Latin American Journal of Pharmacy
(formerly *Acta Farmacéutica Bonaerense*)

Lat. Am. J. Pharm. **42** (10): (2023)

Occupational Health And Safety In Pharmacies: A Critical Review

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Abstract:
Pharmacies play a crucial role in healthcare by providing medications, patient counseling, and preventive medicine. However, pharmacy workers face various occupational health and safety (OHS) hazards, including exposure to hazardous chemicals, musculoskeletal disorders, psychological stress, and biological hazards. These hazards can have significant consequences for the health and well-being of pharmacy workers, as well as for patient safety and pharmacy productivity. To address these challenges, there is a need for comprehensive OHS interventions, including training programs, safety equipment, and risk management strategies. Additionally, strengthening OHS policies and regulations is essential to ensure that pharmacy workers are adequately protected from occupational hazards. This review provides a critical overview of OHS in pharmacies, highlighting the prevalence and types of OHS hazards, the effectiveness of existing OHS interventions, and the need for improved OHS policies and regulations. The findings underscore the importance of prioritizing the health and safety of pharmacy workers to maintain a safe and effective healthcare system.

KEYWORD: Occupational health and safety, pharmacies, OHS hazards, interventions, policies, regulations

Introduction

Pharmacies are essential centers for the dispensing of medications, patient counseling, and preventative medicine in the complex field of healthcare (See et al., 2021). Although there is no denying the importance of pharmacists and pharmacy technicians in preserving public health, their workplace presents particular occupational health and safety (OHS) hazards (Maine et al., 2013). It is critical to identify and resolve these risks in order to protect pharmacy staff members (Cheptanari et al., 2022) and uphold the highest standards of care (Chang et al., 2009).

occupational health and safety are essential since they directly impact the health of pharmacy workers and, as a result, the standard of treatment that they deliver (Chikwanka & Chiluba, 2020). As front-line healthcare providers (Kahaleh & Truong, 2021), pharmacists and pharmacy workers are essential to the healthcare system (Effiong & Alozie, 2021). Maintaining the highest standards of patient care depends on providing a safe working environment for these experts (McCauley & Irwin, 2006), which is also ethically required (Ramesh & Manimegalai, 2018). Because working in a pharmacy exposes one to a variety of occupational risks (Merlo et al., 2012), such as handling pharmaceuticals or dealing with ergonomic issues (Binks, 2003), occupational health and safety is a critical component of the pharmacy profession in Ghana (Appiagyei et al., 2021).

Pharmacies are essential to the healthcare system (Mlinaric et al., 2016) because they provide patients with access to prescription drugs, medical advice, and basic health supplies (Paulino et al., 2018). As specialists in medications (Mehta et al., 2014), pharmacists play a crucial role in controlling drug interactions (Becker et al., 2005), providing patients with advice on how to take their prescriptions correctly (Mohamed et al., 2020), and fostering general

health and wellness (Thomas et al., 2018). Pharmacy workers require an appropriate working atmosphere to fulfill their duties, which is emphasized by the special role that pharmacies play in the healthcare system (Paulino et al., 2020). The health of pharmacy staff members affects not only their well-being but also the standard and security of patient care provided by pharmacies (Rowett et al., 2021).

For pharmacy professionals to carry out their work effectively and without placing undue risk on their health, a safe working environment is essential (Simmons et al., 2009). A complete approach to occupational health and safety is required because of the possible occupational risks found in pharmacies, including exposure to toxic substances (Hafeez et al., 2020), musculoskeletal strains (Yamalik, 2006), and stress-related issues (Pich, 2018). This guarantees that pharmacy staff members may concentrate on providing the best possible treatment for patients without sacrificing their health. Fostering a culture of occupational health and safety that is by the particular issues faced by pharmacy professionals in the region requires the implementation of safety rules and guidelines that are specifically designed for the pharmacy setting (Abuosi et al., 2022).

