



“Impact of Supply Chain Management on Quality of Healthcare Services”

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Abstract: The study aims to explore and studies the effect of supply chain management on the quality of health services in hospitals of Kurukshetra Haryana from the viewpoint of procurement officers the study also aims to describe the impact of supply chain management on the quality of healthcare services, due to some demographic variables such as gender age education level and years of experience in the field of supply the study using a quantitative design using a hypothesis testing approach to identify the effect of supply chain management dimensions on quality of healthcare services, 500 questionnaires was distributed in the 7 blocks in Kurukshetra Haryana among the procurement officers and administrative staff, out of these 27 were found incomplete 473 respondents were taken as the sample size for data analysis the study results show that there is a significant effect of supply chain management dimensions on the quality of health services on the other hand the results also show that there are no differences between supply chain management and the quality of health services due to gender qualification age or experience.

Keywords: Supply Chain Management (SCM), Healthcare, Quality Services

I. INTRODUCTION

Today, SCM is used in various hospitals as a comprehensive approach covering all aspects. Health care is the body and mind such as the prevention, diagnosis, and treatment of disease. Medical logistics include medical, pharmaceutical, surgical supplies, equipment, and other products required by medical professionals such as doctors, nurses, and administrative staff. ^[1]

All hospitals are now working to identify weaknesses they can do to improve the quality of medical care and patient care.^[2] The skyrocketing cost of maintaining hospital standards and regulations is a major challenge. SCM should optimize the efficiency and effectiveness of the treatments provided. ^[3] The ultimate goal of SCM is transparency in all processes. Accuracy and observability of information must be maintained among manufacturers, retailers, insurers, providers, and patients.^[4] In healthcare, quality management initiatives have been established and hospitals focus on how to deliver quality care to influence outcomes related to hospital performance and patient satisfaction.^[5]

The healthcare supply chain consists of three major players at various stages: manufacturers, buyers, and healthcare providers. Manufacturers include pharmaceutical companies, medical and surgical product companies, equipment manufacturers, and manufacturers of capital goods and information systems. Buyers include group purchasing organizations, pharmaceutical wholesalers, medical-surgical distributors, independent commission distributors, manufacturers, and product representatives. Vendors include hospital, hospitals, systems integrated distribution networks, and alternate location facilities. ^[6]

The hospital strives to achieve service excellence and retain all customers it can economically serve. In other words, it seeks to achieve zero defects through continuous efforts to improve the quality of its healthcare system.^[7] Healthcare service sector managers are under increasing pressure to demonstrate that their services are customer-centric and that continuous performance improvements are being achieved. ^[8]

Service quality can therefore be defined as the difference between the customer's expectations of service and the perceived service. When expectations exceed performance, perceived quality is unsatisfactory, resulting in customer dissatisfaction. ^[9] Supply Chain Management (SCM) deals with different categories of flows. The flow of goods, information, and funds within and between supply chain partners to meet consumer needs most efficiently. ^[10]

Quality management is how the workflow of a healthcare organization can be reorganized in the most favorable way possible to achieve optimal quality of results: quality of healthcare services, patient satisfaction, staff satisfaction, and overall performance.^[11] Improving the quality of health services is a concern not only for patients but also for governments, administration, professionals, and hospitals, even in developing countries where many people do not have access to quality services. Patients increasingly expect health services and compare their experience to countries with better quality (World Health Organization, 2004; Ovretveit and Al Savoury, 2006; Kennedy and Fiss, 2009). ^[12]

Globally in the healthcare market, many patients need the best quality and services, which have to be developed in underdeveloped countries to satisfy their deprived people and their healthcare identifies that healthcare supply chain management is lacking financially and vowed coordination among healthcare supply chain management administrative staff and its members.^[13]

Therefore, this study focuses on the impact of supply chain management on the quality of healthcare services. This is done through applied research to the private hospital sector and through a review of the theoretical literature dealing with this topic on the one hand and stakeholder views. In this regard, it is the party involved in supply and procurement in private hospitals.^[14] The objective of this study to determine the impact of supply chain management on the quality of healthcare services.

RESEARCH METHODOLOGY:

The study will be conducted in different hospitals of Haryana (Kurukshetra) there are 07 blocks in district Kurukshetra & having a total area of 1,530 sq. km., and 1456 sq. km is rural. Out of the total population of Kurukshetra, 9,64,655 are in the district, 279,225 are in the urban area and 685,430 are in the rural area.^[15] which covers 415 villages & having 141 Government rural facilities which cover PHC, CHC, Sub center & District hospital & private facilities 31068 in numbers. These hospitals will be studied for processes & systems adopted in supply chain management and quality of healthcare services.^[16] The data will be collected from hospital procurement officers & administrative officers who are involved directly or indirectly in the supply chain.

