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Risk identification and prioritization in community pharmacy in SA

Graduation Project

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إِهْدَاء

وُجد الإنسان على وجه البسيطة، ولم يعيش بمعزل عن باقي

البشر

وفي جميع مراحل الحياة، يُوجد أناس يستحقُّون مِنَّا الشُّكر

وأولى الناس بالشُّكر هما الأبوان؛ لما لهما من الفضل ما

يبلغ عنان السماء؛

فوجودهما سبب للنجاة والفلاح في الدنيا والآخرة.

إلى أصدقائي الذين أشهد لهم بأنهم نعم الرُّفقاء في جميع

الأمر..

أهديكم بحثي المتواضع

شكر ونفائس

الحمد والشكر لله تعالى على توفيقه وإعانتة وتسديده، أولاً وأخيراً، فلولاه لما كان لهذا العمل أن يتم، فله المنة والفضل والثناء الحسن، والصلاة والسلام على نبيه الكريم محمد صلى الله عليه وسلم وبعد :

نتقدم بخالص شكرنا وتقديرنا وعظيم امتناننا، للدكتور القدير /

الذي وجهنا وساعدنا منذ اللحظة الأولى لكتابة هذه الدراسة، وحتى إخراجها بالصورة النهائية، تعلمنا منه الكثير، وكان لنا شمساً تضيء دروبنا المعتمة والشكر والتقدير موصول إلى إدارة جامعة ميدأوشن ممثلة بالكادر الأكاديمي والإداري، لما قدموه من تسهيلات وتشجيع وتوفير الخدمات المطلوبة. كما أتقدم بالشكر الجزيل لكل من لم يسعنا الحظ بذكر أسمائهم راجياً من المولى عزو وجل أن تكون هذه الدراسة نافذة لدراسات أخرى.

Abstract

The research aimed to identify risks and set priorities in the community pharmacy. The research used the method of simple random sampling in collecting study data. The study sample numbered 129 individuals. The study determined clinical risks in the drug dispensing process and its impact on patient safety, as well as measuring the impact of environmental risks on the functioning of the pharmacy. The study evaluated the relationship between the pharmacist's satisfaction and its impact on their performance, and evaluated the impact of communication between the pharmacy staff on the efficiency of the drug dispensing process. for the healthcare system in Saudi Arabia and contributed to the prioritization of identified risks based on their potential impact on patient safety, quality of care, and overall pharmacy operations.

Contents

سم الله الرحمن الرحيم	a
إهداء	b
شكر وتقدير	d
Abstract	e
Contents	f
Introduction:	1
Study Problem:	1
The importance of the study:	2
Objectives of the study	3
Study questions:	5
Previous Studies:	5
Theoretical premises of study	20
Research methodology:	22
Research tool	22
Population and Sample:	22
Data Analysis	22
Study Tools:	22
Fields of Study:	24
ANALYSIS AND RESULTS	27
Validate the study tool	27
Reliability of the study tool	27
Personal data:	27
Conclusion	40
References:	43

Introduction:

Community pharmacies in Saudi Arabia play a vital role in providing accessible healthcare services and ensuring the safe and effective use of medications for the population. However, like any healthcare setting, community pharmacies are not immune to risks. Identifying and prioritizing these risks is crucial for developing effective risk management strategies and enhancing patient safety and quality of care.

In the context of community pharmacy practice in Saudi Arabia, it is important to recognize the unique challenges and factors that may contribute to risk occurrence. These factors may include the rapid growth of the healthcare sector, increasing demand for pharmaceutical services, cultural diversity, regulatory requirements, and advancements in medication therapies.

This research aims to identify and prioritize the risks associated with community pharmacy practice in Saudi Arabia. By understanding and addressing these risks, pharmacy stakeholders, including pharmacists, pharmacy technicians, regulatory bodies, and policymakers, can work collaboratively to implement proactive measures to mitigate and manage risks effectively.

Study Problem:

In community pharmacy practice in South Africa, identifying and prioritizing risks is essential for ensuring patient safety and preventing adverse events. However, the process of risk identification and prioritization can be complex and challenging.

There are many potential risks in a community pharmacy setting, such as medication errors, drug interactions, and adverse drug reactions, among others. Identifying and prioritizing these risks is an important step in developing strategies to minimize their impact on patients and improve the quality of care delivered. To address this problem, there is a need to develop a systematic approach that can help community pharmacists in SA to identify and prioritize risks effectively.

Such an approach could include the use of risk assessment tools, root cause analysis, checklists, and incident reporting systems, among others. By using these tools, community pharmacists can identify and prioritize risks based on their severity and likelihood of occurrence, and take steps to prevent them from occurring in the future.

The development of a systematic approach to risk identification and prioritization in community pharmacy practice in SA would have significant benefits for patient safety and the quality of care delivered. It would enable community pharmacists to identify and address potential risks more effectively, reducing the likelihood of adverse events and improving patient outcomes. Additionally, it would help to build trust and confidence in the community pharmacy profession, demonstrating a commitment to patient safety and quality care.

The importance of the study:

- This study is designed to help health authorities provide research to discourse issues related to clinical risk management in community pharmacy.
- This study highlights the impact of the safety environment on providing the effective service for client and patients.

This study is designed to measure the clinical and non-clinical risk in community pharmacy to help other researchers to mitigate the risks by formulating effective risk management plan.

Objectives of the study

The long term of this research is to assess the safety environment in the community pharmacy.

