

ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICES OF PHARMA- COVIGILANCE PRESCRIBERS AT LIAQUAT UNIVERSITY HOSPITAL HYDERABAD, PAKISTAN

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ABSTRACT

Spontaneous reporting is an important tool in pharmacovigilance. Underreporting of adverse drug reactions (ADRs) is a common problem. In order to improve the ADR reporting, it is essential to improve the knowledge, attitude and practice (KAP) of the healthcare professionals. Various factors are related with the KAP of under reporting of ADR. Objectives: The present study was undertaken to evaluate the KAP regarding ADR reporting of among the prescribers of a tertiary care teaching hospital with ADR monitoring Liaquat University hospital, Hyderabad to get insight into the causes of underreporting of ADR. It was questionnaire based cross sectional study. A questionnaire (knowledge -1-10, attitude -11-23 and practice -24-28) was administered to 200 prescribers. The questionnaire was assessed regarding the ADR reporting. Microsoft excels worksheet and chi-square test was used for statistical analysis. A total 170(85%) prescribers completed and returned the questionnaire. Regarding definition of pharmacovigilance, specific aim of pharma covigilance, functions of ADR monitoring center (AMC), 93%, 79% and 51.8% participants respectively could answer correctly. Only 54% respondents opined correctly that reporting of ADR is voluntary. 76.5% participants know the existence of AMC in the institution. 27.6% participants expressed that ADR reporting will generate extra work. 22.4% of participants reported ADR. Regarding reasons of under reporting many factors has been pointed out namely "do not know how to report", "lack of knowledge about reporting procedure", "not knowing where to report", lack of time to report and lack of access to ADR form. The medical professionals are aware and have partial knowledge about ADRs. However, under reporting and lack of knowledge about reporting system are clearly evident. There is great need of creating awareness about ADR reporting system. Regular sensitization program to motivate the medical professionals may improve the ADR reporting.

Keywords: Adverse drug reactions (ADR), Knowledge, Attitude and practice, Pharmacovigilance, Spontaneous reporting

INTRODUCTION

No medicinal product is entirely or absolutely safe for all people, in all places at all times. Safety and efficacy are two major concerns about any drug (Kulkarni MD, 2013). Adverse drug reactions (ADRs) are one of the major health care problems occurring throughout the world and encountered commonly in daily practice and many of which are preventable (Khan SA, 2013; Desai CK, 2011).

The World Health Organization (WHO) defines Pharmacovigilance as „the technological know-how and sports associated with detection, assessment, know-how and prevention of damaging

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outcomes or every other viable drug associated problem (Khan SA, 2013; Shankar PR, 2017). It is a fundamental and important a part of affected person care.

ADRs are poor results of drug remedy and one of the main reasons of morbidity and mortality. It has been anticipated that round 2.9-5.6% of all health facility admissions are because of ADRs and as many as 35% of hospitalized sufferers revel in an ADR for the duration of their hospitalization. Spontaneous reporting of ADRs has remained the cornerstone and important reasserts of statistics of pharmacovigilance and is crucial in retaining affected person safety. However, reporting of significant ADRs not often exceeds 10%. Underreporting of ADRs is a not unusual place trouble and nonetheless stays a chief impediment with inside the entire fulfillment of Pharmacovigilance program (Shankar PR, 2016).

Spontaneous reporting of ADRs has performed a first-rate function in detection of unsuspected, serious, and uncommon ADRs formerly undetected all through the scientific trial phases. This has caused the withdrawal of many capsules in latest past (Desai CK, 2011). The fee of underreporting of ADR is ready 94% and best 6-10% of all ADRs are reported. Studies from exceptional settings imply insufficient understanding approximately Pharmacovigilance amongst healthcare specialists in addition to attitudes which can be related to a excessive diploma of under-reporting (Shankar PR, 2017). ADR are related to a sizable morbidity and mortality. The Literature depicts the prevalence of ADR to be 2.4 -6.5% even in western international locations. In order to pick out the offender capsules inflicting ADRs numerous international locations have initiated pharmacovigilance. Although pharmacovigilance applications are a success in enhancing drug use patterns, however under-reporting of ADRs is the foremost problem [8, 9]. Pharmacovigilance remains in its infancy in Pakistan and there exists very restrained understanding approximately this discipline. However, Pharmacovigilance application in Pakistan lacks continuity because of lack of know-how and insufficient schooling to clinical graduates approximately drug protection monitoring (Subish P, 2007).

