

MEDICATION ERRORS AND ADVERSE EVENT REPORTING

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Abstract

The preparation and administration of medicinal products are a fundamental part of the healthcare industry, and the nurse's role is crucial. The nurse is responsible for patient safety while preparing and administering medications, as medication errors can have severe and irreversible consequences for the patient. This review study aims to summarise research findings regarding nurses' safe administration of medicinal products, possible risks, and reporting medication errors as adverse events. Reviews were searched in electronic databases focused on full-text sources for the past ten years (2012–2022). These databases were Medline, CINAHL, Bibliographia medica Českoslovaca, Web of Science, PubMed, Scopus, and Google Scholar. The selected studies were searched using keywords: medication administration, medication administration risks, nurse, nursing process, medication administration risk management, quality of nursing care, safe medication administration, medication administration error, adverse event, drug, medication error, patient. Ten studies meeting the required criteria were included in the final review. Medication errors can only be reduced with a system-wide approach. Nurses' knowledge of pharmacology, skills, and decision-making processes about safe drug administration procedures and practices are essential. Risk management in the field of medication is a primary part of the process settings in the organisation and a systemic approach to ensuring patient safety.

Keywords: *Adverse event; Drug administration; Medication errors; Nurse; Risk management*

INTRODUCTION

Pharmacotherapy is a complex area linked to the quality of the provided healthcare. Doubts in any phase of pharmacotherapy pose a significant risk to the patient's health (Heczková, 2021). The administration of medicaments, medicinal substances, or medicinal preparations is essential in healthcare; and a nurse's administration of medicaments is both crucial and one of the riskiest nursing processes in a hospital (Brabcová et al., 2021). Patient safety associated with medication

administration is an ongoing challenge, and medication error reporting is essential (Xu et al., 2017). Drug administration management is a crucial aspect of patient safety in healthcare facilities, and systematisation leads to an increase in the quality of healthcare. Medication errors and subsequent adverse clinical events can damage patients' health and prolong their hospitalisation, which has a significant negative financial impact on the healthcare facility (Adhikari et al., 2014). Any medication errors are a severe and complex problem in clinical practice. Medica-

tion errors occur in all workplaces, but especially in intensive and anaesthesia care units, where the patient is potentially burdened with grave consequences due to the critical nature of their illness (Escrivá Gracia et al., 2019). Medication errors are a common and costly problem for hospitalised patients, and account for one-third of all medication errors (Bonkowski et al., 2013). They can have profound consequences for patients and their families. Errors increase the cost of medical treatment, morbidity (disability), and can lead to a patient's death (Dhawan et al., 2017). Process errors in pharmacotherapy are one of the most common incidents in healthcare facilities. They are often caused by system and procedure failures when providing care. Medication errors occur in all phases of drug therapy. This mainly includes prescribing, dispensing, preparing, and administering medicinal products, including monitoring their effects (Santos et al., 2019). System failures can be associated with the appearance of individual medicinal products. Similar appearance, label, or name can be confusing for the nurse (Dhawan et al., 2017). It is essential to set up a risk management system with clearly defined internal regulations that meet current legislation (Pokorná et al., 2019).

Medication errors are the leading cause of unintentional patient harm. The goal is to identify systemic factors leading to medication errors and to strive for maximum patient safety. Awareness of error reduction has become an important part of safe patient care (Alteren et al., 2018). Failures in the pharmacotherapy process are mainly systemic and person-dependent. They usually result from distractions in the work process, interruptions, nurses' fatigue, lack of attention, stress, and overwork. Other essential factors include unsuitable working conditions, lack of staff, limited knowledge and training, many types of drugs and the way they are administered (de Magalhães et al., 2019). Pharmacotherapy is associated with various types of errors. The most common include wrong drug or dose administration to the wrong patient or at the wrong time. Establishing interventions and systemic measures to minimize errors and increase patient safety in health care delivery is essential (Prakash et al., 2014). Systemic measures include double checks, elimination of interruptions in the preparation and

administration of medicaments, electronic systems, staff education, and e-learning education in pharmacotherapy (Smeulders et al., 2014). Any problems with medication and intravenous solutions should always be reported as an adverse event that should be evaluated and addressed. Part of the solution is a thorough analysis that leads to the implementation of corrective and preventative measures. The aim is to minimize or eliminate the causes of adverse events (Bartůněk et al., 2016). International studies show that inaccurate and incomplete adverse event reporting remains one of the fundamental obstacles to creating organisational policies, processes, and systems to ensure the safety of health care providers (Campbell et al., 2015). There are many reasons for nurses not reporting medication errors. The primary ones include administrative burden, fear of punishment, negative attitude from colleagues and the patient's family members, fear of embarrassment, an unpleasant atmosphere at the workplace, and the impossibility of work progress (Hammoudi et al., 2018).

