



# Assessment of Supply Chain Management and Its Impact on the Quality of Healthcare Services in Selected Hospitals

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## KEYWORDS

Supply Chain Management, Healthcare Quality, Rural Hospitals, Service Delivery.

## ABSTRACT:

Healthcare organizations in rural Haryana, particularly in selected hospitals of (Kurukshetra), face persistent challenges in implementing effective supply chain management (SCM) practices, directly influencing healthcare service quality. This study investigates the relationship between SCM practices and service quality in rural hospitals, considering demographic factors such as gender, age, education, and healthcare experience. A cross-sectional descriptive design was applied, distributing 500 questionnaires to procurement officers, administrative staff, and health managers across seven block hospitals, with 473 valid responses analyzed using descriptive statistics and hypothesis testing. Findings indicate a positive correlation between SCM practices—timely delivery, adherence to specifications, supplier relationships, and post-procurement services—and key service quality dimensions, including tangibility, reliability, responsiveness, assurance, and empathy. Gaps in supplier relationship management highlight the need for skilled personnel and capacity-building initiatives. The study offers practical insights for improving SCM strategies and provides a conceptual framework for future research across different healthcare sectors

## 1. Introduction

In today's dynamic and interconnected global economy, supply chain management (SCM) has become a critical component for organizations aiming to streamline operations and control costs. Efficient SCM ensures the smooth flow of goods, information, and resources, significantly impacting organizational performance. This is especially true in the healthcare sector, where timely and cost-effective delivery of medical supplies, pharmaceuticals, and equipment directly influences the quality of patient care. Given the complexity and urgency associated with healthcare services, optimizing supply chain performance is vital to ensure service reliability, patient safety, and overall satisfaction (Beldek et al., 2020). As healthcare systems face increasing pressures from rising costs, demographic shifts, and global health crises, the importance of robust and responsive supply chain strategies continues to grow.

Supply chain management (SCM) in healthcare facilities presents unique challenges and complexities that set it apart from conventional supply chain systems. The healthcare sector encompasses a wide range of critical elements, including pharmaceuticals, medical devices, and support services, each of which requires strict quality

control, timely delivery, and regulatory compliance. Unlike traditional supply chains, the materials involved in healthcare—such as high-cost medications and sensitive medical equipment—demand specialized handling and heightened attention to safety and precision (Alali et al., 2022). These factors elevate the stakes of effective supply chain management, as even minor errors or inefficiencies can lead to substantial financial losses and, more importantly, jeopardize patient safety and care outcomes. Poor service quality, delayed deliveries, and substandard products not only impact operational costs but also have the potential to harm human health and lives. Consequently, developing a resilient and efficient healthcare supply chain is essential to improving service quality, reducing waste, and ensuring patient satisfaction.

Physical well-being is a fundamental human need, and the adage "prevention is better than cure" underscores the importance of proactive healthcare. While many individuals are reluctant to visit hospitals unless absolutely necessary, growing health awareness has led to increased visits for diagnostic assessments and preventive care. In this context, hospitals play a crucial role—not only in treating illness but also in providing reassurance and maintaining public health standards.



Services, by nature, are intangible acts, performances, or processes consumed at the point of delivery (Zeithaml & Bitner, 2003). In the healthcare sector especially, services such as diagnosis, consultation, and inpatient care add value in the form of comfort, timeliness, and, most critically, health outcomes (Quinn, Baruch, & Paquette, 1987).

This study narrows its focus to the evaluation of hospital service quality from the perspective of patients and their attendants, using the SERVQUAL model as an analytical framework. SERVQUAL identifies five key dimensions of service quality—**tangibles, reliability, responsiveness, assurance, and empathy**—that are essential in capturing patients' perceptions and expectations. The research specifically investigates **public tertiary care hospitals in Kurukshetra Haryana, India**, aiming to measure the gap between expected and perceived service quality among patients accessing services in these facilities. This setting is particularly relevant, given the high patient volume, limited resources, and growing public demand for quality care.

The objective of this study is to identify the most influential service quality dimensions from the patient's point of view, assess the extent to which their expectations are being fulfilled, and analyze any significant discrepancies between anticipated and actual service delivery. By identifying these service quality gaps, the study intends to offer evidence-based insights and recommendations for hospital administrators and public health policymakers to improve service performance and enhance patient satisfaction within the public healthcare system.

