

Research Title

**EXAMINING THE ROLE OF EMPLOYEE TRAINING IN RISK
CONTROL IN SAUDI PHARMA SUPPLY CHAINS**

دراسة دور تدريب الموظفين في التحكم بالمخاطر في سلاسل الإمداد الدوائية في
السعودية

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Introduction

Risks in the supply chain may be experienced during production, transportation, procurement, and distribution processes. In the modern business environment where supply chains are global, companies are experiencing issues related to uncertainty and unexpected disruptions. The disruptions are further increased by political instability, economic fluctuations, changes in consumer behavior, outsourcing, and rapid changes experienced in product development (Ngii, 2017). In recent times, the supply chain disruptions have increased in the pharmaceutical industry. The vulnerabilities in the pharmaceutical supply chains were exposed by the emergence of Covid-19 (Alrajhi, 2024). The disruptions have adverse effects on various aspects of the organization. According to Shashi (2022) disruptions in the supply chain destroyed the reputation of 27% of businesses, 54% of them experienced reduced profitability, and 38% had reduced revenue. The challenges experienced by pharmaceutical companies include strict regulations, third party logistics, counterfeit products, stakeholder misalignment, demand sensing, and regulated prices (Shashi, 2022). The high profits earned in the industry allow companies to increase supply chain cost and reduce their focus on improving the efficiency of the supply chain. In this case, only a third of the revenue may be spent on supply chain management due to issues related to stakeholders' misalignment and ineffective transportation infrastructure. Other challenges tend to be overlooked hence reducing supply chain reliability and agility, which promote the success of an organization in this competitive business environment.

Saudi Arabia is considered to have the largest pharmaceutical market among the gulf cooperation council (GCC) countries (Alrajhi, 2024; Tawfik et al., 2022). The pharmaceutical

industry of Saudi Arabia experiences issues like strict regulations, inventory management and demand forecasting issues, medicine shortage, and reduced profits (Tobiloba, Stephen, and Owen, 2023). The industry also highly relies on other countries like China, Europe, US, and India to get pharmaceutical products (Alrajhi, 2024; Tawfik et al., 2022). The problem of relying on other countries for supplies was seen after the emergence of Covid-19. During the period, countries closed their borders to contain the infection. This means that there was no movement of people or products in and out of the countries. Saudi Arabia was forced to effectively manage its supplies, which negatively affected the delivery of services in the healthcare industry (Tobiloba, Stephen, and Owen, 2023).

The pharmaceutical industry of Saudi Arabia is regulated by the Saudi Food and Drugs Authority (SFDA) and the Ministry of Health (MoH) (Alhomaïdan et al., 2023; Junnaidi and Bhalla, 2024; Tawfik et al., 2022). The SFDA is responsible for inspecting producers of pharmaceutical goods, pricing the products, providing licenses, sales, and registration (Junnaidi and Bhalla, 2024; Tawfik et al., 2022). Regulatory changes, the introduction and development of modern technologies, mergers and acquisitions have increased drug approvals and registration of pharmaceuticals from 5,498 in 2011 to 10,424 in 2020 (Alhomaïdan et al., 2023). However, Saudi Arabia has maintained the traditional approach when it comes to procuring pharmaceutical products. This is a problem for public health institutions because the supply chain of essential medicine is disrupted. The disruption has been worse for the past five to ten years after it was mandated that public health institutions must use one procurement body that is managed by various oversight bodies to request for medical supplies and drugs (Junnaidi and Bhalla, 2024).

The oversight bodies sometimes have conflicting objectives, which may affect efficiency in the procurement process.

Therefore, Saudi Arabia needs a resilient supply chain to address issues experienced in the pharmaceutical industry (Tobiloba, Stephen, and Owen, 2023). Resilience can be achieved through employee training, which will allow Saudi Arabia to manufacture pharmaceutical devices and drugs locally (Tawfik et al., 2022). This will reduce the high reliance on other countries to get the products, hence reducing the supply chain disruptions. Employee training will also promote research and development and innovation in the industry, leading to discovery of drugs, efficiency and effectiveness in services delivery, and reduced costs (Tawfik et al., 2022). This paper examines the role of employee training in risk control in Saudi pharma supply chains.