This study aims to analyse the research conclusions regarding nurses' safely administering medicinal products and the risks associated with medicament administration. We also strive to analyse adverse event reporting, which can significantly affect corrective measures and interventions, minimising medication misconduct.

MATERIALS AND METHODS

Full-text overviews from the past ten years (2012–2022) in English and Czech (Chart 1) were searched in electronic databases, such as Medline, CINAHL, Bibliographia medica Čechoslovaca, Web of Science, PubMed, Scopus, and Google Scholar. We used different keywords for each database. Primary keywords included *medication administration, medication administration risks, nurse, nursing process, medication administration risk management, quality of nursing care, safe medication administration, medication administration error, adverse event, drug, medication error, and patient*. The fundamental strategy was to focus on the nurse's work regarding medication error, the factors leading to this error, risk factors, and the sub-

sequent effective adoption of intervention techniques that reduce medication errors. Both authors studied the abstracts and selected the appropriate material. After reading the full-text publications, the authors excluded

inappropriate texts. The exclusion criteria included the drugs being administered outside of the hospital environment and for a specific disease type.

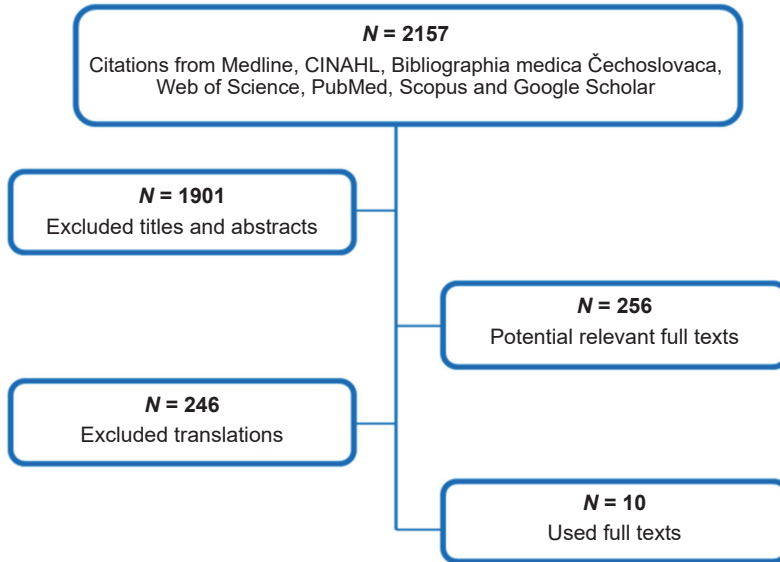


Chart 1 – A flow chart citation study

RESULTS

We included ten studies (Alsulami et al., 2014; Alteren et al., 2018; Baraki et al., 2018; Berdot et al., 2012; Elasmag and Abusnieneh, 2020; Fathi et al., 2017; Hammoudi et al., 2018; Tan et al., 2017; Westbrook et al., 2017; Wondmienieh et al., 2020) addressing drug administration in clinical practice, associated risks, adverse event reporting, and subsequent interventions.

A study by Westbrook et al. (2017) aimed to evaluate the effectiveness of the combined intervention “Do not interrupt”, the main purpose of which was to reduce interruptions of nurses during medication administration and increase patient safety. The medication was not the problem, but that the nurses were being disturbed. A parallel eight-cluster randomised controlled study was conducted in an Australian faculty hospital at eight selected workplaces, with four random wards for the intervention. The intervention involved wearing a red vest with the words “Do Not Disturb”

on it, which the nurses used while preparing and administering medication. The intervention also included a standardised educational session with clinical practice staff and an interactive workshop to reduce distraction. Patients were informed about other medical personnel if they needed help, and posters and leaflets were distributed at workplaces that addressed the importance of not disturbing the nurse during the preparation and administration of medicines. During the direct, structured observation of the medication administration process, 227 nurses were monitored for eight weeks. They administered 4,781 medications. The study observed 57 interruptions per 100 medication administrations (57/100). Most interruptions were unrelated to the medication. A significant reduction in medication-related interruptions was found in intervention wards compared to control wards. The study shows that interruptions in interventional wards decreased by up to 30% compared to non-intervention wards. The intervention was effective, increasing pa-

tient safety in the nurse's medication administration.