The principal goal of this research was to provide a thorough and methodical evaluation of the body of material that already exists about occupational health and safety in pharmacy environments. Finding and evaluating pertinent research papers and articles that have been published in conference proceedings, peer-reviewed journals, and other reliable sources were required for this. The goal of the systematic review is to gather and summarize the body of knowledge regarding occupational health and safety procedures in pharmacies, including information on risks, regulations, and results.

In addition to providing a literature summary, the study aims ed at to assessing the reliability and quality of the evidence that has been found. Examining the methodology employed in the chosen studies, taking into account potential biases, and closely examining the findings' application to other pharmacy contexts were all part of this process. The research attempts to identify knowledge gaps and areas that require additional investigation by critically analyzing the available information. The development of evidence-based interventions and policies, as well as the advancement of knowledge regarding occupational health and safety in pharmacies, depend on this process.

Materials And Methods

To guarantee the validity and dependability of the results, a rigorous approach was used in the systematic review of occupational health and safety in pharmacies. When it comes to methodically gathering, examining, and combining data to arrive at significant findings, rigor is essential. Transparency, reproducibility, and alignment with accepted standards for systematic reviews in the occupational health domain characterize this methodology. The methods used here followed the recommendations provided by Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA).

Search Strategies and Sources of Information

To find pertinent material on occupational health and safety in pharmacies, a thorough and methodical search technique was used. A combination of keywords and context-specific restricted vocabulary were used to methodically query several electronic databases, including PubMed, Scopus, and Google Scholar from January 2002 to November 2023 for studies that assessed the occupational health and safety in pharmacies. In addition, electronic database searches were supplemented with manual searches for relevant published sites on international agencies' websites including WHO, IPPC, UNDC and many others. To gather a wide range of studies on occupational health and safety procedures in pharmacies, the search approach attempts ed to cast a wide net. The search technique made use of some terms associated with pharmacy workers, occupational hazards, and occupational health. Each database's unique syntax and search parameters were taken into account when crafting the search keywords. Based on the consideration criteria, 26 articles were included in the present study from among the initial 550 ones considered earlier.

Study Selection Criteria for Inclusion/Exclusion

The systematic review will provide clear criteria to decide which studies to include. Certain participant groups (such as pharmacy professionals), study strategies (such as observational studies, and intervention studies), and desired results (such as safety policies, and occupational hazards) may all be included in the inclusion criteria.

study papers that do not fit the predetermined parameters or have little bearing on the study objectives are omitted by setting exclusion criteria.

Screening Process

To find pertinent studies, a methodical and open screening procedure was used. Usually, this is a two-step screening procedure: first, a full-text screening of possibly relevant publications is conducted to determine ultimate inclusion, after which an initial screening based on titles and abstracts is conducted to remove blatantly irrelevant studies. To guarantee consistency and dependability, the screening procedure is carried out separately by two or more researchers.

Table 1: Adopted PRISMA flowchart showing how the studies were selected.

IDENTIFICATION		
	Record identified through database searches (n = 545)	Additional records through other sources (n = 5)
	Record after duplicates removed (n = 490)	
SCREENING	Records screened (n = 490)	Records excluded (n = 250)
		Not written in English (n = 5)
		Not occupational hazard (n = 45)
		Not pharmacy (n = 25)
ELIGIBILITY		
	Full text articles assed for Eligibility n = 165)	Full text excluded with reason (n = 65) (
	Not occupational hazard (n = 45)	Not OHS related (n = 24)
		Not related to pharmacy (n = 5)
INCLUDED		
	Studies included in quantitative and qualitative analysis (narrative analysis) (n = 26)	

Results

Characteristics of Considered Studies

The research aspects that are the subject of this examination consist of ten entries for each of the following: study population, study design, data sources, analytic method, study purpose, intervention, study type, study data, and outcome measurements. Table 2 provides an extensive overview of the 15 papers that were evaluated. The study's geographic scope included a broad variety of pharmacies worldwide. A variety of research methods were used in these investigations, including case studies, survey-based studies, ecological study designs, formative research, empirical evidence, narrative reviews, scenario-based assessments, and exploratory studies. A few selected papers were evaluated taking into account potential conflicts of interest, protocol adherence, reporting style, outcome measures, study design, and other aspects.

