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A Review on the Perception and Awareness of Healthcare Professionals on Pharmacovigilance

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Abstract

The rising demand for the provision of timely information on the safety and effectiveness of health products to the general public has led to the evaluation of the perception and awareness of healthcare professionals on Pharmacovigilance. In this article review, researchers examine different sources to assess the current state of understanding regarding the perception and cognition of various healthcare professionals, specifically doctors, pharmacists, and nurses, that play a direct role in pharmacovigilance activities. Deliberation on the current perception and awareness of healthcare professionals on Pharmacovigilance exhibits a high percentage of doctors are either fully aware or have heard of Pharmacovigilance. Some articles even reported that practitioners involved in the studies know ADRs and their role in monitoring and writing them. In other studies, despite the high percentage of respondents being aware or having heard of Pharmacovigilance, most need to learn how to report or obtain forms for reporting ADRs. Further studies also included respondents' attitudes toward reporting an ADR, showing that most respondents prefer to report ADRs voluntarily. Moreover, regarding the awareness and perception of pharmacists, most of the articles show that pharmacists have strong awareness regarding ADR reporting due to more knowledge about Pharmacovigilance and are eager to use it in their clinical practice. While other studies also infer that a more significant percentage of pharmacists do not know about Pharmacovigilance. On the other hand, articles discussing nurses concluded that ADR reports by clinical nurses are comparable in quality and number to those submitted by physicians or pharmacists. At the same time, some indicate an insufficient knowledge of ADR reporting procedures. However, most studies concluded that nurses consider ADR reporting significant and are aware of Pharmacovigilance. With these results, the researchers concluded that despite some having a low understanding of ADRs, most healthcare professionals are aware of ADR reporting.

Introduction

The prevention and treatment of diseases have been revolutionized by medications and vaccines [1]. Medicinal medicines may have side effects in addition to their advantages, some of which may be unwelcome and/or unexpected [2]. The World Health Organization (WHO) defines pharmacovigilance as the study and practice concerned with the identification, evaluation, comprehension, and avoidance of side effects or any other issue with drugs or vaccines [3]. A significant development in European Pharmacovigilance occurred in 1961 due to the tragedy of thalidomide. Australian physician Dr. McBride made a relationship between thalidomide and congenital malformations in infants in a letter to the editor of the Lancet Journal. In fact, he discovered that thalidomide use during pregnancy raised the risk of congenital abnormalities in newborns (1.5%) by up to 20% [4].

An adverse drug reaction (ADR) can be defined as “an appreciably harmful or undesirable reaction resulting from an intervention related to the use of drug products; adverse effects usually predict threats from future administration and warrant prevention, or specific treatment, or a change in the dosage regimen, or product withdrawal” [5,6].

Healthcare professionals are critical components of the pharmacovigilance system [7]. They necessitate extensive knowledge and skills in the field of medication safety, which will successfully contribute to this area through early detection, management, and reporting of drug safety concerns [8]. Furthermore, healthcare workers should be adequately trained on the importance and protocol of reporting adverse events [9]. They should have a mix of training and research skills in this field. Despite global concerns about pharmaceutical safety, healthcare professionals still lack awareness and competence in pharmacovigilance and ADR reporting [10]. Furthermore, recent research has found that ADRs are underreported by healthcare practitioners, particularly in underdeveloped nations. Only 2-4% of all adverse reactions and 10% of significant ADRs are recorded globally, according to reports. It is strongly advised that healthcare workers, including physicians, pharmacists, and nurses, report any suspected adverse reaction or severe occurrence [11]. As a result, medicine safety evaluation must be regarded as an essential component of healthcare professionals' daily clinical practice [12,13].

The knowledge and attitude of healthcare workers on pharmaceutical safety profiles is critical [14]. They should be aware of the possibility of unanticipated adverse responses and should report suspected adverse reactions to the Medicine Regulatory Authorities in order to expedite the identification and assessment of drug safety signals [15]. Healthcare professionals should be aware that no pharmaceutical medication is completely or completely safe for everyone, everywhere, at all times. They must always train in an unpredictable environment [12,16].

This article review aims to gather different perceptions of healthcare professionals particularly, physicians, nurses, and pharmacists on pharmacovigilance. This review focuses on analyzing how aware healthcare professionals are of pharmacovigilance.