A descriptive cross-sectional study by Hammoudi et al. (2018) analysed the factors that most often influenced the occurrence of medication errors and addressed the reasons why nurses did not report these errors as adverse events. 367 validated questionnaires were distributed in four hospitals in Riyadh, Saudi Arabia, with a follow-up return rate of 73.4%. The questionnaire contained 65 questions. 29 of them dealt with the causes of medication errors, 16 questions discussed the reasons why nurses did not report errors, and 20 questions were devoted to a percentage estimation of the various reported medication errors that were actually reported. The research findings pointed to the main factors related to medication errors. The most common reasons for errors were similar packaging and nomenclature of drugs, poor nurse-doctor communication, staffing of nurses on duty (high workload), the frequency of staff rotation at workplaces, and pharmacy processes associated with unclear drug ordering and prescription transcription issues. The second part of the study was devoted to reporting adverse events or why nurses did not report them. The main reasons were the high administrative burden of reporting incidents, or fear of retribution and possible disagreements. The study results show that the underreporting of medication errors is quite common, and service quality and patient safety in healthcare facilities remain uncertain. The recommendation for minimising errors is using electronic methods, improving communication skills, improving health workers' awareness of safety, supporting health workers, and identifying and labelling similar drugs by name or packaging to increase patient safety and reduce system errors.

A similar cross-sectional study by Fathi et al. (2017) was conducted in seven faculty hospitals in Iran. It dealt with the prevalence of medication errors, types of errors, and the barriers to reporting adverse events regarding medication. The questionnaire was distributed among 500 nurses with at least one year of clinical experience. It consisted of four parts. The study results showed that the most common errors were administering the medicine at the wrong time, giving the wrong dose, and giving the medication to the wrong patient.

Less frequent errors included confusing the medications, administering medications without a previous doctor's prescription, or inappropriate infusion speed. The most important and most significant obstacle to non-reporting medication errors was the heavy workload caused by the number of patients in the wards, fear of the consequences of errors, and fear of their superiors. The study conclusion recommended increasing awareness of the importance of medication error reporting and promoting a positive approach to reporting events among healthcare professionals. It is essential to eliminate obstacles, such as a culture of blame and a lack of protection from managers. Nursing managers should effectively manage human resources to avoid staff workload. They should educate staff on the importance of error reporting.

A study in the paediatric wards of public hospitals in Tigray, Northern Ethiopia, aimed to analyse factors associated with medication errors in the paediatric population (Baraki et al., 2018). Data was collected using a structured questionnaire and observation checklist. 62.7% of 1,251 medication administrations were found to be incorrect. The most common medication errors were incorrect dosage (which can increase the risk of harm to health in paediatric patients), wrong time of administering medication, omitting medication, administering to the wrong patient, incorrect method of administration, and administering non-prescribed or incorrect medication. The most common factors were the healthcare workers' education levels, the patients' age, the availability of a drug preparation room, and drugs being administered to patients who were prescribed two medication types. This study found a high incidence of medication errors. Practical recommendations should be the education of medical personnel, sufficient space for drug preparation, and the regular updating of internal procedures.

Alsulami et al. (2014) conducted a prospective observational study in a children's hospital in Great Britain. It dealt with the double-checking principle compliance analysis in medication administration and the identification of the types and frequency of errors. Double-checking is a common and established part of nursing practice in British hospitals when administering medicinal products. However, there is insufficient evidence

to show that double-checking reduces the risk of medication errors. The study dealt with drug administration, dosage, intravenous administration speed, and labelling syringes for flushing. The study was carried out in paediatric internal, surgical, and intensive wards – including intensive care for newborns. The observation took place during different shift types and periods, including weekends. The double-check process means two competent staff members check before administering the medicine. 2,000 medication dosages were monitored and evaluated while adhering to double-checking when preparing and administering medication. 191 adverse events associated with drug administration were identified. The most common error involved parents administering medication without a nurse's supervision – which is against local policy. There were considerable differences (from 30% to 100% compliance) among nurses in relation to double-checking before administering medication. This disparity or ignorance of the double-checking process may have been the result of nurses' inconsistency. The study did not provide enough evidence on whether double-checking affects medication errors. Despite double-check, medication errors were found.

