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Impact of Working Capital Management on Profitability and Liquidity of Hospital Equipment Industries in Madhya Pradesh

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Abstract - Working capital management is a critical determinant of financial performance, especially in capital-intensive sectors such as hospital equipment industries. These industries operate in a complex environment characterized by high inventory investment, extended receivables, dependence on institutional buyers, and continuous operational expenditure. Inefficient working capital management often results in liquidity stress, procurement delays, and reduced profitability. The present study examines the impact of working capital management on profitability and liquidity of selected hospital equipment industries in Madhya Pradesh. The study is based on primary data collected from 40 respondents representing 10 major hospital equipment companies operating across Indore, Bhopal, Jabalpur, and Gwalior. Descriptive statistics, percentage analysis, and Pearson's correlation coefficient were employed to analyze the data. The results reveal a strong positive relationship between efficient working capital management and profitability ($r = 0.68$, $p < 0.01$), and a very strong association between inadequate working capital management and liquidity problems ($r = 0.72$, $p < 0.01$). The study concludes that effective management of inventory, receivables, payables, and cash is essential for improving profitability, maintaining liquidity, and ensuring sustainable growth of hospital equipment industries. The findings offer valuable insights for managers, policymakers, and financial planners in the healthcare equipment sector.

Keywords: Working Capital Management, Profitability, Liquidity, Hospital Equipment Industry, Madhya Pradesh.

Introduction - The healthcare sector is one of the fastest-growing sectors in India, driven by population growth, increasing health awareness, technological advancements, and government initiatives aimed at improving healthcare infrastructure. A crucial segment supporting this sector is the hospital equipment industry, which supplies medical devices, diagnostic instruments, surgical tools, ICU equipment, and hospital furniture. The efficiency and effectiveness of healthcare delivery largely depend on the timely availability of such equipment, making hospital equipment industries strategically important.

In Madhya Pradesh, the expansion of government and private healthcare facilities has significantly increased the demand for hospital equipment. However, hospital equipment industries operate under unique financial and operational challenges. These include high capital investment in inventory, long credit periods offered to hospitals (especially government hospitals), delayed payments, price competition, and regulatory compliance costs. In such an environment, effective working capital management becomes essential for ensuring uninterrupted operations and financial stability.

Working capital refers to the funds required for day-to-day operations of a business and is calculated as the difference between current assets and current liabilities. Proper management of working capital ensures that a firm has sufficient liquidity to meet its short-term obligations while avoiding excessive investment in current assets that could reduce profitability. Poor working capital management, on the other hand, leads to liquidity crises, increased borrowing costs, and operational inefficiencies.

Hospital equipment industries are particularly vulnerable to working capital issues because they deal with high-value inventories and institutional buyers with extended payment cycles. Despite this, many firms continue to treat working capital management as a routine accounting function rather than a strategic financial tool. This study seeks to highlight the importance of working capital management by empirically examining its impact on profitability and liquidity in hospital equipment industries of Madhya Pradesh.

Review of Literature

The relationship between working capital management and firm performance has been widely examined in financial

management literature. Smith (2021) emphasized that efficient working capital management improves profitability by reducing idle funds and minimizing financing costs. According to Shankar (2023), healthcare organizations in India face unique working capital challenges due to delayed receivables and high operational costs, making systematic working capital planning essential.

Kumar (2022) found that inventory and receivables management significantly influence profitability in hospital-related industries. Firms that maintained optimal inventory levels and enforced strict credit control achieved better financial performance. Davis (2018), in an international context, observed that inefficient working capital management leads to liquidity stress and reduced operational efficiency in healthcare organizations.

Thompson (2020) highlighted that working capital management in healthcare industries is influenced not only by internal policies but also by external factors such as government procurement systems, regulatory frameworks, and economic conditions. Despite these contributions, limited empirical research has focused specifically on hospital equipment industries at the state level in India. The present study attempts to fill this gap by focusing on Madhya Pradesh.