Problem Statement

The pharmaceutical industry of Saudi Arabia experiences various problems. First, the country experiences drug shortage due to limited research and development in the country and high spending on outpatient drugs (Tobiloba, Stephen, and Owen, 2023). Another issue is overdependence on importing pharmaceutical products and not manufacturing them locally. According to Tawfik et al. (2022) Saudi Arabia only manufactures 30% drugs available in its market. The remaining 70% is acquired from India, US, Europe, and China (Alrajhi, 2024; Tawfik et al., 2022). This is a problem in the industry because it increases supply chain issues, increases costs and prevents the continuous provision of quality services, especially during unpredictable events like Covid-19 (Alrajhi, 2024; Tobiloba, Stephen, and Owen, 2023). Tawfik

et al. (2022) went further by highlighting that drug shortage in Saudi Arabia is attributed to ineffective supply chain management, reduced profits on essential drugs, overreliance on drug importation, ineffective laws that may highly penalize licensed drug distributors and importers and pharmaceutical companies for law violations, lack of government policies that monitor changes in the industry, and lack of regulations that promote early notification in relation to drug shortages.

Additionally, the increasing population and chronic diseases in Saudi Arabia increases demand for pharmaceutical products. Over the years, Saudi Arabia has improved or increased research and development in the industry. Despite this, the introduction of new drugs in the market is a problem. This is attributed to the lengthy and costly approval of new drugs (Junnaidi and Bhalla, 2024). Also, limited research and development prevents local manufacturing. Poor results of research and development are due to inadequate infrastructure, limited skilled personnel, strict regulations, limited knowledge, and inefficient and expired drug patents (Tawfik et al., 2022). These issues have resulted in overreliance on importation of pharmaceutical products. The pharma companies, research institutes, and academic researchers are not coming together to promote the local manufacturing of products in Saudi Arabia.

Furthermore, the delay expenditure by the Saudi authorities, inexperience and lack of knowledge in development and discovery of new drugs, and extended procurement and registration processes cause supply chain issues in the pharmaceutical industry (Tawfik et al., 2022). Additionally, limited research exists on the role of employee training in risk control in

Saudi pharma supply chains. Therefore, this research seeks to fill the gap by conducting a quantitative study.

The Importance of The Study

This study aims at examining the role of employee training in risk control in Saudi pharma supply chains. This study has both theoretical and applied importance. When it comes to theoretical importance, the study will contribute to literature related to supply chain management. In this case, the study will provide valuable insight on how employee training can help mitigate risks in the pharmaceutical industry in Saudi Arabia. Additionally, the study will fill the existing gap. As stated earlier, limited research exists on the role of employee training in risk control in Saudi pharma supply chains. Most studies have focused on how policies and regulations, and technology may be applied to reduce or mitigate supply chain issues in the Saudi pharmaceutical industry. This helps guide future studies and researcher by providing valuable information to them. Moreover, the study will further advance human capital and organizational learning theories. The human capital theory promotes employee training for efficiency and effectiveness in operation and improved performance and productivity. This theory goes hand-in-hand with the organizational learning theory encourages continuous training and development that would enable organization to address the risk management issues in the supply chain. The study will also provide information on risk management through supply chain resilience regulation. Finally, the study will help professionals in the industry to plan for unproductive events like covid-19, thus improving service delivery in the industry.

When it comes to applied importance, the study will help in addressing supply chain issues experience in the Saudi pharmaceutical industry. In this case, the study will recommend training of employees on supply chain issues, regulations, and detection of counterfeit products (Tawfik et al., 2022). This information will enable workers to understand issues experience in the pharmaceutical industry and come up with appropriate solutions to the problems. The ability to address the issues will results in efficient delivery of healthcare services in the healthcare industry in Saudi Arabia. Additionally, providing solutions to the issues experienced in the pharmaceutical industry will reduce costs and increase profits. The increased profits earned will promote the collaboration of pharmaceutical companies, academic researcher, and research institutions. The collaboration will improve research and development in the country and promote the local manufacturing of pharmaceutical products. This will reduce the supply chain issues experienced, especially during unpredictable events like Covid-19.