Patient satisfaction has emerged as a critical benchmark for assessing healthcare quality, making it a strategic priority for hospitals in India. In an increasingly competitive healthcare environment, where patients can choose among multiple providers, their perceptions—often measured through patient satisfaction surveys—play a pivotal role in evaluating service quality. Key determinants shaping these perceptions include a hospital's reputation for quality care and its commitment to patient-centered service delivery. Achieving these standards, however, requires a robust and well-integrated Supply Chain Management (SCM) system.

SCM in healthcare plays a vital role in ensuring the efficient procurement, management, and distribution of medical resources, which directly influence service efficiency, treatment outcomes, and overall patient experiences. Despite its significance, research on SCM in the Indian healthcare sector remains limited and fragmented, often focusing on disease-specific supply chains or individual processes rather than examining the broader systemic impact.

This study seeks to address this gap by analyzing the relationship between integrated SCM practices and the quality of healthcare services, with a specific focus on patient satisfaction in selected hospitals in Haryana. By linking SCM efficiency with patient-centered outcomes, the research underscores that supply chain effectiveness is not merely an operational function but a critical enabler of high-quality healthcare delivery in India.

The integration and coordination of supply, storage, and distribution processes are critical to ensuring the efficiency and appeal of healthcare services. When these components function seamlessly within an organization's supply chain, internal coordination improves, thereby enhancing overall service delivery (Ageron et al., 2018). Unlike conventional supply chains that primarily aim for profit maximization, healthcare supply chains are inherently patient-centered, designed to improve health outcomes and save lives. Hospitals, as key service providers, not only generate demand within the healthcare supply chain but also play a central role in managing resource flows to meet patient needs effectively. However, sustainability considerations require these institutions to remain financially viable. As identified by (Senna et al. (2021), two primary reasons underscore this necessity: (1) private healthcare institutions must maintain profitability to ensure operational continuity, and (2) healthcare providers must adopt cost-effective practices to ensure judicious utilization of taxpayer funds.

A well-functioning supply chain is directly linked to a health system's ability to deliver quality services across different levels of care. Consequently, investments in reliable and efficient healthcare supply chains are essential for strengthening health systems. This has led to an increasing global emphasis on improving the performance of healthcare supply chains, particularly in



resource-constrained settings where inefficiencies can critically affect patient care (Subramanian, 2021).

## 2. Research Methodology

This study employed a cross-sectional design with a qualitative approach to examine the "Assessment of Supply Chain Management and Its Impact on the Quality of Healthcare Services in Selected Hospitals" across Kurukshetra, Haryana. Using purposive sampling, 500 questionnaires were distributed to supply chain and procurement managers, with 473 valid responses (94% response rate). The questionnaire, developed from existing literature (e.g., Odhiambo, 2014; Karim, 2020), comprised four sections: demographic details, SCM dimensions (supplier relationships, compatibility, specifications, trust, and security), healthcare service quality (tangibility, responsiveness, reliability, safety, and empathy), and challenges in SCM implementation. All items were rated on a 5-point Likert scale (1 = Strongly Agree to 5 = Strongly Disagree). To ensure validity, the tool was pilot-tested with managers and experts, incorporating their feedback. Cronbach's alpha for the instrument was 0.78, indicating good reliability. Data collection covered all seven blocks of Kurukshetra, including rural and urban hospitals, with ethical clearance obtained from the Institutional Review Board and written consent from participating institutions.

## 3. Data Analysis

Data were analyzed in alignment with the study objectives using both descriptive (frequency, percentage, mean, and standard deviation) and inferential statistics (correlation and multiple regression analysis). Hypothesis testing was conducted to examine the relationship between supply chain management practices and healthcare service quality. All analyses were performed using IBM SPSS Statistics (Version XX), with a 95% confidence level and a significance threshold set at  $p \leq 0.05$ .

