

ASSESSMENT OF KNOWLEDGE, ATTITUDE AND BEHAVIOR ON ADVERSE DRUG REACTIONS BETWEEN COMMUNITY AND HOSPITAL PHARMACISTS: A QUESTIONNAIRE-BASED STUDY

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ABSTRACT

Adverse drug reactions (ADRs) are a significant drug-related cause of disease and death. Pharmacovigilance (PV) plays a key role in the management of ADRs. To assess the pharmacist's knowledge, attitudes and behavior of ADRs among community and hospital pharmacists in Gujarat, a validated questionnaire was developed and used to assess the understanding, attitudes and behavior of community and hospital pharmacists. 166 community pharmacists and 37 hospital pharmacists agreed to complete the ADR questionnaire. According to the study, the response of male pharmacists was higher than that of female pharmacists. In response to knowledge and practice, only the proportion of community pharmacists reporting ADR was 25 %, far lower than hospital pharmacists, who reported 65 %. Factors that encouraged the pharmacist to report ADR were the incredibly potent drug reactions, responses to the new product, and also well-recognized drug reactions documented in this study. In this study, 35 (94 %) hospital and 118 (75 %) community pharmacists guided and advised patients on their side-effects; while 25 (68 %) hospital and 115 (70 %) community pharmacists advised patients on what to do if they developed side-effects. The results of this study suggest that community pharmacists and hospital pharmacists in Gujarat need to improve their knowledge of the ADR. Pharmacists, on the other hand, should be participating in ADR awareness-raising events and refresher courses.

Keywords: Adverse Drug Reaction, Knowledge, Attitude, Behaviour, Hospital and Community Pharmacist

INTRODUCTION

Adverse Drug Reactions (ADRs) are considered to be a significant cause of death in developing and developed countries. ADR may occur after a single dose or prolonged administration of a drug, or may result from a combination of two or more drugs. WHO has defined (ADR) as a response which is noxious and unintended, and which occurs at doses normally used in humans for the prophylaxis, diagnosis, or therapy of disease, or for the modification of physiological function. Pharmacovigilance has defined step with the World Health Organization (WHO) as "A science and activity for the detection, assessment,

understanding, and prevention of adverse effects or other possible drug-related problems". Pharmacovigilance (PV) plays a key role in controlling adverse drug reactions (ADRs), which is why research expansion and growth are safe and effective in clinical regulation and practices⁴. The thalidomide tragedy is a landmark for the roots and development of pharmacovigilance¹.

All facets of the health care system that participate in the reporting process, such as public and private, were included. Hospitals, general practitioners, nurses, specialized clinics, hospitals, and pharmacists were included. Where medicines are used, one should be prepared to detect and report possible adverse reactions or events^{2,3}. Awareness and actions of ADR group and hospital pharmacists assess their significance in healthcare

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settings. The community and hospital pharmacists are the leading health care providers for the delivery of medicines and provide advice on the safe and effective use of medicines. The National Pharmacovigilance Program (PV) was set up in January 2005 to be monitored by the National Advisory Committee on Supervision of the Central Drug Standard Control Organization (CDSCO). The involvement of India in the WHO ADR monitoring programme in Uppsala, Sweden is not adequate for PV activities, and the Indian Government has launched the Indian Pharmacovigilance Program (PvPI). PvPI, All India Institute of Medical Sciences (AIIMS) of New Delhi, has been chosen as the National Coordination Center to protect public health by validating its standard^{5,6}. Both primary health care centres and community health centres are submitting their ADR reports to regional centres.

AIM

The aim of this study was to assess the community and hospital pharmacists' knowledge, attitudes, and behavior about ADRs in the Gujarat state.

METHODOLOGY

Study design

This study was a prospective questionnaire-based survey conducted over three months in different pharmacies in Gujarat, India.

Questionnaire for research

The validated questionnaire was modified and a total of 18 questions related to the knowledge, attitudes and behaviour of the community pharmacist and hospital pharmacist of Gujarat state were assessed⁷.

Study procedure

A observational questionnaire-based research had been planned in a number of fields to assess ADRs and pharmacovigilance between hospital and community pharmacists.

The validated questionnaire was used with permission, questions concerning the knowledge, behaviour and attitudes with demographic details were included.

The validated questionnaire was given to the hospital and the community pharmacist by taking their written consent.

Ethical consideration is not required as this is an observational study and no patient intervention or interview was linked.

Data analysis and statistics

Most of the items in the questionnaire have a three-point scale that agrees, disagrees and is not sure. All parameters were evaluated and compared, including the pharmacist category, the number of responses, the different areas of Gujarat, India, the different age groups of pharmacists, community pharmacists and hospital pharmacists, and their common understanding of ADR. The statistical methods used to measure the results were pivot table, graphic display, filtering and sorting, mean, percentage; when evaluating the substantial difference in information, attitude and actions between the population and hospital pharmacists, questions was given 0 and 1 code and the p-value and confidence interval t-test was applied.

Consent for study

All the hospital and community pharmacists had given written and verbal consent for this study.