A cross-sectional survey method using a hypothesis testing approach to determine the impact of supply chain management on the quality of health services. The questionnaire was developed as a data collection instrument. A total of 500 questionnaires were administered in rural hospitals, out of which 27 were incomplete, and the sample size was calculated using the Standard Sample Size method.

An original survey instrument/questionnaire was constructed from existing literature/works of relevant foci (e.g. those of Paul Oguya Odhiambo, 2014; Md. Mobarak Karim, 2020)^[17] adapted and modified to include socio-demographic information of the respondents (gender, age, education, and years of working), and employed for data collection. Data is gathered from every 7 blocks, which includes rural locations. The research will be studied for supply chain management process, materials, pricing, usage, inventory management, procurements, internal & external logistics, rural distribution channel & quality of healthcare services.^[18]

Thus, questionnaires were used for the analysis and hypothesis testing. The study tool has been prepared and constructed into four parts; the first part is to measure the demographic profile, the second part is to measure the supply chain, and is divided into four dimensions: the relationship with suppliers, Compatibility, specifications, and trust and security consisting of (20) Questions.^[19] While the third part of the questionnaire, which measures the quality of health services divided into five dimensions: tangibility, responsiveness, assurance; reliability, and empathy consists of (25) questions, and the fourth part is to measure the challenges faced in the implementation of SCM.^[20] All statements were measured on a 5-point "Agree-Disagree" Likert scale.^[20]

To ensure the questionnaire's validity, a self-administered questionnaire was created specifically for the study was used to collect data. The questionnaire was by interviewed 5 managers and experts in the supply chain departments who agreed to fill in the questionnaire and also to comment on the scales employed.^[21] Ethical approval for the research project was obtained from the institutional review board by M Shafiq . 2017 .^[22] Then, their suggestions were collected and considered to improve the validity of the questionnaire.. The questionnaire was developed and after that data was collected with the help of a schedule and questionnaire. Before the interview written consent was taken from the healthcare facility and ensure the confidentiality of data.^[23]

STATISTICAL ANALYSIS:

Proportional analysis of the data was performed utilizing data that was fed into Microsoft Excel 2010.

RESULTS:

The table.1of Questionnaire was used to collect data regarding the demographic attributes of the respondents containing four questions i.e., gender, age group, Education level of respondents, and work experience, 69 % of respondents are male and 31 % are female, the respondents are between age groups (25-35 Years) is 60% and between 36-45 years is 26%, 46-55 years Age group is 9% and above 55 is 5 %., Among all samples, most of the respondents are postgraduation degree holders. According to experience in years, the majority of the questionnaire respondents are having experience between >8 years.

SUPPLY CHAIN MANAGEMENT PRACTICES:

Relationship with supplier- According to descriptive analysis, the relationship with suppliers is defined by the organization in table-2, 45 % of respondents strongly agree that the suppliers can quickly respond to an increase in order size 28% of respondents agree (Mean 118.2), 18% are neutral and 9% respondents disagree, 49% respondents strongly agree that the vendor's good relationship is due to personal relations with the organization, 24 % are Agree 9% are neutral and 18% respondents are agreed with this statement. 69% of respondents agree and 31% of respondents strongly agree with this statement. that the delay in the decision-making process of the SCM leads to the non-availability of goods, 56% of respondents agree that the change in terms and conditions of vendor creates problems in demand and supplies and 44% strongly agree that the SCM system frequently evaluates the supplier performance for satisfactory availability of the goods, 30 % agree and neutral.

QUALITY OF HEALTHCARE SERVICES:

Tangible statements – From the table-3 results it can be said that 54% of respondents agree and 38% strongly agree that the organization maintains inventory for all your customer care supplies to avoid shortages to give proper customer care (Mean 118.2). 52% of respondents are strongly agreeing and 39% of respondents agree organizations procure equipment every year with recent technology advancements(Mean 94.6),. 41% of respondents agree and 40% of respondents strongly agree organizations invest in annual maintenance contracts (AMC) & comprehensive maintenance contracts (CMC) and preventive maintenance of medical equipment. 18% of respondents organization plan Supplies to reduce the cost of treatment for affordability. 50% of respondents are agree that the organization state that the SCM operations can not be implemented due to a lack of human, financial, and material resources. The customers are satisfied to get this service from the organization.