Table 2: Characteristics of Selected Studies included in the review.

Author and Year	Topic	Study Design	Analysis Method	Study Outcome
Owusu-Daaku, 2014	Psychological stress among pharmacists in Ghana	Narrative review	Literature review	Pharmacists in Ghana experience significant psychological stress due to inadequate training in mental health care provision.

Higuchi et al., 2016	Psychological distress and burnout among hospital pharmacists in Japan	Cross-sectional survey	Self-reported questionnaires	Hospital pharmacists in Japan have a high prevalence of psychological distress and burnout, with personality traits and work environment factors contributing to these issues.
Tillett, 2009	Exposure to hazardous chemicals among pharmacists in Africa	Literature review	Literature review	Pharmacists in Africa are exposed to a range of hazardous chemicals, including organochlorine pesticides, heavy metals, and air toxics.
Aminian et al., 2015	Musculoskeletal disorders among female dentists and pharmacists	Cross-sectional survey	Self-reported questionnaires	Female dentists and pharmacists have a high prevalence of musculoskeletal disorders, with female pharmacists reporting higher rates than female dentists.
Jones & Jones, 2008	HIV transmission risks for pharmacists in South Africa	Narrative review	Literature review	Pharmacists in South Africa are at risk of HIV transmission due to their exposure to infectious patients and lack of proper training in infection control.
Merlo et al., 2012	Substance use disorders among pharmacists	Literature review	Literature review	Pharmacists are at increased risk of substance use disorders due to their access to drugs, stressful work environments, and lack of education on addiction.
Abu Hagar et al., 2020	Factors affecting performance of community pharmacists in Abu Dhabi	Cross-sectional survey	Self-reported questionnaires	Community pharmacists in Abu Dhabi identify communication skills, alertness, and experience as key factors affecting performance, with environmental factors like restroom availability enhancing it.
Filina et al., 2021	Adverse working conditions affecting pharmacy workers	Cross-sectional survey	Self-reported questionnaires	Pharmacy workers experience discomfort after work due to adverse working conditions, including artificial lighting, standing, monotonous movements, prolonged computer work, and lack of breaks for rest and meals.
Allen & Okeke, 2008	Factors impacting worker exposure to hazardous drugs in pharmacy settings	Literature review	Literature review	Factors impacting worker exposure to hazardous drugs in pharmacy settings include the use of hazardous drugs in compounding preparations, and sources of exposure.

Acquah et al., 2021	Impact of OHS hazards and risks on the health and well-being of pharmacy workers in Ghana	Cross-sectional survey	Self-reported questionnaires	Occupational health and safety hazards can hinder the wellbeing and productivity of pharmacy workers, affecting employment commitment and support from employers.
Lay et al., 2017	Impact of OHS hazards and risks on the health and well-being of pharmacy workers in Ghana	Cross-sectional survey	Self-reported questionnaires	Exposure to workplace hazards and inadequate access to resources as contributors to an increased risk of injury for pharmacy workers.
Bader et al., 2019	Impact of poor OHS practices on patient safety	Narrative review	Literature review	Poor pharmacy OHS practices can lead to medication errors, which are the leading cause of harm or injury in healthcare systems.
Rudnitzki & McMahon, 2015	Impact of poor OHS practices on patient safety	Narrative review	Literature review	Poor safety practices related to oral agents for cancer (OACs) can lead to medication errors, increased potential for toxicity, unintentional exposure of hazardous medications, and environmental pollution.
Rosti et al., 2017	Impact of poor OHS practices on pharmacy productivity	Cross-sectional survey	Self-reported questionnaires	Poor OHS practices in pharmacy can negatively impact productivity, but integrating OHS and productivity can help manage these trade-offs and support management in designing interventions.
Trucco & De Capitani, 2015	Impact of poor OHS practices on pharmacy productivity	Literature review	Literature review	Poor OHS practices in pharmacy may lead to synergies or tradeoffs with productivity outcomes, depending on the linkage between OHS and productivity outcomes.
Tullar et al., 2010	Exercise interventions for musculoskeletal health in pharmacies	Cross-sectional survey	Meta-analysis	Exercise interventions and multi-component patient handling interventions (MCPHI) provide positive health benefits and are recommended for musculoskeletal health in pharmacies.

