Leading Causes of Medication Errors in the Nursing Profession: A Literature Review

Kaitlyn Goodrum

Lakeview College of Nursing

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Administering medication to patients is an integral part of the nursing profession. Nurses try to provide the best possible care for their patients; however, mistakes with their medication occur and, unfortunately, are more common than one would speculate. Medication errors do not always show a reaction; however, sometimes, they can lead to an adverse drug reaction that could harm the patient or even cause death. The United States estimates that around 7,000 deaths are due to medication errors in the United States (Alj et al., 2021). This review will discuss, throughout its entirety, the leading causes of medication errors worldwide. Some leading causes will focus on factors associated with pharmacies, nurses, physicians, and manufacturers (Abusaksaksa et al., 2020). This literature review aims to educate individuals on the primary issues that lead to medication errors so that those issues can be improved, improving patient care.

Construction and analysis of a database for medication errors in a pharmacovigilance centre—the Moroccan experience

Researchers utilized the Moroccan Pharmacovigilance Center (MPVC) to gather data on medication errors throughout Morocco. The study's primary purpose was to determine what factors lead to serious medication errors (ME). Researchers were able to retrieve a total of 1,618 medication error reports collected over ten years from the MPVC. Researchers developed four categories to place the reports in, medication errors with adverse drug reactions (ADR), medication errors without harm, intercepted medication errors, and potential medication errors (Alj et al., 2021). To determine the medication errors that resulted in severe ADRs, researchers divided the category of medication errors with ADRs into two categories. Those two categories are medication errors linked with non-serious adverse drug reactions and medication errors linked to severe adverse drug reactions. Each category was analyzed closely to understand the primary reason for the medication error and what age group fell victim to it most. Due to the number of ME reports submitted over ten years, the study suggests that nurses and clinicians only file medication error reports sometimes when an error occurs.

Key Points

For this study, researchers conducted a retrospective descriptive analysis that used a quantitative approach to find the primary factors that cause medication errors, specifically medication errors with severe adverse drug reactions. The researchers retrieved 1,618 medication error reports through the Moroccan Pharmacovigilance Center via VigiFlow, a web-based ICSR management system provided by the WHO (Alj et al., 2021). According to the research, out of those 1,618 medication error reports retrieved from the MPVC, 9 (0.6%) represent potential MEs, 49 (3%) represent intercepted MEs, 895 (55.3%) represent MEs without harm, and 665 (41.1%) represent MEs with ADRs. Researchers utilized signal detection, a quantitative approach to screen the medication error reports to differentiate whether or not the reports could lead to a potentially harmful situation or cause severe harm to the patients. Among MEs with ADRs, 159 represent medication errors with severe adverse drug reactions, and 506 represent medication errors with non-serious adverse drug reactions (Alj et al., 2021). Most frequently, medication errors occurred in three main categories during the administration stage. The one category that did not occur during that stage was intercepted medication errors, which took place during the prescribing stage. Severe medication errors with adverse drug reactions accounted for 23.9% of the MEs with ADRs. The most common mistake under that category was administering the incorrect dose to the patient. Medication errors affected the age group of adults the most, except for the category of medication errors with severe ADRs, that category affected pediatric patients the most. Pediatric patients vary in height and weight so much that making mistakes on their medication is easier.

The data results showed the common factors that led to medication errors. The main factors that led to potential medication errors were confusion about the drug name, drug label instructions, and look-alike packaging. The primary factors that led to intercepted medication errors include prescribing the incorrect dose and scheduling the prescribed medication at an inappropriate time. The factors that lead to medication errors without harm include administering the incorrect drug (24.6%) and sometimes the incorrect dose (24.2%) and scheduling the drug at an inappropriate time (21.5%). The primary factors that lead to medication errors with adverse drug reactions include administering the incorrect dose (21.1%), scheduling the drug at an inappropriate time (18.2%), and administering the wrong drug (14.9%) (Alj et al., 2021). In the category of severe medication errors with adverse drug reactions, 83.8% represent patients who required prolonged hospitalization, and 6.6% of the patients in those reports experienced death. The data in this study was significant. The researchers utilized an n-value to represent the number of reports in this study and a p-value to represent the statistical probability of given information.

The author determined that administration errors were a common factor in both medication errors without harm (82%) and medication errors with adverse drug reactions (93.7%) (Alj et al., 2021). Since intercepted medication error reports and potential medication error reports were so low, the author concluded that clinicians and nurses do not file these particular reports as much because they do not affect the patient. Underreporting medication errors is a recognized problem, and identifying the main factors leading to MEs can help improve pharmacovigilance. Pharmacovigilance puts the care and safety of the patient first when dealing with medication.

