Developing an Occupational Safety, Health and Quality Manual in Ready-Made Garments Factories in Saudi Arabia

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Abstract

The clothing industry is undergoing massive transformations in occupational safety and security due to technological advancements and increasing operational pressures. Globally, organizations such as the International Labour Organization (ILO), the World Health Organization (WHO), and the Occupational Safety and Health Administration (OSHA) play an active role in promoting occupational safety and security systems. These organizations provide a legal framework and technical guidelines to achieve international standards in occupational safety and security, encourage the adoption of best practices, and promote the use of modern technologies. With Saudi Arabia's accession to the World Trade Organization, the government has launched efforts to align its regulations. In this context, regulations for conformity assessment procedures in the industrial work environment have been issued, taking local standards into account. Field visits to garment factories in Saudi Arabia highlighted the research problem: there is no occupational safety, health, and quality guide tailored to the local work environment of Saudi garment factories. The conclusions indicated that Saudi Arabia relies on international standards for setting its regulations, as confirmed by the Occupational Safety and Health Materials Guide in the Labor System.

Keywords: development, guide, occupational safety and health, quality, garment factories.

Introduction

Occupational safety and security in the garment industry constitute a fundamental pillar in maintaining a safe and healthy work environment. Globally, enhancing occupational safety aligns with international efforts to improve quality, sustainability, and productivity across industries. Effective safety systems aim to balance high production efficiency with the protection of workers and equipment.

The garment industry, driven by technological advancements and growing production demands, faces continuous challenges in maintaining safe workplace conditions. It operates within a dynamic environment that requires balancing mass production targets with the well-being of employees working under evolving conditions.

International organizations such as the International Labour Organization (ILO), the World Health Organization (WHO), and the Occupational Safety and Health Administration (OSHA) play an active role in setting frameworks and technical guidelines that help industries achieve compliance and adopt global best practices (Das and Kar, 2004).

In garment factories, workers are exposed to multiple occupational hazards, including contact with harmful chemicals, operation of heavy machinery, and extended working hours. These conditions increase the risk of injuries such as burns, cuts, and mechanical accidents, which adversely affect both employees and productivity (Wadud and Huda, 2017). To address these issues, factories must adopt comprehensive safety programs emphasizing continuous training, safe work practices, and systematic risk assessments.

Integrating international safety standards into factory operations enhances both employee welfare and production efficiency. Such standards encompass ergonomic workplace design, safe passageways, organized machinery layouts, and the use of personal protective equipment (PPE) such as vests, gloves, and goggles (Galib et al., 2023). Incorporating modern technologies—such as automated monitoring systems, alarms, and early risk-detection tools—further strengthens preventive measures and minimizes workplace accidents (Yuan et al., 2022; Hassan and Islam, 2019).

Comprehensive occupational safety and security systems are therefore essential for sustaining safe working conditions, protecting workers' health, and improving overall productivity. Industries should adopt integrated strategies that combine preventive action, technological innovation, and social responsibility to ensure sustainable and ethical development in this vital sector.

In alignment with Saudi Arabia's accession to the World Trade Organization (WTO) under Cabinet Decision No. 244 dated 21/9/1426H, the Kingdom has harmonized its industrial regulations with WTO principles. Consequently, conformity assessment procedures for occupational environments have been issued in accordance with national standard specifications, reinforcing Saudi Arabia's commitment to global safety and quality standards.

Problem Statement

Field visits to ready-made garment factories in Saudi Arabia, along with a review of studies on safety and health programs in countries such as India, Bangladesh, and Indonesia, revealed a significant gap: the absence of a dedicated occupational safety, health, and quality manual tailored to Saudi garment factories. This lack of a specialized management framework results in insufficient resources, limited awareness, and inadequate training for managers and workers. Consequently, factory management relies on general industrial manuals, which do not reflect the unique needs of the local garment sector. Addressing this gap represents the core challenge of the current study.

Research Questions

1. What is the current occupational safety, health, and quality program in Saudi garment factories?
2. What safety, health, and quality practices are applied in Saudi ready-made clothing factories?
3. How feasible is the development of an occupational safety, health, and quality manual for Saudi garment factories?

Objectives

1. Identify an occupational safety, health, and quality program suitable for the ready-made clothing industry in Saudi Arabia.
2. Examine the safety, health, and quality practices followed in Saudi clothing factories.