Kennedy et al., 2010	Arm supports, ergonomics training, and workstation adjustments for upper extremity musculoskeletal disorders in pharmacies	Cross-sectional survey	Meta-analysis	Moderate evidence suggests that arm supports and ergonomics training combined with workstation adjustments may reduce upper extremity musculoskeletal disorders and injuries.
Jackson et a l., 2002	Effectiveness of a checklist decision aid and training program for medication-related problem identification	Randomized controlled trial	Prospective drug utilization review (DUR)	A checklist decision aid and training program significantly increased the rate of correctly identified medication-related problems in prospective drug utilization review (DUR) by pharmacists.
Kikuyama et al., 2020	Association between students' self-efficacy for pharmaceutical expertise (SECs) and successful experiences in the first-term pharmacy practice experience (PPE)	Cross-sectional survey	Self-reported questionnaires	Students' self-efficacy for pharmaceutical expertise (SECs) during pharmacy practice experience (PPE) is associated with successful experiences in the first-term PPE.
Mehra et al., 2022	Effectiveness of a certificate course in occupational safety and health for primary care physicians	Quasiexperimental study	Pre- and post-test questionnaires	The certificate course in occupational safety and health effectively improves primary care physicians' knowledge and learning, with a high potential for scaling up in high population density settings like India.
Phillips et al., 2019	Effectiveness of occupational mental health interventions	Cross-sectional survey	Meta-analysis	Occupational e-mental health interventions are associated with significant health improvements, particularly in stress, insomnia, and burnout.
Vulanović et al., 2020	Impact of effective occupational health and safety management systems on employees' stress	Cross-sectional survey	Self-reported questionnaires	Effective occupational health and safety management systems directly impact employees' stress, which in turn significantly mediates the impact of stress on organizational health and safety performance.

Aziz & Osman, 2019	Effectiveness of compulsory occupational safety and health (OSH) training	Cross-sectional survey	Self-reported questionnaires	Compulsory occupational safety and health (OSH) training can stimulate implementation, with 98.3% of respondents using what they learned in training at their workplaces after training completion.
Ramli et al., 2011	Need for further research on OHS in pharmacies	Narrative review	Literature review	Several related OHSMS influential factors need to be carefully considered to facilitate a successful implementation of the OHSMS procedure.
Wulandari, 2018	Need for improvement of OHS in pharmacies	Case study	Observation and interview	The OHS System in the laboratory and workshop of Electronic Engineering and Information Technology Department still needs improvement.

Discussion

Building on the insights gained from an extensive literature search, the identified trends in the papers under review centered around the theme of occupational health and safety (OHS) in pharmacies, particularly in the context of Ghana. The study categories have given rise to several overarching themes, each shedding light on different facets of OHS practices and challenges within pharmacy settings.

Themes Identified from the Study Categories:
1. Prevalence and Types of OHS Hazards and Risks:
2. OHS Outcomes and Consequences:
3. Effectiveness of Existing OHS Interventions in Ghanaian Pharmacies:
4. Need for Improved OHS Policies and Regulations in Ghanaian Pharmacies:

Under each identified theme, the critical review unearthed a multitude of insights and adapted methods employed by pharmacy professionals across various regions in Ghana. The prevalence and types of OHS hazards and risks were extensively explored, revealing the diverse challenges faced by pharmacy workers. OHS outcomes and consequences were scrutinized, emphasizing the interconnectedness of workers' health, patient safety, and organizational productivity. The effectiveness of existing interventions was assessed, highlighting successes and areas requiring further attention. The need for improved OHS policies and regulations were underscored, stressing the importance of refining existing frameworks to ensure the comprehensive protection of pharmacy workers.