Assumptions

After analyzing the data results and understanding the author's point of view, establishing a primary assumption is clear. The stage at which most medication errors occur is the administration stage (Alj et al., 2021). Nurses must pay closer attention when administering medication to their patients to minimize medication errors. This issue is apparent when the two categories, medication errors with adverse drug reactions and medication errors without harm, are caused primarily because of administration errors. Medication errors should decrease once individuals start paying closer attention at the administration stage. Healthcare personnel and nurses must also be more cautious with pediatric patients since making a mistake with their medication is much easier (Alj et al., 2021). Another minor assumption of the author is that healthcare providers and nurses must take responsibility for any mistake, no matter how small, and file a medication error report. This action will help the number of medication error reports be accurate.

Deficit/Conclusion

The reasoning behind the author's article is sound and rational. Society should accept this article, take it for what it is worth, and try to improve upon all the stages of medication to save people from horrible adverse drug reactions and even death. An implication of this article is the number of reports in some of the categories. The article discussed how the number of reports in two of the main categories might not be accurate because the patient did not experience any harm (Alj et al., 2021). In those two categories, the report numbers were low compared to the other categories. Also, the sample size spanned ten years, starting in 2006. Researchers should conduct a study that includes reports from more recent years to compare any differences that have taken place from then to now. *Medication errors* are a serious matter that the nursing profession deals with daily. If nursing fails to see the importance of medication errors, the number of reports will continue to increase, placing many patients' lives in danger. Failure to pay close attention during the administration stage of medication and not being adequately educated in pharmacology will lead to adverse drug reactions and death, unfortunately.

Perceived occurrence of medication administration errors among nursing students at a higher education institution in Western Cape, South Africa

This article discusses the issue of medication administration errors among a specific group of people, nursing students. The study included 291 nursing students and utilized a descriptive quantitative design using self-administered questionnaires to gather the data (Abusaksaksa et al., 2020). The study wanted to determine whether nursing students were privy to medication administration errors. For the students who were knowledgeable of such errors, the study aimed to name the primary problem that causes medication administration errors, according to the nursing students.

Key Points

The study was conducted in Western Cape, South Africa using 291 nursing student participants, including second, third, and fourth-year undergraduate students. Researchers used a non-probability proportional quota sampling method to gather the participants. The study utilized a descriptive quantitative design using self-administered questionnaires to gather the data. The questionnaire the participants filled out gave researchers the following information, demographic information, the participant's knowledge of medication administration errors occurring and the willingness to report them, and the causes of medication administration errors (Abusaksaksa et al., 2020). Researchers divided the causes into four categories: physician communication, nurse-associated, medication package, and pharmacy related.

According to the study, the participant's year of study was the only demographic aspect that varied with knowledge of medication administration errors. Not surprisingly, the fourth-year nursing student participants were the most knowledgeable of medication administration errors, representing 89.8% of all fourth-year students being privy to such errors (Abusaksaksa et al., 2020). That does not mean that the year of the student is dependent on knowledge of medication administration errors occurring. In fact, according to the p-value, there was no significant difference between the student's year and their knowledge of medication administration errors occurring (Abusaksaksa et al., 2020). Researchers used the p-value only to measure the participant's knowledge of medication administration errors. Researchers also utilized the n-value in the demographic section.

Moving on to discuss the cause of medication administration errors, let us review the four categories of causes, physician communication, nurse-associated, medication package, and pharmacy related causes. Out of the four categories, there was an anomaly with the pharmacy related causes. This category scored significantly lower than the neutral level, meaning pharmacy related causes do not significantly cause medication administration errors (Abusaksaksa et al., 2020). Researchers utilized the t-value when measuring the significance of each category. The other three categories, however, were a primary cause because each was significantly higher than the neutral level. Each category had a set number of questions relating to that specific category. After narrowing all the questions down, there were three significant causes the participants believed to be major contributors to medication administration errors. Those three questions belonged to one category, which was physician communication causes. According to the nursing student participants, the three most significant causes of medication administration errors were the physicians' medication orders being illegible, the physicians using abbreviations instead of writing the order out, and the physicians' medication orders not being clear (Abusaksaksa et al., 2020). While the other two categories, medication package causes, and nurse-associated causes, play a significant role in medication administration errors, they were not the most significant.

In conclusion, the study found that most participating students knew of medication administration errors during their practice. The study also found that physician communication was the main category that caused medication administration errors. Specifically, the use of abbreviations by physicians and unclear physician orders were the main contributors to medication administration errors (Abusaksaksa et al., 2020). The category that represented the second primary cause of medication administration errors was medication package issues. Pharmacy related causes were deemed insignificant to causing medication administration errors.