Pakistan has become a participating member of WHO-ADR tracking application 30 years after its establishment. The sample of drug use and ADRs in Pakistan is pretty specific because of socioeconomic, ethnic, dietary and different factors. The Drug Controller General of Pakistan (DCGI) and Pakistan council of Medical Research (ICMR) have hooked up ADR tracking facilities in lots of hospitals of Pakistan. Gross underreporting of ADR is a reason for a concern, the motives for which can be loss of skilled workforce and recognition approximately detection, verbal exchange and spontaneous tracking of ADRs (Sharma R, 2014).

Various elements have additionally been attributed for under-reporting of ADRs amongst fitness specialists. These elements are primarily based totally on expertise and belief of fitness specialists to reporting. The elements chargeable for underreporting have now no longer been notably studied in Pakistan. Assessment of cognizance of pharmacovigilance most of the healthcare specialists may be very crucial. To advise feasible approaches of enhancing spontaneous reporting the want to analyze the expertise mindset of docs to ADR turned into felt (Rehan HS, 2002). Effective technology of unfavorable outcomes information assist in practicing proof primarily based totally medicinal drug and as a consequence prevents many unfavorable drug reactions (Nagpur S, 2013). For development of the participation of fitness specialists in spontaneous reporting, its miles essential to layout techniques that adjust each the intrinsic (expertise, mindset and practices) and extrinsic (dating among fitness specialists and their patients, the fitness machine and the regulators) elements. A expertise, mindset, and practice (KAP) evaluation can also additionally offer an perception into the intrinsic elements and assist apprehend the motives for under-reporting (Desai CK, 2013). The sample of drug use and ADRs in Pakistan is pretty specific because of socioeconomic, ethnic, dietary and different elements (Kulkarni MD, 2013). Knowledge, mindset and practice (KAP) concerning ADR reporting has now no longer been studied notably in Pakistan (Desai CK, 2011). Assessment of KAP of Pharmacovigilance most of the fitness care specialists may be very crucial. In order to enhance the reporting rate, its miles crucial to enhance the KAP of the fitness care specialists concerning ADR reporting and Pharmacovigilance (Gupta P, 2011). Considering the deep concern over the KAP of Pharmacovigilance prevailing amongst the prescribers of a tertiary care hospital, present study has been conducted to investigate the KAPs of prescribers of a Liaquat University Hospital Hyderabad, Sindh.

Research Objectives

- To assess knowledge, attitude and practice (KAP) of Pharmacovigilance amongst prescribers.
- To find out the reason for not reporting ADRs.

RESEARCH METHODOLOGY

A cross sectional study was carried out to evaluate the KAP amongst the different grades of prescribers of a Liaquat University Hospital Hyderabad, Sindh towards the pharmacovigilance during the assigned study period of two months (August „1- September “30, 2021).

Total 170 prescribers participated in the study which belongs to different categories like Faculty consultants (Professor, Assoc Prof & Asst. Prof.), Medical Officers, Residents and Post graduate students. Simple random sampling techniques was used for primary data collection, size of sample was 170 prescribers (Faculty consultants, Medical Officers, Residents and Post graduate students) from all specialties working in the Medical college Hospital. A KAP questionnaire was used. This questionnaire has been designed using the precedence set by similar studies^{1, - 3, 5, 6, 11, 12}. This questionnaire contains a total of 28 questions. Among the questions 10 (1-10) are related with Knowledge, 13 (11-23) are related with Attitude and 5(24-28) are related with Practice of Pharmacovigilance. All the questions were compulsory and subjects were asked not to disclose their identity. Every subject was given 30 minutes to fill up the questionnaire. Any clarification needed in understanding the questionnaire was provided. Ten Multiple Choice questions (MCQs) Sl. No. 1 to 10 (Annexure-I) were used to assess the knowledge of the prescribers about Pharmacovigilance. The attitude of the prescribers towards pharmacovigilance was measured by the MCQ Sl. No. 11 to 23; Except for Question No. 12, 13 and 23 for rest of the attitude assessing answers were collected mainly on the basis of likert scale. The practice pharmacovigilance by the prescribers, included in study population was measured by the MCQ from Sl. No. 24 to 28. Data obtained during the study period was analyzed statistically. Data entry and analysis was performed in computer using SPSS and MS Excel 2007. Result was expressed as the means and standard deviations, medians and ranges or numbers and percentages and was compared among different subgroups of respondents. Descriptive statistics and other statistical tests like chi-square Test were applied as per applicability.