3. Develop a localized occupational safety, health, and quality manual tailored to Saudi garment factories.

Significance

1. Enhancing the quality of life for workers in the industrial clothing sector by implementing the proposed manual.
2. Strengthening the national industry by adopting global standards and guidelines to regulate work processes.

Scope of the Study

1. **Thematic Scope**: Developing an occupational safety, health, and quality manual for Saudi ready-made clothing factories.
2. **Geographical Scope**: Makkah and Madinah regions, Saudi Arabia.
3. **Time Frame**: First academic semester (2024 AD).

Methodology

The study adopts a descriptive research approach, which is crucial for understanding and analyzing occupational safety and security conditions in clothing factories. This approach includes a review of international and local legislation and standards related to safety in the garment industry, providing a comprehensive understanding of the legal and regulatory framework that factories must comply with.

Additionally, the study takes an applied research approach, implementing recommendations based on the descriptive method. By analyzing applied data, the study will assess the challenges and successes of safety and security policies, identify areas requiring improvement, and offer practical recommendations to enhance workplace safety in this critical sector.

The study on occupational safety and security conditions in Saudi Arabian clothing factories employs a descriptive research approach, which is essential for understanding the legal and regulatory framework governing safety in the garment industry. This approach includes a review of both international and local legislation and standards, providing a comprehensive understanding of the compliance requirements for factories. The research also adopts an applied approach, implementing recommendations based on descriptive findings to assess and improve safety policies. (See Figure 1)

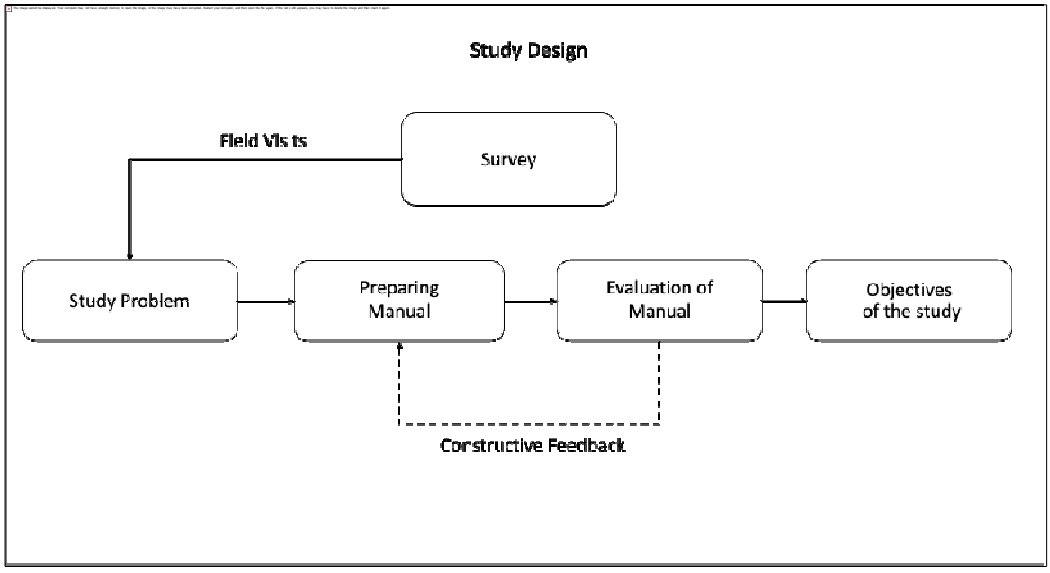

Figure 1: Study Design

Sample

The study will involve four factory owners from the Makkah and Madinah regions in Saudi Arabia.

Research Tools

A qualitative opinion poll was carried out in garment factories across different regions of the Kingdom of Saudi Arabia to examine perceptions and practices concerning occupational safety, health, and quality within the work environment. The primary objective of this poll was to collect detailed insights from key industry stakeholders—such as factory owners, managers, supervisors, and workers—to gain a clearer understanding of the status of occupational safety and health standards within the sector.