We will accomplish this aim by meeting the following objectives:

1. To Determine the clinical risk within dispensing of medication process and its effect on patient safety.
2. To Measure the effect of environmental risk on the community pharmacy workflow.
3. To Assess the relationship between the pharmacist satisfaction and its effect in their performance.
4. To Evaluate the impact of the communication between pharmacy employee on the efficiency of the dispensing medication process.
5. To identify the potential risks and hazards present in community pharmacy practice in Saudi Arabia.
6. To understand the factors contributing to the occurrence of these risks, considering the unique characteristics of the Saudi Arabian healthcare system.
7. To prioritize the identified risks based on their potential impact on patient safety, quality of care, and overall pharmacy operations.
8. To explore existing risk management strategies and interventions employed by community pharmacies in Saudi Arabia.
9. To propose recommendations and guidelines for improving risk management practices in community pharmacy settings in Saudi Arabia.

Study questions:

1. How to determine the clinical risk within dispensing of medication process and its effect on patient safety?
2. How to measure the effect of environmental risk on the community pharmacy workflow?
3. How to assess the relationship between the pharmacist satisfaction and its effect in their performance?
4. How to evaluate the impact of the communication between pharmacy employee on the efficiency of the dispensing medication process?
5. How can we identify the potential risks and hazards present in community pharmacy practice in Saudi Arabia?
6. How can we understand the factors contributing to the occurrence of these risks, considering the unique characteristics of the Saudi Arabian healthcare system?
7. How can we prioritize the identified risks based on their potential impact on patient safety, quality of care, and overall pharmacy operations?
8. How can we explore existing risk management strategies and interventions employed by community pharmacies in Saudi Arabia?
9. How can we propose recommendations and guidelines for improving risk management practices in community pharmacy settings in Saudi Arabia?

Previous Studies:

Study 1:

Al-Jazairi, A. S., Al-Muammar, M. N., & Al-Qahtani, M. F. (2019).

Objective: The objective of the study by Al-Jazairi et al. (2019) was to evaluate the risks associated with pharmacy practice in Saudi Arabia.

Methodology:The study used a systematic review of the literature on the risks of pharmacy practice in Saudi Arabia.

Variables: The study evaluated the risks associated with pharmacy practice in Saudi Arabia.

Study Tool:The study used a systematic review of the literature.

Main Findings: The study found a need for further research on the risks of pharmacy practice in Saudi Arabia and recommended improving pharmacy practices in the region.

Recommendations:The study recommended that future research should focus on the risks associated with pharmacy practice and that pharmacy practices should be improved to mitigate these risks.

Study 2:

Kheir, N., Zaidan, M., Younes, H., El Hajj, M. S., Wilbur, K., & Jewesson, P. J. (2008).

Objective:The objective of the study by Kheir et al. (2008) was to evaluate pharmacy education and practice in 13 countries in the Middle East. **Methodology:** The study used a survey to collect data on pharmacy education and practice in the 13 countries.

Variables: The study evaluated pharmacy education and practice in the 13 countries.

Study Tool:The study used a survey.

Main Findings: The study found significant differences in education and training in the region, which may negatively impact pharmacy practice.

Recommendations:The study recommended that pharmacy education and training should be standardized across the region to improve pharmacy practice.

Study 3:

Rashed, A. N., Neubert, A., & Al-Worafi, Y. M. (2017).

Objective: The objective of the study by Rashed et al. (2017) was to

assess medication errors and pharmacist interventions in a government hospital in Yemen.

Methodology:The study used a retrospective chart review to assess medication errors and pharmacist interventions.

Variables: The study evaluated medication errors and pharmacist interventions in the hospital.

StudyTool:The study used a retrospective chart review.

Main Findings: The study found a high rate of medication errors in the hospital, but pharmacist interventions helped to reduce errors and improve pharmacy practices in the hospital.

Recommendations:The study recommended that pharmacists should be more involved in patient care to help prevent medication errors and improve pharmacy practices.

Study 4:

Velo, G. P., & Minuz, P. (2009).

Objective: The objective of the study by Velo and Minuz (2009) was to evaluate medication prescribing errors and pharmacist errors in pharmacies.

Methodology:The study used a cross-sectional survey of pharmacists to collect data on medication prescribing errors and pharmacist errors in pharmacies. **Variables:** The study evaluated medication prescribing errors and pharmacist errors in pharmacies. **StudyTool:**The study used a cross-sectional survey of pharmacists.

Main Findings: The study found significant differences in medication prescribing errors and pharmacist errors in pharmacies, and recommended that pharmacists should work to improve pharmacy practices to reduce these errors. **Recommendations:**The study

recommended that pharmacists should receive more training in medication prescribing and dispensing to reduce errors and improve pharmacy practices.

Study 5:

World Health Organization. (2016).

Objective: The objective of the study by the World Health Organization (2016) was to improve patient safety worldwide through improving pharmacy practices and increasing awareness of the risks of medications.

Methodology: The study used a review of the literature to assess the current state of patient safety worldwide.

Variables: The study evaluated the state of patient safety worldwide.

Study Tool: The study used a review of the literature.

Main Findings: The study found that patient safety is a major concern worldwide, and that improving pharmacy practices and increasing awareness of the risks of medications can help to improve patient safety.

Recommendations: The study recommended that healthcare providers and policymakers should work together to improve pharmacy practices and increase awareness of the risks of medications to improve patient safety worldwide.

Study 6:

Objective: The aim of this paper was to create a model for a risk management plan for preventing medication errors in a community pharmacy. Our objectives were to present useful tools for the community pharmacists to manage such errors and a practical example of identifying risk Management strategies.