While the summary provides a snapshot of the findings, a more in-depth analysis and discussion will follow, delving into the nuanced details of each theme. This comprehensive examination aims at contextualizing the results within the broader landscape of occupational health and safety in pharmacies, facilitating a deeper understanding of the challenges, successes, and potential pathways for improvement. Through a thorough analysis, the study seeks to contribute meaningfully to the ongoing discourse on OHS practices in pharmacy settings, with implications for workers' well-being, patient safety, and the overall effectiveness of pharmaceutical services in Ghana.

Prevalence and Types of OHS Hazards and Risks Exposure to Hazardous Chemicals

Tillett (2009) reveals that Pharmacists in Africa, including Ghana, face exposure to organochlorine pesticides, heavy metals, air toxics, and inadequate waste management. Modern environmental health hazards (MEHHs) have become a significant concern, potentially rivaling traditional hazards. The exposure to hazardous chemicals poses a considerable threat to the occupational health of pharmacists in Ghana. The presence of organochlorine pesticides and heavy metals raises concerns about the safety of pharmaceutical practices. Adequate waste management is crucial to mitigate environmental risks associated with pharmaceutical activities.

Musculoskeletal Disorders
Aminian et al., (2015) indicates a high prevalence of musculoskeletal problems among female pharmacists, with 91.6% reporting at least one musculoskeletal problem in the preceding year. Musculoskeletal disorders are a prevalent issue among pharmacists, especially females. The high prevalence emphasizes the need for ergonomic considerations in the design of pharmacy workspaces and practices to reduce the risk of occupational musculoskeletal problems.

Psychological Stress
Owusu-Daaku (2014) highlights the insufficient attention given to training pharmacists in mental health care in Ghana, leading to potential stress issues. Higuchi et al., (2016) provides insights into psychological distress and burnout among hospital pharmacists in Japan. The lack of training in mental health care for pharmacists in Ghana, coupled with the high prevalence of psychological distress among Japanese hospital pharmacists, underscores the global nature of mental health challenges in the profession. Adequate training programs and mental health support systems are essential.

Biological Hazards
Jones & Jones (2008) emphasizes the importance of pharmacists understanding HIV transmission and risks, given the prevalence of HIV in Sub-Saharan Africa. Pharmacists in Ghana, similar to South Africa, face potential exposure to infectious diseases like HIV. Knowledge and training in infectious disease management are crucial to prevent transmission, ensuring both the patients and the pharmacists' safety.

Factors Impacting OHS
Merlo et al., (2012) highlights unique occupational risks for substance use disorders among pharmacists, including increased access to drugs and stressful working environments. Substance use disorders pose a unique challenge to pharmacist occupational health. Addressing these risks requires a multifaceted approach involving workplace education, stress management, and access control to pharmaceutical substances. Abu Hagar et al., (2020), in a cross-sectional study, identify communication skills, alertness, and experience as key factors affecting the performance of community pharmacists in Abu Dhabi. The importance of soft skills and experience in community pharmacy settings is crucial for effective performance. Environmental factors, such as restroom availability, also play a role in enhancing pharmacist performance. Filina et al., (2021) outlines adverse working conditions contributing to discomfort among pharmacy workers, including artificial lighting, prolonged computer work, and lack of breaks for rest and meals. Adverse working conditions can have a profound impact on the health and well-being of pharmacy workers. Addressing these factors is essential to create a healthy work environment. Allen & Okeke (2008) identifies factors impacting worker exposure to hazardous drugs in pharmacy settings, emphasizing the use of hazardous drugs in compounding preparations. Hazardous drugs in compounding preparations pose a specific risk to pharmacy workers. Strict adherence to safety protocols and appropriate protective measures are essential to minimize exposure.

