

The Impact of Production Planning On Reducing Waste in the Pharmaceutical Field

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Introduction:

Production planning is an essential factor in the success of pharmaceutical companies, as it helps organize operations and use resources efficiently.

This sector often faces the problem of waste, such as damaged raw materials, overproduction and time loss which leads to higher cost.

Therefore, companies focus on effective production planning to reduce waste, improve operational efficiency and ensure the continuous availability of medications.

This research aims to explain the role of production planning in reducing waste within the pharmaceutical field.

Research Problem:

Some pharmaceutical companies experience waste in materials and cost due to weak production planning, which negatively affects work efficiency and may lead to financial losses.

From here the question comes of how can pharmaceutical companies improve production planning to reduce the waste.

Importance of the Research:

- helps reduce costs and improve production efficiency.
- supports better organization of operations in pharmaceutical companies.
- adds academic value that can support future studies.
- contributes to minimizing waste and ensuring medicine availability.

Research Questions:

- What is production planning?
- What causes waste in pharmaceutical companies?
- How does production planning reduce waste?

. Dose production planning improves efficiency.

Research Objectives:

- . To explain production planning in the pharmaceutical field.
- . To identify causes of waste.
- . To explain how production planning reduces waste.
- . To study relationship between planning and efficiency.

Research Hypotheses:

- . There is relationship between production planning and waste reduction
- . Good production planning improves efficiency
- . Poor production planning increases waste

Research Model:



Suggested Organization:

The study can be applied at king fahad specialist hospital-Dammam in supply chains department to see how planning affects waste in materials, time and costs.

Research Methodology:

This research uses a descriptive method by collecting information from Arabic references about Production planning and waste then analyzing them.

Project Structure:

Introduction

Theoretical framework

Suggested study

Results and Recommendations

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Literature Review:

Production planning is important in all industries, especially in the pharmaceutical industry, it helps companies organize production and use resources better, which reduces mistakes and cost.

Many studies show that good production planning helps reduce waste, Heizer et al. (2020) explained that planning helps control production and reduce unnecessary costs.

In the pharmaceutical industry, waste is a big problem because the expiration and overproduction, shah (2024) mentioned that poor forecasting and extra production lead to waste.

Also, good planning helps match production with demand, which reduces extra inventory and waste (Slack & Brandon-Jones, 2019) .

In conclusion, production planning has an important role in reducing waste in pharmaceutical companies.

References:

- 1- Shaarawy,
- 2- Arab institute for operations management
- 3- Al-marsal website
- 4- The role of lean production in achieving sustainable
- 5- Heizer, j render, B&Munson , C (2020) . Operations Management pearson
- 6- Shah,N&Brandon – Jones, A (2019) operation management pearson

Questionnaire Appendix for Research Variables:

Section A: Demographic information

1- Gender

Male

Female

2- Age

under 30 years

30-40 years

41-50 years

Above 50 years

3- Years of experience

Less than 5 years

5-10 years

More than 10 years

Section B: Production Planning

Please indicate your level of agreement with the following statements:

Statement	Strongly Agree	Agree	Neutral	Disagree
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The company relies On demand forecasting when preparing production plane				
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Production schedules are clearly developed and regularly update				
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Inventory level are effectively planned and controlled				
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There is effective coordination among departments during production planning				
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Accurate data are used to support production planning decisions				
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Section C : Waste Reduction

Statement	Strongly Agree	Agree	Neutral	Disagree
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Production planning helps Reduce raw materials waste				
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Improved planning has
reduced the number of
defective products

Production planning helps
minimize losses due to
product expiration

Effective planning improves
the efficient utilization of
resources

Production planning contributes
to reducing waste-related costs

Research Methodology

Introduction:

This chapter explains the research methodology used to study the impact of production planning on reducing waste in the pharmaceutical industry. It describes the research design, population, sampling method, data collection, data types and statistical analysis .

