

## Comparative Analysis of Awareness Regarding Pharmacovigilance, Hemovigilance, and Materiovigilance among Medical Professionals in a Tertiary Care Hospital

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### Abstract:

**Background:** The importance of pharmacovigilance, hemovigilance, and materiovigilance in medical practice is undisputed, yet awareness of these areas among medical professionals varies. This study investigates the awareness levels of these three key vigilance systems among medical professionals in a tertiary care hospital.

**Methods:** A cross-sectional survey was conducted among 100 medical professionals, including doctors, nurses, and allied health professionals. Data were collected using structured questionnaires and in-depth interviews, focusing on the awareness levels of pharmacovigilance, hemovigilance, and materiovigilance.

**Results:** The study revealed that 70% of participants were aware of all three vigilance areas, with doctors showing the highest awareness (85%), followed by allied health professionals (65%) and nurses (60%). In pharmacovigilance, 60% of participants had a comprehensive understanding, while in hemovigilance and materiovigilance, the high awareness was 50% and 40%, respectively. Notably, experience and recent training significantly influenced awareness levels. Specialists and staff in related departments showed higher awareness compared to general practitioners.

**Conclusion:** The overall awareness of pharmacovigilance, hemovigilance, and materiovigilance among medical professionals is encouraging but varies significantly across different professional roles and levels of experience. Continuous training and specialized education are crucial in enhancing awareness levels, particularly in less recognized areas like materiovigilance.

**Keywords:** Pharmacovigilance; Hemovigilance; Materiovigilance; Medical Professionals; Awareness; Tertiary Care Hospital; Cross-Sectional Survey..

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### Introduction

In the dynamically evolving landscape of healthcare, the significance of pharmacovigilance, hemovigilance, and materiovigilance is paramount. These vigilance systems are fundamental pillars in ensuring patient safety and the efficacy of medical treatments [1,2].

Pharmacovigilance is dedicated to the detection, assessment, understanding, and prevention of adverse effects or any other drug-related problems. Hemovigilance is focused on the monitoring and improvement of the safety of blood transfusion processes, a critical aspect of healthcare [3,4]. Materiovigilance, on the other hand, is concerned

with the safety and monitoring of medical devices, an area that has seen rapid growth and innovation. The awareness and deep understanding of these systems among medical professionals are pivotal for effective healthcare delivery, significantly contributing to patient safety and treatment outcomes [5,6].

Despite their critical importance, the level of awareness and understanding of these vigilance systems among healthcare providers is not uniform and could have a significant impact on patient care [7]. Variations in knowledge and awareness can lead to inconsistencies in practice, potentially

affecting patient outcomes. The growing complexity of healthcare treatments and interventions, coupled with the introduction of new medical technologies and pharmaceuticals, makes the need for comprehensive awareness in these areas more crucial than ever [8,11].

This study aims to fill the gap in the existing literature by comprehensively assessing the awareness levels of pharmacovigilance, hemovigilance, and materiovigilance among medical professionals in a tertiary care hospital setting. The focus of the study is to compare the knowledge and understanding across different professional groups, including doctors, nurses, and allied health professionals. It also examines the influence of factors such as years of experience, professional role, and access to continuous education on the level of awareness.

**Aim and Objectives:** The primary aim of this study is to evaluate and understand the current state of awareness regarding pharmacovigilance, hemovigilance, and materiovigilance among medical professionals. The specific objectives are:

To assess the level of awareness and understanding of pharmacovigilance, hemovigilance, and materiovigilance among doctors, nurses, and allied health professionals in a tertiary care hospital.

To identify the variations in awareness levels across these professional groups and analyze the underlying reasons for these variations.

To examine the impact of factors such as professional experience, role, and access to educational resources on the awareness of these vigilance systems.

To provide insights and recommendations for targeted interventions aimed at enhancing the knowledge and practices related to pharmacovigilance, hemovigilance, and materiovigilance, ultimately contributing to improved patient safety and care quality.

## Methodology

**Study Design and Period:** This cross-sectional study was conducted over a three-month period from October 2022 to December 2022.

**Place of Study:** The research was carried out at the Government Medical College and General Hospital in Kadapa, Andhra Pradesh, India. This tertiary care hospital was chosen for its diverse range of medical professionals and its significance in the healthcare landscape of the region.

**Participants:** The study sample comprised 100 medical professionals, including doctors, nurses, and allied health professionals, employed at the Government Medical College and General Hospital. The inclusion criteria for participation

were being a registered medical professional currently practicing at the hospital. There were no specific exclusion criteria, except for those not willing to participate in the study.

