

Original Research Article

Knowledge, Attitude, and Practice of Pharmacovigilance among Healthcare Professionals in Warangal, India

Article History:

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Abstract: **Background:** Pharmacovigilance (PV) is essential for ensuring drug safety by monitoring and reporting adverse drug reactions (ADRs). Despite the presence of national programs such as the Pharmacovigilance Programme of India (PvPI), underreporting of ADRs remains a challenge. This study aimed to evaluate the knowledge, attitude, and practice (KAP) regarding pharmacovigilance among healthcare professionals in Warangal, Telangana, and to identify gaps influencing ADR reporting. **Materials and Methods:** A prospective observational, questionnaire-based study was conducted over six months among 200 healthcare professionals, including doctors, nurses, and pharmacists, in hospitals, pharmacies, and colleges of Warangal. A pretested 20-item structured questionnaire assessed KAP domains. Descriptive statistics, including frequencies and percentages, were used to analyze responses. **Results:** Most participants (84.3%) correctly defined pharmacovigilance, and 91% were aware of the PvPI. A majority (95.2%) agreed ADR reporting is necessary, and 96.2% supported teaching PV in detail to healthcare professionals. However, only 17.5% had ever reported an ADR, despite 65.4% encountering one during practice. While 67.2% had seen an ADR reporting form, only 45.4% had received training on ADR reporting. Key barriers identified included lack of time (46.9%), difficulty in determining causality (24.6%), and insufficient training. Pharmacists constituted the largest group of respondents (45.5%), followed by nurses (34.6%) and doctors (19.9%). **Conclusions:** The study revealed satisfactory knowledge and positive attitudes toward pharmacovigilance but poor reporting practices among healthcare professionals. Strengthening pharmacovigilance requires targeted training, simplified reporting procedures, institutional support, and integration of PV into professional education. Bridging the gap between awareness and practice is crucial for improving ADR reporting and ensuring patient safety

Keywords: Pharmacovigilance, Adverse drug reactions, Knowledge, attitude and practice, Healthcare professionals, India

INTRODUCTION

Pharmacovigilance (PV) plays a vital role in ensuring patient safety by detecting, assessing, and preventing adverse drug reactions (ADRs). The World Health

Organization (WHO) defines pharmacovigilance as “the science and activities relating to the detection, assessment, understanding, and prevention of adverse effects or any other drug-related problems” (1,2). ADRs are a major public health concern,

contributing to morbidity, prolonged hospitalization, and increased healthcare costs worldwide.

In India, pharmacovigilance activities are coordinated through the Pharmacovigilance Programme of India (PvPI), launched in 2010 under the Central Drugs Standard Control Organisation (CDSCO). Despite this initiative, underreporting of ADRs remains a major barrier to effective drug safety monitoring. Research consistently shows that healthcare professionals—doctors, nurses, and pharmacists—play a central role in pharmacovigilance, but gaps exist between their knowledge, attitude, and actual reporting practices (3-6).

The Knowledge, Attitude, and Practice (KAP) model is widely used to assess how healthcare professionals perceive and engage with pharmacovigilance (7). Adequate knowledge is necessary to recognise ADRs and understand reporting procedures, while a positive attitude influences willingness to report. However, studies indicate that even when knowledge and attitude are satisfactory, actual reporting practices remain suboptimal due to barriers such as lack of time, insufficient training, and limited institutional support (8-11).

Given these challenges, evaluating the current state of KAP toward pharmacovigilance among healthcare professionals is crucial for strengthening ADR reporting in India. Warangal, an emerging healthcare hub in Telangana, provides an important setting to assess this issue (12,13). This study aimed to evaluate the knowledge, attitude, and practice of pharmacovigilance among healthcare professionals in Warangal, India, and to identify gaps and barriers that influence ADR reporting (14).

MATERIALS AND METHODS

Study Design and Sample Size

This was a prospective, questionnaire-based, observational study conducted over a period of six months among healthcare professionals in Hanamkonda and Warangal, Telangana, India. The study sites included various Hospitals, community pharmacies, and pharmacy colleges. The study targeted registered healthcare professionals, including doctors, nurses, and pharmacists, who were currently practising in healthcare facilities.