In Malaysia, Tan et al. (2017) conducted a prospective, pre- and post-intervention study on preparing and administering parenteral drugs. The study was conducted in Kuala Lumpur's faculty hospital's intensive care unit. Before the main study, a pilot study was conducted to test the content, functionality, and practicality of the checklist. A pharmacist carried out the data collection. Their observations were conducted on weekdays during the morning hours. They observed parenteral drug preparation and administration; primarily intravenous, intramuscular, and subcutaneous. Medication type, dosage, carrier solution, time, administration speed, syringe labelling, and aseptic technique were recorded in a standardised checklist. After the observation, the pharmacist compared the patient's documentation and internal hospital regulations. Frequent errors in the pre-intervention part of the study included incorrect preparation, incorrect dosage and administration, incorrect administration method, incorrect speed, incorrect administration time, double-checking, and syringe labelling. In

the pre-intervention period, nurses generally did not follow standard procedures. After the intervention, there was a significant improvement in adherence to all procedures for parenteral drug preparation and administration, including aseptic techniques.

An exploratory non-participant observational study with quantitative data collection was conducted in Norwegian hospitals in Helgeland. Alteren et al. (2018) dealt with nurses being disturbed, and their behaviour and actions when administering medication. The observation was conducted in internal and surgical workplaces. 351 medication processes were observed. Interruptions during medication administration were recorded in 264 cases (75.2%), which could have significantly increased the error. Nurses were most often interrupted by other nurses or other health workers. The interruption was due to the required help with administration, clarifying tasks, or reporting laboratory test results. The second most frequent interruption was from patients. Disruptions involved making the bed, escorting patients to the toilet, and informing them about health conditions, examinations, or operations. The study also showed that the nurses were disturbing one another while administering medication. Such disruptions mainly concerned adjusting the patient's bed, helping the patient with various tasks, checking invasive entrances and surgical wounds, and measuring body temperatures. Nurses providing direct patient care gain knowledge about the patient's health, want to meet the patient's requirements, and increase the effectiveness of nursing care. Nurses see interruptions during the administering of medication as a necessary part of their profession. The study showed that distractions during medication administration did not have a significant impact on errors. After the interruption, the nurses returned to administering the medication and were usually able to fully concentrate. The study showed that they are used to interruptions. Their experience allows them to master these mechanisms and see them as daily routine. Regardless of whether the nurses were disturbed or not, several medication administrations were not carried out. This mainly happened due to patient identification or verification of allergy information. Nevertheless, healthcare providers and hospital management need to know

that interrupting nurses while administering medication represents a potential malpractice risk and must be prevented.

Like Hammoudi et al. (2018), a study by Wondmienieh et al. (2020) assessed the frequency and significant factors contributing to nurse medication errors. A cross-sectional study was conducted in hospitals in Addis Ababa, Ethiopia, between February and March 2018. 298 randomly selected nurses participated. Data was collected by self-reporting and nurses' observation while administering medicinal products. 68.1% of nurses stated they had committed a medication error the previous year. Inadequate training, unavailability of work procedures, interruptions during medication administration, and night shifts were the most common reasons for malpractice. The most frequent errors included administering medication at the wrong time, documentation errors, incorrect medication dosages, and a non-prescribed method of administering medication. The study showed that, in hospitals in Addis Ababa, such medication errors are significant. Medication errors can endanger patient safety, harm their health, and undermine public confidence in nursing care. Wondmienieh et al. (2020) recommend consistent training of medical personnel and clearly defined work procedures, ensuring a safe environment for staff and stabilising experienced staff to prevent medication errors.