RESULTS AND DISCUSSION

Demographic details of the health care professionals

Table: 1 Demographic detail of the health care professionals

	Senior Prescriber (N=62)	Junior Prescriber (N=108)
Designations of Prescribers		
Professor	9	-
Associate Professor	14	-
Assistant professor	39	-
Tutor/Registrar	-	12
Medical Officer	-	31
Post Graduate student	-	65
Age of Prescribers:		
20-40 years	7	85
41-60 years	47	23
>60 years	8	0
Experience as prescribers:		
Mean ± S.D (years)	22.79 ± 9.3	7.73± 6.9
Personnel suffering from ADR		
Suffered	11	9
Did not suffer	51	99

In this hospital based cross sectional study, total 170 prescribers of various categories from various departments participated in the study with their due consent. Among the total 170 prescribers 62 (36.4%) were senior prescribers and 108 (63.5%) junior prescribers who belongs to different designations like Professor (n=9; 5.3%), Associate professor (n=14; 8.2%), Assistant professor (n=39;

22.9%), Tutor (n=12; 7.1%), Medical officer (n=31; 18.2%), Post graduate student (n=65; 38.2%). The average period as prescribers for senior prescriber was 22.79 years and for junior prescriber was 7.73 years and majority of the prescribers did not suffer from any ADR (senior prescriber n=51 and junior prescriber n=99).

Assessment of Knowledge about Pharmacovigilance among the prescribers

Table 2: Assessment of Knowledge of ADR (pharmacovigilance)

Senior Prescribers (n=62)		Junior Prescribers (n = 108)		Significance	
Correct	Wrong	Correct	Wrong	P value	
Q No.1	58 (93.5%)	4 (6.4%)	100 (92.59%)	8 (7.4%)	0.628
Q No.2	55 (88.7%)	7 (11.2%)	80 (74.0%)	28 (25.9%)	5.106
Q No.3	30 (48.4%)	32 (51.6%)	58 (53.7%)	50 (46.3%)	0.628
Q No.4	20 (32.3%)	42 (67.7%)	28 (25.9%)	80 (74.0%)	0.779
Q No.5	33 (53.2%)	29 (46.7%)	59 (54.6%)	49 (45.3%)	0.031*
Q No.6	52 (83.9%)	10 (16.1%)	83 (76.8%)	25 (23.1%)	1.187
Q No.7	33 (53.2%)	29 (46.7%)	50 (46.2%)	58 (53.8%)	0.663
Q No.8	25 (40.3%)	37 (59.6%)	57 (52.7%)	51 (47.2%)	2.447
Q No.9	32 (51.6%)	30 (48.3%)	53 (49.0%)	55 (51%)	0.068
Q No.10	51 (82.3%)	11 (17.7%)	79 (73.1%)	29 (29.9%)	1.345

Knowledge about the pharmacovigilance among the participants was assessed by the knowledge questioners and the responses are shown in the Table 2. It shows the comparison of knowledge about the pharmacovigilance between the senior and junior prescribers. From table 2 it is evident that the participants have good knowledge regarding question number 1, 2, 6, 10. And regarding question number 3, 5, 7, 8, 9 the knowledge is poor among half the number of the participants.