Participants with at least six months of work experience and adequate language proficiency to complete the questionnaire were included. Non-clinical staff and those with less than six months of experience were excluded. A total of 200 healthcare professionals were recruited using purposive sampling. All participants were briefed about the purpose of the study, and their consent was obtained prior to data collection. Each participant was given one hour to complete the questionnaire anonymously.

Study Tool

Data were collected using a pretested, structured questionnaire comprising 20 items, divided into three sections assessing:

1. **Knowledge** – awareness of pharmacovigilance concepts, ADRs, and reporting procedures.
2. **Attitude** – perceptions regarding the importance of PV and willingness to report ADRs.
3. **Practice** – actual behavior related to ADR reporting, prior experience, and training.

The questionnaire also recorded demographic details such as age, gender, and profession.

Data Collection Procedure

The questionnaires were distributed to eligible participants after explaining the study objectives. Completed forms were collected within the same session to ensure completeness and minimize bias.

Data Analysis

Responses were coded and entered into Microsoft Excel. Descriptive statistics, including frequencies and percentages, were used to summarise the data. Knowledge-, attitude-, and practice-related responses were analyzed separately, and results were presented in tables and figures.

Ethical Considerations

The study was conducted in accordance with ethical principles and ensured participant anonymity. Informed consent was obtained from all respondents, and no identifying personal information was collected.

RESULTS

KAP (Knowledge, Attitude, and Practice) questionnaires are widely used to assess healthcare professionals' understanding, perceptions, and behaviours regarding pharmacovigilance. This KAP (Knowledge, Attitude, and Practice) questionnaire on pharmacovigilance contains 20 questions, divided into three sections. KAP questionnaires help identify areas for improvement in pharmacovigilance practices, informing targeted educational interventions and policy development.

Participant Characteristics

A total of 211 healthcare professionals participated in the study, including doctors (19.9%), nurses (34.6%), and pharmacists (45.5%). The majority were female (70.2%), while males comprised 29.8% of the respondents.