## 4. Results

"This study critically examines the impact of supply chain management (SCM) on the quality of healthcare services delivered in rural hospitals across Haryana. The investigation specifically addresses five core dimensions of service quality—tangibility, assurance, responsiveness, empathy, and reliability. In this context, SCM is operationalized as the systematic and

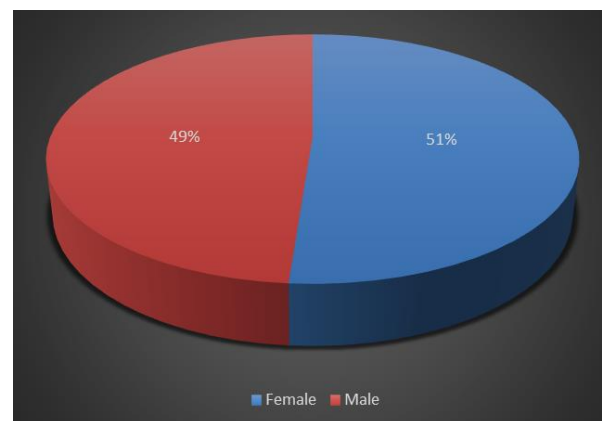
coordinated integration of procurement, inventory management, transportation, and supplier relationship processes, with the strategic objective of ensuring the timely, reliable, and efficient provision of essential medical resources and services."

## 5. Demographic Profile

**Table 1.1:** Gender

Gender	Frequency	Percentage
Female	256	51.2
Male	244	48.8

According to the statistics, the respondents' gender distribution is well balanced, with women making up a small majority. Specifically, 51.2% of the respondents are female (n=256), while 48.8% are male (n=244). This near-equal representation ensures that the perspectives and responses collected in the study are not significantly skewed by gender.



**Table 1.2:** Age

Age Group	Frequency	Percentage
25-35-year	136	27.2
Above 55 Years	132	26.4
36-45-year	122	25.4
46-55-year	110	22

The data reveals a diverse representation of age groups among the respondents, with a fairly even distribution across the different age brackets. The 25-35-year age group forms the largest segment, accounting for 27.2% (n=136) of the respondents, closely followed by those above 55 years, who comprise 26.4% (n=132). The 36-



45-year age group represents 25.4% (n=122), while the 46-55-year age group constitutes 22% (n=110) of the total respondents.

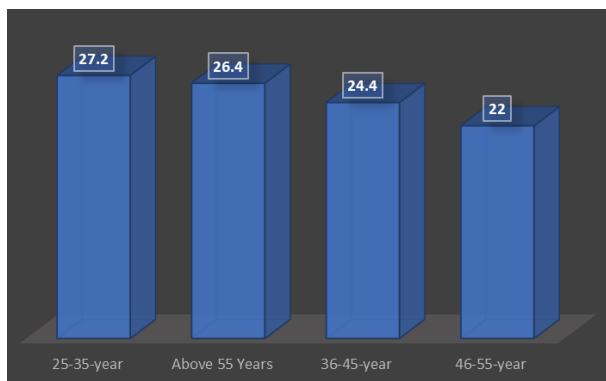


Table 1.3: Qualifications in Education

Educational Qualification	Frequency	Percentage
Graduate	169	33.2
Undergraduate	167	33.4
Postgraduate	164	32.8

The data demonstrates a well-distributed representation of respondents across different educational qualifications. Graduates make up the largest proportion, accounting for 33.8% (n=169) of the total respondents, closely followed by Undergraduates at 33.4% (n=167). Postgraduates represent 32.8% (n=164), forming a nearly equal segment.

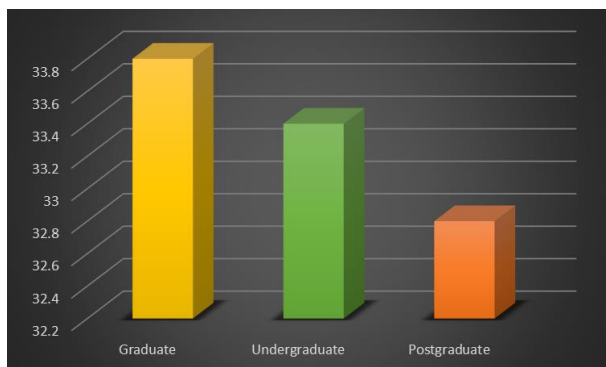
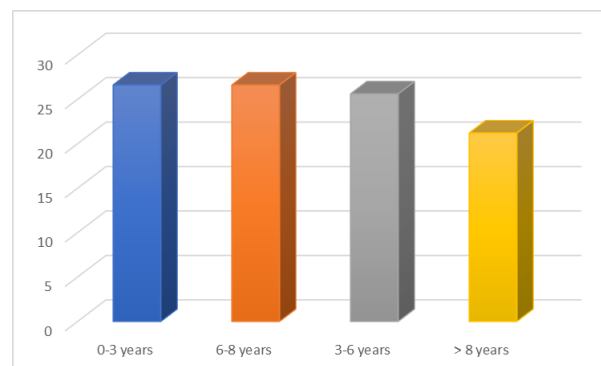