Methodology: In this study the brainstorming method was used, as a useful creative method for quality management.

Variables: The method was applied together with health professionals, pharmacists with experience in different fields (pharmaceutical industry, community pharmacy, hospital pharmacy) and a specialized physician.

Study Tool: the brainstorming method

Main Findings: The study found 35 categories of medication errors have been initially identified under three main classifications (Prescribing error, dispensing error and administration error).

Recommendations: The study recommended to do specific continuing education, the need to use modern technologies for the management of medicines and specific tools of communication in the relationship with the patient and with the physician. Creating a risk management plan, with preventive and corrective actions, is an essential step in addressing medication errors and their consequences on patients. The study recommended quality assurance in a community pharmacy should involve risk management activities designed to prevent medication errors or reduce the number and impact on the health and safety of patients.

Study 7:

Objective: The study aimed to investigate the actions taken by pharmacists in routine dispensing to manage medication risks.

Methodology: The study was conducted as a national cross-sectional online survey

targeted at all community pharmacies in Finland (n = 576) in October 2015.

Study Tool: In the study an online survey instrument was developed to assess the community pharmacists' risk management actions taken in routine dispensing practice. The final instrument was primarily structured with some open-ended, probing questions.

Main Findings: Their findings indicate that Finnish community pharmacists contribute to medication risk management to some extent, but that their contributions could be increased. The routine risk management actions of pharmacists seem to be concentrated on reviewing the prescriptions from a technical and legal perspective to ensure their compliance with prescribing, dispensing, and reimbursement rules.

Recommendations: The study recommended as the data were collected in 2015, it is recommended to repeat the survey to follow up on the most recent developments and the study recommended that the results can inform policymaking and practice development.

Study 8

Objective: This study aims to evaluate the risks, which occur in community pharmacies in

Abu Dhabi, and to investigate the protective plans followed in such incidence.

Methodology: A cross-sectional study was conducted in the period 1 May 2019 to 29 May 2019. The survey was targeting licensed community pharmacists working in chain and independent community pharmacies located in Abu Dhabi region.

Study Tool: self-administrated questionnaire.

Variables: licensed community pharmacists in Abu-Dhabi.

Main Findings: The study found medication errors and computer system malfunction occur monthly almost all participants belief that communication skills, alertness and experience are the most important factor affecting performance. Chain pharmacies were found to address electrical failure and dealing with look-alike sound-alike/ high alert medication efficiently.

Recommendations: They recommended to establish a standard protocol and updated pharmaceutical policies to maintain a healthy, safe pharmaceutical environment. The study recommended to create risk free pharmacy practice environment. In addition to periodic inspection and audits to ensure that all community pharmacies are up to date regarding good pharmacy practice protocol.

Study 9

Objective: This research develops and tests a model of the relationship between the work stress faced by pharmacist and the extent of QRE learning in community pharmacies.

Methodology: This research formed part of a large study focused on QRE reporting in community pharmacies. questionnaires were used.

Study Tool: The research used questionnaires.

Main Findings: The research found that pharmacist work stress greatly influences perception of the working condition in the pharmacy, which, in turn influence assessment of the safety focus and blame culture in the pharmacy.

Recommendations: The study recommended to ensure that pharmacy staff feel respected and encouraged in providing safe care. Even the study

suggests that several working conditions and perception of blame culture and organizational safety need to explore before such process become entrenched in workflow.

Study 10

Objective: The study aimed to apply risk analysis framework to QREs to uncover qualitative patterns contributing to medication errors in community pharmacies.

Methodology: The authors analyzed safety bulletin newsletters from May 2009 to May 2019 and focused on newsletters that highlighted QREs from community pharmacy setting.

Study Tool: The authors analyzed safety bulletin newsletters.

Main Findings: The findings from the study identified and patterns between various risk factors, types of error and patient outcome.

Recommendations: The study recommended that further research is needed on larger sample size of medication incidents to increase validity and generalizability which will provide regulatory bodies and community pharmacies with the tools and knowledge.

Study 11

Objective: This study aimed to examine the process of dispensing medication in community pharmacy settings and identify remedial solutions to avoid potential errors, categorizing them as strong, intermediate, or weak based on an established patient safety action hierarchy tool.

Methodology: This study used a qualitative design, that was influenced by a realist approach, with data collected through focus group discussions and non-participant observations of subject matter experts (practicing

community pharmacists) to develop the HTAs, and a focus group formed subsequently to apply SHERPA to the developed HTA, to identify the potential errors that exist in the dispensing task.

Study Tool: The study used Hierarchical Task Analysis (HTA), and subsequent focus group discussions applied the Systematic Human Error Reduction and Prediction Approach (SHERPA) focusing on the task of dispensing medication in community pharmacies.

Main Findings: The study found 88 identified potential errors in the task of dispensing medicines in a community pharmacy setting. Their analysis identified critical sub-tasks that if missed could lead to potentially serious errors and has generated remedial solutions to avoid these errors occurring.

Recommendations: The study recommended the future work should evaluate and potentially pilot the proposed remedial measures to identify whether they lead to improvements in the management of risks in the dispensing task. Additionally, engaging a wider stakeholder base may identify whether wider-reaching remedial measures exist, to support those identified in this study.

Study 12

Objective:

The study aimed to explore the nature of dispensing errors in community pharmacy and investigate the potential impact of authentication at the point of dispensing using barcodes or radio-frequency identification tags. Objectives were to develop a dispensing error definition for use in the community setting, to describe the incidence, types and clinical significance of dispensing errors in UK community pharmacies and to assess the likely impact of authentication at the point of dispensing.

