ADRs are also the reasons for under reporting of ADRs from the patient's perspective. Pharmacists should play a key role in reporting these ADRs and should create awareness about Pharmacovigilance. Pharmacists as drug experts are ought to have knowledge regarding the safety-related aspects of the drugs and in reporting the ADRs to health authorities. An active Pharmacovigilance network can be established when there is more awareness and knowledge of the health care professionals [4]. In order to improve the ADR reporting, there is a direct need of knowing the reasons for under reporting. This survey was conducted in order to assess the knowledge and attitudes towards ADRs reporting and to assess behavior and knowledge on ADRs-related aspects and drug safety aspects by community pharmacists.

MATERIALS AND METHODS

This study is a questionnaire based survey conducted for a period of One month among community pharmacists in the Amalapuram Mandal of East Godavari District, Andhra Pradesh. A pilot study has been conducted with 10 questionnaires and was validated by the language experts. The questionnaire contains the demographic details of the participants and it was designed and prepared by referring previous studies conducted in abroad countries [5]. The collected data were analyzed using the statistical tool (SAS). A self administered questionnaire was used which consisted questions regarding the attitude, knowledge and behavior of community pharmacists on Adverse Drug reactions. Prior permission was taken from the Amalapuram Drug Trades Association to conduct this study.

RESULTS

Among the 50 community pharmacists Forty seven (94%) were males and Three (6%) were females. The majority of the community pharmacists i.e., Nineteen (38%) were in the age group of 31-40 years and only one (2%) pharmacist was above the age of 60 years. The mean age of the respondents was found to be 41.08±10.38. The results showed that out of 50 pharmacists, Forty-one (82%) practicing pharmacists is belonging to Non-pharmacy educational background, six (12%) pharmacists are diploma graduates and only three (6%) pharmacists are graduates in pharmacy. The mean years of experience of Pharmacist was found to be 16.58±9.19. Twenty pharmacists (40%) had experience between 11-20years and five (10%) had an experience above 30 years (table 1).

Knowledge

Among the total respondents (n=50), Nine (18%) were able to answer correctly for the definition of ADRs, and twenty one (44%) knew about the probability and preventability of ADRs. Few of the respondents i. e, seventeen (34%) were aware of the most common ADRs that occurs due to NSAIDS, and thirty four (68%) respondents knew about the metallic taste due to Metronidazole. Around seventeen (34%) pharmacists knew about the common ADR of Anti tubercular drugs. Majorly 38(76%) respondents knew that alopecia is the major ADR of Anti-cancer agents and 36(72%) were aware

that an allergic reaction is a common side effect of Penicillin. About 19(38%) were aware that dry cough is a common side effect of

Losartan, and Oral fungal infection is commonly seen with Inhaled Corticosteroids (table 2).

Table 1: Demographic details of community pharmacists

Variable	Number of respondents (n=50)	Percentage (%)
Gender		
Male	47	94
Female	03	6
Age (in years)		
21-30	9	18
31-40	19	38
41-50	13	26
51-60	8	16
>60	1	2
mean±SD	41.08±10.38	
Experience		
<5 years	5	10
5-10 years	12	24
11-20years	20	40
21-30years	8	16
More than 31 years	5	10
mean±SD	16.58±9.19	
Qualification		
Others	41	82
B. Pharm	3	6
D. Pharm	6	12

Table 2: Comparison of knowledge towards ADRs

Knowledge questions	Number of correct response given by respondents (n=50)	Percentage (%)
What is an Adverse drug reaction?	9	18
A statement regarding ADR?	22	44
Most common ADR with anti tubercular drugs?	17	34
ADRs when used NSAIDs for a long time	17	34
A common side effect when administering inhaled corticosteroids?	19	38
Dry cough is a common side effect of which drug?	19	38
Metallic taste is most commonly observed with which drug?	34	68
Alopecia is observed with the use of which among the following drugs	38	76
The allergic reaction is observed with the use of which among the following drugs	36	72

Behavior

Almost all the respondents (n=50) had observed ADRs in their practice, but none of them have reported to any of the regional reporting centers. It is very sad that not even a single respondent is aware of the regional reporting center. Only 11 (22%) pharmacists had reported ADRs that have observed in their practice. Out of them

two members reported to drug representative, eight members reported to the treating Physician, and one pharmacist had reported to the Drug Inspector. About Forty one (82%) respondents advised the patients regarding the side effects of their drugs. The number of respondents who counseled the patients regarding the measures to be taken or whom to be consulted when a side effect develops were forty two (84%).