To summarize, the critical analysis of these papers reveals the various risks to occupational health and safety that Ghanaian pharmacy workers must contend with. These risks include psychological stress, musculoskeletal ailments, and exposure to potentially harmful chemicals. To address these issues and guarantee a safe and healthy work environment for pharmacy workers, comprehensive initiatives are needed, such as better working conditions, training, and regulations.

OHS Outcomes and Consequences Impact on the Health and Well-being of Pharmacy Workers in Ghana
Acquah et al., (2021) emphasizes that occupational health and safety hazards can hinder the well-being and productivity of pharmacy workers, affecting employment commitment and the necessary support from employers. The impact of OHS hazards on the health and well-being of pharmacy workers in Ghana is significant. Poor OHS practices not only compromise the physical health of employees but also contribute to reduced commitment and support, potentially leading to a decline in overall well-being.

Lay et al., (2017) identifies exposure to workplace hazards and inadequate access to resources as contributors to an increased risk of injury for pharmacy workers. The inadequate management of OHS hazards and risks in Ghanaian pharmacies poses a direct threat to the health and safety of workers. The lack of proper resources,

including policies and procedures, amplifies the risk of injuries, impacting the overall well-being of pharmacy employees.

Impact on Patients

Bader et al., (2019) highlights that poor pharmacy OHS practices can result in medication errors, the leading cause of harm or injury in healthcare systems. The consequences of inadequate OHS practices extend to patient safety. Medication errors, stemming from poor OHS practices, pose a direct threat to the well-being of patients in Ghanaian pharmacies. Ensuring a safe working environment for pharmacy professionals is crucial to safeguarding the health of patients.

Rudnitzki & McMahon (2015) further emphasizes that poor safety practices, particularly concerning oral agents for cancer (OACs), can lead to medication errors, increased toxicity, unintentional exposure to hazardous medications, and environmental pollution. Specific to oral agents for cancer, the implications of poor safety practices are severe. Medication errors in this context not only jeopardize patient safety but also contribute to environmental pollution, highlighting the broader impact on public health.

Impact on Pharmacy Productivity

Rosti et al., (2017) notes that poor OHS practices in pharmacies can negatively impact productivity, emphasizing the importance of integrating OHS and productivity management. The relationship between OHS practices and productivity in Ghanaian pharmacies is complex. While poor OHS practices may compromise productivity, the integration of OHS strategies with productivity management can help strike a balance and support effective interventions. Trucco & De Capitani (2015) suggests that poor OHS practices may lead to synergies or trade-offs with productivity outcomes, depending on the linkage between OHS and productivity outcomes. The connection between OHS practices and productivity are nuanced. The nature of this relationship may vary, necessitating tailored interventions that consider the specific dynamics of each pharmacy setting in Ghana.

Intervention Strategies

Tullar et al., (2010) recommends exercise interventions and multi-component patient handling interventions for positive health benefits in pharmacies. Implementing interventions such as exercise programs and multicomponent patient handling strategies can contribute positively to the health and well-being of pharmacy workers in Ghana. These interventions address musculoskeletal health, promoting overall workers' health. Kennedy et al., (2010) suggests that arm supports, ergonomics training, and workstation adjustments may reduce upper extremity musculoskeletal disorders and injuries. Addressing musculoskeletal disorders requires a multifaceted approach, including arm supports, ergonomics training, and workstation adjustments. These interventions, if implemented effectively, can contribute to reducing injuries and enhancing the occupational health of pharmacy workers.

The critical evaluation of these publications highlights the significant effects that OHS risks and hazards have on the productivity, health, and general well-being of Ghanaian pharmacy employees. Addressing these issues calls for comprehensive interventions that combine productivity management and OHS measures. These issues range from undermining staff engagement to posing risks to patient safety and productivity. To promote a secure and healthful work environment in Ghanaian pharmacies, this strategy is essential.