The study will also allow the pharmaceutical industry in Saudi Arabia to prepare for unpredictable events like covid-19. The supply chain of Saudi pharmaceutical was greatly affected during the pandemic because of overreliance on importation. Increasing local manufacturing by 40% as stipulated in vision 2030 strategies will increase local manufacturing and enable the country to prepare for unpredictable events (Tawfik et al., 2022; Junnaidi and Bhalla, 2024). Employee training on crisis management will also help in preparedness for emergencies and reducing and mitigating issues in future. Employee training will help reduce financial losses since they will adhere to the set regulation and chances of violating them and being penalized will be minimal. This will further increase profits for the companies.

The study objectives

Main Objective

- To examine the role of employee training in risk control in Saudi pharma supply chains

Secondary Objectives

- To identify the supply chain issues experienced in the pharmaceutical industry in Saudi Arabia
- To analyze how employee training can help address issues experienced in Saudi pharma supply chains
- To recommend training strategies that will help improve risk control in Saudi pharma supply chains

Research Questions

Main Question

- What is the role of employee training in risk control in Saudi pharma supply chains?

Secondary Questions

- What supply chain issues are experienced in the pharmaceutical industry in Saudi Arabia?
- How does employee training address issues experienced in Saudi pharma supply chains?
- What training strategies will help improve risk control in Saudi pharma supply chains?

The Hypotheses

H1: Employee training reduces issues experienced in pharmaceutical industry supply chains

H2: The training strategy determines the effectiveness of risk control in pharmaceutical industry supply chains

H3: Continuous employee training reduces supply chain issues in the pharmaceutical industry

The Literary Framework

Introduction

The supply chain of the pharmaceutical industry of Saudi Arabia is important because it determines the quality of healthcare products and services delivered to patients. However, the Saudi pharma supply chains experience various issues. The industry experiences drug shortages due to overreliance on importation, which increases costs and supply chain issues (Alhomaidan et al., 2023; Junnaidi and Bhalla, 2024; Tawfik et al., 2022). Additionally, the approval and procurement processes are lengthy and costly. This may be due to the strict policies that allow only on procurement body to approve requests (Junnaidi and Bhalla, 2024). The body is overseen by various oversight bodies that may have differing objectives. This increases hostility and delays in the industry. Other causes of drugs shortages are ineffective laws that may highly penalize licensed drug distributors and importers and pharmaceutical companies for law violations, lack of government policies that monitor changes in the industry, and lack of regulations that promote early notification in relation to drug shortages (Tawfik et al., 2022). These issues can be resolved through employee training. In this chapter previous studies will be reviewed to determine the role of employee training in risk control in Saudi pharma supply chains.

Previous Studies

Risks in Saudi Pharma Supply Chains

Tawfik et al. (2022) highlighted the challenges being experienced in the Saudi pharma supply chains. The authors suggested that the pharmaceutical industry in Saudi Arabia experiences drug shortages, which was attributed to overreliance on importation from US, China, India, and Europe. These sentiments were supported by Alrajhi (2024) who mentioned China and India as countries Saudi Arabia relied on for pharmaceutical products. Tawfik et al. (2022) went further by stating that Saudi Arabia being the largest pharmaceutical market among the GCC countries, only 30% of pharmaceuticals are locally manufactured. This leads to supply chain issues in case of unpredictable events such as Covid-19. Alrajhi (2024) stated that the emergence of Covid-19 exposed the vulnerabilities of the pharmaceutical supply chains. During the period, countries closed their borders to prevent the spread of the infection and held onto the available healthcare products for their people. This presented challenges in the healthcare industry in Saudi Arabia by preventing the provision of quality healthcare services (Alrajhi, 2024; Tobiloba, Stephen, and Owen, 2023).

Tawfik et al. (2022) and Junnaidi and Bhalla (2024) also said drugs shortages is caused by ineffective supply chain management, reduced profits on essential drugs, overreliance on drug importation, ineffective laws that may highly penalize licensed drug distributors and importers and pharmaceutical companies for law violations, lack of government policies that monitor changes in the industry, and lack of regulations that promote early notification in relation to drug shortages. Junnaidi and Bhalla (2024) and Tawfik et al. (2022) highlighted that supply chain issues is as a result of lengthy and costly procurement and approval processes, delayed

expenditure, limited skilled personnel, limited knowledge and skills in the development and discovery of new drugs, strict regulations, inadequate infrastructure in the pharmaceutical industry.

