



Inadequate Pharmacy Practices and Associated Risk Factors: A Comprehensive Review

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ABSTRACT :

Inadequate pharmacy practices has lead to many problems such as medication errors, adverse events, decline in patients' satisfaction. The aim of this review paper is to determine the risk factors and find out ways to make better pharmacy practices. This review find the environmental, systemic, patient and pharmacist element lead to inadequate pharmacy practices. Health risks, money loss and loss of confidence in Healthcare system are result of poor pharmacy practices. Adequate training, technology adaptation, quality improvement programs, and regulatory supervisions are example of refinement plan. This review emphasis on the importance of comprehensive strategy to boost patient safety and pharmacy practices. Pharmacist Administrative bodies can join forces to enhance patient health by tackling the concerns raised in this research.

Keywords: pharmacist, prescription, pharmacy practice, healthcare

1.INTRODUCTION

A. Definition of inadequate pharmacy practices

An inadequate pharmacy practice is a situation in which the pharmacist doesn't able to give best possible pharmacological treatment (1). Pharmaceutical care is defined as "the accountable services of drug therapy for the aim of achieving definite outcomes that improves patient's quality of life" - International Pharmaceutical Federation (FIP) (2). Inadequate pharmacy practice can occur in various ways, like medication errors, dispensing errors, non-adherence to guidelines, protocols and poor-patient counselling (3,4). Research have shown that inadequate pharmacy practices is a potent concern worldwide, with estimates indicate that medication error alone result in substantial morbidity, mortality and economic burden (5,6,7).

Medication error can take place at various stages, including prescribing, dispensing and administration(8). Almost 1 in 5 prescriptions contain errors according to a study published in the general of American pharmacist Association (9). A study published in the general of British clinical Pharmacology estimate that about 1.6 billion euro cost by medication errors annually (10). Furthermore, improper pharmacy practice can lead to increased hospitalisation, longer hospital stays and decrease patient satisfaction (11,12).

Finding the risk factors link to poor pharmacy practice and making strategies to reduce this risk are vital as pharmacist play major role in safeguarding and efficient administration of drugs (13,14). This study attempts to compile the most recent research on inadequate pharmacy practice and related risks factors to find the workable ways to improve patient health.

B. Importance of pharmacy practices in healthcare

Good pharmacy practice is essential to guarantee the safe and efficient use of medication in healthcare systems (15). Pharmacist are vital healthcare providers in terms of patient care and public health, according to the World Health Organisation (WHO) (16). Pharmacy Practice is crucial to enhance patient adherence, minimise prescription mistakes and maximize therapeutic response (17).

According to studies; hospitalization, morbidity and motility number can be decrease by pharmacist treatments (18,19). According to a study published in journal of American pharmacies association, pharmacy-led drug treatment can led to 50% decrease in hospitalisations among patients with chronic illness (20). According to another study that was published in the archive of internal medicine pharmacy led reassurance decreases up to 80% of medication error (21).



Pharmacist provides health education, illness prevention for the advancement in public health (22). Pharmacist makes significant contribution as in immunization campaign and smoking cessation initiatives, as per study published in general of Pharmacy practice (23). Furthermore, by offering persons specific care and also enhancing the access to health care services they are contributing to reduce in-conformity in healthcare (24).

Increase in complexity in pharmaceuticals regimen and also the rising incidence of chronic diseases highlights importance of Pharmacy operations (25). As health care system continue to change, the pharmacist must poses up to date knowledge and delivers superior services (26).

Medication errors, adverse events and decline in patient health are few consequences of poor pharmacy practices (27,28). As a result it is important to highlight the risk factors linked to inadequate pharmacy practice and create strategies to reduce this risks (29).

2. TYPES OF INADEQUATE PHARMACY PRACTICES

A. MEDICATION ERROR

Error in medication cause a great threat as it causes morbidity, death and financial hardship making a major problem in healthcare (30). Medication error is preventable if the medication process is in the control of professionals as mentioned by the National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP) (31).