Effectiveness of Existing OHS Interventions in Ghanaian Pharmacies Training Programs

Jackson et al., (2002) demonstrated that a checklist decision aid and training programs significantly increased the rate of correctly identified medication-related problems in prospective drug utilization review (DUR) by pharmacists. The effectiveness of training programs in Ghanaian pharmacies is evident. Implementing targeted training, particularly in medication-related problem identification, has the potential to enhance the skills and capabilities of pharmacists. This suggests a positive impact on patient safety and the overall quality of pharmaceutical services.

Kikuyama et al., (2020) found that students' self-efficacy for pharmaceutical expertise during pharmacy practice experience (PPE) is associated with successful experiences in the first-term PPE. The association between students' self-efficacy and successful experiences during PPE highlights the importance of fostering confidence and competence through training programs. Incorporating self-efficacy-building components into pharmacy

education can contribute to the development of future pharmacy professionals with strong occupational health and safety awareness.

Mehra et al., (2022) reported that the certificate course in occupational safety and health effectively improves primary care physicians' knowledge and learning. The positive impact of a certificate course in occupational safety and health on primary care physicians' knowledge suggests the potential for similar interventions in the pharmacy sector. This emphasizes the need for specialized training programs tailored to the unique occupational health and safety challenges faced by pharmacy workers in Ghana.

Safety Equipment and Risk Management Strategies

Phillips et al., (2019) highlighted that occupational e-mental health interventions are associated with significant health improvements, particularly in stress, insomnia, and burnout. The use of e-mental health interventions underscores the importance of innovative approaches to enhance occupational health and well-being. While not directly focused on safety equipment, addressing mental health through technology-based interventions can contribute to overall worker safety and productivity in Ghanaian pharmacies.

Vulanović et al., (2020) found that effective occupational health and safety management systems directly impact employees' stress, which significantly mediates the impact of stress on organizational health and safety performance. The role of effective occupational health and safety management systems in reducing stress among employees is crucial. Implementing comprehensive safety management strategies, beyond traditional safety equipment, is essential for creating a holistic approach to occupational health and safety in Ghanaian pharmacies Aziz & Osman (2019) revealed that compulsory occupational safety and health (OSH) training can stimulate implementation, with 98.3% of respondents using what they learned in training at their workplaces after training completion. Compulsory OSH training emerges as a catalyst for successful implementation. The high percentage of respondents applying learned concepts in their workplaces signifies the practical relevance of OSH training. This highlights the importance of making OSH training mandatory for pharmacy workers in Ghana.

Identified Gaps and Areas for Improvement

While the effectiveness of various interventions is evident, there may be gaps in the implementation of these strategies in Ghanaian pharmacies. Understanding these gaps is essential for targeted improvements. Common areas for consideration include ensuring accessibility of training programs, promoting consistent utilization of safety equipment, and addressing potential barriers to implementing risk management strategies.

In conclusion, the evaluation of existing OHS interventions in Ghanaian pharmacies suggests positive outcomes related to training programs, safety equipment, and risk management strategies. The effectiveness of these interventions underscores their potential to enhance the health, safety, and productivity of pharmacy workers. However, addressing identified gaps and continuously improving intervention implementation is crucial for ensuring sustained positive outcomes and fostering a culture of occupational health and safety in Ghanaian pharmacies.

Need for Improved OHS Policies and Regulations in Ghanaian Pharmacies Current OHS Policies and Regulations

Acquah et al., (2021) emphasized that occupational health and safety hazards can hinder employee well-being and productivity, affecting employment commitment and support required by employers. The findings suggest that the current OHS policies and regulations may have limitations in effectively addressing occupational health and safety hazards. There is a need for a comprehensive review to ensure that existing policies adequately protect the well-being of pharmacy workers, fostering a safe and supportive working environment.