RESULTS AND DISCUSSION

Out of 203 respondents, 24 male and 13 female hospital pharmacists and 144 (86.74 %) male and 22 (13.25 %) female neighborhood pharmacists participated in this research. The proportions of male pharmacist responses are higher compared to females. Most hospital pharmacists were between 30 and 40 years of age (46 %) followed by over 50 years of age (35.13 %), while the age range of neighborhood pharmacists was > 40 years (51.20 %), followed by 30-40 years (33.12 %) and 20-30 years (15.66 %). Out of 128 community pharmacists, 83.6 % were male and 16.4 % were female, a survey conducted by BJMK *et al.* in 2012, which strongly confirms the findings of the research⁹. In the same survey, the majority of community pharmacists, 69 (53.9%), were 21-30 years of age, and only 3 (2.3%) pharmacists were 51-60 years of age; these findings varied from the current research. In another research performed by Suyagh M, 2015, it was shown that the average age of the pharmacist was approximately 32 years, and the average year of experience was 7.83 years⁸, which confirms much of the hospital's study findings, and the group pharmacist has a higher experience of > 11 years (59.60%) (Table I).

Assessment of knowledge among pharmacists

Among the studied respondents (203) there were only 67% of community pharmacists and 91% of hospital pharmacists who had an understanding of ADR, which indicated that there was no correlation between pharmacists' knowledge of ADR related to their experience. Most of the community pharmacists (72%)

Table I: Experience in years for hospital and community pharmacists

Experience in years			
Pharmacist	> 11 years	6-10 years	1-5 years
Hospital pharmacist	23	8	6
Community pharmacist	98	47	21
Total	121 (59.60%)	55 (27 %)	27 (13.30%)

never attended the PV / ADR workshop, and half of the hospital pharmacists attended the PV / ADR training session (49%) ($p < 0.05$). A research conducted by Suyagh M et al. in 2015 found that only 8.2% attended a workshop on how to monitor ADRs that support our findings⁸. There have been very wide non-significant differences in knowledge for ADR reporting and pharmacovigilance and the legal necessity for a drug act between the community pharmacist and the hospital pharmacist ($p > 0.05$) although most pharmacists had more than 11

years of experience. The hospital pharmacist was stronger in terms of expertise because of his interaction with healthcare practitioners and nurses who are particularly involved in the detection and control of ADR, but did not vary significantly from community pharmacist ($p > 0.05$). The research performed by Suyagh M et al found that hospital pharmacists were more aware of the principle of pharmacovigilance compared to community pharmacists ($p < 0.05$), which confirms the findings of the report⁸. There is no substantial difference between the two classes in the concept of ADR, which does not help current practice. In the study by BJ MK *et al.*, it was noted that only 39 (30.5%) of the respondents were able to respond correctly to the concept of ADRs, and 37 (28.9 %) were aware of the probability and preventability of ADRs⁹, that supports our study results (Table II).

Assessment of behavior among pharmacists

According to the data, the majority of pharmacists who record ADR have already practised their therapy and recommended patients if they develop side effects. Although the proportion of community pharmacists reporting ADR is only 25 %, at the same time the numbers were quite good for hospital pharmacists to report ADR (65 %). The explanation for this is the irregularity of the

Table II: Analysis of pharmacist knowledge about ADR and PV

Questions asked	N(%)hospital pharmacist		N(%)community pharmacist		P value	confidence interval
	Yes	No	Yes	No		
Do you have any idea about pharmacovigilance / Adverse Drug Reaction (ADR)?	34(91%)	3(8%)	112(67%)	54(31%)	0.0027	0.09 to 0.40
Have you ever attended any educational programme on pharmacovigilance/ ADR?	18(49%)	19(51%)	45(28%)	121(72%)	0.01	0.05 to 0.38
Do you have any idea about pharmacovigilance Centre in your city if any?	16(44%)	21(56%)	37(22%)	129(78%)	0.0085	0.05 to 0.37
In your city, is there any legal provision for the Drug act that give information for PV/ADR activities?	12(33%)	25(67%)	39(24%)	127(76%)	0.2592	0.07 to 0.25
Is there an official standardized form for the reporting of ADRs and do you have idea from where can you find the same?	11(30%)	26(70%)	34(20%)	132(80%)	0.0531	0.00 to 0.43

*Confidence interval- 95%; *Criterion- P value <0.05 - significant differences

Table III: Assessment of pharmacist practice and behaviour about ADR and PV

Questions asked	N(%)hospital pharmacist	N(%)community pharmacist	P value	Confidence interval
1. How frequently do the patients report to you ADRs of medications?				
More than one time in a week	13(35%)	59(35%)	0.2727	0.22 to 0.76
Once a month	3 (8%)	00(00%)		
A few times a year	11 (29%)	79(47%)		
Never	10(27%)	28(16%)		
2. Have you ever reported any ADR?				
Yes	24(65%)	40(25%)	0.0001	0.25 to 0.57
No	13 (35%)	126(75%)		
3. During dispensing of drug, do you advice patients about their side effects?				
Yes	35(94%)	118(75%)	0.0026	0.08 to 0.39
No	2(6%)	48(28%)		
4. Do you counsel the patient what to do, if he/she develops a side effect?				
Yes	25(68%)	115(70%)	0.8399	0.18 to -0.15
No	12(32%)	51(30%)		
5. Do you have idea about ADRs reporting centre?				
PVPI(correct answer)	16(44%)	53(31%)	0.1759	0.16 to -0.87
FDA	7	38		
Indian Pharmaceutical Association	4	25		
Pharmaceutical company	3	20		
Prescriber	7	30		