Methods

This review on the Perception and Awareness of Healthcare Professionals on Pharmacovigilance intensively reviewed the literature, including articles on doctors, nurses, and pharmacists' knowledge, attitude, and practices toward pharmacovigilance; utilizing different databases, such as PubMed, JSTOR, ResearchGate, and Google Scholar. Utilizing pertinent search terms, the search was narrowed to research publications and studies published from 2012 to 2022. The topic searched were focused on but not limited to "Pharmacovigilance," "Healthcare professionals," and more. A comparison and cross-referencing search were employed by six researchers to evaluate the Perception and Awareness of Healthcare Professionals on Pharmacovigilance.

Results and Discussion

Table 1: On Medical Doctors

Related Articles	Author/s and Year	Method	Results
Attitudes among hospital physicians to the reporting of adverse drug reactions in Sweden.	Bäckström, M., Mjörndal, T., Dahlqvist, R. *et al.* (2012)	Cross-sectional study	Out of 1274 chosen, 748 (58.7%) respondents had completed the survey. 252 stated that they have never reported any Adverse Drug Reactions (ADRs) and 488 had reported ADRs at least once in their careers. The decision to report or not is based whether the reaction is well known of not, severity of the reaction, hesistance to report only on suspicion, lack of knowledge of existing rules, giving priority to other matters and lack of time to report ADRs [17].
Pharmacovigilance amongst doctors in private hospitals in Lagos West Senatorial District, Nigeria	Awodele, O., Akinyede, A., Adeyemi, O. A., & Awodele, D. F. (2014)	Cross-sectional descriptive study	With the response rate of 93% with the result of 82.9% of the respondents have heard about pharmacovigilance and 79.3% of them defined pharmacovigilance correctly. However, 56.2% did not know how to report an ADR and 71.7% of them do not know where to obtain forms. Only 5.6% of the respondents have successfully reported an ADR. Despite the results having a big percentage of the respondents not knowing what pharmacovigilance is, 89.6% which is the majority of them are willing to practice pharmacovigilance if they are offered to be trained [18].
A Systematic Review of Knowledge, Attitude and Practice on Adverse Drug Reactions and Pharmacovigilance among Doctors	Abdullahi Rabiu Abubakar, Nordin Bin Simbak, Mainul Haque (2014)	Cross-sectional study	Adverse drug reactions (ADRs) have been making headlines because of life-threatening issues. ADRs have consistently been underreported and are still a significant public health problem. The best strategy for preserving patients' lives has continued to be the spontaneous reporting system [19]. According to the numerous articles examined, clinicians' knowledge was evaluated based on five primary criteria, including definitions of ADR and PV, understanding of reporting procedures and forms, who should report ADR, where to submit it, and the goal of reporting. It was typical of the doctors interviewed to be unaware of the process and reporting form. According to a survey from the UAE, 71% of doctors are unaware of how to report an adverse drug reaction (ADR; John et al., 2012). This finding is comparable to those from surveys conducted in India (92.5%), Malaysia (55.6%), Nigeria (95.1%), Romania (68%), and Malaysia (Agarwal et al., 2013). (Farcas et al., 2008). Another study from Pakistan found that just 9.7% of participants were aware of the reporting system; similar findings were found in India, where the figures were 6% (Aithal et al., 2014), 44% (Pimpalkhute et al., 2012), 43% (Gupta & Udupa, 2011), and 43%. (Bisht et al., 2014). In contrast, research from India has found that 59.2% of physicians, 75% of physicians (Thomas et