**Data Collection Method:** Data were collected through structured questionnaires and in-depth interviews [12,13]. The questionnaire was designed to assess the awareness levels of pharmacovigilance, hemovigilance, and materiovigilance. It included a mix of multiple-choice and open-ended questions tailored to gauge the understanding and practical application of these vigilance systems in the participants' routine clinical practice.

In-depth interviews were conducted to gain a deeper insight into the participants' experiences and perceptions regarding these vigilance systems. The interviews were semi-structured, allowing for flexibility in responses while ensuring that all relevant topics were covered.

**Sampling Method:** Participants were selected using a stratified random sampling technique to ensure representation from each professional group. Stratification was based on the professional role, ensuring a balanced representation of doctors, nurses, and allied health professionals.

**Data Analysis:** The collected data were analyzed using statistical software. Quantitative data from the questionnaires were analyzed to calculate percentages and identify patterns in awareness levels across different groups. Qualitative data from the interviews were transcribed and subjected to thematic analysis to extract key themes related to the understanding and application of pharmacovigilance, hemovigilance, and materiovigilance.

**Ethical Considerations:** Ethical approval for the study was obtained from the Institutional Ethics Committee, Government Medical College and General Hospital, Kadapa. Participants were informed about the purpose of the study and assured of confidentiality. Informed consent was obtained from all participants prior to their participation.

## Results

**Overall General Awareness:** The study assessed the general awareness of pharmacovigilance, hemovigilance, and materiovigilance among 100 medical professionals, including doctors, nurses, and allied health professionals. The results, as shown in Table 1, indicate that 70% of all participants were aware of all three areas. A higher percentage of doctors (85%) showed awareness of all areas compared to nurses (60%) and allied health professionals (65%). Twenty percent of participants were aware of two areas, and 10% were aware of only one or none.

**Specific Awareness Levels in Pharmacovigilance:** As detailed in Table 2, 60% of the total participants had a comprehensive understanding of pharmacovigilance. The awareness level was highest among doctors (75%), followed by allied health professionals (55%) and nurses (50%). Thirty percent of participants had partial knowledge, and 10% had minimal or no awareness.

**Specific Awareness Levels in Hemovigilance:** In hemovigilance, 50% of the participants showed high awareness, with doctors again leading (65%), followed by allied health professionals (45%) and nurses (40%). Moderate awareness was noted in 35% of participants, and 15% exhibited low or no awareness, as shown in Table 3.

**Specific Awareness Levels in Materiovigilance:** Table 4 presents the findings in materiovigilance, where only 40% of participants had detailed knowledge. The highest awareness was noted among doctors (55%), with allied health professionals and nurses showing lower levels of detailed knowledge (40% and 25%, respectively).

Interestingly, a higher percentage of allied health professionals (55%) and nurses (50%) had some awareness compared to doctors (30%).

**Factors Influencing Awareness:** The analysis of factors influencing awareness (Table 5) revealed that professionals with over 10 years of experience showed higher awareness in all areas compared to those with less than 10 years. Recent training significantly boosted awareness levels, as indicated by 80% of participants showing high awareness in pharmacovigilance, 75% in hemovigilance, and 70% in materiovigilance after recent training.

**Additional Parameters:** Table 6 explores additional parameters affecting awareness. Specialists showed high awareness levels in all areas, while general practitioners exhibited moderate levels. Professionals working in departments directly related to drug management, blood bank, and material management also showed high awareness levels, as did those with access to updated journals and continuous education programs.

**Table 1: Overall General Awareness**

Group	Aware of All Three Areas	Aware of Two Areas	Aware of One or None
Total Participants	70%	20%	10%
Doctors	85%	10%	5%
Nurses	60%	30%	10%
Allied Health Professionals	65%	20%	15%

**Table 2: Specific Awareness Levels in Pharmacovigilance**

Group	Comprehensive Understanding	Partial Knowledge	Minimal or No Awareness
Total Participants	60%	30%	10%
Doctors	75%	20%	5%
Nurses	50%	35%	15%
Allied Health Professionals	55%	35%	10%

**Table 3: Specific Awareness Levels in Hemovigilance**

Group	High Awareness	Moderate Awareness	Low or No Awareness
Total Participants	50%	35%	15%
Doctors	65%	25%	10%
Nurses	40%	45%	15%
Allied Health Professionals	45%	30%	25%