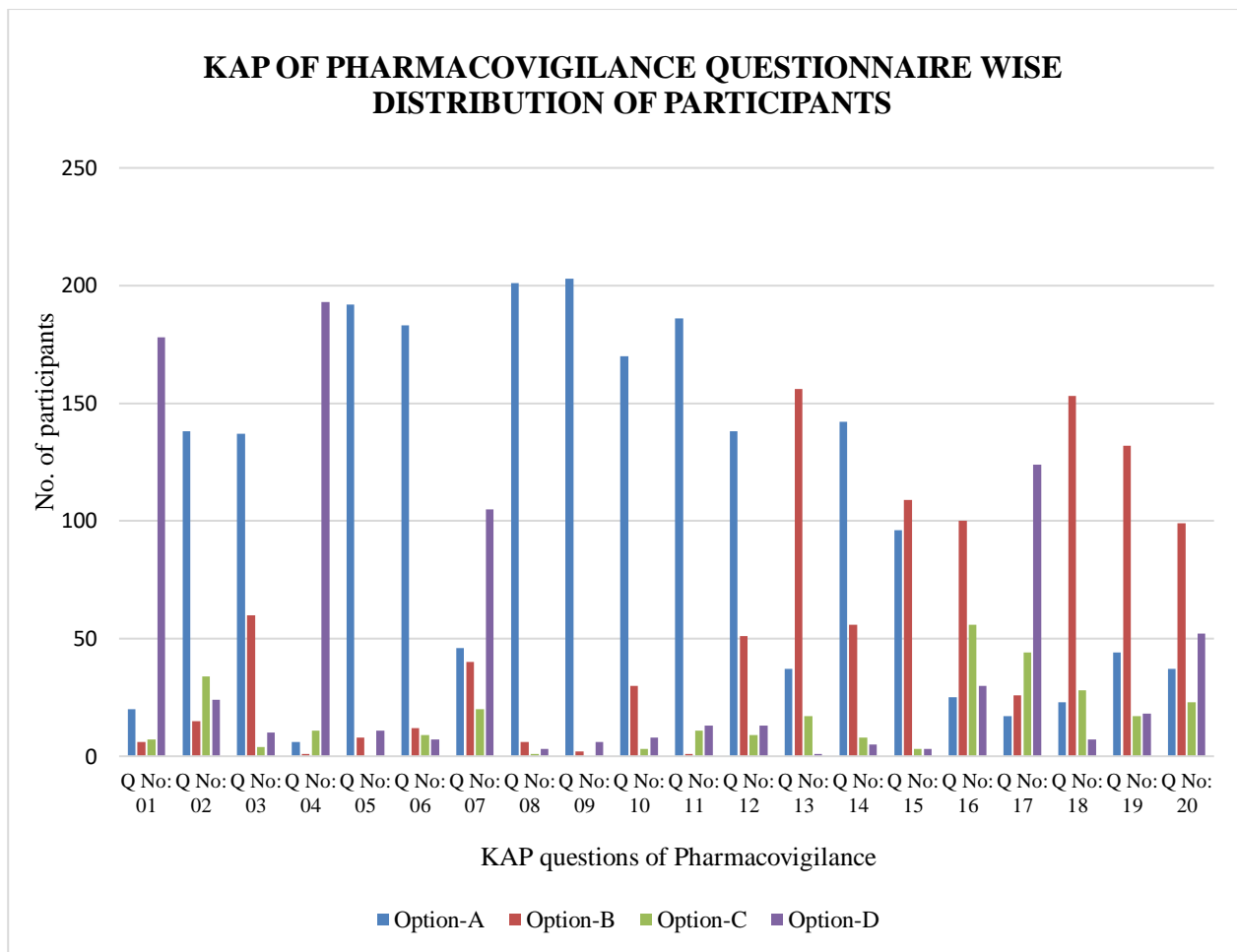


Figure 1: KAP of Pharmacovigilance Questionnaire-wise Distribution of Participants

Knowledge about Pharmacovigilance

Most respondents (84.3%) correctly defined pharmacovigilance, and 91% were aware of the Pharmacovigilance Programme of India (PvPI). Awareness about the regulatory body responsible for ADR monitoring in India (CDSCO) was high (86.7%). However, only 49.8% correctly identified the location of the International Centre for ADR Monitoring (Sweden). Nearly two-thirds (65.4%) recognised that the primary purpose of pharmacovigilance is to ensure drug safety. (Table 2, Fig. 2).

Table 2: Knowledge-related questions and percentage of correct and incorrect responses

S.No.	Knowledge-related questions	Correct response (%)	Incorrect response (%)
1.	Define pharmacovigilance	84.3%	15.7%
2.	The most important purpose of pharmacovigilance is	65.4%	34.6%
3.	Do you think ADR reporting is a professional obligation for you?	64.9%	35.1%
4.	The healthcare professionals responsible for reporting ADRs in a hospital are	91.5%	8.5%
5.	Do you know about the existence of the Pharmacovigilance Programme in India?	91%	9%
6.	In India, which regulatory body is responsible for monitoring ADRs?	86.7%	13.3%
7.	Where is the International Centre for Adverse Drug Reaction Monitoring is located?	49.8%	50.2%