Table 3: Assessment of behavior of community pharmacists towards ADRs

Behavior assessment questions	Number of respondents gave positive responses (n=50)	Percentage (%)
Have you reported any ADR that you have observed in a patient during your practice?	11	22
When you dispense drugs to the patients, do you advise them regarding the side effects of the drugs?	41	82
Do you tell the patient what to do in case if he or she develops a side effect?	42	84

Attitude

Among the respondents (n=50), 11 people felt that pharmacist is a qualified person to report ADRs and 39 respondents felt that doctors could only report ADRs. Out of the 50 respondents only four (8%) participants knew about the National Pharmacovigilance Program (NPP) and three (6%) were aware of regional reporting centers. Among the respondents, 24 participants agreed that the factors that would encourage them to report an ADR was if it is serious, rare and developed for a new product. When the respondents were asked to

express their level of agreement to some of ADRs-related concerns, the results were obtained as shown in the below table 4.

Forty three respondents agreed that ADR reporting is a professional obligation of Pharmacist, and 47 responded that pharmacist should consult the physician before reporting an ADR, which is not obligatory according to NPP of India. Among the respondents, Forty seven agreed that ADR reporting should be made compulsory and voluntary. In addition, 48 respondents agreed that systemic monitoring and reporting of ADRs are important.

Table 4: Comparison of attitude of community pharmacists towards ADRs

Attitude assessment questions	Not sure	Strongly disagree	Agree	Strongly agree	Disagree
ADR reporting is a professional obligation of a pharmacist	5(10%)	2(4%)	22(44%)	21(42%)	-----
Systemic monitoring and reporting is important	2(4%)	-----	25(50%)	23(46%)	-----
ADR reporting should be made compulsory	2(4%)	1(2%)	25(50%)	22(44%)	-----
The pharmacist should consult physician before reporting	3(6%)	-----	26(52%)	2(4%)	-----

Table 5: Correlation between age, Knowledge and behavior of community pharmacists towards ADRs

Age in years	Number of respondents	Knowledge assessment	Behavior assessment
21-30	9	3.55±1.23	3.64±0.32
31-40	19	4.05±1.26	3.66±0.55
41-50	13	4.53±0.96	3.36±1.03
51-60	8	4.87±1.88	3.77±0.34
61-70	1	4.00±0.00	3.40±0.00
Total	50	4.20±1.06	3.56±0.44
Significance		F=1.01 P=0.44	F=1.15 P=0.35

Assessment of knowledge and behavior with age

Knowledge association is found to be more in the age group 31-40 i.e., 4.05±1.26, and it was found to be least in the age group of 61-70 with a mean score of 4.00±0.00. Community Pharmacists with age group of 51-60 years had a more positive behavior with a score of 3.77±0.34 and least in 41-50 years of age group with a mean score of 3.36±1.03 (table 5)

Assessment of knowledge and behavior with gender

Association of Knowledge in males is 3.61±0.64 more than females 3.33±1.03 and behavior scores in females are 4.00±0.00, which are less than males i. e, 4.23±1.37.

The Knowledge association with gender is suggestively significant P=0.48, and the behavior is moderately significant P=0.77(table 6).

Table 6: Correlation between gender, Knowledge and behavior of community pharmacists towards ADRs

Gender	Number of respondents	Knowledge assessment	Behavior assessment
Male	47	3.61±0.64	4.23±1.37
Female	3	3.33±1.03	4.00±0.00
Total	50	3.47±0.83	4.11±0.68
Significance		t=0.71 p=0.48	t=0.29 p=0.77

Table 7: Association of education with knowledge and behavior assessment

Education	Number of respondents	Knowledge assessment	Behavior assessment
D. Pharm	6	3.70±0.49	4.33±1.97
B. Pharm	3	4.07±0.90	4.67±0.58
Others	41	3.55±0.66	4.17±1.28
Total	50	3.77±0.68	4.39±1.27

Table 8: Association of years of experience with knowledge and behavior assessment

Experience (years)	Number of respondents	Knowledge assessment	Behavior assessment
Less than 5	5	3.80±0.83	3.48±0.44
5-10	12	3.75±1.65	3.60±0.38
11-20	20	4.35±0.98	3.69±0.88
21-30	8	4.37±1.06	3.65±0.48
More than 30 years	5	5.00±2.23	3.24±0.61
Total	50	4.25±1.35	3.53±0.55

Table 9: Barriers for reporting ADRs

Barriers	Number of respondents
Did not know how ADRs need to be reported	47
Did not know pharmacists can report	40
Did not know how to report	48
Did not know how to get the ADR reporting forms	46
Lack of time to involve in such activities	00
Did not feel that ADR reporting would benefit	43
Because it is an extra work	03
I don't have any benefit by reporting the same	41

Association of knowledge and behavior with education

Community Pharmacists with undergraduate (B. Pharmacy) Degree level of Education had a good knowledge score of 4.07 ± 0.90 and good behavior score of 4.67 ± 0.58 than pharmacists with Diploma in Pharmacy and other qualifications (table 7).

