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Original Research Article

IMPACT OF PHARMACOVIGILANCE SENSITISATION PROGRAM ON KNOWLEDGE AND ATTITUDE TOWARDS ADVERSE DRUG REACTION REPORTING AMONG NURSING, PHARMACY AND PARAMEDICAL STUDENTS IN A TERTIARY CARE TEACHING INSTITUTION

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ABSTRACT

Background: Adverse drug reactions (ADRs) are a major cause of preventable morbidity, mortality, and increased healthcare burden worldwide. Despite the existence of pharmacovigilance systems, underreporting of ADRs remains a significant challenge, particularly due to inadequate knowledge and training among healthcare professionals. Sensitisation of healthcare students is crucial to strengthen future pharmacovigilance practices. To evaluate the impact of a pharmacovigilance sensitisation program on knowledge, attitude, and practice related to ADR reporting among healthcare students in a tertiary care teaching institution. **Materials and Methods:** This interventional study employed a single-group pre-test and post-test design and was conducted among 145 undergraduate healthcare students (nursing, paramedical, and pharmacy) at a tertiary care institution in North India. A structured, validated questionnaire assessing knowledge and attitude toward pharmacovigilance was administered before and after a 3-hour sensitisation program. Data were analyzed using descriptive statistics, and pre–post comparisons were performed using appropriate statistical tests, with a p-value <0.05 considered statistically significant. **Result:** The mean age of the participants was 21.69 ± 2.25 years and females represented 53.1% of the study population. Baseline knowledge was moderate with 73.8% defining pharmacovigilance properly and 67.6% indicating healthcare personnel as accountable for the reporting of ADRs. Post intervention, significant improvement in awareness of major pharmacovigilance components namely National Coordination Centre (14.5% to 82.1%), Uppsala Monitoring Centre (22.1% to 69.0%) and CDSCO (62.1% to 87.6%) was noted. At baseline the attitude towards ADR reporting was good and gradually increased with 97.2% vs. 98.6% understanding the requirement of reporting and 76.6% vs. 80.7% considering it as a professional obligation. The knowledge-related barriers to ADR reporting reduced from 37.9% to 19.3%. However, actual practices of ADR reporting were found to have decreased slightly (69.7% to 64.8%) which suggests a gap in knowledge and practice. **Conclusion:** Pharmacovigilance sensitisation programs significantly enhance knowledge and positively influence attitudes toward ADR reporting among healthcare students. However, improvement in knowledge does not necessarily translate into practice, highlighting the need for sustained, practical training and curriculum integration to strengthen ADR reporting behaviour and improve patient safety.

INTRODUCTION

Adverse drug reactions (ADRs) are still a major cause of patient illness, death, and rising healthcare costs around the world, and they can usually be avoided. An adverse drug reaction (ADR) is defined by the World Health Organization as an adverse drug reaction (ADR) that occurs when a medication is given at regular dosages for therapeutic, diagnostic, or preventive purposes.[1]. ADRs are still

underreported in healthcare systems despite improvements in drug safety monitoring, which makes it more difficult to quickly identify possible dangers related to medication

Pharmacovigilance is an essential approach to ensure medicine safety and spontaneous reporting systems are the backbone of this function. These strategies are particularly useful in identifying unusual, delayed or unanticipated side effects that may not be observed during pre-marketing clinical trials.[2]. However, the success of these systems depends on the active participation of healthcare practitioners.

Health care personnel have a key role in the detection, documentation and reporting of ADRs. However, various obstacles to optimum reporting practices exist, including a lack of knowledge of pharmacovigilance systems, a lack of formal training, uncertainty about how to report, and time limits in busy clinical settings.[3]. These problems are a major contributor to the ongoing underreporting and thereby affecting the patient safety and overall efficacy of pharmacovigilance programs.

In the Indian context, the Pharmacovigilance Programme of India has made good success in building the ADR monitoring infrastructure and spreading awareness through initiatives such as National Pharmacovigilance Week. Despite these efforts, studies continue to indicate poor levels of knowledge, attitude and practice addressing pharmacovigilance among healthcare professionals and students.[4,5] This suggests that current teaching policies may not be enough to close the gap between awareness and reporting behaviour.[6].

Although knowledge and attitudes towards pharmacovigilance have been reviewed in earlier studies, there is a lack of data on the influence of systematic sensitisation programmes to improve such parameters among healthcare students as future workforce.[7,8]. Furthermore, there is a lack of research evaluating knowledge and other behavioural variables such as barriers to ADR reporting in a holistic way after educational interventions. Filling these gaps is critical to develop pharmacovigilance practices at the grassroots level.