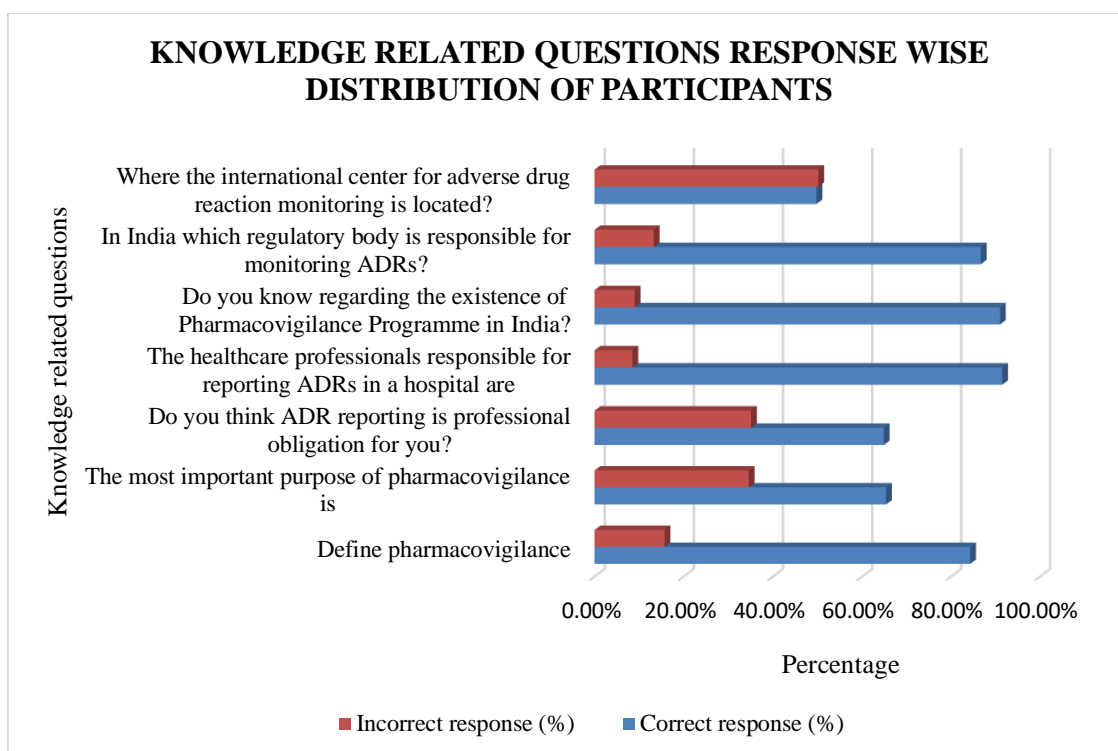


Figure 2: Knowledge related questions and percentage of correct and incorrect responses

Attitude towards Pharmacovigilance

Attitudes were generally positive. Most respondents (95.2%) agreed that ADR reporting is necessary, and 96.2% supported the inclusion of pharmacovigilance in healthcare curricula. A large proportion (88.1%) favored establishing ADR monitoring centers in every hospital. However, only 80.5% had ever read articles on ADR prevention (Table 3, Fig. 3).

Table 3: Attitude-related questions and percentage of correct and incorrect responses

S.No.	Attitude-related questions	Correct response (%)	Incorrect response (%)
1.	Do you think reporting of adverse drug reactions is necessary?	95.2%	4.8%
2.	Do you think Pharmacovigilance should be taught in detail to healthcare professionals?	96.2%	3.8%
3.	Have you anytime read any article on prevention of adverse drug reactions?	80.5%	19.5%
4.	What is your opinion about establishing ADR monitoring center in every hospital?	88.1%	11.9%