Objectives of the Study: The study has been undertaken with the following objectives:

1. To examine the impact of working capital management on the profitability of hospital equipment industries in Madhya Pradesh.
2. To analyze the relationship between working capital management and liquidity position of hospital equipment industries.
3. To statistically test the effect of efficient and inefficient working capital management on financial performance.

Hypotheses of the Study: Based on the objectives, the following hypotheses were formulated:

1. H1: Efficient working capital management positively influences the profitability of hospital equipment industries.

2. H2: Inadequate working capital management leads to liquidity problems and affects operational efficiency.

Research Methodology

Research Design: The study adopts a **descriptive and analytical research design**, which is suitable for examining existing working capital management practices and analyzing their impact on profitability and liquidity.

Sample Size and Study Area: The study covers **10 major hospital equipment industries** operating in Madhya Pradesh, located in Indore, Bhopal, Jabalpur, and Gwalior. A total of **40 respondents** were selected using purposive sampling, with four respondents from each organization. The respondents included finance managers, accounts managers, operations managers, and owners/directors.

Data Collection

1. Primary Data: Collected through a structured questionnaire based on a 4-point Likert scale.

2. Secondary Data: Collected from books, research journals, company reports, and official publications related to healthcare finance.

Tools and Techniques of Analysis: The following statistical tools were used:

1. Percentage analysis
2. Mean score analysis
3. Pearson's correlation coefficient

Data Analysis and Results

Descriptive Analysis of Working Capital Practices: The percentage analysis revealed strong agreement among respondents regarding the importance of working capital management:

1. 80% of respondents agreed that efficient working capital management improves profitability.

2. 82.5% agreed that timely collection of receivables positively affects profitability.

3. 75% agreed that poor working capital management creates liquidity problems.

These responses indicate a high level of awareness among industry professionals regarding the role of working capital management.

Correlation Analysis: Working Capital Management and Profitability (H1)

Variables	N	Pearson's r	p-value
Working Capital Management	40		
Profitability	40	**0.68**	**0.000**

The correlation coefficient (r = 0.68) indicates a **strong positive relationship** between working capital management and profitability. The relationship is statistically significant at the 1% level.

Result: Hypothesis H1 is **rejected**, confirming that efficient working capital management significantly improves profitability.

Correlation Analysis: Working Capital Management and Liquidity (H2)

Variables	N	Pearson's r	p-value
Inadequate Working Capital	40		
Liquidity & Operational Issues	40	**0.72**	**0.000**

The correlation coefficient (r = 0.72) indicates a **very strong positive relationship** between inadequate working capital management and liquidity problems.

Result: Hypothesis H2 is **rejected**, indicating that poor working capital management leads to liquidity stress and operational inefficiency.

Discussion of Findings: The findings of the study clearly establish that working capital management is a critical determinant of financial performance in hospital equipment industries. Efficient inventory management reduces fund blockage and carrying costs, while timely collection of receivables improves cash inflow and reduces dependence on external borrowing. Strategic payables management

helps maintain liquidity without harming supplier relationships.

The study also highlights that inadequate working capital management results in delayed procurement, operational disruptions, and weak long-term planning. These findings are consistent with earlier studies and reinforce the theoretical framework that effective working capital management enhances profitability and liquidity.

Conclusion: The study concludes that efficient working capital management plays a decisive role in improving profitability and maintaining liquidity in hospital equipment industries of Madhya Pradesh. Statistical analysis confirms a strong positive relationship between working capital management and financial performance. Poor working capital management, on the other hand, leads to liquidity problems and operational inefficiencies.

Hospital equipment industries must treat working capital management as a strategic financial function rather than a routine operational activity. Systematic planning, effective receivables management, optimized inventory control, and sound cash management practices are essential for financial sustainability and growth.

Implications of the Study:

1. Helps managers improve financial and operational decision-making
2. Assists policymakers in understanding financial challenges of hospital equipment industries
3. Provides empirical evidence for future research in healthcare financial management

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