			al., 2013), and 73% of physicians (Chopra et al., 2011) are familiar with the country's reporting system (Kharkar & Bowalekar, 2012). According to a study from Malaysia, 69 percent of doctors claimed the reporting form was unavailable, and 60.9% indicated it was challenging to complete. [20]
Evaluation of awareness about pharmacovigilance and adverse drug reaction monitoring in resident doctors of a tertiary care teaching hospital in India	Ohaju-Obodo, J. O., & Iribhogbe, O. I. (2013).	Cross-sectional questionnaire-based	ADRs contribute significantly to morbidity and mortality in clinical practice with its associated economic consequences [21,22]. In this study, 84 respondents had successfully finished the survey and was used for analysis giving a 93.33% response rate. As a result, 64.28% of the respondents are fully aware of pharmacovigilance. 52.38% were aware of India's ADR reporting system. 83.33% claimed that only serious ADR should be reported and 35.72% that ADRs should only be reported for agents that are new in the market. If the medical practioners observes an ADR, only 25% of them reported it, but 44.04% of them are mindful of the procedures on reporting an ADR. In their attitudes towards reporting an ADR is as follows: ADR should be compulsorily reported (15.19%), voluntary (41.66%), remunerated (3.57%), identity of prescriber should be concealed (21.42%) and identity of reported should not be stated (29.7%) [23].
Health care professionals knowledge and perception of pharmacovigilance in a tertiary care teaching hospital in Amman, Jordan	Abu Hammour, K., El-Dahiyat, F., & Abu Farha**,** Health care professionals knowledge and perception of pharmacovigilance in a tertiary care teaching hospital in Amman, Jordan (2017)	Cross-sectional study	Through ensuring patient safety and promoting rational use of medicines, a good pharmacovigilance will be achieved and reflected on public health [24]. As a result of this study, most health care professionals were not aware of the concept of pharmacovigilance. Medical doctors showed a better overall knowledge compared with nurses (P < .05). Interestingly, despite the low level of awareness, the majority of respondents believed in the necessity of reporting ADR. These findings were reasonably similar to what has been reported elsewhere [25, 26, 27]
Perception of pharmacovigilance among doctors in a tertiary care hospital: Influence of an interventional lecture	Sanghavi, Dhara R., Dhande, Priti P., Pandit, Vijaya A. (2013)	Interventional, prospective study	Healthcare professionals' contributions to spontaneous reporting are fundamental elements of a successful pharmacovigilance system. In this study, the knowledge, attitudes, and practices of clinicians in a teaching hospital in Pune regarding spontaneous ADR reporting were examined, as well as the impact of an educational lecture on pharmacovigilance [28]. Only 7.5% of the interviewees were familiar with the Indian ADR reporting mechanism. Most respondents (95%) were aware that they could report ADRs as doctors, but only 92.5% were aware of the reporting process, which impacted their pharmacovigilance practice. 100% of responders agreed that clinicians should receive enough training in ADR reporting, and 81% thought it should be mandatory. Poor attendance at the interventional lecture, with only 80 participants (36.4%) present. They now had better awareness of the ADR reporting system (96%) thanks to the intervention, and the majority of them (92%) agreed that all ADRs should be recorded (p 0.001). [29]

Table 2: On Pharmacists

Related Articles	**Author/s and Year**	**Method**	**Results**

Exploring healthcare professionals' knowledge, attitude, and practices towards pharmacovigilance: a cross-sectional survey	Hussian, R., Hassali, M., Hashmi, F., Akram, T. (2021)	Cross-sectional questionnaire-based survey	Three hundred forty-six health care professionals replied to the survey out of the 384 disseminated (90.10% response rate). The majority of participants had a strong awareness of ADR reporting, although pharmacists were significantly more knowledgeable than other HCPs about ADR (89.18%), the pharmacovigilance system (81.08%), its centers (72.97%), and its function (91.89%). The majority of participants displayed a positive attitude toward ADR reporting. For example, 49.1% of doctors (P 0.05), 70.2% of pharmacists, and 76.1% of nurses demonstrated a positive attitude toward their importance as the HCPs who should report an ADR. ADR reporting should always be preceded by a discussion with other colleagues, according to 64.3% of doctors (P 0.05). ADR reporting is viewed favorably by 77.7% of physicians, 75.7% of pharmacists, and 68% of nurses. 67.6% of pharmacists claimed that they had reported ADRs at work, while 77.2% of nurses have orally reported ADRs to the relevant persons or departments [30].
Safety of medicines—Pharmacists' knowledge, practice, and attitudes toward pharmacovigilance and adverse drug reactions reporting process	Kopciuch, D., Zaprutko, T., Paczkowska, A., Ratajczak, P., Zielińska-Tomczak, Ł., Kus, K., & Nowakowska, E. (2019).	Multicenter study, random sampling technique to select the study group with face-to-face questionnaire method	Only 522 of the 899 pharmacists who received the questionnaires verbally agreed to participate in the study. 58% of people responded. Only 16 percent (n = 84) of the respondents have ever taken pharmacovigilance training. According to 81% (N = 422) of pharmacists, not all synthetic medications on the market were safe. 16% (n = 84) of respondents (n = 146) believed that adverse responses following the administration of such pharmaceuticals should not be recorded at all, whereas 28% (n = 146) were confident in the safety of drugs of natural origin [31].
Knowledge, attitude, and practices of pharmacovigilance and adverse drug reaction reporting pharmacists working in secondary and tertiary governmental hospitals in Kuwait	Alsaleh, Fatemah., Alzaid S., Abasussain E., Bayound, T., Lemay, J. (2017)	Cross-sectional	The questionnaire was distributed to 414 pharmacists in total, and 342 volunteered to participate, yielding an 82.6% response rate. Most pharmacists (88.6%) were eager to use ADR reporting in their clinical practice, and the majority (61.5%) were familiar with the concepts of PV and ADRs. Despite this optimistic outlook, only 26.8% of individuals had ever reported an ADR, with the majority of them (68.9%) citing not understanding how to report as the primary reason. Lack of cooperation and communication between healthcare workers and patients (n = 62), a lack of time and proper management (n = 57), a lack of awareness among staff and patients (n = 48), and the absence of a qualified individual to report adverse drug reactions (n = 35) are some of the obstacles that prevent the implementation of a PV center [32].