Assessment of Knowledge of ADR (pharmacovigilance) among the prescribers

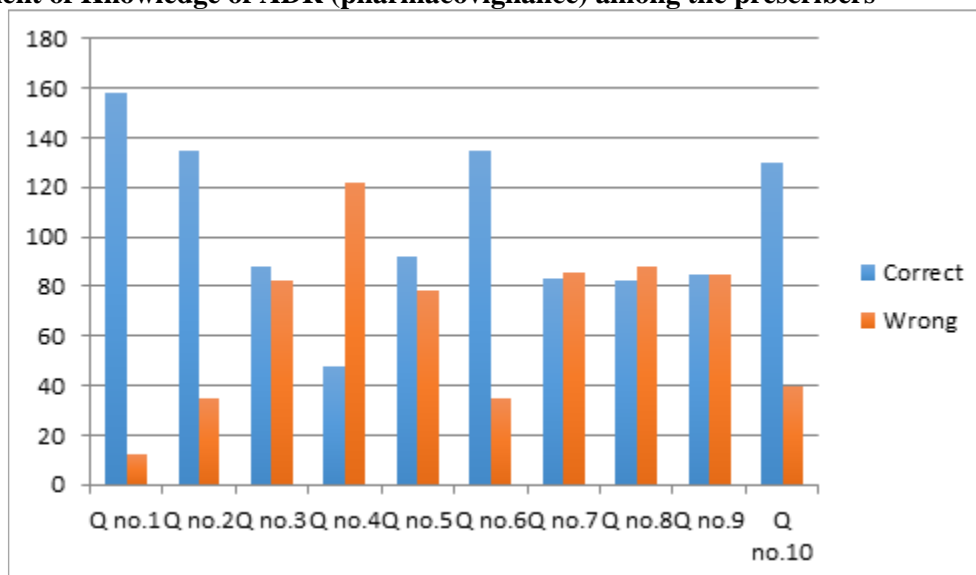


Figure:1 Assessment of Knowledge of ADR (pharmacovigilance) among the prescribers

Assessment of Knowledge of ADR (pharmacovigilance) by categorizing prescribers into senior and junior prescribers

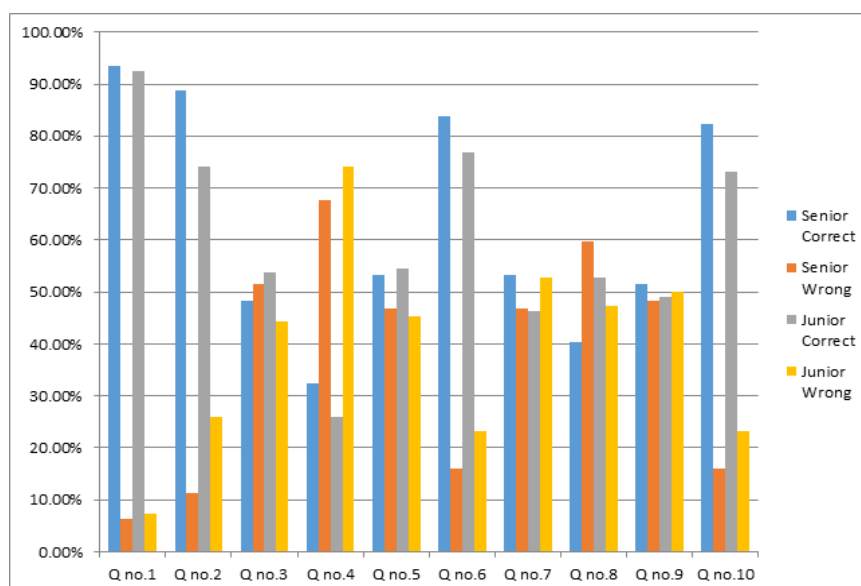


Fig. 2: Assessment of Knowledge of ADR (pharmacovigilance) by categorizing prescribers into senior and junior prescribers in a tertiary care hospital

On categorizing the prescribers into senior and junior prescribers it was found that there was not much significant difference between the knowledge regarding ADR (Pharmacovigilance) among the two categories of prescribers except Question No. 5, where junior set of prescribers were more aware ($P < 0.05$) of the fact that reporting of ADR is voluntary. It was found that both the categories of prescribers are enriched with knowledge about pharmacovigilance as 93.5% of senior doctors and 92.6% of junior doctors have given correct answer for the definition of pharmacovigilance. But the knowledge about reporting procedure of ADR and ability to identify an ADR is comparatively poor in both the category of prescribers.