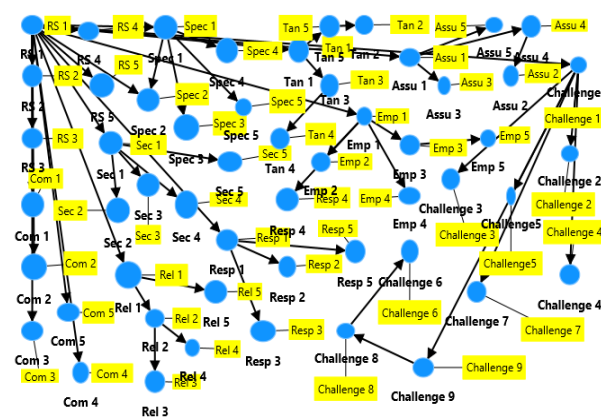
Table 1.4: Work Experience

Work Experience	Frequency	Percentage
0-3 years	133	26.6
6-8 years	133	26.6
3-6 years	128	25.6
> 8 years	106	21.2

The data highlights a balanced distribution of respondents across different levels of work experience. Both the 0-3 years and 6-8 years' experience groups are the largest, each comprising 26.6% (n=133) of the total respondents. The 3-6 years group follows closely, representing 25.6% (n=128), while respondents with more than 8 years of experience account for 21.2% (n=106).



Measurement Model



The diagram illustrates a complex and dynamic system of relationships among the studied variables. Key variables such as Assu 1, Challenge 6, and RS 1 appear to play a central role, influencing multiple dimensions. These interconnected patterns suggest that improving one dimension (e.g., assurance or responsiveness) could



have cascading effects on others. Conversely, addressing challenges or weaker links could stabilize or strengthen the overall system. This representation underscores the importance of analyzing interdependencies in the dataset to design more targeted and effective strategies for improvement. Let me know if you'd like a detailed quantitative analysis of these relationships.

## 6. Conclusion

This study demonstrates that effective supply chain management (SCM) significantly enhances healthcare service quality in rural Haryana by ensuring timely resource availability, improving operational efficiency, and increasing patient satisfaction. Key SCM dimensions—tangibility, reliability, responsiveness, empathy, and dependability—were found to critically shape service quality. However, gaps such as delayed procurement, inadequate infrastructure, and weak stakeholder collaboration persist, underscoring the need for technological integration, staff training, and data-driven strategies. Strengthening collaboration among policymakers, administrators, and supply chain professionals and adopting patient-centric SCM approaches are vital for creating resilient and equitable rural healthcare systems.

## 7. Findings

The study on supply chain management (SCM) in rural Haryana revealed that effective practices—such as efficient procurement, timely delivery, and optimal resource utilization—directly enhance healthcare quality by improving access to essential medicines and services. Key SCM dimensions, including tangibility, reliability, responsiveness, assurance, and empathy, were found to significantly impact patient satisfaction and trust. However, challenges like poor infrastructure, delayed procurement, lack of real-time tracking, inadequate storage, weak policy frameworks, and limited stakeholder coordination undermine system efficiency. The absence of advanced technologies, such as predictive analytics and automated inventory systems, along with skill gaps among healthcare and SCM personnel, further restrict progress. Strengthening collaboration among government bodies, private organizations alongside adopting patient-centric and technology-driven approaches, emerged as critical strategies for building resilient and efficient rural healthcare supply chains.

## 8. Recommendations

To strengthen rural healthcare supply chains in Haryana, the study recommends adopting advanced technologies (predictive analytics, real-time tracking, blockchain), enhancing infrastructure (cold storage, transport, digital systems), and providing regular training for healthcare and SCM staff. Supportive policies, funding, and robust monitoring by policymakers, coupled with public-private partnerships are essential. Aligning SCM with patient needs through feedback systems and using real-time data for planning will further improve efficiency and equity in service delivery.

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