Factors that affect adverse drug reaction reporting among hospital pharmacists in Western China.	Liu, J., Zhou, Z., Yang, S., Feng, B.,Zhao, J., Liu, H., Fang, Y. (2015)	Matched case–control method	Five hundred fifty-eight filled surveys in total were gathered (186 from cases and 372 from controls). A significantly lower response rate for cases (91.2%) compared to controls (100.0%) was achieved as a result of the inability to contact about 9% of the case pharmacists (due to retirement, job transfers, or refusal to take part in the study). Of the 55 hospitals surveyed, 17 (30.9%) were tertiary hospitals, while the remaining 65.5% or 3.6% were secondary or primary. Most pharmacists knew that suspected ADRs could be reported by submitting a paper 88.4% of participants used paper reporting forms, while 86.9% used electronic ones. 54.1% of participants and 55.7% of pharmacists did not know they may report ADRs through phone or email, respectively. Compared to the control group, significantly more pharmacists in the case group (94.1 and 82.3%, respectively; p0.001) were aware that all suspected ADRs should be reported [33].
Knowledge, Attitude and Practice of Hospital Pharmacists Regarding Pharmacovigilance and Adverse Drug Reaction Reporting in Japan	Kobayashi, T., Noda, A., Obara, T., Tsuchiya, M., Akasaka, K., Yoshida, M., Mano, N. (2019)	Cross-sectional and self-administered questionnaire-based investigation	46.7% of the respondents were female, 21.9% were under the age of 30, and 27.3% were beyond 50 (response rate: 9.9% = 4760/48 028). 12.4%, 33.8%, and 47.4% of people responded, "I understand what it is," "I have heard of it, but I do not understand what it is," and "I do not know what it is," respectively, to the question "Have you ever heard of the word "pharmacovigilance"?" The accompanying phrases and actions were more frequently known to pharmacists who comprehended "pharmacovigilance." Additionally, 50.9% of respondents did not have a personal history of reporting ADRs, and 69.7% expressed a desire to learn more about pharmacovigilance. The most common reason for ADR nonreporting was "It was a well-known adverse drug reaction" (44.5%) [34].
Influence of Pharmacists' Attitude on Adverse Drug Reaction Reporting	Herdeiro, M., Figueiras, A., Polona, J., Gestal-Otero, JJ. (2012)	Case-Control Study	86.8% of respondents responded. Hospital pharmacists had a higher reporting likelihood than community pharmacists. The likelihood of reporting was highly correlated with attitudes about ADRs. Since really significant adverse drug reactions are widely recorded by the time a medicine is introduced, an interquartile fall in either of the following attitudes increased the likelihood of reporting by I 223% (95% CI 51, 595; p 0.05); (ii) 240% (95% CI 89, 508; p = 0.002) for "I would only report an ADR if I were certain that it was due to the usage of a particular medicine"; (iii) 316% (95% CI 44, 1104; p = 0.010; and (iv) 171% (95% CI 13, 549; p = 0.020); for "I do not have time to think about the role of the drug or other causes in ADRs." [35].