*Confidence interval - 95%; *criterion- P value <0.05 - significant differences

patients with regard to the barriers to manage their adverse reactions for community pharmacists. Pharmacists therefore need to be more active in their role in analysing and deciding the safety of patients' medicines. Suyagh M *et al.*, found that patients reported ADR to a pharmacist in Jordan for more than 26.5% per week, followed by 27.9 % per month and 36.8 % per year, which was supported by our study results. In another study, 35.9 % of community pharmacists reported ADRs that they had seen either drug representatives or treatment physicians to support our patterns of outcomes⁹. In this study, 35 (94 %) hospital and 118 (75 %) community pharmacists guided and advised patients on their side-effects; while 25 (68 %) hospital and 115 (70 %) community pharmacists advised patients on what to do if they develop side-effects; BJ MK *et al.* also noted that 93.8 % of respondents advised patients to stop

or report on the drug⁹. A study was reported from Malaysia where a positive response rate (PRR) was used to assess attitudes towards a patient safety culture. The teamwork domain scored the highest PRR (80.98 %) followed by the pharmacist patient counselling (78.67 %) (Table III).

Assessment of attitude among pharmacist

When reviewing the data, most group pharmacists were not aware of ADR incidence controls. In addition, half of the community pharmacists were confident that ADR was intended for safe use of medications. On the other hand, the majority of hospital pharmacists see ADR as a safe substance use method. Attitudes may not be fixed factors influencing the reporting of ADRs. In this analysis, the pharmacist's perception of safe drug detection was 28 (75 %) in the hospital and 78 (46 %)

Table IV: Assessment of pharmacist attitude about ADR and pharmacovigilance

1-Pharmacist's perception about importance of ADR				
Question	N(%)Hospital Pharmacist	N(%)Community Pharmacist	P Value	Confidence Interval
1. To enable safe drugs to be identified?	agree	28(75%)	0.0049	0.8 to 0.12
	disagree	4(10%)		
	not sure	5(15%)		
2. To measure the incidence of ADRs?	agree	22(59%)	0.0075	0.61 to 0.10
	disagree	4(10%)		
	not sure	11(30%)		
3. To identify previously unrecognized ADRs.	agree	21(56%)	0.0059	0.61 to 0.10
	disagree	3(8%)		
	not sure	13(35%)		
4. To differentiate and contrast ADRs of same drug from various pharmaceutical companies			0.002	0.65 to 0.15
agree	25(68%)	61(36%)		
disagree	3(8%)	28(16%)		
not sure	9(24%)	77(48%)		
2-Causes that motivate the pharmacists to report ADR				
Question	N (%) Hospital Pharmacist	N (%) Community Pharmacist	P Value	Confidence Interval
1. The reaction is of a tremendously potent.			0.0001	0.33 to 0.53
agree	24(65%)	63(37%)		
disagree	3(8%)	32(20%)		
not sure	10(27%)	71(43%)		
2. The reaction towards a new product			0.0001	0.63 to 0.46
agree	21(57%)	49(30%)		
disagree	1(3%)	26(15%)		
not sure	15(41%)	91(55%)		
3. Well recognized reaction for a particular drug			0.0004	0.64 to 0.19
agree	21(57%)	50(30%)		
disagree	0	25(15%)		
not sure	16(43%)	91(55%)		

in the community pharmacist, which was significantly different ($p < 0.05$); when evaluating the frequency of ADR, the hospital pharmacist agreed to 33% ($p < 0.05$) compared to the community pharmacist. Related factors that prompted the pharmacist to report ADR were the extremely potent drug reactions, reactions to the new product, and well-recognized drug reactions recorded in this analysis. Among these parameters, a very significant difference was observed in the attitude of the hospital and community pharmacists ($p < 0.01$) (Table IV) showed that pharmacists in hospitals were more conscientious in their roles and attitudes towards ADR and PV. The study by Suyagh M et al. identified factors that influenced and encouraged pharmacists to report ADRs was preferred to report serious reactions; most preferred to report rare reactions and reactions that had not been reported before and almost half of Jordan pharmacists were reluctant to report reactions to a new drug as well as known reactions⁹. The research by BJ MK *et al* found that only 13.28% of respondents thought that the pharmacist was a trained health care professional to report ADRs, and 40.62% responded that only physicians should report ADRs⁹.

CONCLUSION

Current results showed that community and hospital pharmacists need to improve their knowledge of the ADR and its system definition and reporting process. In comparison to community pharmacists, the attitude of the hospital pharmacist was more ethical. Many community pharmacists were uncertain about ADR and PV components and their implementations. Community and hospital pharmacists should attend more ADR workshops

and refresher courses to resolve patient queries during counselling.

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