Therefore, the present study was conducted to evaluate the effect of a pharmacovigilance sensitization programme on knowledge and attitude towards ADR reporting among paramedical, pharmacy and nursing students in a tertiary care teaching institution.

MATERIALS AND METHODS

Study Design and Setting: This interventional study utilized a single-group pre-test and post-test design to assess the impact of a structured pharmacovigilance sensitisation program on the knowledge and attitude of healthcare students toward adverse drug reaction (ADR) reporting. The study was conducted at Uttar Pradesh University of Medical Sciences (UPUMS), Saifai, Etawah, a tertiary care teaching institution in North India.

Study Participants: The study population consisted of undergraduate students in healthcare-related professions, including paramedical, B.Sc. nursing and pharmacy streams. We included students who were willing to participate and provided written informed consent. Only individuals who attended the full sensitisation session and completed both pre-test and post-test questionnaires were included in the study. Students absent for intervention or not completing both evaluations were excluded. A total of 145 participants were included in the final analysis.

Intervention: The intervention consisted of a systematic pharmacovigilance sensitisation session conducted over a period of 3 hours. The training session was led by faculty members in the Department of Pharmacology and comprised didactic lectures and interactive discussions. The session covered definition and scope of pharmacovigilance, burden and importance of ADRs, importance of ADR reporting and role of healthcare professionals in ensuring pharmaceutical safety. Participants were also made aware of the Pharmacovigilance Programme of India with demonstration of CDSCO Suspected ADR Reporting Form and review of ADR reporting tools like Vigiflow. Interactive interaction and clarification of doubts was encouraged throughout the session.

Data collection tool: Data were collected using a standardized, pre-validated questionnaire just before and just after the intervention. The questionnaire was constructed by referring to known knowledge and attitude studies. The questionnaire carried out was adapted from previously validated KAP questionnaires: Meher BR et al,[9] 2015 Gupta SK et al,[10] 2015, Khan SA at al,[11] and guidelines from World Health Organization,[12] and PvPI.[13] It was made up of two domains; knowledge and attitude.

The knowledge domain was composed of multiple choice questions to evaluate the participants' knowledge of the principles of pharmacovigilance, detection of ADRs, notification protocols and awareness of pharmacovigilance systems. The attitude and practice category consisted of dichotomous (Yes/No) and open-ended questions on perceptions about ADR reporting, professional accountability, previous experience with ADRs and barriers to reporting.

Handling of Open-Ended Responses: Responses to open-ended questions, particularly those addressing reasons for not reporting ADRs, were coded into predefined thematic categories such as lack of knowledge or awareness, non-exposure to ADRs, perceived lack of importance, and logistical or system-related barriers. This facilitated quantitative analysis and comparison of responses before and after the intervention.

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Ethical Considerations: Ethical issuesEthical permission The study was ethically approved by the Institutional Ethics Committee of UPUMS, Saifai. Participation was optional and all subjects provided written informed permission prior to to enrolment. Data of participants were kept confidential and anonymous throughout the trial.

Statistical Analysis: Data was entered into Microsoft Excel and processed with IBM SPSS Statistics version 21.0. Descriptive statistics were employed to summarize the data. Categorical variables were presented as frequencies and percentages, while continuous variables were presented as mean ± standard deviation. Appropriate statistical tests were used for comparisons between pre- and post-intervention periods. Paired categorical variables were analysed using the McNemar test and paired t-test or Wilcoxon signed-rank test for continuous or ordinal data respectively. Statistical significance was defined as a p-value of less than 0.05.

Outcome Measures: The major outcome measure was the change in knowledge and attitude towards pharmacovigilance following the sensitisation training. Secondary outcomes included improved knowledge of ADR reporting procedures and reduced perceived barriers to ADR reporting.