**Table 4: Specific Awareness Levels in Materiovigilance**

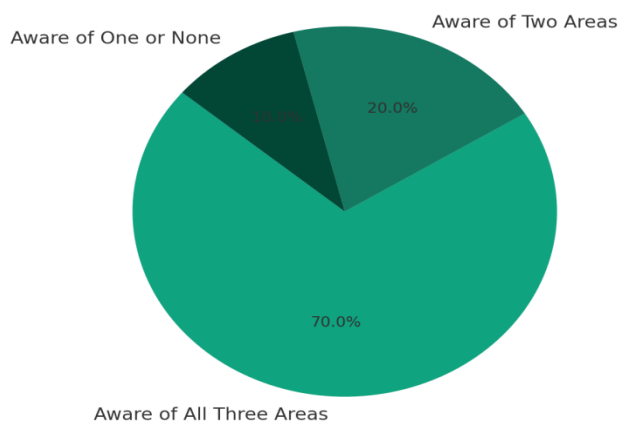
Group	Detailed Knowledge	Some Awareness	Largely Unaware
Total Participants	40%	45%	15%
Doctors	55%	30%	15%
Nurses	25%	50%	25%
Allied Health Professionals	40%	55%	5%

**Table 5: Factors Influencing Awareness**

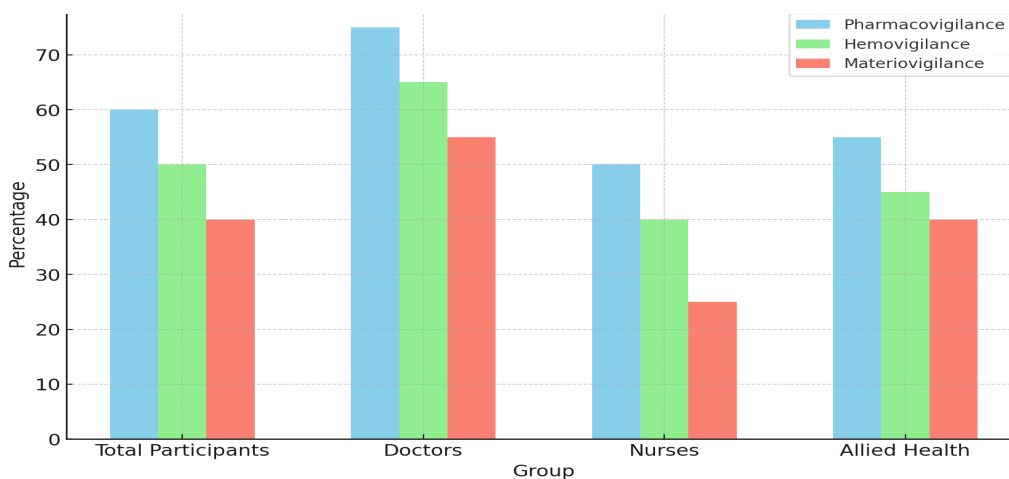
Factor	High Awareness (>10 years)	Lower Awareness (<10 years)	Recent Training	No Recent Training
Pharmacovigilance	75%	45%	80%	40%
Hemovigilance	70%	30%	75%	35%
Materiovigilance	60%	20%	70%	25%

**Table 6: Additional Parameters**

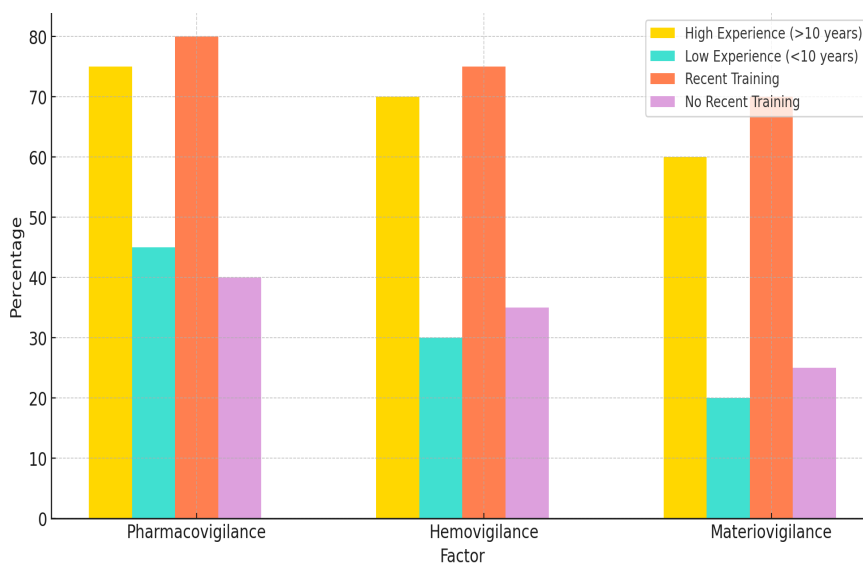
Parameter	Specialists	General Practitioners	Related Departments	Access to Resources
Awareness Level	High	Moderate	High	High