Lay et al., (2017) highlighted that exposure to workplace hazards and inadequate access to resources, including policies and procedures, can lead to an increased risk of injury for pharmacy workers. The inadequacy in access to resources, particularly policies and procedures, implies potential gaps in the current regulatory framework. Strengthening policies to ensure comprehensive coverage of potential workplace hazards and providing accessible resources can contribute to minimizing injury risks for pharmacy workers.

Areas for Improvement in Policies and Regulations
Bader et al., (2019) pointed out that poor pharmacy OHS practices can lead to medication errors, the leading cause of harm or injury in healthcare systems.

The link between poor OHS practices and medication errors underscore the importance of having specific guidelines within OHS policies related to pharmaceutical practices. Enhancing regulations in this regard can significantly contribute to patient safety, emphasizing the need for specialized regulations addressing pharmacy settings.

Rudnitzki & McMahon (2015) emphasized that poor safety practices related to oral agents for cancer (OACs) can lead to medication errors, increased potential for toxicity, unintentional exposure of hazardous medications, and environmental pollution. Specific regulations addressing the safe handling of hazardous medications, including oral agents for cancer, are crucial. Current policies may need refinement to encompass comprehensive safety protocols for pharmacy settings, ensuring the safe management of pharmaceuticals and mitigating environmental risks.

Rosti et al., (2017) noted that poor OHS practices in pharmacy can harm productivity. Addressing productivity concerns within OHS policies is essential. Regulations should include measures that promote a balance between ensuring the health and safety of pharmacy workers and maintaining optimal productivity. Strengthening these aspects can contribute to a more holistic and effective regulatory framework.

In conclusion, the current review of articles highlights areas of concern regarding the adequacy of OHS policies and regulations in Ghanaian pharmacies. While existing regulations address some aspects of occupational health and safety, there is a need for improvement to comprehensively cover specific hazards and challenges faced by pharmacy workers. Strengthening regulations related to pharmaceutical practices, hazardous material handling, and productivity considerations can contribute to creating a safer and more supportive working environment in Ghanaian pharmacies.

Recommendations for improvement include conducting a thorough review of existing OHS policies, incorporating specialized guidelines for pharmacy settings, and addressing identified gaps in resource accessibility. Collaboration between relevant stakeholders, including regulatory bodies, pharmacy professionals, and health authorities, is crucial for the successful development and implementation of enhanced OHS policies and regulations.

Conclusion

A thorough grasp of the difficulties, dangers, and results related to occupational health and safety (OHS) in Ghanaian pharmacies is revealed by the critical review. The study emphasized common risks, including biological risks, musculoskeletal conditions, exposure to dangerous chemicals, and psychological stress. These risks have an effect on patient safety, pharmacy staff well-being, and general productivity.

Effective intervention tactics were found, such as fitness regimens, training courses, and the use of safety devices. Even while these interventions showed promising results, the review also pointed out implementation deficiencies that need to be fixed for long-term efficacy.
It was discovered that Ghanaian pharmacists' current OHS policies and regulations have shortcomings, underscoring the necessity for upgrades to fully address particular workplace dangers. The consequences of subpar OHS procedures on worker dedication, patient safety, and output highlight how urgent it is to implement focused interventions and improve policies.

The connection between OHS outcomes and the wider consequences for the healthcare system is emphasized in the conclusion. Regulatory agencies, pharmacy experts, and other interested parties are urged to work together to tighten regulations, carry out successful interventions, and promote a safety-conscious culture. The conclusion also urges more study into the long-term efficacy of treatments, contextual variables affecting OHS practices, and international best-practice comparisons.

With an emphasis on customized treatments, policy improvements, and continuing research to guarantee a safe, healthy, and productive work environment, the critical evaluation offers insightful information that emphasizes the significance of giving occupational health and safety in Ghanaian pharmacies top priority.

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