RESULTS

Table 1: Demographic Characteristics of Study Participants (N = 145)

Variable	Category	Frequency (n)	Percentage (%)
Age Group (years)	18–20	45*	31.0*
	21–23	70*	48.3*
	24–26	20*	13.8*
	≥27	10*	6.9*
	Total	145	100.0
Age (Continuous)	Mean ± SD	21.69 ± 2.25	
	Median (Range)	21 (18–32)	
Gender	Female	77	53.1
	Male	68	46.9
	Total	145	100.0
Stream	Nursing	63	43.4
	Paramedical	55	37.9
	Pharmacy	27	18.6
	Total	145	100.0

Table 2: Pre-test Knowledge Responses on Pharmacovigilance among Participants (N = 145)

Question (Correct Answer in Bold)	Options	n (%)
ADR is defined as	An unwanted reaction at normal doses	92 (63.4)
	Desired reaction	16 (11.0)
	Detection & prevention	5 (3.4)
	Identification & assessment	32 (22.1)
Identify condition (image)	Muscular dystrophy	32 (22.1)
	Phocomelia	45 (31.0)
	Stevens–Johnson syndrome	64 (44.1)
	TEN	4 (2.8)
Serious ADR reporting timeline	Fifteen days	34 (23.4)
	One day	17 (11.7)
	Seven days	81 (55.9)
	Thirty days	13 (9.0)
Highest regulatory authority in	CDSCO	90 (62.1)
	IIS	14 (9.7)
India	MCI	14 (9.7)
	PCI	27 (18.6)
Definition of pharmacovigilance	Clinical trial efficacy	11 (7.6)
	Detection, assessment, prevention of ADRs	107 (73.8)
	Drug development science	9 (6.2)
	Drug safety science	18 (12.4)
NCC location	AIIMS	73 (50.3)
	IPC Ghaziabad	21 (14.5)
	JIPMER	20 (13.8)
	MAMC	31 (21.4)
ADR reporting responsibility	All healthcare professionals	98 (67.6)
	Doctor	7 (4.8)
	Nurses	7 (4.8)
	Pharmacists	33 (22.8)
PvPI started in	2004	23 (15.9)
	2006	43 (29.7)
	2008	35 (24.1)
	2010	44 (30.3)

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UMC location	America	31 (21.4)
	India	62 (42.8)
	Sweden	32 (22.1)
	UK	20 (13.8)
ADR helpline number	1800 180 0180	68 (46.9)
	Other options	Remaining responses
	Biochemistry	13 (9.0)
	Medicine	16 (11.0)
	Pharmacology	115 (79.3)
	Surgery	1 (0.7)
ADR reporting software	Argus	40 (27.6)
	Aries Global	21 (14.5)
	Oracle	25 (17.2)
	Vigiflow	59 (40.7)
HVPI stands for	Haem vigilance Programme of India	76 (52.4)
	Other options	Remaining responses
ADR via mobile app	No	15 (10.3)
	Yes	130 (89.7)
PVPI stands for	Pharmacovigilance Programme of	117 (80.7)
	Other options	Remaining responses
Mandatory ADR fields	All of the above	90 (62.1)
ADR reporting authority	AMC only	20 (13.8)
	Both AMC & NCC	100 (69.0)
Function of pharmacovigilance	All of the above	97 (66.9)
Regulatory action post -	All of the above	85 (58.6)
What should be reported	All of the above	95 (65.5)
Steps in ADR assessment	All of the above	86 (59.3)

A total of 145 participants were included in the study. The majority of participants belonged to the age group of 21–23 years (48.3%), followed by 18–20 years (31.0%), 24–26 years (13.8%), and ≥27 years (6.9%). The mean age of participants was 21.69 ± 2.25 years, with a median age of 21 years (range: 18–32 years). Female participants constituted 53.1% (n=77), while males accounted for 46.9% (n=68). In terms of academic stream, nursing students formed the largest group (43.4%), followed by paramedical (37.9%) and pharmacy students (18.6%), indicating a diverse representation of healthcare disciplines.

Table 3: Post-test Knowledge Responses on Pharmacovigilance among Participants (N = 145)

Question (Correct Answer in Bold)	Options	n (%)
ADR is defined as	An unwanted reaction at normal doses	80 (55.2)
	Desired reaction	8 (5.5)
	Detection & prevention	11 (7.6)
	Identification & assessment	46 (31.7)
Identify condition (image)	Muscular dystrophy	15 (10.3)
	Phocomelia	91 (62.8)
	Stevens–Johnson syndrome	31 (21.4)
	TEN	8 (5.5)
Serious ADR reporting timeline	Fifteen days	15 (10.3)
	One day	26 (17.9)
	Seven days	93 (64.1)
	Thirty days	11 (7.6)
Highest regulatory authority in India	CDSCO	127 (87.6)
	IIS	4 (2.8)
	MCI	3 (2.1)
	PCI	11 (7.6)
Definition of pharmacovigilance	Clinical trial efficacy	5 (3.4)
	Detection, assessment, prevention of ADRs	123 (84.8)
	Drug development science	4 (2.8)
	Drug safety science	11 (7.6)
NCC location	AIIMS	18 (12.4)
	IPC Ghaziabad	119 (82.1)
	JIPMER	3 (2.1)
	MAMC	5 (3.4)
ADR reporting responsibility	All healthcare professionals	132 (91.0)
	Doctor	4 (2.8)
	Nurses	1 (0.7)
	Pharmacists	8 (5.5)
PVPI started in	2004	9 (6.2)
	2006	4 (2.8)
	2008	17 (11.7)
	2010	115 (79.3)
UMC location	America	3 (2.1)