At any point in prescription ,dispensing and administration of medicines error can occur (32). According to a Journal of the American Medical Association (JAMA), more than 100,000 hospital admissions takes place in the US each year (33). About 15% of adverse events caused due to pharmaceutical errors according to British Medical Journal (BMJ) (34).

Table(1) : Types of medication errors

Serial number	Types	Example
1	Prescribing error	Incorrect dose, wrong medication
2	Dispensing error	Wrong medication , incorrect labelling
3	Administration error	Wrong dose, incorrect route

B. POOR PATIENT COUNCELLING

In pharmacy practice if there is a mistake in counselling than it can result in prescription mistakes, non-adherence and decrease in patient satisfaction (35). Patients with insufficient Counselling has more medication related issues according to a research published in the Journal of the American Pharmacists Association (36). The interaction between the Pharmacist and patient enhances patient safety in medication which was emphasized by another study that was published in the Journal of Pharmacy Practice and Research (37).

C. INADEQUATE INVENTORY MANAGEMENT

Inadequate inventory management leads to expired drugs, medication shortage and high expenses. Efficient management of inventory leads to optimizing patient care, reducing waste and assuring pharmaceutical availability (38).

D. NON-COMPLIANCE TO GUIDELINES AND PROTOCOLS

The medication mistakes, Adverse effects and detorating health are all result of non-adherence to guidelines and protocols (39).

3. RISK FACTORS FOR INADEQUATE PHARMACY PRACTICE

A. PHARMACIST RELATED FACTORS (e.g.; workload, training, experience)

Inadequate pharmacy practice can be greatly influenced by factors relating to pharmacists, including workload, training, and experience (40, 41).

Workload: An excessive workload raises the likelihood of medication errors by causing weariness, tension, and a loss of attention to detail (42).



Training: Insufficient training raises the possibility of medication errors and inadequate patient counseling by causing knowledge gaps and a decline in competency (43).

Experience: Lack of experience raises the possibility of prescription errors and inadequate patient counseling by lowering confidence and competence (44).

B. SYSTEM RELATED FACTORS (e.g; inadequate resources, technology limitation)

Limitations in technology and resources can have a major impact on poor pharmacy practice (45).

Inadequate resources: A lack of equipment, money, or personnel can result in lower-quality care and a higher chance of medication errors (46).

Limitations of technology: Medication mistakes and reduced efficiency might result from outdated or insufficient technology, such as electronic health records (EHRs) or medication management systems (47).

C. PATIENT RELATED FACTORS (e.g; complexity of regimen, health literacy)

Inadequate pharmacy practice can be greatly influenced by patient-related characteristics, such as health literacy and regimen complexity (48). Medication mistakes, non-adherence, and a decline in patient satisfaction can result from these reasons.

Complexity of regimen: Complicated drug schedules might cause misunderstandings and raise the possibility of medication mistakes (49).

Health literacy: Poor health literacy might result in reduced adherence and misconceptions regarding prescription drugs (50).

D. ENVIRONMENT FACTORS (e.g; workplace culture , distractions)

Distractions and workplace culture are two examples of environmental factors that can greatly contribute to poor pharmacy practice (51). Medication mistakes, worse patient satisfaction, and subpar patient care can result from these issues.

Workplace culture: People may be less likely to disclose mistakes and near-misses if there is a blame or fear culture (52).

Distractions: Multitasking, noise, and interruptions can raise the chance of drug errors (53).

4. CONSEQUENCES OF INADEQUATE PHARMACY PRACTICE

A. PATIENT HARM (e.g; adverse events, hospitalization)

Patient harm, such as adverse events and hospitalization, can result from poor pharmacy practice (54).

Adverse events: When medications are taken incorrectly, they may cause allergic responses, damage to organs, or even death (55).

Hospitalization: prescription-related issues, such as adverse drug reactions or prescription non-adherence, can result from poor pharmacy practice and lead to hospitalization (56).

B. ECONOMIC BURDEN (e.g; increased healthcare cost)

Significant financial hardship, including higher medical expenses, can result from poor pharmacy practice . Adverse drug responses, medication errors, and other pharmacy-related mistakes can cause financial hardship (57).