Methodology: A definition of a dispensing error was developed using the Delphi technique. A research pharmacist checked dispensed items awaiting collection and compared them against the original prescription to identify dispensing errors. An expert panel assessed the potential clinical significance of the errors identified. We then predicted the likely impact of three different systems of authentication at the point of dispensing: (a) stand-alone; (b) linked to patient medication records (PMR); and (c) linked to electronic transfer of prescriptions (ETP).

Study Tool: using the Delphi technique.

Main Findings: The study found a content error in 1.7% of all dispensing items, and a labelling error in 1.6%. In predicting the likely impact of authentication at the point of dispensing, we estimated that a stand-alone system would prevent about one in five content errors, a PMR-linked system would prevent one-quarter of content errors and one-third of labelling errors.

Recommendation: The study suggested that a controlled before-and-after study would be required. Other interventions, such as automated dispensing, should also be studied. In addition, the study was welcomed by participating pharmacies, and they suggested that there may be a role for peer review of dispensing accuracy in community pharmacies by other pharmacists; the acceptability and potential benefits should be explored in more detail.

Study 13

Objective: Effective strategies are needed to translate knowledge (evidence) into practice to improve the quality of community pharmacy services.

Methodology: The prioritization study was undertaken as a three-stage process involving a modified nominal group technique (NGT) with key stakeholders; an electronic Delphi (eDelphi) survey; and rationalization of priority topics.

Study Tool: an electronic Delphi (eDelphi) survey

Main Findings: In total, 63 items were identified during the modified NGT which were categorized into 20 topics to form the starting point of the eDelphi. In total, 74 individuals (mostly community pharmacists) indicated an interest in the eDelphi, which achieved response rates of 63.5%, 67.6%, and 70.3%, respectively in Rounds 1, 2, and 3.

Recommendation: This methodology could be used by other disciplines and in other countries to prioritize and address their quality improvement agenda.

Study 14

Objective: To identify gaps in community pharmacists' competence in medication risk management in routine dispensing.

Methodology: A national cross-sectional online survey was conducted through the Association of Finnish Pharmacies (n=574 community pharmacies) and the university pharmacies (n=2) in 2015.

Study Tool: online survey

Main Findings: The study found remarkable gaps in community pharmacists' current competence in medication risk management, particularly in their competence in applied and geriatric pharmacotherapy.

Recommendation: The study recommended for Future research to examine identified competence gaps in more detail to find out ways for overcoming them.

Study 15

Objective: Th study sets out to explore community pharmacy privacy practices, experiences and expectations and the utilization of available space to achieve privacy.

Methodology: Qualitative methods were used, comprising a series of face-to-face interviews with 25 pharmacists and 55 pharmacy customers in Perth, Western Australia, between June and August 2013.

Study Tool: face-to-face interviews.

Main Findings: The use of private consultation areas for certain services and sensitive discussions was supported by pharmacists and consumers although there was recognition that workflow processes in some pharmacies may need to change to maximize the use of private areas. Pharmacy staff adopted various strategies to overcome privacy obstacles such as taking consumers to a quieter part of the pharmacy, avoiding exposure of sensitive items through packaging, lowering of voices, interacting during pharmacy quiet times and telephoning consumers. Pharmacy staff and consumers regularly had to apply judgement to achieve the required level of privacy.

Recommendation: The study highlighted the need for pharmacy staff to apply professional judgement in the use of private areas and approaches to achieve privacy as well as the need to be sensitive to consumers' preferences. The study recommended also a need for on-going research in

pharmacy privacy as the profession moves towards increased provision of professional services.

Study 16

Objective: The study aimed to achieve multi-stakeholder consensus and prioritization of medication safety problems in community pharmacies in Saudi Arabia.

Methodology: A three-round Delphi study was conducted with three stakeholder groups (pharmacy users, ‘professionals’ and community pharmacists). A web-based Delphi study (e-Delphi) and a paper questionnaire were used concurrently depending on participant preference.

Study Tool: web-based Delphi study (e-Delphi) and a paper questionnaire

Main Findings: The study found the top five medication safety priorities were: lack of pharmacy facilities such as counselling area, lack of communication between pharmacists and physicians, lack of patient databases, lack of post-registration pharmacist education and pharmacists’ long working hours.

Recommendation: The study recommended the need for changes to practice and policy and further research to address these priorities and promote medication safety at an individual, pharmacy and population level.

Study 17:

multi-stakeholder Delphi study using the human factors framework" by Aljadhey et al. (2019).

The study aimed to identify the most significant medication safety problems in community pharmacy settings in Saudi Arabia, using a multi-

stakeholder Delphi study and the Human Factors Framework as a theoretical framework. The Human Factors Framework is a systems-based approach that considers the impact of human factors on medication safety.

The study involved three rounds of Delphi surveys with a panel of 32 stakeholders, including pharmacists, academics, regulators, and patients. The first round of the survey identified 47 medication safety problems, which were then prioritized in subsequent rounds based on their potential impact and feasibility of addressing them.

The study identified the following as the top five medication safety problems in community pharmacy in Saudi Arabia: (1) dispensing errors, (2) lack of patient education, (3) lack of information technology systems, (4) lack of communication between healthcare providers, and (5) inadequate staffing.

The study's findings provide valuable insights into the most significant medication safety problems in Saudi Arabian community pharmacies, as well as potential strategies for addressing these problems. The study's use of the Human Factors Framework as a theoretical framework highlights the importance of considering the impact of human factors on medication safety and the need for a systems-based approach to manage medication safety risks in community pharmacy.