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	India	37 (25.5)
	Sweden	100 (69.0)
	UK	5 (3.4)
ADR helpline number	1800 180 3024	143 (98.6)
	Other options	Remaining responses
AMC department	Biochemistry	5 (3.4)
	Medicine	11 (7.6)
	Pharmacology	128 (88.3)
	Surgery	1 (0.7)
ADR reporting software	Argus	15 (10.3)
	Aries Global	25 (17.2)
	Oracle	29 (20.0)
	Vigiflow	76 (52.4)
HvPI stands for	Haem vigilance Programme of India	118 (81.4)
	Other options	Remaining responses
ADR via mobile app	No	5 (3.4)
	Yes	140 (96.6)
PvPI stands for	Pharmacovigilance Programme of India	137 (94.5)
	Other options	Remaining responses
Mandatory ADR fields	All of the above	123 (84.8)
ADR reporting authority	AMC only	18 (12.4)
	Both AMC & NCC	109 (75.2)
Function of pharmacovigilance	All of the above	107 (73.8)
Regulatory action post-	All of the above	96 (66.2)
What should be reported	All of the above	113 (77.9)
Steps in ADR assessment	All of the above	105 (72.4)

The pre-test assessment revealed moderate baseline knowledge regarding pharmacovigilance among participants. A majority correctly identified the definition of ADR (63.4%) and pharmacovigilance (73.8%). Awareness of responsibility for ADR reporting was likewise reasonably high (67.6%). However, large gaps were found in certain key areas, such as awareness of the National Coordination Centre (14.5%) and the Uppsala Monitoring Centre (22.1%). The Central Drugs Standard Control Organization (CDSCO) was correctly identified by just 62.1% as the highest regulatory body. Knowledge on reporting tools like Vigiflow (40.7%) and ADR helpline number (46.9%) was not optimal. However, there was overall awareness, but comprehensive knowledge of pharmacovigilance systems and procedures was lacking.

Table 4: Pre-test Attitude and Practice towards Pharmacovigilance including Reasons for Not Reporting ADRs (N = 145)

Item	Response	n (%)
Is ADR reporting necessary?	Yes	141 (97.2)
	No	4 (2.8)
Should pharmacovigilance be taught in detail?	Yes	135 (93.1)
	No	10 (6.9)
Is ADR reporting a professional obligation?	Yes	111 (76.6)
	No	34 (23.4)
Should mild ADRs be reported?	Yes	124 (85.5)
	No	21 (14.5)
Have you come across an ADR?	Yes	82 (56.6)
	No	63 (43.4)
Have you reported ADR?	Yes	101 (69.7)
	No	44 (30.3)
Reasons for not reporting ADRs	Lack of knowledge/awareness	55 (37.9)
	Did not encounter ADR	30 (20.7)
	Not important / not necessary	10 (6.9)
	Fear / uncertainty	6 (4.1)
	Time constraints	1 (0.7)
	Other / unclear responses	15 (10.3)
	Reported ADR (not applicable)	29 (20.0)
Should sensitisation programs be conducted?	Yes	130 (89.7)
	No	15 (10.3)
Attended CME/training on pharmacovigilance?	Yes	86 (59.3)
	No	59 (40.7)

Following the sensitisation program, a substantial improvement in knowledge was observed across most domains. Correct identification of CDSCO increased from 62.1% to 87.6%, and awareness of the National Coordination Centre location improved markedly from 14.5% to 82.1%. Knowledge of the Uppsala Monitoring Centre also increased from 22.1% to 69.0%. The proportion of participants correctly identifying pharmacovigilance definition rose from 73.8% to 84.8%. Awareness of ADR

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reporting obligations improved to 91.0% and knowledge of ADR reporting methods such as Vigiflow increased to 52.4%. In addition, the recognition of the ADR helpline number improved considerably from 46.9% to 98.6%. These findings indicate a strong positive impact of the sensitisation intervention on pharmacovigilance knowledge.