Assessment of Attitude about Pharmacovigilance

Table 3: Assessment of Attitude about Pharmacovigilance

		Strongly Agree	Agree	Do not know	Disagree	Strongly Disagree
Q.11	Senior prescriber	22 (35.4%)	35 (56.4%)	3 (4.38%)	2 (3.2%)	0 (0%)
	Junior prescriber	47 (43.5%)	52 (48.1%)	1 (0.9%)	7 (6.4%)	1 (0.9%)
Q.14	Senior prescriber	8 (12.9%)	36 (58%)	9 (14.5%)	9 (14.5%)	0 (0%)
	Junior prescriber	12 (11.1%)	62 (57.4%)	16 (14.8%)	16 (14.8%)	2 (1.8%)
Q.15	Senior prescriber	9 (14.5%)	28 (45.1%)	10 (16.1%)	9 (14.5%)	6 (9.6%)
	Junior prescriber	24 (22.2%)	46 (42.5%)	10 (8.3%)	23 (21.2%)	5 (4.6%)
Q.16	Senior prescriber	1 (1.6%)	25 (40.3%)	15 (24.1%)	21 (33.8%)	0 (0%)
	Junior prescriber	8 (7.4%)	36 (33.3%)	42 (38.8%)	21 (19.4%)	1 (0.9%)
Q.17	Senior prescriber	3 (4.36%)	32 (51.6%)	6 (9.6%)	20 (32.2%)	1 (1.6%)
	Junior prescriber	9 (8.3%)	42 (38.8%)	9 (8.3%)	39 (36.1%)	9 (8.3%)
Q.18	Senior prescriber	2 (3.2%)	20 (32.2%)	9 (14.5%)	27 (43.5%)	4 (6.4%)
	Junior prescriber	7 (6.4%)	33 (30.5%)	10 (9.2%)	44 (40.7%)	14 (12.9%)
Q.19	Senior prescriber	2 (32%)	14 (22.5%)	8 (12.9%)	31 (50%)	7 (11.2%)

Q.20	Junior prescriber	2 (1.8%)	21 (19.4%)	17 (15.7%)	45 (41.6%)	23 (21.2%)
	Senior prescriber	3 (4.8%)	1 (1.6%)	2 (3.2%)	40 (64.5%)	16 (25.8%)
Q.21	Junior prescriber	4 (3.7%)	6 (5.5%)	11 (10.1%)	53 (49%)	34 (31.4%)
	Senior prescriber	2 (3.2%)	14 (22.9%)	2 (3.2%)	33 (30.5%)	11 (17.7%)
Q.22	Junior prescriber	4 (3.7%)	27 (25%)	5 (4.6%)	41 (37.9%)	31 (28.7%)
	Senior prescriber	2 (3.2%)	9 (14.5%)	6 (9.6%)	34 (54.8%)	11 (17.7%)
	Junior prescriber	2 (1.8%)	14 (12.9%)	12 (11.1%)	49 (45.3%)	31 (38.7%)

Assessment of attitude regarding ADR reporting (Pharmacovigilance) among the prescribers were assessed by Question No 11 to 23 and except question No 12, 13 and 23 other questions were assessed by five point Likert Scale. Responses in Likert scale are shown in Table 3. Total 156 prescribers; consider that ADR reporting is a professional obligation (Q. 11) Only 9(5.3%) of prescribers disagreeing to this view.

From the response question number 12 it could be seen that 139(81.8%) of prescribers consider reporting of ADR is very important. Only one prescriber consider reporting of ADR is not important. Answers of Question number 13 reveals that prescribers think the factors which are important while reporting an ADR is seriousness of ADR (116; 68.2%) and unusualness of the reaction (34; 20%). Responses of Question no. 23 shows that 99(58.2%) prescribers have free access to ADR reporting forms while 71(41.8%) does not have free access to ADR reporting forms.

It was found that total 118 prescribers support that “concern about wrong reporting” is the cause of poor reporting of ADR. Among them 11.8% of prescribers strongly agree with this viewpoint. Only 25(14.7%) of prescribers disagree with this. 86 (50.6%) Prescribers agree to the fact that lack of time to fill up the ADR form is one if the reason for under reporting of ADR. But 69 (40.6%) prescribers disagree to this opinion. Majority of prescribers 74(43.5%) disagree that ADR reporting generate an extra work and this becomes the cause of under reporting and 24.7% of prescribers strongly disagree to this fact. Yet a 24.1% of prescribers agree to this fact.