Knowledge, attitude and practice of hospital pharmacists towards pharmacovigilance and adverse drug reaction reaction reporting in Narjan, Saudi Arabia	Alshabi, A., Shaikh, M., Shaikh, I., Alkahtani, S., Aljadaan, A. (2022)	Cross-sectional questionnaire-based study	There were 145 questionnaires given in all, and 70.3% were returned. 42% and 68.3% of participants correctly identified the definitions of PV and ADR. The fact that 95% of participants were aware of the ADR reporting system's existence and that 88.9% knew which regulatory body was in charge is an exciting conclusion. Participants had a good attitude regarding PV and ADR reporting; 90.1% said it was part of their professional responsibility, and 94.1% thought pharmacists and other healthcare providers should work together. Eighty-six percent of participants (86.1%) had noticed an ADR while practicing, and seventy-three percent had reported one. Insufficient pharmacotherapy/clinical expertise and the lack of a professional setting to discuss ADRs were seen as the main deterrents to reporting ADRs. [36].
Adverse drug reaction reporting practice among United Arab Emirates Pharmacists and Prescribers	Said, A., Hussain, N. (2017)	Self-administered cross-sectional questionnaire	91 people responded to the 150 survey questionnaires that were sent. A total of 60.7% of respondents (45.1% of men and 55% of women) completed the survey. We discovered that a reporting center's existence was unknown to 81%, 83%, and 83.3% of doctors, community pharmacists, and hospital pharmacists, respectively, and that 56%, 60%, and 72% were unaware of a reporting procedure. Respondents had poor ADR reporting habits; just 19%, 14%, and 12.1% of doctors, community pharmacists, and hospital pharmacists reported ADRs, respectively [37].
Knowledge, perception and practice of pharmacovigilance among community pharmacists in South India	Arul Prakasam, Anitha Nidamanuri, and Senthil Kumar (2012)	Prospective study with face to face questionnaire	347 (53.3%) of the 650 surveys distributed to community pharmacists were returned entirely completed. A total of 120 (34.6%) pharmacists could define the phrase "pharmacovigilance" to an acceptable level, and 119 (34.3%) were aware with India's National Pharmacovigilance Programme. About pharmacovigilance, 96 (27.7%) had high knowledge, 36 (10.4%) had acceptable knowledge, and 215 (61.9%) had low understanding. We discovered that 196 people (56.5%) had good perception, 94 people (27.1%) had fair perception, and 57 people (16.4%) had poor perception. Only 41 pharmacists (11.8%) ever reported an ADR, while the remaining never reported an ADR. The majority of the 223 pharmacists (64.3%) thought the AE was minor and did not report it. Pharmacists have little knowledge, decent perception, and low reporting rates [38].
Knowledge, perceptions and practices of pharmacovigilance amongst community and hospital pharmacists in a selected district of North West Province, South Africa	M.C. Joubert, Panjasaram Naidoo (2016)	Cross-sectional study treated with descriptive statistics including ANOVA testing	The questionnaire was completed by 122 pharmacists (68.9%). Despite being aware of the idea of pharmacovigilance, pharmacists' knowledge ratings were low. Pharmacists felt that pharmacovigilance is a beneficial tool, but