Assumptions

The authors of this article have made some explicit assumptions. The first assumption is that the amount of knowledge or awareness of medication administration errors occurring should not be assumed just by the year of study in nursing students. While the fourth year yielded a higher percentage than the second and third-year students, the year of study does not indicate if an individual is privy to the occurrence of medication administration errors (Abusaksaksa et al., 2020). The second assumption is that more care and detail must go into handling medication packages and nurse-associated causes since they have proven to be a significant factor in medication administration errors. The authors believe that eliminating interruptions during the administration process will give nurses less distraction and less room to make errors (Abusaksaksa et al., 2020). Researchers also suggested that the supervisor needs to be available for the nursing students, that nursing students would benefit from more simulation practice, and that increased staff level would decrease medication administration errors (Abusaksaksa et al., 2020). The last assumption is that physicians need to take their time when dealing with the care of an individual. Once the physicians slow down, that will allow them to write out medications entirely and legibly, not using abbreviations and clearly stating their orders of care for the patient. The author recommended that physicians and nurses would benefit from communication and interpersonal skills training to better talk about the causes of medication administration errors occurring (Abusaksaksa et al., 2020).

Deficit/Conclusion

The author's reasoning behind the conclusion of this study is acceptable. The study had a few implications. The undergraduate nursing school utilized in this study spans four campuses. The study was conducted at the largest campus, not utilizing students from the other three campuses. Due to only using one of the four campuses, the study's results might not be generalizable (Abusaksaksa et al., 2020). The study had one more possible implication. Using self-administered questionnaires, the method researchers chose to gather data could invite potential bias (Abusaksaksa et al., 2020). Nursing must accept this line of reasoning to improve medication administration to patients. The quicker the nursing society understands and accepts what these authors are trying to convey, the fewer medication administration errors will occur. A reduction in errors such as those will result in lives saved. Based on this article, it is not just the nursing profession that needs to accept this reasoning; it is physicians also. If the nursing profession does not accept the line of reasoning, that will cause the number of medication administration errors to continue and possibly increase, causing potentially severe problems like death.

Perception and contributing factors to medication administration errors among nurses in Nigeria

This article focused on determining the major contributing factors that lead to medication administration errors. The study occurred in Ibadan, Nigeria, at a teaching hospital called University College Hospital Ibadan. Since it is a teaching hospital, medication errors are inevitable. The study focused on several factors that could contribute to medication administration errors, including general mistakes and lapses, deficient medication knowledge, poorly written communications from the physician, heavy workload, medication supply problems, interruptions and distractions during the administration process, and more (Ayorinde & Alabi, 2019). Researchers collected data on all of these factors from nurses who worked in the hospital via questionnaires and gained their results from them.

Key Points

Researchers performed this study using a descriptive cross-sectional research method. The study had a sample size of 300 nurses that worked at the University College Hospital Ibadan. Researchers chose the random sampling method utilizing a ballot system to select the 300 participants. The participants filled out a structured questionnaire that researchers had split into three parts. The first part of the questionnaire consisted of sociodemographic information on the participants; the second part consisted of the causes of medication administration errors from the nurses' perception; and the third part collected data on ways to prevent medication administration errors (Ayorinde & Alabi, 2019). Researchers utilized the Statistical Package for Social Sciences (SPSS) to organize the data using descriptive and inferential statistics (Ayorinde & Alabi, 2019).

Sociodemographic information showed that most participants were female (84%). Nearly 40% of the participants had registered nurse licenses, while 47% were nursing officers (Ayorinde & Alabi, 2019). The many factors previously listed that cause medication errors will be discussed now. The study found that the primary factor leading to medication administration errors was confusion about medications with similar names. That factor alone received 52.7% of nurses in that hospital agreeing that it was the primary cause of medication administration errors (Ayorinde & Alabi, 2019). Other factors identified as significant contributors to medication administration errors by the nurses include patients to nurse staffing ratio, physicians' use of abbreviations for prescriptions, and physicians' orders being illegible. According to the study, these four factors identified by the nurses are the primary factors that caused medication administration errors. An interesting factor that a good chunk of the participants disagreed with causing medication administration errors was confusing patients with similar names (Ayorinde & Alabi, 2019). Nurses had little problem confusing the patients. The bigger problem was confusing the medication with drugs with similar names, which caused many medication administration errors.

Most participants were knowledgeable and aware of medication administration errors and what primarily caused the errors. However, only a third (33.3%) of the nurses followed protocol by reporting it to their superiors (Ayorinde & Alabi, 2019). Some participants admitted to confiding in a co-worker and admitted they felt terrible because they were aware of the adverse reactions the medication could cause. In contrast, others just covered the error up like it never happened. Individuals not following protocol by reporting medication administration errors could be due to several factors, such as fear of being blamed, worrying about the reactions of other nurses and nurse managers, and afraid of the potential consequences. Nearly half (49.8%) of the participants believed the medication administration errors occurred during the morning shift (Ayorinde & Alabi, 2019). The participants reviewed potential options that could prevent medication administration errors from occurring. 79% of the nurses believed that working in a more conducive environment was the primary factor that could prevent medication administration errors from occurring (Ayorinde & Alabi, 2019). At the same time, other potential preventions chosen by the nurses include physicians stopping the use of abbreviations, implementing effective methods for preventing medication errors, and physicians must effectively communicate with the patient. The results of the factors that cause medication administration errors were less significant than expected. In comparison, the methods that prevent medication administration errors had significant results. This study did use a p-value within the research.