Survey data collection results

This qualitative method offered a comprehensive perspective on workplace conditions, revealing both strengths and challenges related to the implementation of safety measures, management of occupational risks, and adherence to national and international regulations. The findings further indicated a lack of compliance among several factories with the Unified Saudi Occupational Safety and Security Standards, as well as notable deficiencies in the consistent application of required safety and health protocols. Moreover, the poll explored the degree to which factories incorporate quality assurance systems and employee well-being programs into their operational processes.

By drawing on viewpoints from various geographic and industrial contexts across the Kingdom, the study aims to uncover regional differences in occupational safety practices and evaluate their impact on productivity, employee satisfaction, and overall organizational efficiency. The insights derived from this qualitative investigation are intended to inform the development of practical, evidence-based recommendations to strengthen safety culture, enhance health and environmental management systems, and position the Saudi garment industry in alignment with global standards for sustainable and ethical production.

Previous Studies

Occupational safety and health (OSH) practices in the fashion sector differ significantly from those in other industries, such as logistics and construction, due to the unique challenges and working conditions inherent to the fashion industry. In the textile and fashion sector, workers often face prolonged exposure to dust, fumes, and chemicals, leading to respiratory issues like byssinosis, as well as musculoskeletal disorders from long hours in static postures and psychological stress from high workloads(Seidu et al., 2024).

These conditions necessitate specific OSH measures, such as the provision of personal protective equipment (PPE), ergonomic assessments, and regular health checks, which are not as prevalent in other sectors like logistics, where the focus is more on preventing physical injuries from slips, falls, and handling heavy materials(. In Saudi Arabia, the adaptation of OSH practices in fashion factories is crucial due to cultural and regulatory differences. The logistics sector in Saudi Arabia, for instance, faces challenges such as non-compliance with international standards and cultural barriers that hinder the implementation of effective safety measures(Yamani & Al-Mekhlafi, 2024).

For instance, ergonomic hazards, particularly work-related musculoskeletal disorders (WMSDs), are prevalent among sewing workers, with 84.6% reporting pain in body parts such as the upper and lower back and neck. Recommendations for mitigating these risks include workplace redesign and ergonomic furniture(Masoud et al., 2021). Additionally, the study on ironing workers highlights the importance of functional workwear, proposing designs that enhance comfort and safety, which are crucial for maintaining productivity and health(Allehaibi& Gohar, 2019). Furthermore, a literature review on occupational safety in the textile industry underscores the need for effective management and supervision to prevent accidents and improve safety culture, which is vital for reducing workplace incidents and enhancing overall productivity(Moreno & Espiritu, 2024). These insights collectively inform practical recommendations to enhance workplace safety in Saudi Arabian garment factories.

Similarly, the fashion industry in Saudi Arabia must consider local cultural norms and regulatory frameworks to effectively implement OSH practices. The prevalence of migrant workers, who often face higher risks of occupational injuries and insufficient PPE usage, further complicates the situation, highlighting the need for tailored safety education and training programs(Sula et al., 2024). Additionally, the fashion industry is often associated with exploitative labor practices, as seen in other regions, which can exacerbate safety and health issues if not properly addressed(Souza et al., 2024). Therefore, Saudi factories need to adapt OSH practices to local conditions by considering cultural, regulatory, and workforce diversity factors to ensure a safe and healthy working environment in the fashion sector.

First Axis: Occupational Safety, Health, and Quality Programs in Garment Factories

Occupational safety, health, and quality programs in global garment factories encompass a range of procedures and measures aimed at improving the work environment, ensuring worker safety, and achieving high-quality garment production. These programs vary depending on the company and factory.

Key elements include the development and implementation of policies and procedures to enhance worker safety, with a focus on accident prevention and occupational injury mitigation. Personal protective equipment (PPE) is provided,

ensuring its proper use. Risk analysis is conducted to implement measures that minimize hazards and establish emergency response protocols (Clark, 2010).

The success of these programs depends on management and employee commitment to their effective and continuous implementation. Ensuring workplace safety, maintaining product quality, and offering regular medical check-ups for employees are essential. Additionally, providing healthcare and psychological support services for workers contributes to their well-being (David Woods, 2000).

Quality standards for manufactured garments must be defined and adhered to, including monitoring the quality of raw materials, production processes, and finishing techniques. Compliance with international safety, health, and quality standards, such as ISO 45001 for occupational health and safety and ISO 9001 for quality management systems, is essential.