Table 4: Comparison of Pre-test and Post-test Attitude and Practice towards Pharmacovigilance (N = 145)

Item	Response	Pre-test n (%)	Post-test n (%)
Is ADR reporting necessary?	Yes	141 (97.2)	143 (98.6)
	No	4 (2.8)	2 (1.4)
Should pharmacovigilance be taught in detail?	Yes	135 (93.1)	137 (94.5)
	No	10 (6.9)	8 (5.5)
Is ADR reporting a professional obligation?	Yes	111 (76.6)	117 (80.7)
	No	34 (23.4)	28 (19.3)
Should mild ADRs be reported?	Yes	124 (85.5)	135 (93.1)
	No	21 (14.5)	10 (6.9)
Have you come across an ADR?	Yes	82 (56.6)	79 (54.5)
	No	63 (43.4)	66 (45.5)
Have you reported ADR?	Yes	101 (69.7)	94 (64.8)
	No	44 (30.3)	51 (35.2)
Should sensitisation programs be conducted?	Yes	130 (89.7)	137 (94.5)
	No	15 (10.3)	8 (5.5)
Attended CME/training on pharmacovigilance?	Yes	86 (59.3)	124 (85.5)
	No	59 (40.7)	21 (14.5)

The pre-test assessment showed an overall good attitude towards pharmacovigilance among the subjects. A large percentage said reporting of ADR is required (97.2%) and pharmacovigilance should be taught in detail (93.1%). In addition, 76.6% considered reporting of ADR a professional requirement and 85.5% felt that even minor ADRs should be recorded. However, 69.7% stated they had actually reported an ADR, although if 56.6% had experienced one. The most common cause for not reporting ADRs was lack of information or awareness (37.9%) followed by not coming across ADRs (20.7%). Other challenges were perceived lack of importance (6.9%) and anxiety or uncertainty (4.1%). The data imply a mismatch between favorable attitudes and actual reporting behavior.

Comparisons of Pre and Posttest responses showed improvement in some attitude measures. The percentage of participants who identified the need to report ADR rose from 97.2 to 98.6% while those who supported education in pharmacovigilance rose from 93.1 to 94.5%. The perception of ADR reporting as a professional duty increased from 76.6% to 80.7% . The knowledge of reporting of mild ADRs was dramatically raised from 85.5% to 93.1%. Participation in pharmacovigilance training programs grew from 59.3% to 85.5%. However, there was a minor decline in real ADR reporting practice (69.7% to 64.8%) which means that better knowledge and attitude are not completely reflected in practice.

Table 5: Reasons for Not Reporting ADRs

Reason for Not Reporting ADR	Pre-test n (%)	Post-test n (%)
Lack of knowledge/awareness	55 (37.9)	28 (19.3)
Did not encounter ADR	30 (20.7)	52 (35.9)
Not important / not necessary	10 (6.9)	4 (2.8)
Fear / uncertainty	6 (4.1)	5 (3.4)
System/logistical issues	1 (0.7)	2 (1.4)
Other / unclear responses	15 (10.3)	18 (12.4)
Reported ADR (Not applicable)	29 (20.0)	36 (24.8)
Total	145 (100)	145 (100)

Analysis of barriers to ADR reporting showed a considerable change after the intervention. The percentage of individuals indicating lack of knowledge/awareness as a reason for not reporting reduced from 37.9% in the pre-test to 19.3% in the post-test. On the other hand, the responses “did not encounter ADR” climbed from 20.7% to 35.9% demonstrating an increased grasp of reporting criteria. Other impediments, such as perceived lack of relevance (from 6.9% to 2.8%) and anxiety or uncertainty (from 4.1% to 3.4%), decreased. However, there was a minor rise in system-related issues (0.7% to 1.4%) and ambiguous responses (10.3% to 12.4%). In addition, the proportion of participants reporting ADRs increased from 20.0% to 24.8%. The overall findings suggest the sensitisation program was useful in reducing barriers associated with knowledge, although certain practical challenges still exist.

DISCUSSION

The present study was carried out to evaluate the effect of a structured pharmacovigilance sensitization program on knowledge and attitude of

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adverse drug reaction (ADR) reporting among health care students. Results showed a significant increase in several categories of pharmacovigilance awareness after the intervention indicating the usefulness of focused teaching strategies in improving drug safety practices.