The descriptive exploratory cross-sectional study by Elasrag and Abusnieneh (2020), conducted in two regional hospitals in Egypt between February and April 2019, addressed significant factors contributing to medication errors. Its goal was to analyse the factors leading to misconduct and to discover why nurses did not report it. The study was conducted in the emergency department, the intensive care unit, and the surgical unit. It involved 146 nurses from the morning and afternoon shifts. In the questionnaire survey, the nurses stated that the most common factors were systemic failures, mainly related to insufficient knowledge (42.46%) and training (64.38%) regarding medication administration. Among other factors, the nurses listed short staff on shifts, poor communication, late prescriptions, or their transcriptions. Several nurses agreed that some patients had similar medications, or that the medications

had similar names or packaging. The second part of the study analysed why nurses did not report misconduct as an adverse event. The nurses stated four reasons for non-reporting. The first was fear of accusation or that the nurse would receive a negative response. The second was the considerable administrative burden of reporting – which usually has no feedback. The third was disagreeing with the definition of medication errors. The fourth were efforts associated with medication errors. Elasrag and Abusnieneh (2020) recommend improving the education of nurses regarding pharmacotherapy and to have effective communication among medical staff. An important part is the development of internal procedures, guidelines, and protocols, and their subsequent compliance.

Berdot et al. (2012) focused on medication error occurrence, type, clinical significance, and identifying risk factors. This prospective study was based on a covert observation technique. A pharmacist observed the nurse while preparing and administering medication during three medication rounds over six days. The study was conducted in a faculty hospital in Paris's immunological-cardiology, nephrology, vascular and cardiovascular surgery departments. 28 nurses caring for 108 patients were observed. 1,501 medication administrations were monitored, and 430 errors were identified. The most common errors included the failure to observe the administration time, omission, and non-prescribed medication. The less frequent errors included dosage, incorrect dosage methods, errors in drug preparation, and incorrect administration techniques. The most frequent errors were related to dermatological drugs. Three pharmacist interventions preventing medication errors were of clinical importance. Five drugs during three administrations were almost given to the wrong patient. Malpractice was significantly related to the number of patients the nurse oversaw. Insufficient shift members are significantly associated with work stress and fatigue, which increases the risk of misconduct. A proposal for improvement is the introduction of bar-coded drug administration systems, education and awareness of medical staff, and increased understanding of risky processes. Medication errors are common and require interventions to improve patient safety.

Table 1 – Review of researched studies

Authors, publication year	Research type	Researched period/year	Research objectives	Research application	Resulting effect	Limitations
Westbrook et al., 2017	A parallel eight-cluster randomized controlled research	2016	To evaluate the effectiveness of a combined "Do Not Interrupt" intervention to reduce nurse interruptions during drug administration not related to medication.	Eight selected wards in a large teaching hospital in Adelaide, Australia.	A significant reduction in medication-related discontinuations was found in intervention wards compared to control wards. The intervention was effective.	The study was conducted in only one hospital, missing information on the number of employees, and potential harm to the patient was not assessed.
Hammoudi et al., 2018	Descriptive cross-sectional study	2017	To analyse the factors affecting medication errors and the reasons why nurses do not report them.	Four hospitals in Riyadh, Saudi Arabia.	The most frequent factors causing errors and the reasons why nurses do not report medication errors as adverse events are analysed.	The possibility of non-response bias associated with the sampling method, focusing only on the nurse's perspective.
Fathi et al., 2017	A cross-sectional study	2016	To examine the prevalence and types of medication errors and analyse barriers to reporting adverse events related to medication.	Seven faculty hospitals in Iran.	A high prevalence of medication errors was found, the reasons for not reporting errors were analysed.	
Baraki et al., 2018	Prospective observational cross-sectional study	2017	To determine the types of errors and analyse the factors associated with medication errors in the paediatric population.	Public hospitals in Tigray, northern Ethiopia.	The incidence of medication errors was found to be high in this study.	
Alsulami et al., 2014	A prospective observational study	2012	To evaluate compliance with the principles of double-checking in medication administration, and to identify the types and frequency of errors.	Children's Hospital in the UK.	Differences in adherence to double-checking during medication administration identified the most common type of error.	Conducted in a single hospital, possible influence on nurses in the presence of an observer in the ward, inability of the observer to see the administration of all drugs.