Moreover, regular training programs should be organized for employees on workplace safety and product quality. A strong safety culture and quality awareness should be promoted within the workplace, alongside adopting environmentally friendly and sustainable production practices (Walters, 2016).

In the modern industrial world, particularly in the ready-made garment sector, occupational safety, health, and quality programs are a priority for ensuring a healthy and secure work environment and maintaining the highest product quality standards. The integration of these elements is crucial for the success of factories and their competitiveness in the global market.

Occupational Safety and Health in Ready-Made Garment Factories

Occupational safety and health programs in garment factories aim to protect workers and ensure a safe and healthy work environment. This requires implementing effective policies and procedures for accident and injury prevention. The focus is on providing personal protective equipment, optimizing workplace design to minimize risks, and conducting regular safety training sessions (Ahmed & Parvin, 2015).

Quality Programs in Ready-Made Garment Factories

Quality programs are essential for maintaining a factory's competitive standing in the global garment market. These programs involve using high-quality materials, implementing precise production processes that adhere to strict standards, and conducting thorough product inspections before market release. They also emphasize continuous improvement through Total Quality Management (TQM) and Continuous Improvement (CI) principles (Akhter et al., 2023).

Integrating occupational safety, health, and quality programs enhances overall factory performance. Prioritizing safety reduces workplace accidents and injuries, while focusing on quality increases customer satisfaction and strengthens product reputation in the market.

Second Axis: Safety, Health, and Quality Practices Implemented in Ready-Made Garment Factories

Improving the Work Environment

Workplace Design: The goal is to create an efficient and safe work environment, with special attention given to organizing operations in a way that minimizes the risk of injuries.

Ventilation and Lighting: Enhancing ventilation and lighting systems ensures worker comfort and improves visibility (Goetsch, 2019).

Worker Training

Safety Training Programs: Regular training sessions are provided to workers on how to handle equipment and materials safely.

Occupational Health Awareness: Guidelines are offered on occupational health and disease prevention.

Evaluation Courses: Periodic performance evaluation courses are conducted, and policies and procedures are updated based on experience and continuous improvement. Teams are encouraged to contribute new ideas for enhancing safety, health, and quality. These practices require strong commitment and a culture of continuous improvement to achieve a safe and healthy work environment while ensuring high-quality garment production (Tahmid, 2020).(See Figure 2)

Using Safe Production Technologies

Equipment and Machinery Upgrades: Improving technologies and machinery enhances safety and reduces risks.

Technology Integration: Advanced technologies, such as smart sensors and artificial intelligence, are incorporated to monitor safety and improve productivity (Hassan, 2018).

Risk Management

Risk Assessment: Identifying and classifying potential risks to implement preventive measures.

Emergency Plans: Developing emergency plans to handle crisis situations and ensuring that teams are well-informed about them.

Compliance Verification: Ensuring full compliance with local laws and international regulations.

Best Practice Implementation: Adopting industry best practices and improving performance in line with industry advancements (Leveson, 2011).

implementation roadmap

The occupational safety and health management cycle, which operates as a continuous process aimed at maintaining safe and healthy workplace conditions. The cycle begins with planning, where safety objectives, strategies, and procedures are defined. It then moves to organizing, involving the allocation of responsibilities and resources. The next stage is implementation, where safety programs and preventive measures are put into practice. Following that, inspection ensures compliance with established standards through monitoring and auditing processes.

Finally, evaluation assesses the effectiveness of safety initiatives and identifies areas for improvement, leading back to planning for continuous enhancement. This cyclical model emphasizes the dynamic and ongoing nature of occupational safety management systems. (See Figure 2)