Assessment of practice of Pharmacovigilance among the participants

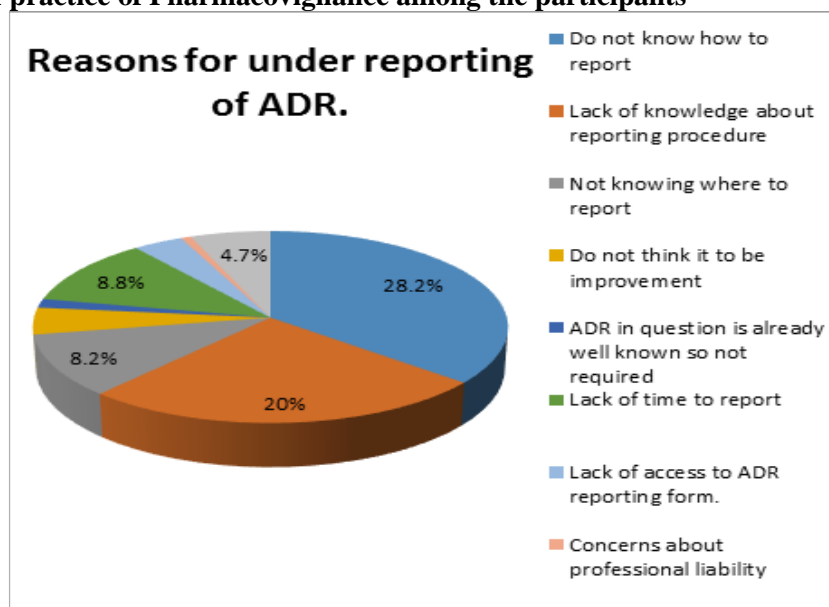


Figure:3 Assessment of practice of Pharmacovigilance among the participants

This study reveals the fact that a huge number of prescribers 132(77.6%) do not report ADR. Only 38(22.4%) of prescribers reported ADR. The reasons of under reporting of ADR by the prescribers has been shown in the Fig 3 and it is evident from Fig. that main reasons for under reporting of ADR were not knowing how to report (28.2%), lack of knowledge about reporting

procedures (20%), Not knowing where to report(8.2%), lack of time to report (8.8%) etc. It was found from this study that majority (82.4%) of participants have read articles about ADR. 148 (87.1%) prescribers haven't undergone any training on ADR reporting (Pharmacovigilance).

DISCUSSION

ADR reporting is an essential a part of pharmacovigilance and is critical for affected person care. Underreporting of ADR is a primary risk to the achievement of pharmacovigilance program (Kulkarni MD, 2013). The last intention of pharmacovigilance is to make certain secure and rational use of medicine. The maximum critical final results of pharmacovigilance are the prevention of sufferers being affected unnecessarily via way of means of the poor effects of pharmacotherapy (Kulkarni MD, 2013; Palaian S, 2011). After widespread literature seeks it changed into glaring that KAP look at approximately Pharmacovigilance is sparse with inside the North Eastern a part of our country. So it changed into felt justifiable to behavior such sort of look at. The cause of this look at changed into particularly to evaluate the knowledge, mind-set and exercise of pharmacovigilance the various prescribers and to discover the cause for beneath Neath reporting if any. It changed into expected that this look at might assist to perceive the reasons of beneath Neath reporting of ADR and thus a right intervention may be deliberate primarily based totally at the effects of such sorts of look at.

It was found in this study that majority of the participated prescribers are well aware of pharmacovigilance but the potential barrier was at practicing the acquired knowledge and this result is comparable with the finding of other studies. On analyzing the responses over the knowledge questionnaire it was found that 158(92.9%) prescribers have given correct answer for the definition of pharmacovigilance (Q. No 1). 135 (79.4%) prescribers correctly identified the specific aim (Q. No.2) of pharmacovigilance and this is similar to the result obtained by Hardeep et al. 2013. This is in contrast to the findings of Desai CK 2011 and Kulkarni MD 2013. But the knowledge about who can report ADR (Q. No 4) was uncertain as 101(59.4%) prescribers answered as only physician, 48(28.2%) as authorized personnel, 14(8.2%) as patient and 1(0.6%) as nursing staff. The awareness that even a nurse, pharmacist can do so is very low. This finding is comparable with the finding of Gupta P & Udupa A, 2011. Only 51 % of the participants could answer correctly the function of National Pharmacovigilance Center. This finding is at par with the finding of Gupta P & Udupa A, 2011 where they found that only 43% aware of ADR monitoring system by National Pharmacovigilance Center.