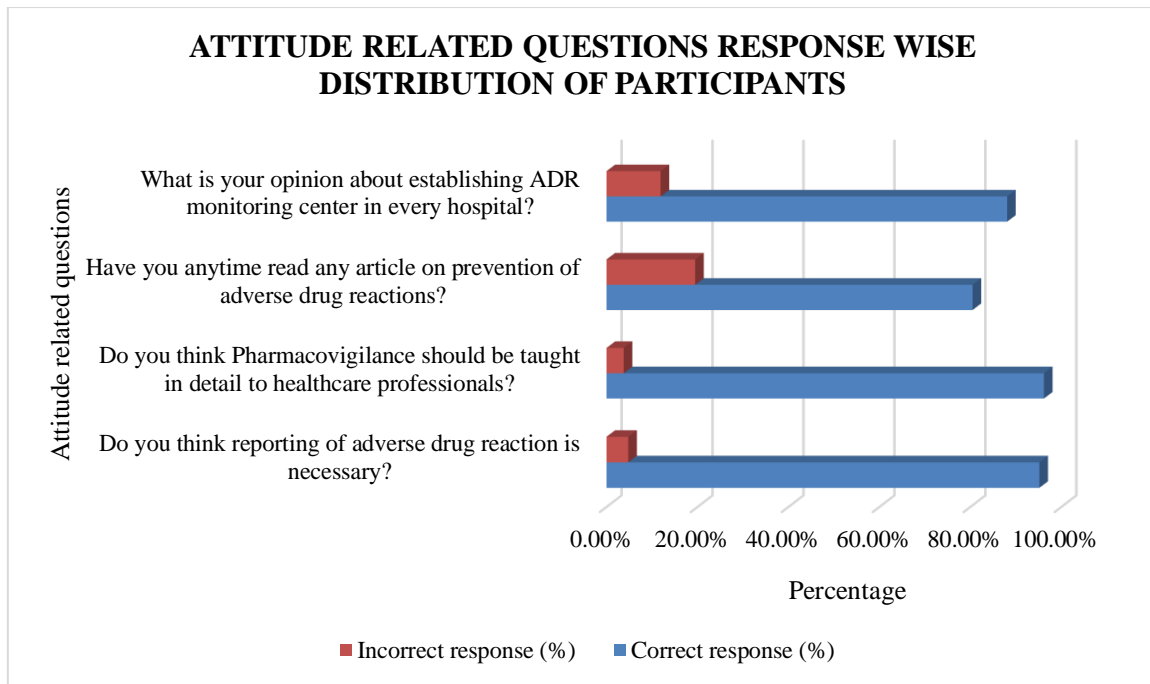


Figure 3: Attitude-related questions and percentage of correct and incorrect responses

Practice of Pharmacovigilance

Despite good knowledge and attitudes, actual ADR reporting practices were poor. While 65.4% of participants had encountered an ADR during practice, only 17.5% had ever reported one. About two-thirds (67.2%) had seen an ADR reporting form, but less than half (45.4%) had received training on reporting procedures. Major barriers included lack of time (46.9%), difficulty determining causality (24.6%), and absence of incentives (17.6%) (Table 4, Fig. 4).

Table 4: Practice-related questions and percentage of response

S.No.	Practice-related questions	Yes Response (%)	No Response (%)
1.	Have you ever experienced adverse drug reactions in your patient during your professional practice?	65.4%	34.6%
2.	Have you ever reported adverse drug reaction (ADR) to the pharmacovigilance center?	17.5%	82.5%
3.	Have you ever seen the ADR reporting form?	67.2%	32.8%
4.	Have you ever been trained on how to report ADR?	45.4%	54.6%