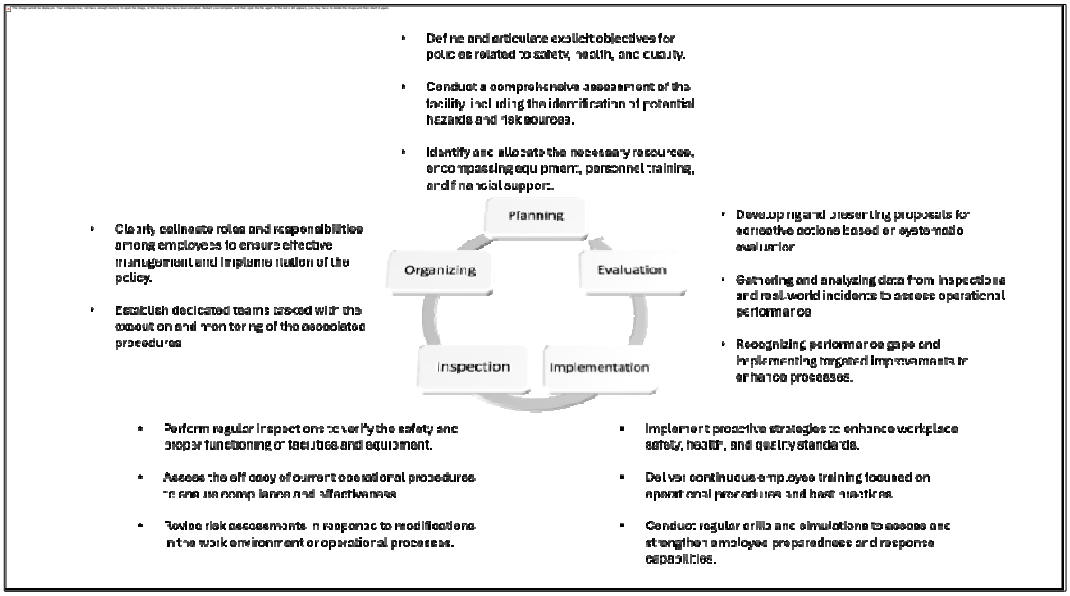

Figure 2:implementation roadmap(training, audit mechanismandEvaluation)

Performance Evaluation Indicators after Occupational Safety and Health Training

Performance evaluation indicators after occupational safety and health training are crucial for assessing the effectiveness of such programs. Quantitative indicators such as the rate of accidents and injuries, compliance rate for the use of personal protective equipment (PPE), number of warnings or violations recorded, emergency response rate, and participation rate in training are commonly used. The reduction in workplace injuries post-training is a significant indicator, as demonstrated by the study showing a decrease in injury scores from (2.27 to 1.50) after (PPE) implementation, highlighting the effectiveness of PPE in reducing injuries when combined with proper training and awareness(Yusiana et al., 2025).

Training and education are pivotal in reducing workplace injuries by enhancing employee awareness and proper equipment use, as continuous education fosters a culture of safety(Bogdanov et al., 2024). The use of Key Performance Indicators (KPIs) in evaluating occupational safety performance, such as the Safe T-Score, shows a positive correlation between reduced accidents and increased productivity, emphasizing the importance of safety in enhancing workplace efficiency(Prasetya et al., 2025). Furthermore, a holistic approach combining training, safe work procedures, and behavior-based safety interventions significantly reduces workplace injuries, with training being the most influential factor(Lomotey, 2025).

Lastly, the active involvement of workers in the occupational safety system and the use of performance indicators can identify areas for improvement, ensuring the system meets safety demands and reduces workplace injuries(Vranješ et al., 2020). These indicators collectively provide a comprehensive framework for evaluating the impact of occupational safety and health training programs. (See Table 1)

Table 1: Performance Evaluation Indicators after Occupational Safety and Health Training

(KPI)	Indicator Type	Measurement Method	Unit of Measure	Data Source
Workplace accident and injury rate	Quantitative	Number of incidents per 100 employees	Percentage	Accident and safety reports
Compliance with personal protective equipment (PPE) use	Quantitative	Observation of compliance rate	Percentage	Field observations and supervisors' reports
Emergency response time	Quantitative	Average evacuation time during drills	Minutes	Emergency and drill reports
Number of safety violations or warnings	Quantitative	Recorded violations per month	Count	Internal inspection records
Employees' preventive safety behavior	Qualitative	Post-training survey (Likert scale 1–5)	Score	Post-training evaluation surveys
Workplace safety culture index	Qualitative	Safety Culture Index assessment	Score	Internal surveys and interviews
Lost workdays due to accidents	Quantitative	Total number of days per year	Days	HR attendance and health records
Compliance with national and ISO 45001 standards	Quantitative/ Qualitative	Internal and external audit results	Percentage	Audit and compliance reports
Improvement in workplace environmental quality	Qualitative	Environmental site inspection rating	Score (1–5)	Workplace inspection reports
Employee satisfaction with training	Qualitative	Participant feedback survey	Percentage	Training evaluation forms