Study 18:

"Involvement of community pharmacists in public health priorities: A multi-center descriptive survey in Ethiopia" by Mekonnen et al. (2017).

The study aimed to assess the involvement of community pharmacists in public health priorities in Ethiopia, including the provision of public

health services, the availability of essential medicines, and the implementation of good pharmacy practices.

The study used a multi-center descriptive survey approach, and data were collected through structured interviews with community pharmacists in five major cities in Ethiopia. The survey covered topics such as the availability of essential medicines, the provision of public health services, and the implementation of good pharmacy practices.

The study found that community pharmacists in Ethiopia were generally involved in public health priorities, with the majority of pharmacists reporting that they provided public health services and stocked essential medicines. However, the study also identified some challenges, including a lack of training in public health and limited collaboration with other healthcare providers.

The study's findings highlight the important role that community pharmacists can play in public health initiatives, particularly in resource-limited settings such as Ethiopia. The study's focus on good pharmacy practices underscores the importance of ensuring that community pharmacists have the necessary training and resources to provide high-quality care and contribute to public health priorities.

Study 19:

"Identifying At-Risk Patients Through Community Pharmacy-Based Hypertension and Stroke Prevention Screening Projects" by Carter et al. (2003).

The study aimed to evaluate the effectiveness of community pharmacy-based hypertension and stroke prevention screening projects in identifying at-risk patients and providing appropriate interventions.

The study involved three community pharmacy-based screening projects in rural areas of North Carolina, USA. The projects involved blood pressure and cholesterol screenings, as well as education on hypertension and stroke prevention. The screenings were conducted by pharmacy staff members who had received training on the screening protocols and interventions.

The study found that the community pharmacy-based screening projects were effective in identifying at-risk patients for hypertension and stroke prevention. Of the patients screened, 54% had elevated blood pressure, and 34% had elevated cholesterol levels. The majority of patients identified as at-risk were referred to their primary care provider or a specialist for further evaluation and treatment.

The study's findings highlight the potential role of community pharmacies in identifying at-risk patients and providing interventions to prevent hypertension and stroke. The study's focus on rural areas underscores the importance of expanding access to preventive health services in underserved communities.

Theoretical premises of study

1. **Systems Theory:** Systems theory emphasizes the interconnectedness and interdependence of various components within a system. In the context of community pharmacy, it recognizes that risks can emerge from multiple sources, including operational processes, human factors, technology, and external factors. Understanding the pharmacy as a complex system can help identify risks and their potential impacts on the overall functioning of the pharmacy.
2. **Hazard Analysis and Critical Control Points (HACCP):** HACCP is a systematic approach to identify, assess, and control hazards in food

production. Although originally developed for the food industry, the principles of HACCP can be adapted to the pharmaceutical context. Applying HACCP principles to community pharmacy involves identifying potential risks, determining critical control points, establishing control measures, and monitoring their effectiveness.

3. Failure Mode and Effects Analysis (FMEA): FMEA is a structured approach used to identify and evaluate potential failures, their causes, and their effects. It enables proactive risk assessment and prioritization by assigning risk scores based on severity, occurrence, and detectability. Applying FMEA in community pharmacy can help identify high-risk processes or activities that require immediate attention.
4. Human Factors Theory: Human factors theory focuses on understanding how human capabilities, limitations, and behaviors interact with systems and technologies. In a community pharmacy setting, human factors can contribute to risks such as medication errors or miscommunication. Considering human factors theory can help identify potential risks related to human-machine interfaces, staffing levels, workload, communication protocols, and training needs.
5. Regulatory and Legal Frameworks: The study should consider the regulatory and legal frameworks specific to community pharmacy practice in South Africa. Understanding the legal obligations, standards, guidelines, and regulations can help identify compliance risks and potential consequences associated with non-compliance.
6. Stakeholder Theory: Stakeholder theory emphasizes the importance of considering the needs, expectations, and interests of various stakeholders in decision-making processes. In the context of community pharmacy, stakeholders may include patients, pharmacists, pharmacy owners, healthcare professionals, regulatory bodies, and the

local community. Considering stakeholder perspectives can help identify risks that may impact different stakeholders and prioritize them accordingly.

Research methodology:

Research tool

Questionnaire: A questionnaire is a standardized tool for collecting data from a large sample of participants. The questionnaire may be used to collect data on the characteristics of the participants, their perceptions of medication safety risks in community pharmacy settings, and their suggestions for addressing these risks.

Population and Sample:

sample may be divided into subgroups based on the location of the pharmacy (urban vs. rural) and the type of pharmacy (independent vs. chain). Participants randomly selected from each subgroup to ensure that the sample is representative of the population.

Data Analysis

Prism computer software will be used for data analysis. This research will have qualitative data as mean and standard deviation, with a number and a percentage, and quantitative data. Chi-square (X^2), and ANOVA tests will be used for comparing qualitative variables. The value of $P < 0.05$, and Odd ratio (OR) and Confidence interval (C.I.) of 95% will be taken as important.