Operational Definitions of Research Variables;

Production planning :

Production planning is the process of organising production activities , resources and schedules to ensure products are produced efficiently and on time .

Waste Reduction :

Waste reduction refers to minimising the loss of materials, time and costs during the production process to improve efficiency .

Research Design

This study uses a descriptive analytical research design because it is suitable for examining the relationship between production planning and waste reduction in the pharmaceutical industry .

Research Population and Sampling Method :

The research population consists of employees working in pharmaceutical , a simple random sampling method is used to select participants for the study .

Data Collection Method :

The data will collected using a questionnaire

The questionnaire includes question related to production planning and waste reduction .

Types Of Data :

Data collected through the questionnaire

Statistical Analysis Procedure :

The collected data will be analysed using google form, the study will use frequencies , percentages, means, standard deviations and correlation analysis to examine the relationship between the research variables .

<https://docs.google.com/forms/d/1WKE33A1mS7mZZB8lqdluGYF6euemldsDr6xNBsNaNAho/edit#responses>

Description of the Study Sample

The study sample consisted of 38 respondents . the demographic characteristics of the participants are presented as follows

Gender

Female 71.1%

Male 28.9%

Age

under 30 years 5.3%

30-40 years 73.7%

41-50 years 13.2%

Above 50 years 7.9%

Years of experience

Less than 5 years 23.7%

5-10 years 31.6%

More than 10 years 44.7%

Interpretation of the Sample Characteristics

The results indicate that the majority of the respondents were female (71.1%) , while 28.9% were male . most participants (73.7%) were between 30 and 40 years old indicating that the sample mainly consisted of professional in their active working years , regarding work experience 44.7% had more than 10 years of experience , suggesting that a significant proportion of respondents possessed substantial professional

Knowledge and experience. this enhances the credibility of the finding and provides reliable insights into the impact of production planning on reducing waste in the pharmaceutical sector.

Discussion of the Questionnaire Results

1. The company relies on demand forecasting when preparing production plans.

The results indicate that the majority of respondents agreed that demand forecasting is an essential component of production planning. This suggests that pharmaceutical companies recognize the importance of forecasting customer demand to improve planning accuracy and reduce production waste.

2. Production schedules are clearly developed and regularly updated.

Most respondents agreed that production schedules are regularly updated, indicating that organizations continuously review and improve their production planning processes to enhance operational efficiency.

3. There is effective coordination among departments during production planning.

The findings show that respondents generally agreed that effective coordination exists among departments. This coordination contributes to smoother production processes and helps minimize operational waste.

4. Accurate data are used to support production planning decisions.

The majority of respondents agreed that production planning decisions are based on accurate and reliable data, which improves planning quality and supports waste reduction.

5. Production planning helps reduce raw material waste.

The findings demonstrate that respondents believe effective production planning contributes to minimizing raw material waste by improving resource utilization.

6. Production planning helps minimize losses due to product expiration.

Most respondents agreed that proper production planning reduces losses resulting from expired pharmaceutical products by aligning production volumes with actual demand.

7. Improved planning has reduced the number of defective products.

The results indicate that respondents believe improved production planning has contributed to reducing defective products, thereby improving product quality and reducing waste.

8. Effective planning improves the efficient utilization of resources.

The majority of respondents agreed that effective production planning enhances the efficient use of organizational resources, leading to improved productivity and reduced waste.

9. Production planning contributes to reducing waste-related costs.

The findings reveal that most respondents agreed that effective production planning reduces costs associated with production waste, thereby improving overall organizational performance.

Overall Discussion

Overall, the questionnaire results demonstrate a positive perception of production planning practices among the respondents. The majority agreed that effective production planning improves resource utilization, enhances coordination, reduces raw material waste, minimizes losses due to product expiration, lowers the number of defective products, and decreases waste-related costs. These findings support the study's main hypothesis that effective production planning has a significant positive impact on reducing waste in the pharmaceutical sector.