Validity and Consistency of the Research Instrument

Validity Measurement

Table 2: Results of the Evaluation of the Study Instrument

Evaluation Criteria	Clarity of Instrument Elements	Instrument Comprehensiveness	Practicality of the Instrument	Instrument Appropriateness	Accuracy of Instrument Formulation
Agreement Percentage	100%	100%	100%	100%	100%

Average Agreement Percentage: 100%

Based on the agreement analysis of six experts in the field of fashion and textiles, the average agreement rate for the evaluation of the research instrument was found to be 100%. This high level of agreement serves as a strong indicator of the instrument's effectiveness in aligning with the research objectives. (See Table 2)

Reliability Measurement

Table 3: Cronbach's Alpha Coefficient for Measuring Instrument Reliability

Axis	Number of Items	Reliability Coefficient
Overall Guide Quality	12	0.798
Chapter One	7	0.687
Chapter Two	8	0.643
Chapter Three	9	0.765
Chapter Four	7	0.677
Overall Consistency of Questionnaire Items	43	0.714

Six experts in the field of fashion and textiles responded to the questionnaire. The Cronbach's Alpha coefficient for the questionnaire was found to be 0.714, indicating strong internal consistency among participants' responses. This value is considered acceptable and reflects good coherence among the different elements of the research instrument. The high coefficient suggests that the questions effectively measure the targeted trait or concept, reinforcing the reliability and suitability of the questionnaire for use in the study. (See Table 3)

Applied Aspect of Guide Development

Developing the Occupational Health, Safety, and Quality Guide in Ready-Made Garment Factories

Introduction and Purpose of the Guide

The guide focuses on developing occupational safety and security standards in ready-made garment factories by identifying potential hazards and implementing preventive measures to mitigate them. This includes providing appropriate training for workers and equipping factories with the necessary safety gear.

The guide aims to enhance product quality in garment factories by establishing strict quality control standards that cover all stages of production—from selecting raw materials to manufacturing, packaging, and distribution. It emphasizes quality as a key competitive factor in both local and global markets.

The guide supports environmental sustainability by promoting eco-friendly practices in garment factories, such as using sustainable raw materials and adopting manufacturing techniques that minimize environmental impact.

Finally, the guide seeks to foster a culture of safety, security, and quality within garment factories by raising awareness among employees and management about the importance of these standards and their role in ensuring industry success and sustainability.

Terminology Guide

The terminology used in the Occupational Safety, Health, and Quality Guide is essential for understanding and implementing occupational safety and health concepts in the workplace.

These terms help unify concepts and perceptions regarding occupational safety and health, facilitating communication among team members and across various sectors in

the industry. Clear terminology defines everyone's role in maintaining workplace safety and health, promoting transparency and accountability.

Using well-defined terms makes safety and health training more effective, as information and guidelines can be conveyed more efficiently when specific and comprehensible terminology is used. These terms also contribute to developing precise policies and procedures that enhance workplace safety and health.

Terminology raises awareness of the importance of occupational safety and health, encouraging positive engagement and safe behavior in the work environment. It also aids in understanding the requirements of local and international laws and regulations related to occupational safety and health, ensuring compliance and reducing legal risks.

Standardized terminology supports continuous improvement efforts in the workplace by identifying areas that need enhancement and development. Additionally, it helps organizations achieve their strategic goals in occupational safety and health.

Terminology forms the foundation for building a strong safety culture within an organization, as it becomes an integral part of daily thinking and workplace behavior. Therefore, understanding the terminology in the Occupational Safety and Health Guide is crucial for improving the work environment and ensuring the safety and well-being of workers across all industries.

Chapter One – Occupational Safety and Health Systems – Risks

In the industrial world, particularly in the garment manufacturing sector, factories face various challenges that may involve multiple risks. Therefore, risk management is essential to ensuring business sustainability and achieving outstanding performance in an evolving industrial environment. Garment factories must understand the importance of risk management and adopt robust strategies to address these challenges.

With the rapid advancement of technology and shifts in consumer attitudes, the clothing industry is encountering new challenges. These include changes in supply chains, the growing need for innovation in design and production, and increased commitments to sustainability. All these factors complicate management and highlight the importance of identifying and assessing risks.