			they viewed pharmacovigilance authority to be remote and distant. Although more than 90% agreed that all adverse medication responses should be reported, only 44.1% said they had done so (ADRs). Only 6.7% of pharmacists were happy with the reply they received from authorities after reporting an ADR. Barriers to reporting ADRs were noted. Over 80% said they would take further pharmacovigilance training [39].
Community pharmacists' attitudes, perceptions, and barriers toward adverse drug reaction reporting in Malaysia: a quantitative insight	Ramadan Mohamed Elkalmi, Mohamed Azmi Hassali, Mohamed Izham M Ibrahim, Shazia Qasim Jamshed, Omer Qutaiba B Al-Lela (2014)	Cross-sectional survey using a validated self-administered questionnaire	One set of reminders contained 470 survey forms. The study only received 116 responses from pharmacists totaling to a response rate of 25.2%. 104 (24.7%) out of the total replies were usable. The results of the survey showed that approximately 75 percent of pharmacists (n = 75; 72.1%) were unaware of the pharmacovigilance operations carried out by Malaysia's drug regulating authorities. Only 13 pharmacists (12.9%) reported to have submitted ADR reports to the Malaysia Adverse Drug Reaction Advisory Committee (MADRAC) prior to the study, despite the fact that more than half (n = 65, 61.5%) of the pharmacists who participated in the survey stressed the significance of ADR reporting. There are obstacles that impede community pharmacists from reporting ADRs. These included not knowing how to report (n = 36; 34.7%), not having reporting forms available (n = 44; 42.6%), and not knowing where to send the report (n = 46; 44.6%) [40].
The role of community pharmacists in monitoring adverse drug reactions in Nigeria	Kanayo Patrick Osemene, Mopelola Ibidunni Ayeni, Margaret Olubunmi Afolabi (2012)	Convenience sampling process.	In terms of administering the questionnaire, the study's response rate was 92.7%. Only four (4) of the 612 community pharmacists who received the questionnaire filled it out incorrectly, and 41 refused to participate, citing a lack of time and interest in the study as their reasons. In the course of practice, 85.19% of community pharmacists learned ADR monitoring and reporting. Only 4.59% and 2.12% of community pharmacists said they learned about monitoring and reporting ADRs through Uppsala Monitoring Center workshops and from taking part in public health initiatives, respectively. However, 8.11% of community pharmacists stated that they learned how to track and report Adverse Drug Reactions (ADRs) when they were undergraduate students. In the oral interview, they claimed that during their clerkship and externship programs, they learned how to identify, track, and report ADRs [41].
A cross-sectional pilot study on assessing the knowledge, attitude and behavior of community pharmacists to adverse drug	JimmyJose, Beena Jimmy, Aliya Said Hamed, Al-Ghailani, Maryam Abdullah, Al Majali (2014)	Self-administered questionnaire distributed to random sample of pharmacists	107 community pharmacists responded to the poll, totaling to a response rate of 72.3%. When asked about the drug safety of certain medications, pharmacists gave inaccurate

reaction related aspects in the Sultanate of Oman			answers to some crucial and useful questions. As a result, the total median score for these questions was 5 (Inter Quartile Range, IQR 2), which was below the required score of 9. A maximum score of 9 was available. A moderate score was achieved with a total median score of 38 (IQR 8) out of a potential 50 based on knowledge, attitude, and behavior [42].

Table 3: On Nurses

Related Articles	**Author/s and Year**	**Method**	**Results**
An evaluation of knowledge of pharmacovigilance among nurses and midwives in Turkey	Alan S, Ozturk M, Gokyildiz S, Avcibay B, Karata ş Y. (2013)	Cross sectional	389 nurses and midwives in all took part in the study. The study's nurse/midwives were found to have an average age of 31.9 years (with a range of 18 to 57 years), an average amount of experience of 10.26 years (with a range of 0 to 40 years), and an average number of hours worked per week of 43.25. (range 40 to 64 hours). Of all the participants, 32.5% work in surgical units, and 43.2% have bachelor's degrees. Antibiotics (38.6%) and analgesics (8.8%) were the medicine classes that participants reported generating adverse drug responses the most frequently [43,44].
The key role of clinical and community health nurses in pharmacovigilance	Bigi, C., Bocci, G. (2017)	Systematic Review: PubMed, Scopus and ISI Web of Science databases	A total of 987 articles were found utilizing the search method; 180 items were left over after duplicates were eliminated. After thoroughly reviewing these 180 papers, we found 24 that satisfied the inclusion/exclusion requirements and included them in our evaluation. In some nations, the quantity and quality of ADR reports produced by clinical nurses are on par with those made by doctors or pharmacists. There is presently no information on ADRs reported by community nurses. The difficulties nurses experience while reporting ADRs, however, have been highlighted in multiple articles, along with the requirement that pharmacovigilance training be included in academic programs for clinical and community health nurses [45,46].
Impact of educational intervention on knowledge, attitude, and practice of pharmacovigilance among nurses	Goel, Divya (2018)	Cross-sectional descriptive questionnaire-based study	The surveys were completed by 98 individuals in total, both before and after the educational intervention. A PV education program was demonstrated to statistically increase knowledge and favorable attitudes toward several components of PV knowledge [47,48].
Assessment of knowledge, practices, and barriers to pharmacovigilance among nurses at a teaching hospital, Ghana: a cross-sectional study	Adu-Gyamfi, P.K.T., Mensah, K.B., Ocansey, J. et al. (2022)	Descriptive cross-sectional study	Female respondents made up 67.2% of the sample, while male respondents made up 32.8%. The majority of nurses (71.2%) had little to no understanding of ADR reporting processes. 84.8% of the nurses were also aware of the rationale of reporting ADRs. According to respondents, the two main goals of ADR reporting are to identify safe medications