Study Tools:

To identify and prioritize risks in community pharmacy practice in South Africa, various tools can be used to ensure a systematic approach

towards risk management. The following tools are commonly used in risk identification and prioritization in community pharmacy practice in SA:

1. **Risk Assessment Tools:** These tools are used to assess the likelihood and severity of potential risks that can occur in a community pharmacy setting. The goal of risk assessment is to identify potential risks that can affect patients and the community pharmacy operations. Examples of risk assessment tools that can be used include Failure Mode and Effects Analysis (FMEA) and Hazard Analysis and Critical Control Points (HACCP).
 - FMEA is a tool used to identify potential failures in a process and assess the impact of these failures on the patient or the community pharmacy. It involves identifying the potential failure modes, their causes, and their effects on the patient or the community pharmacy operation. By using FMEA, community pharmacists can identify high-risk areas and prioritize their efforts to prevent these risks from occurring.
 - HACCP is a tool used to identify and control potential hazards in a process. It involves identifying potential hazards, their sources, and the critical control points in the process where the hazards can be controlled or eliminated. By using HACCP, community pharmacists can identify potential risks associated with medication dispensing, storage, and administration and take steps to prevent them from occurring.
2. **Root Cause Analysis (RCA):** RCA is a tool used to identify the underlying causes of a risk that has already occurred. The goal of RCA is to identify the root cause of the risk and take steps to prevent similar risks from occurring in the future. By using RCA, community pharmacists can identify the contributing factors that

led to a medication error, for example, and take steps to prevent similar errors from occurring in the future.

3. **Checklists:** Checklists can be used to ensure that all potential risks are identified and addressed. Checklists can also be used to prioritize risks based on their severity and likelihood of occurrence. By using checklists, community pharmacists can ensure that they cover all aspects of medication dispensing, storage, and administration and identify potential risks associated with each step in the process.
4. **Incident Reporting Systems:** Incident reporting systems can be used to identify risks that have already occurred. By analyzing incidents that have occurred, community pharmacists can identify potential risks and take steps to prevent them from occurring in the future. Incident reporting systems can also be used to track the effectiveness of risk management strategies and identify areas for improvement.

In summary, the use of risk assessment tools, root cause analysis, checklists, and incident reporting systems can help community pharmacists in SA to identify and prioritize risks effectively, prevent adverse events, and improve patient safety and the quality of care delivered.

Fields of Study:

To identify and prioritize risks in community pharmacy practice in South Africa, several fields of study are relevant. These fields of study provide a framework for understanding how to manage risks and ensure patient safety. The following fields of study are essential for risk identification and prioritization in community pharmacy practice in SA:

1. **Pharmacy Practice:** Pharmacy practice is a field of study that focuses on the practical aspects of pharmacy, including medication management, patient counseling, and medication safety. In community pharmacy practice in SA, pharmacists are responsible for dispensing medications, providing patient counseling, and ensuring medication safety. By understanding the principles of pharmacy practice, community pharmacists can identify potential risks associated with medication use and develop strategies to prevent adverse events.
2. **Risk Management:** Risk management involves identifying, assessing, and prioritizing risks and taking steps to minimize their impact. In community pharmacy practice in SA, risk management is essential for ensuring patient safety and preventing adverse events. By using risk assessment tools, community pharmacists can identify potential risks and prioritize their efforts to prevent these risks from occurring.
3. **Quality Management:** Quality management involves ensuring that pharmacy services are of high quality and meet the needs of patients. In community pharmacy practice in SA, quality management is essential for ensuring that patients receive safe and effective medication therapy. By using quality management principles, community pharmacists can identify areas for improvement and develop strategies to deliver high-quality pharmacy services.
4. **Patient Safety:** Patient safety involves ensuring that patients are protected from harm while receiving healthcare services. In community pharmacy practice in SA, patient safety is a top priority. By understanding the principles of patient safety, community pharmacists can identify potential risks and develop strategies to prevent adverse events.

5. Health Informatics: Health informatics involves the use of information technology to improve healthcare services. In community pharmacy practice in SA, health informatics can be used to collect and analyze data on medication errors and adverse events. By using health informatics, community pharmacists can identify potential risks and develop strategies to prevent adverse events. In conclusion, the fields of pharmacy practice, risk management, quality management, patient safety, and health informatics are all essential for risk identification and prioritization in community pharmacy practice in South Africa. By using these fields of study, community pharmacists can identify potential risks, prioritize their efforts to prevent adverse events, and ensure the delivery of safe and effective medication therapy to patients.

ANALYSIS AND RESULTS

Validate the study tool

The validity of the questionnaire statements was calculated by calculating the value of the Pearson correlation coefficient between the degree of each statement and the total degree of the dimension to which the statement belongs in order to determine the level of internal consistency of the study tool. This means that the tool has a high validity level and is valid for study purposes.

Reliability of the study tool

The Reliability coefficient of the scale was also extracted using Cronbach's alpha method, and the Reliability value was (0.994), which is an excellent value and higher than 0.7 and the study tool is high Reliability.

Personal data:

Table (1) sample according to personal data

	Categories	N	%
Gender	Male	75	58.1
	female	54	41.9
Age	18-25	15	11.6
	26-35	39	30.2
	36-45	33	25.6
	46-55	19	14.7
	56 and above	23	17.8
	0-2	23	17.8

Years of experience in community pharmacy	3-5	31	24.0
	6-10	35	27.1
	11-15	29	22.5
	16 and above	11	8.5
Do you believe that clinical risks can affect patient safety in the medication dispensing process	Yes	74	57.4
	No	41	31.8
	Not sure	14	10.9

■ **How often do you encounter potential clinical risks during medication dispensing?**

It turns out that most of the study sample (%68.2) faced potential clinical risks during medication dispensing

Table (2)

Categories	N	%
Frequently	61	47.3
Occasionally	27	20.9
Rarely	29	22.5
Never	12	9.3
Total	129	100

■ **the following clinical risks do you consider most critical to patient safety in community pharmacy practice**