In this study 92(54.1%) prescribers answered that reporting of ADR is voluntary but there was 58(34.1%) who have thought that reporting is mandatory. This is in contrast to the finding of Gupta P et al. 2011 (Voluntary 86%) and Hardeep et al. 2013 (71% compulsory, 29% voluntary) and Karelia BN & Piparava KG 2014 (71% compulsory, 29% voluntary). It proves that status of knowledge about pharmacovigilance is different in place to place. In contrary to the finding of Desai CK et al. 2011, it was found that 31(18.2%) prescribers consider that only serious ADR is to be reported and it is not as per the guideline of the Pv PI. It becomes necessary to report any untoward reaction of any pharmaceutical product to assess its safety and efficacy to ensure maximum patient health. On assessing whether the participant is able to identify a drug reaction as ADR, brought out poor results, as only 83(48.8%) prescribers could correctly identify drug reaction (question no.7). From this it's clear that prescribers face the problem to identify a drug reaction as ADR. It was also found that 35(20.6%) participants were unaware of the existence of ADR reporting centre in the institution and the observations of this study is comparable the study done by Kulkarni et al. 2013 Palaian S et.al 2011. So necessity of sensitization program for the health professionals on PvPI is felt very much. On analyzing Attitude questionnaires, a positive attitude was obtained from the participants 87(51.2%) prescribers consider ADR reporting as a professional obligation and 69(40.6%) strongly agree to it. 139 (81.8%) prescribers consider it is very important to report ADR. This finding is in accordance with the finding of other studies 98(57.6%) prescribers agree that under reporting is mainly due to the concern that report may be wrong. 20(11.8%) strongly agree to this view point. Only 25(11.7%) prescribers disagree to this viewpoint. This result is in agreement with the finding of the study done by Gupta P & Udupa A, 2011. 74(43.5%) prescribers agree that ADR reporting is the duty of pharmaceutical companies and legal medicine authorities, 33(19.4%)

prescribers strongly agree to this. Only 32(18.8%) disagree to this. 57(33.5%) prescribers are not aware whether ADR reporting causes legal challenges which is at par of the finding of Hanafi S et al 20155. So awareness program for the medical professionals is the need of the hour.

It is important to note that 74(43.5%) prescribers agree with that, physicians do not report ADR due to lack of time to fill in a report and 12(7.1%) prescribers strongly agree to this. It is also found that a significant number 59(34.7%) of prescribers disagree to this. It is also a point of concern that 93(54.7%) prescribers disagree that absence of ADR reporting is due to lack of fee for reporting. These findings are in conformity with the others studies done in different institutions.

On contrary to the finding of Gupta P & Udupa A, 2011, (41%) in this study 41(24.1%) participants believe that physicians do not report ADR due to concern that ADR reporting will generate extra work but 74(43.5%) prescribers disagree to this fact and 42(24.7%) strongly disagree to this.

On assessing the practice questionnaire we got the present real picture of ADR reporting practice in the tertiary care hospital of a Govt. Medical College. It was found that a good percentage of prescribers (132; 77.6%) do not report ADR and the main reasons for under reporting pointed out as lack of knowledge about how to report (28.2%), lack of knowledge about reporting procedure (20%), concern that ADR reporting may generate extra work (17%) lack of time to report ADR (8.8%) and ignorance about reporting place (8.2%). The above observations points out to the lack of knowledge about reporting system as one of the causes of under reporting, similar observations were also reported in other studies (Rehan HS, 2002).

In agreement with the finding of the other studies of other researchers in this study out of 170 participants (prescribers) only 38(14%), report ADR. Among them there is uncertainty regarding ADR reporting center and reporting format and this finding is comparable with the finding of (Desai CK et al 2011).

In this study it was found that 140(82.4%) prescribers have read articles regarding ADR and 87(51.2%) prescribers shared information about ADR which is little higher than the finding of Desai CK et al, 20113, who reported that 38.8% respondents shared information about ADR observed by them with their colleagues.

It was also found from this study that there was lack of training programs for prescribers on ADR as only 22(12.9%) prescribers have undergone training on ADR rest 148(87.1%) did not attend any training on ADR. But 153(90%) participants have shown their interest to undergo a structured training on ADR which is really encouraging for the policy makers. The lack of training programs can be a reason for inability of prescribers to identify ADR. In similar studies conducted by Hema N.G, Bhuvana K.B, and Sangeetha and Khan SA et al 2013 and (Desai CK et al, 2011) also pointed out the need for a training program or educational intervention to bring out an effective ADR reporting system. A KAP observe has sure boundaries and it'd be irrelevant to devise interventions entirely primarily based totally at the findings of this observe alone. This became a single – middle observe concerned restrained wide variety of scientific practitioners; therefore, outcomes of this observe couldn't be immediately extrapolated to different coaching hospitals or institutions. The outcomes of this observe strongly propose that underreporting of ADRs may be because of numerous motives like gaps with inside the information and attitudes. Work enjoy in a scientific university does now no longer have an effect on the information and attitudes of medical doctors towards reporting of ADRs. Perhaps, undergraduate and post-graduate schooling lacks in sensitizing the scientific experts for the obligation of ADR reporting. However this observes offers a perception in to the feasible interventions that would be planted in future.

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