Ensuring the safety and security of employees is of utmost importance, as maintaining a safe work environment contributes to their well-being and motivates them to maximize productivity. Risk management also plays a role in ensuring product quality by focusing on identifying and addressing potential hazards that could negatively impact garment quality.

Furthermore, risk management is crucial for compliance with occupational safety and health regulations in garment factories. By identifying potential risks and implementing preventive measures, factories can achieve cost-effective production and avoid expenses resulting from accidents and injuries.

Chapter Two – Occupational Safety and Health Management Systems – Work Environment

In the garment manufacturing industry, occupational safety and health management systems are a top priority to ensure a safe and healthy work environment for employees. Elements such as ventilation, lighting, staircases, and walkways play a

vital role in creating a comfortable and secure workplace. Designing and implementing safety and health management systems in garment factories is particularly important to achieve these objectives.

Garment factories handle a variety of materials and processes, necessitating an effective ventilation system. This system is essential for providing workers with fresh and clean air while controlling unpleasant odors and harmful gases. The ventilation design must ensure proper airflow direction and efficient air circulation within the factory.

Lighting also plays a significant role in creating a safe and efficient work environment. Adequate and well-distributed lighting is necessary to ensure clear visibility for workers. Good lighting reduces the occurrence of accidents and enhances work accuracy, with a preference for a balanced combination of natural and artificial lighting.

The design of staircases and walkways is crucial in maintaining workplace safety. Staircases should be straight, sturdy, and equipped with non-slip steps. Walkways must be wide enough to prevent congestion between workers and equipment. Additionally, safety signs and indicators should be installed to enhance awareness and prevent accidents.

Vibration is a common issue in garment factories, particularly concerning large machinery and equipment. Factories must implement effective designs to minimize vibration and use certified materials to reduce harmful vibrations affecting workers.

Factories often operate in high-noise environments due to machinery and equipment. Occupational health and safety management in such conditions requires measures to control noise levels and protect workers from excessive exposure.

Chapter Three: Occupational Safety Systems and Health Management – Health

Occupational health is a vital component for both workers and overall production. This aspect covers a wide range of issues, from musculoskeletal disorders to mental health and social concerns, as well as first aid. Clothing factories must dedicate significant attention to improving these aspects and ensuring a healthy and safe working environment for employees.

Musculoskeletal disorders are among the common challenges faced by workers in clothing factories. Prolonged work on sewing machines or repetitive movements without variation and improper posture can lead to muscle fatigue and pain. To mitigate this issue, factories should design workstations that allow for posture control and ergonomic adjustments.

The working environment in clothing factories also impacts workers' mental health and social well-being. Stress caused by production pressures and tight schedules can affect mental health. The occupational health department can provide psychological support, stress management programs, and workplace improvements to encourage better stress-handling methods.

First aid is an essential part of occupational health efforts within the factory. Accidents can happen at any time, and workers may require immediate care. Providing first aid training to workers can significantly enhance rapid response to incidents and ensure effective care.

Chapter Four: Occupational Safety and Quality Management Systems – Production Quality

In the ever-evolving clothing industry, occupational safety and production quality are key to ensuring success and continuity in a competitive market. Today's clothing production requires a delicate balance between safeguarding workers and improving product quality. This chapter offers a comprehensive exploration of how to achieve this balance in garment manufacturing through the pillars of occupational safety and quality in production processes.

On the other hand, production quality is indispensable for ensuring customer satisfaction and maintaining a competitive edge in the clothing market. Achieving product quality requires meticulous monitoring and periodic inspections at all stages of production. Materials must be carefully selected to guarantee the highest quality in the final product.

Sustainable quality improvement necessitates continuous enhancement of manufacturing processes. Factories should adopt and adhere to global quality standards. Regular inspections should be conducted to ensure compliance with these standards and update procedures based on continuous improvements.

To maximize benefits, clothing factories should integrate occupational safety and production quality into their strategies. This integration can enhance production efficiency, reduce waste, and contribute to a safer and healthier working environment. A factory’s commitment to this integration reflects its readiness to excel in all aspects of its operations, leading to success in the rapidly changing and diverse clothing market.