Role of Employee Training in Risk Control

According to Tawfik et al. (2022) only 30% of pharmaceuticals in the Saudi market are locally manufactured. The rest are imported from US, China, India, and Europe. Local manufacturing in Saudi Arabia is hindered by limited knowledge and skills in the development and discovery of drugs, inexperience, strict regulations, lengthy and costly processes, and inadequate infrastructure (Junnaidi and Bhalla, 2024 and Tawfik et al., 2022). In this case, we will pay close attention to limited knowledge and expertise on development and discovery of new drugs and inexperience. Knowledge, skills, and experience can only be sharpened through employee training. According Bilal, Bititci, and Fenta (2024) continuous training equips employees with appropriate knowledge and skills required for effective and efficient performance. Therefore, training will sharpen the research and development skills of employees in the pharmaceutical industry, resulting in development and discovery of new drugs and increased local manufacturing of pharmaceuticals. This will reduce supply chain issues and reduce costs, hence increasing profits for companies in the industry. The increased profits will be applied in the improvement of infrastructure.

The employees should be trained on modern technologies like machine learning and AI-driven predictive analytics for effectiveness and efficiency in operations. Aljohani (2023) suggested that machine learning and predictive data analytics help in providing real-time data on

supply chain issues. The identification leads to application of effective solutions that will help address the problems. Tobiloba, Stephen, and Owen (2023) supported the sentiments by stating that these technologies promote supply chain resilience. The authors held the opinion that the technologies have the capability of forecasting demand. This will lead to the manufacturing and distribution of the right amount of products to meet the demand of customers. As a result, costs and wastage will be reduced and efficiency in operations improved (Junnaidi and Bhalla, 2024).

Employee training will also help workers to understand the issues experienced in the supply chain in the Saudi pharmaceutical industry (Tawfik et al., 2022). Understanding these problems will lead to formulation and implementation of appropriate strategies to resolve them, thus improving the efficiency of the supply chain. The employees will be able to adhere to the set regulations and detect counterfeit products in the market (Smith, 2024).

Commentary

The previous studies provide valuable and sufficient insight on the risks experienced in the pharmaceutical industry in Saudi Arabia. However, limited studies exist on how employee training helps in addressing the supply chain issues. As stated earlier, most studies are discussing the influence of digital technology and regulatory framework on risk management in the pharmaceutical industry. Tawfik et al. (2022) has attempted to talk about the training factor but he did not explore deeply. The author mentioned that local manufacturing of pharmaceutical products is hindered by lack of knowledge and expertise on development and discovery of new drugs and inexperience or limited skilled personnel. Mentioning these factors leads to the conclusion that training will equip employees with appropriate knowledge and skills for

development and discovery of new drugs and promote local manufacturing, thus addressing the supply chain issues.

Differences of the Current Study and the Past Studies

The current study will focus on how employee training will help address supply chain issues in the pharmaceutical industry in Saudi Arabia, unlike the past studies which focused on regulatory framework and digital technologies. Additionally, this study will not leave out the regulatory framework and digital technologies concepts. The concepts will be connected to training, thus providing valuable insights for policymakers, pharmaceutical companies, academic researchers, and research institutions. The information will be applied in strengthening the Saudi pharma supply chains.

Study terms

Employee Training: Bilal, Bititci, and Fenta (2024) defined employee training as equipping workers with appropriate knowledge and skills for effective and efficient performance.

Risk control: Ngii (2017) defined risk control as the ability to identify, evaluate, address, and monitor uncertainties that may result to loss or failure in an organization.

Supply Chain: Ngii (2017) defined supply chain as a system of resources, activities, people, information, and organization that move products and services from the supplier to the end customer. The activities of the supply chain involve processing of raw materials to make finished products that will be provided to the clients.

Supply chain management: Emrouznejad, Abbasi, and Sıcakyüz (2023) defined SCM as combining activities and processes to effectively and efficiently manage the operations of the supply chain to motivate and create value for stakeholders and improve performance.