			(80.8%) and determine the frequency of ADRs (75.2%). Additionally, 52.54% of the nurses who said they had cared for a patient with ADRs said they had reported the case, compared to 47.46% who had not. The most common justification given by nurses for not reporting ADRs was that they thought the side effect was usual and normal for people taking that medication (35.7%). In contrast, 28.5% of the nurses claimed they were unaware of their obligation to report a negative drug reaction. There was no statistically significant difference between ranks of nurses, ward, attending in-service training, and pharmacovigilance practice [49,50].
Adverse drug reaction reporting by nurses: analysis of Italian pharmacovigilance database	Conforti, A., Opri, S., D'Incau, P., Sottosanti, L., Moretti, U., Ferrazin, F. and Leone, R. (2012)	Systematic Review of Italian pharmacovigilance database	1403 reports from nurses have been analyzed in total. The proportion of significant ADR reports made by nurses was 22.9% lower than the proportion made by physicians (44.9%), although the percentage of reports of suspected ADRs made by nurses was greater than that of hospital physicians (76% vs. 67%). Nurses focus more on application site disorders than do doctors (log OR = 0.91, 95%CI = 0.55-1.27), skin reactions than doctors (log OR = 0.81, 95%CI = 0.70-0.92), and nervous system reactions than doctors (log OR = 0.28, 95%CI = 0.11-0.44), while doctors focus more on blood, platelet, and liver disorders. Six medications appear in the top 10 drugs listed by hospital doctors and nurses, respectively [51,52].
Nurses' Knowledge, Attitudes, and Practice in Relation to Pharmacovigilance and Adverse Drug Reaction Reporting: A Systematic Review	Tahmine Salehi, Naiemeh Seyedfatemi, Mohammad Saeed Mirzaee, Maryam Maleki, Abbas Mardani (2021)	Systematic Review of MEDLINE, Embase, Scopus, and Web of Knowledge from January 2010 to October 2020	During the search process, 23 English-language papers that were published between 2010 and 2020 were found. Overall, 74.1% of nurses had a median level of understanding in the knowledge domain on the definitions of ADRs, however only 26.3% knew about the adverse drug reaction reporting form. In the attitude area, 84.6% of nurses felt that ADR reporting was crucial for the safety of patients and medications, while 37.1% were concerned about potential legal repercussions as a result of ADR reporting. Only 21.2% of nurses had a history of reporting ADRs, despite the fact that 67.1% of nurses encountered ADRs in the course of their careers. Additionally, from a nursing perspective, it was determined that a lack of information or training (median: 47.1%) was the main obstacle to reporting ADRs [53,54].
Knowledge, Attitude and Practice Towards Pharmacovigilance and Adverse Drug Reaction Reporting Among Nurses in A Tertiary Care Hospital, Tirupat	Rajalakshmi R, Devi BV, Prasad TD, Swetha S, Dharini B. (2017)	Cross-sectional questionnaire based study among the nurses of a tertiary care hospital	101 nurses in all (73.7%) responded to the survey. Most nurses believed that reporting ADRs was important, and 50% of nurses had awareness of significant ADRs [55,56].

Conclusion

Doctors, pharmacists, and nurses play a direct role in pharmacovigilance activities, particularly in identifying adverse drug reactions (ADRs) that are difficult for other healthcare professionals to find. They are also essential to maintaining patients' and the community's overall health, paying special attention to the more vulnerable patients, like children and the elderly. Healthcare professionals identify and assess to prevent adverse drug reactions associated with any medicinal product. Pharmacovigilance has a huge role in medication safety, this will help monitor adverse reactions, and identify and evaluate adverse drug reactions that are not reported.

The concept of pharmacovigilance varies in different locations, whereas some countries still have a low understanding of ADR reporting and are unaware of pharmacovigilance. Compared to other healthcare professionals, most physicians, nurses, and pharmacists are aware of ADR reporting, which is vital in their role as healthcare professionals. There are still those who have shown unawareness of ADR reporting, and they have different reasons for not doing the action; however, they are willing to be trained to enhance their knowledge of pharmacovigilance and ADR reports.

Conflict of Interest

The authors declare that they have no conflicts of interest.

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