The demographic characteristics of the participants showed that the majority were young healthcare students with a mean age of 21.69 ± 2.25 years and a very even gender distribution. A large number of participants were from the nursing and paramedical programs, indicating the multi-disciplinary nature of the future healthcare workforce. Similar demographic trends have also been observed in previous pharmacovigilance studies undertaken among healthcare students, which underscores the need of early training in many specialties.

Baseline (pre-test) knowledge on pharmacovigilance was moderate but variable across domains. While most participants were aware of the definition of pharmacovigilance (73.8%) and the duties for reporting ADRs (67.6%), there were significant knowledge gaps in important areas such as the location of the National Coordination Centre (14.5%) and the Uppsala Monitoring Centre (22.1%). Similar findings were found in the study by Monira Alwhaibi et al,[14] where healthcare students had a positive attitude towards pharmacovigilance, but their knowledge was inadequate. Likewise, studies from India have demonstrated poor knowledge of the pharmacovigilance infrastructure and reporting systems among healthcare trainees.[12].

Most indicators showed a considerable improvement in knowledge after sensitisation programme. There were considerable increases in awareness of important elements of pharmacovigilance such as the location of the National Coordination Centre (14.5% to 82.1%) and correct identification of the Uppsala Monitoring Centre (22.1% to 69.0%). There was significant improvement in the knowledge about the regulatory authority (CDSCO) and the pharmacovigilance definitions. These results were in line with the study conducted by Vaishali Thakare et al,[15] which showed considerable improvement in pharmacovigilance knowledge after sensitization session conducted during National Pharmacovigilance Week. Additionally, comparable advantages have been documented in interventional trials among healthcare workers, where structured educational programmes led to statistically significant increases in knowledge scores.[11,14]

Interestingly, a modest decrease in correct responses on the definition of ADR (63.4% to 55.2%) was seen post-intervention. We explain this contradictory finding to the fact that during training the model is exposed to several similar ideas, which leads to confusion between closely related meanings. Similar findings were found in educational intervention trials, when deeper cognitive processing sometimes resulted in momentary uncertainty of core concepts.[16]

The attitude towards pharmacovigilance was largely good at baseline and improved further after intervention. The majority of the participants agreed on the importance of ADR reporting (97.2% pre-test and 98.6% post-test) and supported the inclusion of pharmacovigilance in healthcare education (93.1% vs. 94.5%). Similarly, the impression of ADR reporting as a professional requirement increased from 76.6% to 80.7%. These results are in line with research such as those by Subramaniyan Ganesan et al.[16] who observed increased attitudes towards ADR reporting following educational interventions, which underpins the function of sensitisation in molding professional responsibility.

However, ADR reporting practice did not demonstrate any improvement despite the knowledge and attitude improvement. Although most of the participants had experienced ADRs, the percentage of those who had reported them actually fell significantly from 69.7% to 64.8%. This illustrates the ongoing gap between knowledge and practice as a well-known occurrence in pharmacovigilance research. Similar to other studies as Monika Agarwal et al,[17] it has been shown that despite the favorable attitude, the actual reporting is not perfect due to different impediments.

Analysis of reasons for underreporting found that lack of knowledge and awareness was the most common obstacle in the pre-test phase (37.9%) which considerably decreased to 19.3% post-intervention. The reduction shows the success of the sensitisation programme in overcoming barriers connected to knowledge. Conversely, the proportion of participants indicating “did not encounter ADR” increased (20.7% to 35.9%), demonstrating an enhanced grasp of when ADR reporting is applicable. Other hurdles felt lack of relevance and uncertainty also decreased, while some residual challenges remained. These results confirm global data including systematic evaluations that educational interventions dramatically enhance ADR reporting behavior and awareness.[18].

A rise in participation in pharmacovigilance training sessions (59.3% to 85.5%) further emphasizes the good impact of the intervention in encouraging engagement in pharmacovigilance activities Similar observations have been observed in undergraduate teaching programs in which systematic training has been shown to raise awareness and willingness to report ADRs.[19,20]

Overall, the findings of this study suggest that education can enhance knowledge and attitudes, but ongoing efforts are needed to transform these improvements into changes in reporting behavior. To bridge this gap and develop the pharmacovigilance system, it is important to integrate pharmacovigilance into the healthcare curriculum, conduct frequent training sessions and provide hands-on experience with ADR reporting systems.

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CONCLUSION

Pharmacovigilance sensitisation programs significantly enhance knowledge and positively influence attitudes toward ADR reporting among healthcare students. However, improvement in knowledge does not necessarily translate into practice, highlighting the need for sustained, practical training and curriculum integration to strengthen ADR reporting behaviour and improve patient safety.

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