Table 1 – continued

Authors, publication year	Research type	Researched period/year	Research objectives	Research application	Resulting effect	Limitations
Tan et al., 2017	Prospective, pre- and post-intervention study	2013–2014	Analysis of the effectiveness of interventional techniques in connection with the preparation and administration of parenteral drugs. Identification of the type of error.	Intensive care unit of a tertiary faculty hospital in Malaysia.	The educational intervention significantly reduced error rates and improved adherence to best practices in medication preparation and administration.	After the intervention, some actions were not observed, the intervention of the observer in case of significant misconduct, the sustainability of the intervention was not examined.
Alteren et al., 2018	An exploratory non-participant observational study with quantitative data collection	2013–2014	To identify sources of interruptions and distractions in medication administration in Norwegian hospitals.	Three hospitals in Helgeland, Norway.	Three main reasons for drug administration interruptions (other: medical staff, patients, nurses) were identified.	
Wondmienieh et al., 2020	A quantitative, institutional, cross-sectional study	2018	To assess the frequency and significant factors contributing to medication errors among nurses in tertiary care hospitals. Identification of the type of error.	Hospital in Addis Ababa, Ethiopia.	Analysed significant factors leading to medication errors.	The study was only conducted in hospitals in Addis Ababa. The possibility of subjective distortion of the observer or self-evaluation.
Elasrag and Abusnieneh, 2020	Descriptive exploratory cross-sectional study	2019	To analyse factors contributing to medication errors, reasons for not reporting errors.	Two regional hospitals in Egypt.	The most frequent factors contributing to medication errors were identified, the reasons for not reporting adverse events were analysed.	
Berdot et al., 2012	A prospective study	2012	To determine the incidence, type, and clinical significance of medication errors and identify risk factors.	Faculty Hospital of Paris, France.	Analysed types of errors, incidence, and clinical significance. Medication errors have been shown to be common.	Single-centre study, observation took place only on weekdays.

DISCUSSION

This overview study shows that medication errors can significantly harm a patient's health. All incidents must be reported as adverse events so the organisation can set clear systemic measures to minimise them. A study by Baraki et al. (2018), Berdot et al. (2012), Elasrag and Abusnieneh (2020), Hammoudi et al. (2018), and Wondmieneh et al. (2020) analysed factors contributing to medication errors. Berdot et al. (2012), Elasrag and Abusnieneh (2020) and Hammoudi et al. (2018) agreed that an insufficient number of staff significantly contributes to medication errors. It causes a high workload, increased stress and a high number of patients requiring a nurse's care. This is also confirmed by Sessions et al. (2019). They state that a high nurse workload is a barrier to safe practice related to medication administration. The resulting errors are caused by fatigue, exhaustion, loss of concentration, and an increased number of assigned patients. Elasrag and Abusnieneh (2020) and Hammoudi et al. (2018) agree that the risk of error increases with drugs that have similar names or packaging. Other negative factors influencing medication errors include insufficient education of medical personnel, insufficient training regarding administering medicinal products, or the unavailability of work procedures (Baraki et al., 2018; Elasrag and Abusnieneh, 2020; Wondmieneh et al., 2020). According to the study by Elasrag and Abusnieneh (2020) and Hammoudi et al., other equally important factors contributing to medication errors are (2018) poor or insufficient communication among healthcare workers on shift. Elasrag and Abusnieneh (2020) state that errors arise due to late prescribed medication and prescription transcriptions. Santos et al. (2019) include illegible prescriptions, absence of relevant data, polypharmacy, and drug interaction as error risks.

Smeulders et al. (2014) indicate that management need to recognize and facilitate a nurse's role to improve the safety of medication administration. They state that education, interpersonal relationships, work organisation, staffing, and transformational leadership that affect the quality of services provided, along with increasing patient safety, are essential.

Edward et al. (2019) show that education related to medication is important in bachelor study programmes, including simulations of safe medication administration in clinical practice. They state that training in a real-world environment simulates safe practice and increases patient safety. Wondmieneh et al. (2020) showed that interruptions to medical staff caused errors.

Brabcová et al. (2014) state that medication administration errors are often caused by distractions, fatigue, poor communication, and the patient's lack of cooperation. Dickson and Flynn (2012) emphasise the importance of patient education. The patient's knowledge of their medications is a fundamental principle that protects them from medication errors and increases the safety of nursing practice.