Assessment of knowledge and behavior with years of experience

Five Respondents with experience of more than 31(5) years had a knowledge score of 5.00 ± 2.33 and pharmacists with experience of 5-10 years were with the least knowledge score of 3.75 ± 1.65 . Behavioral assessment score is more in respondents with 11-20 years of experience with a mean score of 3.69 ± 0.88 and less in respondents with experience of more than 31 years i.e., 3.24 ± 0.61 (table 8)

DISCUSSION

A self administered questionnaire was given to the respondents to assess their knowledge, attitude and behavior towards ADRs. However, the main finding of the study was poor knowledge of the pharmacists towards ADRs. In our study, we observed that few respondents from other educational backgrounds were even afraid of answering the questionnaire due to inadequate knowledge. Majority of the pharmacist's i. e 43(86%) respondents accepted that ADR reporting is a professional obligation of Pharmacist. A study done in Iran on pharmacist's knowledge, perception, practice and reasons for not reporting ADR showed that 29% of the respondents were not aware of Iran Pharmacovigilance center. More than 50% of those respondents felt it was a professional obligation and only 17% of the respondents seemed to be aware of the reporting of suspected reaction to any drug on the market [6]. Out of 50 respondents, eleven respondents had reported ADRs during their practice of which majority were reported to the treating physician. The study showed that the major barrier for not reporting the ADRs was not knowing how to report an ADR by 48(96%) respondents, and the second most reason is that they did not know how to get the ADR reporting form 46(94%), and the other common reasons were did not know that ADRs can be reported by Pharmacist, lack of time to involve in such activities, did not feel that ADR reporting would benefit, I don't have any benefit by reporting the same. As there is inadequate knowledge on ADRs, few of the respondents conveyed that now-a-days there is no need of pharmacy personnel in pharmacies since there is no compounding and dose calculation. Recently, the role of the pharmacist has expanded to other aspects of patient care. These roles include reporting ADRs, improving patient's health, and economic outcomes [7]. However, we feel that there is a direct need of a pharmacist in order to minimize and provide awareness regarding ADRs, and in providing patient counseling. Inclusion of how to report an ADR and causality assessment in the curriculum of pharmacy courses would benefit a lot. Our study has shown that age, gender or experience does not influence ADR reporting and found to have similar results from Sandeep et. al. study [8] conducted in Karnataka in 2012. Hence in developing countries like India, Laws should be made stringent so that Pharmacy background (D. Pharm, B. Pharm **etc**) people are the only eligible persons for dispensing the medicines in community pharmacies. It is very sad that still community pharmacists (established) and clinical pharmacists (recently establishing) are not recognized even though striving a lot in minimizing the ADRs. In the study conducted by Toklu HZ et. al [9] in Istanbul reported that the reasons for not reporting the ADRs were lack of time, different care priorities, uncertainty about the drug causing the ADR, difficulty in accessing forms, Lack of awareness of requirements for reporting and lack of understanding the purpose of spontaneous reporting systems. Our study strongly supports the Granas et. al [10] study that have shown that an educational program can significantly modify pharmacist reporting related attitudes and influence the ADR reporting behavior into a positive manner.

On the other side, one study in British on attitudes of UK hospital pharmacists towards their understanding and attitude about ADR reporting showed that 86.1% respondents replied that ADR was a professional obligation for pharmacists and of those, 49.8% felt that ADRs reporting should be compulsory, with 43.0% stating it should be voluntarily [11].

Our study shows that One of the main reasons for under reporting of ADR was that the respondents did not know how to report and whom to report and found to have similar results with Sathvik et. al study [12]. Creating awareness among the general public is also important as they are limiting the services of a pharmacist as dispensing the drugs only. But, now a new era has arose where the pharmacist is playing a key role in monitoring ADRs, providing patient counseling, for better patient outcomes.

CONCLUSION

It was found that many of the community pharmacists who are in practice belong to non pharmacy educational background. Most of them were not aware of the regional reporting centers due to lack of knowledge. Hence it should be made a point to conduct a continuous education programs to upgrade the knowledge of community pharmacists regarding ADRs. Community pharmacists should take an initiative to educate the patients regarding the drugs and their usage manner for better patient care and decrease the incidence of ADRs. The government should also make the laws more stringent keeping the health of public in mind. Physician, Pharmacist and the Patient should also take the responsibility of reporting the ADRs.

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CONFLICT OF INTERESTS

Declared None

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