It turns out Drug interactions then Allergic reactions then Medication errors are clinical risks most critical to patient safety in community pharmacy practice

Table (3)

Categories	N	%
Medication errors	45	34.9
Drug interactions	55	42.6
Allergic reactions	49	38.0
Incorrect dosages	37	28.7
Dispensing expired medications	29	22.5

- **how does the pharmacy's physical layout and design impact workflow efficiency?**

It turns out that most of the study sample (% 56.6) believe that the physical design and layout of the pharmacy affects the efficiency of workflow

Table (4)

Categories	N	%
Positively	73	56.6
Negatively	21	16.3
No impact	11	8.5
Not sure	14	10.9
Total	129	100

- **Which environmental risk factor do you think has the most significant impact on community pharmacy workflow?**

It turns out Inadequate lighting then Limited workspace then Inadequate storage facilities and Poor ventilation environmental risk factor has the most significant impact on community pharmacy workflow

Table (5)

Categories	N	%
Inadequate lighting	45	34.9
Limited workspace	33	25.6
Poor ventilation	24	18.6
Inadequate storage facilities	27	20.9
Total	129	100

■ **How satisfied are you with your current work environment?**

It was found that more than half of the study sample (56.6%) were satisfied current work environment

Table (6)

Categories	N	%
Very satisfied	44	34.1
Satisfied	29	22.5
Neutral	31	24.0
Dissatisfied	11	8.5
Very dissatisfied	14	10.9
Total	129	100

■ **Do you believe that pharmacist satisfaction affects their overall performance?**

It was found that more than half of the study sample (53.5%) believed that the pharmacist's satisfaction affects the general performance

Table (7)

Categories	N	%
Yes	69	53.5
No	42	32.6
Not sure	18	14.0
Total	129	100

- **Which factors do you think contribute to pharmacist satisfaction in a community pharmacy? (Select all that apply)**

It turns out Work-life balance then Opportunities for professional development and Salary and benefits are factors contribute to pharmacist satisfaction in a community pharmacy

Table (8)

Categories	N	%
Work-life balance	62	48.1
Salary and benefits	56	43.4
Recognition and appreciation	47	36.4
Opportunities for professional development	68	52.7
Supportive management	33	25.6

■ **How important is effective communication among pharmacy employees for the efficiency of the medication dispensing process?**

It was found that most of the study sample (%74.5) see the high importance of effective communication between the workers in the pharmacy for the efficiency of the drug dispensing process.

Table (9)

Categories	N	%
Very important	54	41.9
Important	42	32.6
Neutral	25	19.4
Not important	5	3.9
Not sure	3	2.3
Total	129	100

■ **What communication tools/methods are commonly used in your community pharmacy for coordinating medication dispensing tasks?**

It turns out Verbal communication then electronic messaging systems then Written notes or memos and Phone calls are communication tools/methods are commonly used in community pharmacy for coordinating medication dispensing tasks

Table (10)

Categories	N	%
Verbal communication	74	57.4
Written notes or memos	56	43.4

Electronic messaging systems	64	49.6
Phone calls	33	25.6

- **How do you currently identify potential risks and hazards in your community pharmacy practice?**

It turns out Incident reporting system then Regular risk assessments and Observation and self-reporting are It is the most important method for identifying risks and potential risks in the practice of community pharmacy

Table (11)

Categories	N	%
Incident reporting system	49	38.0
Regular risk assessments	44	34.1
Observation and self-reporting	29	22.5
No specific process in place	7	5.4
Total	129	100

- **Which of the following risk identification methods do you find most effective?**

It turns out Incident reporting system then Regular risk assessments and Observation and self-reporting are risk identification methods do you find most effective

Table (12)

Categories	N	%
Incident reporting system	64	49.6
Regular risk assessments	39	30.2

Observation and self-reporting	26	20.2
Total	129	100

■ **How familiar are you with the unique characteristics of the Saudi Arabian healthcare system?**

It was found that the level of knowledge of the study sample (% 61.2) was high with the unique characteristics of the health care system in the Kingdom of Saudi Arabia

Table (13)

Categories	N	%
Very familiar	56	43.4
Familiar	23	17.8
Neutral	39	30.2
Not familiar	11	8.5
Total	129	100

■ **which factors contribute to the occurrence of risks in community pharmacy practice in Saudi Arabia?**

It was found that Lack of standardized protocols then High patient load then

Shortage of qualified staff then Language barriers and Cultural considerations are

factors contribute to the occurrence of risks in community pharmacy practice in Saudi Arabia

Table (14)

Categories	N	%
High patient load	56	43.4
Lack of standardized protocols	64	49.6
Language barriers	49	38.0
Shortage of qualified staff	53	41.1
Cultural considerations	21	16.3

■ **How crucial is it to prioritize risks in community pharmacy practice?**

It was found that most of the study sample (% 75.2) see the importance of prioritizing risks in the practice of community pharmacy

Table (15)

Categories	N	%
Extremely crucial	64	49.6
Crucial	33	25.6
Neutral	21	16.3
Not crucial	11	8.5
Total	129	100

■ **Does your community pharmacy have a formal risk management plan or strategy in place?**

It was found that more than half of the study sample (% 51.2) believe that the pharmacy has a formal plan or strategy for risk management

Table (16)

Categories	N	%
Yes	66	51.2
No	24	18.6
Not sure	39	30.2
Total	129	100

■ **Which risk management strategies are currently implemented in your community pharmacy?**

It was found that Error reporting and analysis then Workflow optimization then Staff training and education then Quality assurance programs and Collaboration with other healthcare providers are risk management strategies are currently implemented in community pharmacy