This study's main objective was to determine the primary causes and best methods of preventing medication administration errors. The study determined that confusion about medication with similar names was the primary cause of medication administration errors. The study also determined that the best prevention method is a conducive working environment. However, the results of this study further showed the need for progress between physicians and nurses to fill the chasm of quality health care to maintain the patient's safety and safely administer medications without error (Ayorinde & Alabi, 2019). Researchers hope this article will help the medical field to improve its overall efforts and add to a safer environment for the patient in the hospital.

Assumptions

The authors provided several assumptions toward the end of the article. The first assumption is that medical facilities should look into educational training on pharmacology to keep the nursing staff up to date and educate them on the safe administration of drugs. Another assumption mentioned throughout the article is that medical facilities should hire more staff to reduce the number of mistakes, including medication administration errors (Ayorinde & Alabi, 2019). The last assumption is that physicians need to take the time to speak with the patient and speak with the nurse or healthcare team assigned to that patient so no mistakes occur and nothing there are no misunderstandings.

Deficit/Conclusion

The reasoning behind the author's article is sound and rational. Society should accept this article and try to improve all the stages of medication administration to save people from harmful adverse drug reactions and even death. The study's possible implications include their chosen method of gathering data. Using a self-administered questionnaire rather than an observation method might yield different results. In a self-report method, the participant might purposely hide their true nature compared to an observation method, where the researcher could see the genuine interaction between nurse and patient (Ayorinde & Alabi, 2019). Another implication of this study is the number of participants. The number of participants could prevent the findings from being generalizable. If nursing refuses to accept the line of reasoning in this article, that could hinder the improvement of the quality-of-care nurses give to the patients and put the patients' lives further in jeopardy, potentially causing death.

Conclusion

To conclude, these three articles' analysis has demonstrated several issues leading to medication errors, and it also has demonstrated that most nurses and nursing students are aware of the problem and its potential causes. All three articles discussed how the administration part of the process was when most medication errors occurred. A pattern of causes was present throughout the first article discussed. The primary causes of medication administration errors include administering the incorrect drug, administering the wrong dose, and scheduling a medication at an inappropriate time (Alj et al., 2021). The last two articles had similar causes related to the nurse and the physician. Those two primary causes of medication administration errors include the nurses being unable to read the physicians' orders because it is illegible and the physicians using abbreviations instead of writing out the order.

These articles provide pertinent information that could affect patient outcomes, the nursing practice, quality improvement efforts, and healthcare overall. The information in these articles could help save many patients' lives. Once medical facilities enact new policies and procedures for medication administration, it is only a matter of time before they see a reduction in medication error reports. That result will positively affect patients' lives and outcomes, not having to experience any adverse reactions to medication due to administration errors.

The information, if utilized correctly, will positively impact the nursing process because it should lead to less medication administration errors on their part. Fewer errors will mean fewer reports, and nurses will not need to worry about being blamed for such errors, even though it might have had to do with the physicians' orders not being clear due to abbreviations or the order being illegible. Evidence-based practice and quality improvement efforts clearly show that nurses need ongoing educational training in pharmacology (Ayorinde & Alabi, 2019). The educational training would help with the confusion of drugs with similar names. Other suggested quality improvement efforts would be more detailed policies and procedures for physicians on medication. Such procedures must explain how crucial it is to refrain from using abbreviations for their orders and to take the time to write legibly or type the information in the patient's medical chart. Physicians must realize that choosing to use abbreviations or not taking the time to write legibly could cost a patient their life.

The information analyzed in these three articles can help healthcare overall. Whenever medication administration errors occur, and the error is deemed harmful to the patient, the medical facility may face financial implications due to the error. Implementing new measures to reduce these problems means medical institutions would have fewer financial issues. A crucial aspect of this information that could help healthcare overall, it could save countless lives. An individual utilizes the healthcare system ultimately to improve when ill. When a medication administration error occurs, and it causes injury or death, that type of error causes society to lose faith or confidence in the healthcare system (Ayorinde & Alabi, 2019). Implementing new measures will help reduce the amount of medication administration errors and cause the patients to gain more confidence in their healthcare system again. Patient safety is crucial for the overall healthcare system.

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