Alteren et al. (2018) focused on nurses' interruptions during medication administration. Westbrook et al. (2017) focused on possible risks related to drug administration. Alteren et al. (2018) focused on the observation of nurses during medication administration. They observed interruption by other activities and the subsequent association with medication errors. The results showed that nurses were often interrupted by various activities not related to drug administration. After the interruption, they returned to this activity and could fully concentrate. Disturbances did not significantly impact the errors. The risks were possible. Nurses accepted disruption as part of their profession and daily routine. Regardless of whether the nurse was distracted, the misconduct occurred to the same extent. Westbrook et al. (2017) focused on intervention techniques that minimised medication administration risks. The intervention included wearing a red medicine vest, training nurses in medication preparation and administration, an interactive workshop, and providing further information to patients about the importance of not disturbing the nurse. In interventional wards, nurse interruptions were significantly reduced compared to other wards during drug preparation and administration. Educating nurses in medication preparation and administration is supported by Mandrack et al. (2012). They describe the importance of continuing education to reach maximum patient safety; this includes educational programmes and annual nurse competence tests.

Medication errors include a variety of errors that have clinical significance and an impact on the patient. Alsulami et al. (2014), Baraki et al. (2018), Berdot et al. (2012), Fathi et al. (2017), Tan et al. (2017), and Wondmienieh et al. (2020) addressed the most frequent errors. All studies showed errors, such as the wrong time of drug administration and incorrect dosage. Baraki et al. (2018) and Fathi et al. (2017) agreed that administering medication to the wrong patient was one of the most frequent errors. Incorrect methods of medication administration were also frequent errors (Baraki et al., 2018; Tan et al., 2017; Wondmienieh et al., 2020). Less frequent errors included confusing the drugs, drug administration without a previous check-up (Fathi et al., 2017), medication omission, administration of a non-prescribed drug (Baraki et al., 2018), drug administration by the child's parents without a nurse's supervision (Alsulami et al., 2013), incorrect drug preparation (Tan et al., 2017), incorrect drug form, and incorrect administration technique (Berdot et al., 2012).

Patient safety in healthcare should be a priority for all organisations. Elasrag and Abusnieneh (2020), Fathi et al. (2017), and Hammoudi et al. (2017) state that reporting all adverse events associated with the medication is essential. The studies agree on the reasons why nurses do not report misconduct. Fear is cited as the most common cause, i.e., fear of the consequences of misconduct, accusations, and a negative attitude towards the nurse from superiors or colleagues. Elasrag and Abusnieneh (2020) and Hammoudi et al. (2018) mention the high administrative burden of reporting an adverse event as one of the reasons. Fathi et al. (2017) point to the enormous workload and time demands. Elasrag and Abusnieneh (2020) add that incident reporting usually receives no feedback from managers and employers. Campbell et al. (2015) state that, in general, all adverse events in healthcare are underreported.

Wright (2013) confirms that nurses are afraid to report medication errors due to fear of accusations, and usually only report those errors where the patient or their health have been damaged. This is one of the main obstacles to creating organisational policies

and setting processes to ensure the safety of healthcare providers in clinical practice (Wright, 2013). Monitoring, evaluating, and processing all adverse events and searching for critical and risky areas play a crucial role in patient safety when it comes to medical care provision (Pokorná et al., 2019). Stelly (2014) mentions that the system electronication, i.e., electronic medication ordering and prescriptions, clearly contributes to increasing patient safety. Doubt is minimised at all stages; from ordering and prescribing the drug to administration. Keane (2014) mentions electronication as crucial to safe medication ordering and administration. He adds that barcodes are becoming common on drugs, which increases patient safety, improves their lives, and changes nursing practice.

CONCLUSION

Nursing staff are vital to the prevention of medication errors, as they usually administer medications. Many factors lead to errors and many barriers to maintaining safe medication risk management. Depth of knowledge in pharmacology, skills, and decision-making processes about safe drug administration procedures and practices are essential for nurses. Medication errors can be reduced with a system-wide approach rather than just focusing on individual errors. Any adverse clinical events associated with medication processes can prolong hospitalisation, cost lives, and have severe financial impacts on healthcare facilities. Systemic processes and ensuring patient safety in healthcare facilities include five inherent principles related to medication administration: giving the correct medicine and dosage to the right patient at the right time while using the proper method. Patient safety is crucial in healthcare services. Risk management with continuous improvement in quality of care should be a priority for every organisation.

Ethical aspects and conflict of interests

The authors have no conflict of interests to declare.

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