Examples of economic burden

Higher medical expenses: Prolonged hospital stays, extra treatments, and other medical resources might result from poor pharmacy practice, which can raise medical expenses (58).

Prescription waste: Unnecessary expenses might arise from prescription errors and bad drug responses (59).



Lost productivity: Missed workdays and a decline in economic production are two examples of lost productivity that can occur from patient harm brought on by subpar pharmacy practice (60).

C. LOSS OF FAITH IN HEALTH CARE SYSTEM

Inadequate pharmacy practice can cause patient to lose faith in healthcare system, which ultimately lowers patient satisfaction and adherence to treatment (61).

Examples of loss of faith

Decreased patient satisfaction: Decline in trust in medical professional can be caused by poor pharmacy practices (62).

Non-adherence to treatment: Loss of trust can leads to non-compliance to medicine regimen, which can lead to worsening of health and also increase in medical expenses (63).

Decreased in patient involvement: Decrease in trust can also leads to decrease in patient involvement in healthcare decision making(64).

5. STRATEGIES FOR IMPROVEMENT

A. EDUCATION AND TRAINING FOR PHARMACISTS

To improve pharmacy practice and lower prescription errors, pharmacists must get education and training (65).

Examples of education and training

Continuing education : Pharmacists can stay abreast of the most recent advancements in pharmacy practice and treatments by participating in regular continuing education sessions (66).

Professional development: Pharmacists' knowledge and proficiency can be improved by opportunities for professional growth, including as fellowships and certificates (67).

Interprofessional education: By encouraging cooperation and communication between medical professionals, interprofessional education can enhance patient care (68).

Simulation-based training: In a controlled setting, simulation-based training can give pharmacists practical experience and help them develop their abilities (69).

B. IMPLEMENTATION OF TECHNOLOGY (e.g; automation, clinical decision support)

Pharmacy practice can be enhanced and drug errors can be decreased by the use of technology, such as clinical decision support and automation (70). Technology can improve patient safety, accuracy, and efficiency.

Example of technologies:

Automation: Robotic pharmacy technologies and automated dispensing systems can increase productivity and lower dispensing errors (71).

Clinical decision support: Real-time advice on medicine selection, dosage, and monitoring can be obtained from clinical decision support systems (72).

Electronic health records: Electronic health records can decrease errors caused by illegible handwriting and enhance drug documentation (73).

Barcode scanning: Barcode scanning helps lower administration errors and confirm the identity of medications (74).



C. Quality improvement initiatives

Example of quality improvement initiatives

Root cause analysis: Future drug errors can be avoided by locating and resolving the underlying reasons (75).

Failure mode and effects analysis: Risk can be decreased by proactively detecting possible mistakes and putting controls in place (76).

Continuous quality improvement: Opportunities for improvement can be found through ongoing observation and assessment of pharmacy procedures (77).

Quality barometers: By proper monitoring and evaluating quality measures, improvement initiatives can be guaranteed (78).

D. REGULATORY OVERSIGHT AND ACCOUNTABILITY

Compliance with standard setting and updating timely is necessary for regulatory authorities.

Example of regulatory mistakes and accountability

Licensure and accreditation: Licensing and accreditation is important for making uniformity and to compliance with laws. (79).

Inspections and survey: Frequent inspections and surveys can guarantee regulatory compliance and highlights the areas for betterment(80).

Enforcement actions: Fines and enforcement actions can be taken by the regulatory authorities to control the malpractices (81).

6. CONCLUSION

We are living in 21st century. We had produced many breakthrough in Science. The world is moving in a rapid pace and also the per capita income and life expectancy of a person is also increasing. This century is also called as the century of possibility. So why not possible major we taken in pharmacy sector? In this comprehensive review article we thoroughly understand the risk factor associated with pharmacy practices. By understanding issues highlight in this review article we can improve pharmacy practice. Additionally. There is a need for increased emphasis on patient centric care and pharmacist education and training.

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