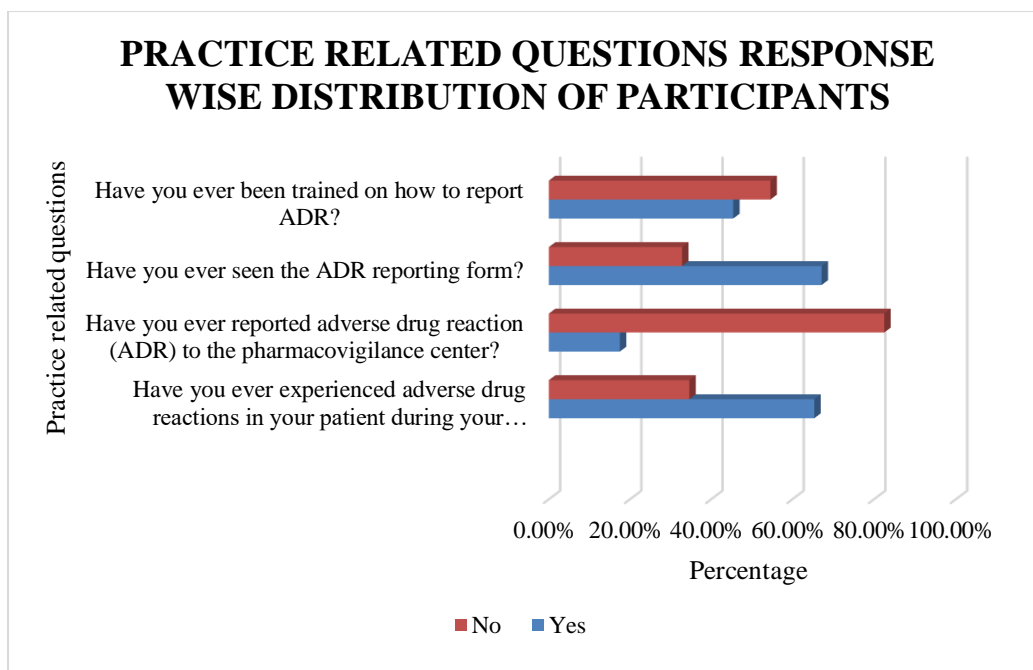


Figure 4: Practice-related questions and percentage of responses.

DISCUSSION

This study assessed the knowledge, attitude, and practice (KAP) of pharmacovigilance among healthcare professionals in Warangal, Telangana. The findings highlight that although most respondents had satisfactory knowledge and a positive attitude toward pharmacovigilance, actual ADR reporting practices were poor.

Knowledge of Pharmacovigilance

In this study, 84.3% of participants correctly defined pharmacovigilance, and 91% were aware of the Pharmacovigilance Programme of India (PvPI). These results are consistent with earlier studies from South India and Gujarat, which reported awareness levels above 70% among healthcare professionals [1,2]. However, only half of our respondents could identify the international ADR monitoring centre in Sweden, reflecting persistent gaps in global pharmacovigilance awareness. Similar deficiencies were observed in studies conducted among junior doctors and interns [3]. These findings indicate that while awareness of national programs is improving, knowledge of international pharmacovigilance systems remains limited.

Attitude towards ADR Reporting

Most respondents demonstrated a favourable attitude toward ADR reporting, with 95.2% agreeing that it is necessary and 96.2% supporting the integration of pharmacovigilance into training curricula. This aligns with studies by Gupta *et al.* and Korde *et al.*, where healthcare professionals expressed strong support for ADR reporting and training [4,5]. Importantly, 88.1% of our participants

advocated for ADR monitoring centres in all hospitals, reflecting growing recognition of institutional responsibility in drug safety. Despite this, fewer respondents (80.5%) reported having read articles on ADR prevention, suggesting that continuous professional education remains underutilised.

Practice of Pharmacovigilance

A key finding of this study is the large gap between knowledge/attitude, and practice. Although 65.4% of respondents encountered ADRs, only 17.5% had reported them. This underreporting trend has been consistently documented across India, with rates ranging from 10% to 20% [6,7]. Lack of time, uncertainty about causality, and inadequate training emerged as common barriers in our study. Similar barriers were identified in previous literature, particularly among busy clinicians and nursing staff [8,9]. These findings suggest that structural and procedural challenges, rather than unwillingness, remain the major hindrance to reporting.

Implications for Pharmacovigilance

The study underscores the need for structured training programs, simplified reporting mechanisms, and institutional support. Establishing ADR monitoring centres in all hospitals, providing feedback to reporters, and incorporating ADR reporting into electronic medical records may improve participation. Pharmacists, who formed the largest group in this study, could be strategically empowered to take a leading role in pharmacovigilance activities.

CONCLUSION

This study revealed that healthcare professionals in Warangal possess good knowledge and a positive attitude toward pharmacovigilance but demonstrate poor reporting practices. Although most respondents recognized the importance of ADR reporting and supported its integration into healthcare education, only a small fraction had ever reported ADRs. The main barriers were lack of time, insufficient training, and uncertainty about causality.

To strengthen pharmacovigilance, a multifaceted approach is required:

- Regular training programs for healthcare professionals,
- Simplified ADR reporting procedures,
- Establishment of ADR monitoring centers in hospitals, and
- Integration of pharmacovigilance into undergraduate and postgraduate curricula.

Bridging the gap between knowledge and practice is essential for improving ADR reporting and ensuring patient safety in India.

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