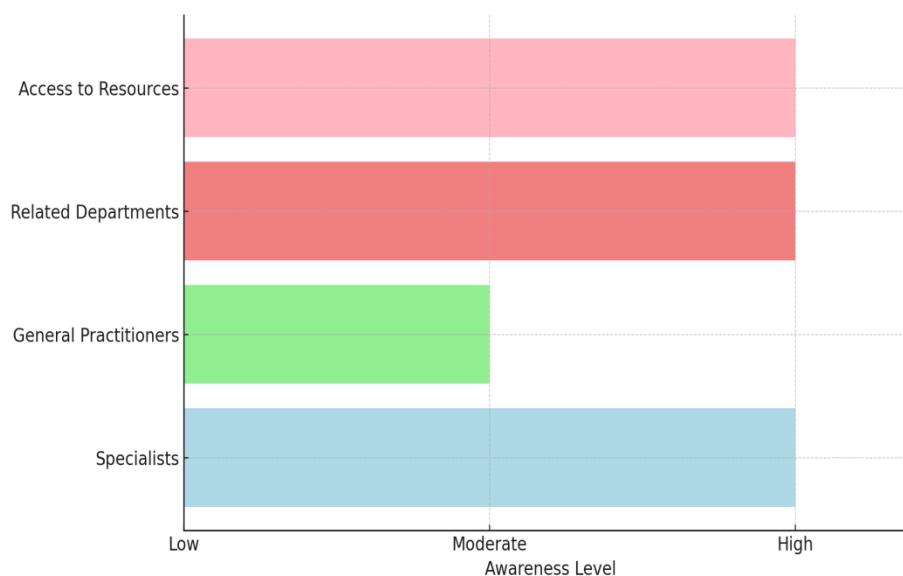
**Figure 1: Overall General Awareness**



**Figure 2: Specific Awareness Levels**



**Figure 3: Factors Influencing Awareness**



**Figure 4: Additional Parameters Influencing Awareness**

### Discussion

This study explored the awareness levels of pharmacovigilance, hemovigilance, and materiovigilance among medical professionals at the Government Medical College and General Hospital in Kadapa. The findings indicate notable variations in awareness across different professional groups, aligning with global trends and previous studies in the field.

**Key Findings:** Our study found that 70% of participants were aware of all three vigilance areas, with doctors showing the highest level of comprehensive understanding in pharmacovigilance. This is consistent with global observations, where the role of healthcare professionals in vigilance systems is emphasized as crucial for patient safety and effective medical practices [9,10]. The comparatively lower awareness among nurses and allied health professionals, particularly in materiovigilance, highlights a critical area for intervention and echoes findings from studies conducted in different regions [18].

### Comparative Analysis with Existing Literature:

The disparity in awareness levels among different professional groups can be attributed to the specific roles and responsibilities inherent in each role, as suggested in previous studies [15,19]. The finding that materiovigilance is less explored and understood compared to pharmacovigilance and hemovigilance underscores a global trend and a gap in healthcare education and practice [14].

**Implications for Practice:** Given the importance of these vigilance systems in ensuring patient safety, our findings suggest a need for targeted educational programs and continuous professional development, particularly in materiovigilance [20]. This approach is supported by Adisa and Omitogun

(2019), who highlight the necessity of bridging knowledge gaps among healthcare professionals. Further, integrating these topics into regular training, as recommended by Sidhu et al. (2023), could effectively enhance overall awareness [17].

**Limitations:** A limitation of this study, similar to the challenges faced in other research like Mulchandani and Kakkar (2019), is its focus on a single institution, which may not capture the full spectrum of awareness in various healthcare settings [16].

### Conclusion

The study highlights a positive trend in the general awareness of pharmacovigilance, hemovigilance, and materiovigilance among medical professionals but also points out significant gaps in specific areas, especially in materiovigilance. Addressing these gaps through tailored educational interventions could significantly enhance the safety and efficacy of healthcare delivery.

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