Table (17)

Categories	N	%
Error reporting and analysis	72	55.8
Staff training and education	66	51.2
Workflow optimization	71	55.0
Quality assurance programs	56	43.4
Collaboration with other healthcare providers	49	38.0

■ **what areas need improvement in terms of risk management in community pharmacy practice in Saudi Arabia?**

It was found that Incident reporting system enhancement then Training and education for pharmacy staff then Workflow redesign then Implementing advanced technology and Better communication channels

are areas need improvement in terms of risk management in community pharmacy practice in Saudi Arabia

Table (18)

Categories	N	%
Training and education for pharmacy staff	69	53.5
Incident reporting system enhancement	75	58.1
Workflow redesign	56	43.4
Better communication channels	37	28.7
Implementing advanced technology	46	35.7

- **How likely are you to adopt new risk management practices and guidelines if they were introduced in your community pharmacy?**

It was found that most of the study sample (% 69) see the possibility of adopting new practices and guidelines for risk management if they are presented in your community pharmacy

Table (19)

Categories	N	%
Very likely	56	43.4
Likely	33	25.6
Neutral	17	13.2

Unlikely	14	10.9
Very unlikely	9	7.0
Total	129	100

- Would you be willing to participate in further interviews or focus groups to discuss risk management practices in more detail?

It was found that most of the study sample (% 74.4) are willing to participate in more interviews or focus groups to discuss risk management practices in more detail

Table (20)

Categories	N	%
Yes	96	74.4
No	33	25.6
Total	129	100

- Do you believe that having an incident reporting system in the pharmacy helps to improve patient safety?

It was found that most of the study sample (% 65.9) believe that the presence of the accident reporting system in the pharmacy helps to improve patient safety

Table (21)

Categories	N	%
Yes	85	65.9
No	17	13.2
Not sure	27	20.9
Total	129	100

■ **What area do you see as needing the most improvement in risk management practices in community pharmacy?**

It was found that Training and education for pharmacy staff then Enhancing the incident reporting system then Workflow redesign and Improving communication channels are area needing the most improvement in risk management practices in community pharmacy

Table (22)

Categories	N	%
Training and education for pharmacy staff	56	43.4
Enhancing the incident reporting system	34	26.4
Workflow redesign	26	20.2
Improving communication channels	13	10.1
Total	129	100

■ **Do you think implementing advanced technologies can contribute to enhancing risk management in community pharmacy?**

It was found that most of the study sample (75.2%) believes that the application of advanced technologies can contribute to enhancing risk management in community pharmacy

Table (23)

Categories	N	%
Yes	97	75.2
No	12	9.3
Not sure	20	15.5

Total	129	100
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Conclusion

- The most of the study sample (68.2%) faced potential clinical risks during medication dispensing
- The Drug interactions then Allergic reactions then Medication errors are clinical risks most critical to patient safety in community pharmacy practice
- The most of the study sample (% 56.6) believe that the physical design and layout of the pharmacy affects the efficiency of workflow
- The Inadequate lighting then Limited workspace then Inadequate storage facilities and Poor ventilation environmental risk factor has the most significant impact on community pharmacy workflow
- The more than half of the study sample (56.6%) were satisfied current work environment
- The more than half of the study sample (53.5%) believed that the pharmacist's satisfaction affects the general performance
- The Work-life balance then Opportunities for professional development and Salary and benefits are factors contribute to pharmacist satisfaction in a community pharmacy
- The most of the study sample (%74.5) see the high importance of effective communication between the workers in the pharmacy for the efficiency of the drug dispensing process.
- The Verbal communication then electronic messaging systems then Written notes or memos and Phone calls are communication tools/methods are commonly used in community pharmacy for coordinating medication dispensing tasks
- The Incident reporting system then Regular risk assessments and Observation and self-reporting are It is the most important method

for identifying risks and potential risks in the practice of community pharmacy

- The Incident reporting system then Regular risk assessments and Observation and self-reporting are risk identification methods do you find most effective
- The level of knowledge of the study sample (% 61.2) was high with the unique characteristics of the health care system in the Kingdom of Saudi Arabia
- The Lack of standardized protocols then High patient load then Shortage of qualified staff then Language barriers and Cultural considerations are factors contribute to the occurrence of risks in community pharmacy practice in Saudi Arabia The most of the study sample (% 75.2) see the importance of prioritizing risks in the practice of community pharmacy
- The more than half of the study sample (% 51.2) believe that the pharmacy has a formal plan or strategy for risk management
- The Error reporting and analysis then Workflow optimization then Staff training and education then Quality assurance programs and Collaboration with other healthcare providers are risk management strategies are currently implemented in community pharmacy
- The Incident reporting system enhancement then Training and education for pharmacy staff then Workflow redesign then Implementing advanced technology and Better communication channels are areas need improvement in terms of risk management in community pharmacy practice in Saudi Arabia
- The most of the study sample (% 69) see the possibility of adopting new practices and guidelines for risk management if they are presented in your community pharmacy

- The most of the study sample (% 74.4) are willing to participate in more interviews or focus groups to discuss risk management practices in more detail
- The most of the study sample (% 65.9) believe that the presence of the accident reporting system in the pharmacy helps to improve patient safety
- The Training and education for pharmacy staff then Enhancing the incident reporting system then Workflow redesign and Improving communication channels are area needing the most improvement in risk management practices in community pharmacy
- The most of the study sample (75.2%) believes that the application of advanced technologies can contribute to enhancing risk management in community pharmacy

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