Theories explaining the study

This study can be explained through various theories. The first theory that may explain the study is the resource based theory. According to Senna et al. (2024), the resource based theory (RBT) suggests that companies have distinct capabilities when it comes to processing of resources. The resources are applied in the creation of a competitive advantage. In this case, the organization should be flexible in responding and adjusting to different situations. This theory is applied in employee training. In this case, employee training will equip them with appropriate knowledge and skills required to address supply chain issues. Additionally, training will enable them understand the challenges being experienced. The identification of challenges will promote formulation of appropriate strategies to resolve the issues. In other words, training equips employees with capabilities to handle and address supply chain issues in the pharmaceutical industry of Saudi Arabia.

Senna et al. (2024) and Shashi (2022) suggested that the study can also be explained through the contingency theory. The theory highlights that there is no perfect leadership style of decision making process because of the different business environments. In this study, contingency theory explains that there is no single training approach or strategy that is effective. This means that the companies in the pharmaceutical industry in Saudi Arabia must adopt various training strategies to effectively and efficiently address supply chain issues.

Another theory that explains this study is the human capital theory. According to Wuttaphan (2017), human capital theory highlights that employees must be trained and educated for improved performance and productivity. In this case, employee training will enable workers to effectively and efficiently manage and address issues experienced in the supply chain of the pharmaceutical industry in Saudi Arabia. This will promote efficiency in operation, thus improving performance.

Finally, organizational learning theory explains that people tend to learn from their mistakes. In this case, when a solution is implemented and the expected result is not achieved, research will be conducted to identify and address the inconsistency. It involves consulting or gathering information from others, thus learning in the process. In this study, a quantitative study will be conducted to understand how employee training will help address supply chain issues in the pharmaceutical industry in Saudi Arabia.

Methodology and research methods

Study community

The study aims at investigating the role of employee training in risk control in Saudi pharma supply chains. The information will be gathered from employees of both public and private pharmaceutical companies from various levels within the supply chain. Professional from the oversight bodies that oversee the supply chains of pharmaceutical companies will also be included. The employees and regulatory bodies' professionals must be working for pharmaceutical companies and the government of Saudi Arabia.

Study sample

The target population will be selected through stratified random sampling technique. It involves grouping the population based on similar attributes and randomly selecting a few members from every group (Shin, 2024). The approach is important because it promotes equal representation. Information will be acquired from 200 participants who will be employees in various levels of the supply chain and working in pharmaceutical companies in Saudi Arabia. It will also involve regulatory professionals that oversee the operations or the supply chain of pharmaceutical companies in Saudi Arabia.

Data collection sources

In data collection, both primary and secondary sources will be employed. Secondary methods will involve searching the internet for articles related to the topic, the role of employee training in risk control in Saudi pharma supply chains. The articles and journals must be peer-reviewed and relevant to the study. Content related to the study will be borrowed and reported for the identification of gaps. This study will seek to bridge the identified gaps.

When it comes to primary sources, a quantitative study will be conducted. In this case, close-ended questionnaires with a likert-scale will be used to gather information from people working in financial institutions in Saudi Arabia. Since the questionnaires will be distributed online, an introduction will be written first. The purpose of the introduction is to inform the participants the objective of the investigation, the benefits of the study and the challenges that may be experienced, to ensure that the respondents are participating willingly, and ensure the participants provide appropriate data. This will improve the practical analysis, discussion, and conclusion of the study.

Study tools

A structured questionnaire will be used to acquire data from the respondents. Before, the questionnaires are officially distributed, a reliability and validity tests will first be conducted. The tests will be conducted through a pilot study, which will help in the identification of poorly constructed questions and other mistakes. In this study, 50 participants will participate in the pilot study. The pilot study will measure whether the statements in the questionnaires are properly constructed and are based on the objectives of the study. It will also measure whether the statements will be clearly understood by the respondents.

The collected data will be analyzed through correlation and descriptive statistics. Correlation analysis will help us understand the relationship between variables and make it easy to understand and interpret data (Makowski et al., 2020). Descriptive statistics is the efficient, logical, and meaningful in calculating, summarizing, and describing collected data (Vetter, 2017).

Study limits

The study will be limited to the pharmaceutical industry in Saudi Arabia. The respondents must participate willingly for acquisition of accurate and reliable information. The study will be conducted within three months.

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