Chapter Five: Appendices to the Guide’s Chapters

The appendices elaborate on and detail the policies and procedures related to occupational safety, health management, and quality in factories. These serve as a valuable resource to help employees better understand the rules and guidelines they must follow.

The appendices provide additional details and clarifications on potential hazards and safe behaviors that should be adhered to. This contributes to raising employees' awareness of workplace risks and how to avoid them.

They also contain specific training programs aimed at enhancing employees' skills in occupational safety, health management, and quality control. Such programs help qualify workers, enabling them to handle potential risks efficiently.

By including appendices in the occupational safety, health, and quality guide, manufacturers can ensure compliance with local and international industry standards and regulations, thereby reducing legal risks.

Additionally, the appendices outline the procedures and guidelines related to quality assurance and control. These instructions contribute to improving product quality and reducing defects, ultimately enhancing the manufacturer's reputation and positively impacting customer satisfaction.

The availability of appendices facilitates monitoring and verification by quality and safety management. They serve as a tool for assessing the actual implementation of policies and procedures, ensuring adherence by all parties involved. Furthermore, the appendices include policies and procedures related to sustainability and environmental protection. Commitment to sustainability principles can reduce the environmental impact of operations and promote responsible environmental practices.

Assessment Results

Specialized Assessment Results for the Occupational Safety, Health, and Quality Guide in Ready-Made Garment Factories in Saudi Arabia

Table (3): Specialized Arbitration Results for the Proposed Guide

Items	Strongly Agree	Agree	Somewhat Agree	Disagree	Strongly Disagree
Guide Quality	100%	-	-	-	-
Chapter One	100%	-	-	-	-
Chapter Two	100%	-	-	-	-
Chapter Three	100%	-	-	-	-
Chapter Four	100%	-	-	-	-

The statistical assessment results, with a rate of (100%), indicate that the developed Occupational Safety and Health Guide for garment factories provides a comprehensive framework for evaluating and improving working conditions. The effectiveness of the proposed preventive measures in reducing risks and improving the work environment has been assessed.

The assessment results highlight the significance of the guide and the necessity for factories to adopt and implement its policies and procedures accurately to ensure a safe working environment, maintain the quality of manufactured products, and adhere to the highest occupational health standards.

Conclusions

Regarding the first question, "What is the Occupational Safety, Health, and Quality Program in Saudi Arabian Ready-Made Garment Factories?" the answer was derived through a review of previous studies and guides, as well as the development of a guide based on local and international evidence. Saudi Arabia establishes standards in accordance with international standards, as confirmed by the Occupational Safety and Health Materials Guide in the Labor System (2019) issued by the Ministry of Human Resources and Social Development, along with the local program Qawader for Occupational Safety and Health (OSH, 2023).

As for the second question, "What are the safety, health, and quality practices applied in Saudi Arabian ready-made garment factories?" the answer was provided through a review of previous studies and guides. It was found that Saudi requirements originate from the European Union (EU Standards) and the Occupational Safety and Health Administration (OSHA, 2012) in the United States.

The third question, "Is it possible to develop a guide for occupational safety, health, and quality for Saudi Arabian ready-made garment factories?" was answered through the developed guide.

Recommendations

1. Enhance preventive measures and incorporate more effective risk management techniques.
2. Strengthen the focus on continuous training and provide regular awareness sessions on workplace safety.
3. Review and update the quality and monitoring chapters to improve processes and achieve higher quality levels.
4. Expand and refine the appendices to further clarify policies, responsibilities, and practical details.
5. Factory management should integrate these recommendations to ensure continuous improvement in occupational safety, health, and quality.
6. Analyze the working environment in Saudi garment factories, emphasizing unique challenges and industry-specific needs.
7. Manufacturers should adopt internationally recognized standards such as ISO 45001 for Occupational Safety and Health and ISO 9001 for Quality.
8. Train employees on occupational safety and health practices and ensure periodic compliance.
9. Implement technology for tracking safety, health, and quality-related information, such as safety management systems.

Research Ethics

The study, Developing the Occupational Safety, Health, and Quality Guide for Ready-Made Garment Factories in Saudi Arabia, adheres to the ethical guidelines established by King Abdulaziz University. The research solely involved the use of questionnaires, which obtained informed consent from participants, and participants' identities were kept confidential.

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