CHALLENGES FACED IN THE IMPLEMENTATION OF SCM -

The respondents were asked which they fac challenges faced in the implementation of SCM in table-4. 54% of respondents agree with the statement and 38% of the respondents strongly agree with the Lack of proper planning (Mean 157.6), 47% of respondents agree & 28% of respondents are strongly agree with Stockouts statement (Mean 94.6), 53% agree with Lack of financial resources (Mean 94.6), The study also established that 52% of the respondents agreed that lack of qualified personnel was a challenge facing the implementation of SCM (mean 118.2). 68% agree & 23% strongly agree with poor order request form filling (Mean 118.2), 57% of respondents agree that there is uncertainty in terms of demand Mean 118.2), 25 % disagree with the statement that there is Uncertainty in terms of supplies (Mean 118.2), 49 % are agreeagreere is Late arrival of the order request form (Mean 118.2), 54% respondents are special preference by the doctors for the products of their choice Mean157.6).

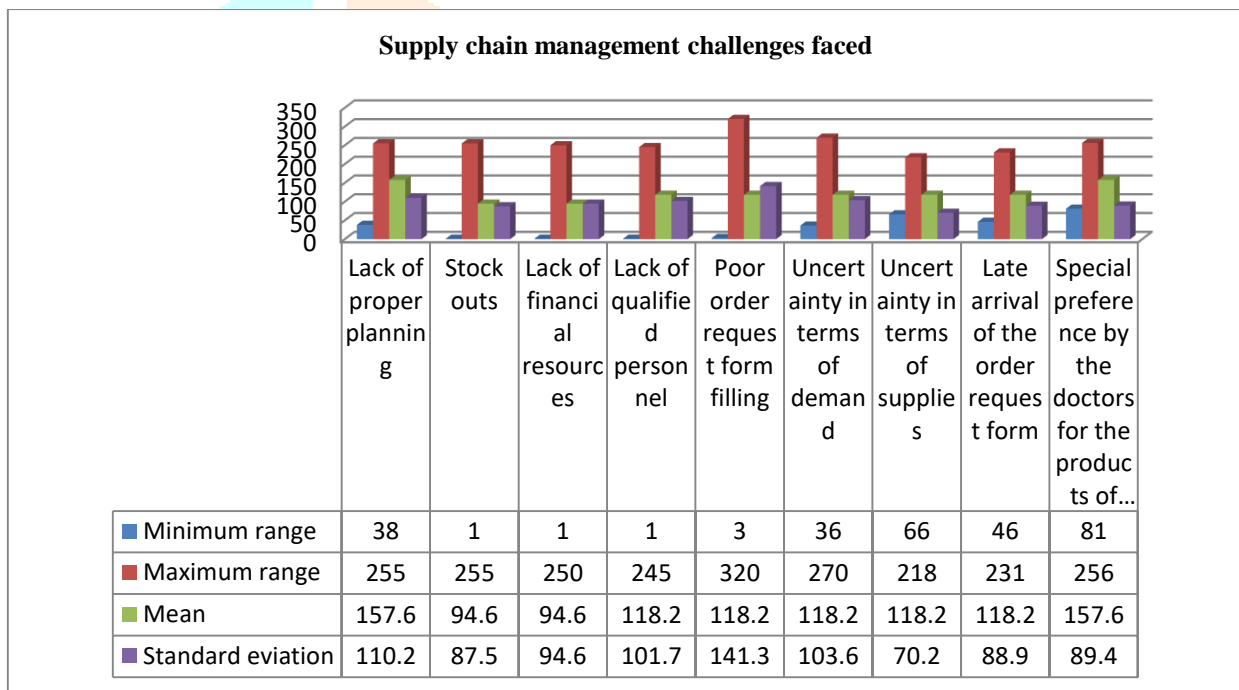


Table-1 Demographic profile descriptive analysis

Variable	Categories	Frequency	Percentage
Gender	Male	328	69%
	Female	145	31%
Age Group	25-35 yr	281	60%
	36-45 yr	124	26%
	46-55 yr	44	9%
	Above 55 yr	24	5%
Educational Qualification	Undergraduate	48	10%
	Graduate	145	31%
	Post Graduate	280	59%
Work experience	0-3 yr	38	8%
	3-6 yr	160	34%
	6-8 yr	93	20%
	>8 yr	182	38%

Table -2 Supply Chain Management Practices

S.No	Relationship with supplier	Division	Quantity	percentage
1	Your company's suppliers can quickly respond to an increase in order size.	SA	212	45%
		A	130	28%
		N	87	18%
		D	44	09%
		SD	0	0
2	Does the good supplier relationship is due tersonal relations with the employee?	SA	233	49%
		A	113	24%
		N	42	09%
		D	85	18%
		SD	0	0
3	Is the delay in the decision-making process of the supply chain lead to the non-availability of products?	SA	148	31%
		A	325	69%
		N	0	0
		D	0	0
		SD	0	0
4	Does the change in terms and conditions of suppliers create problems in demand and supplies?	SA	79	17%
		A	266	56%
		N	128	27%
		D	0	0
		SD	0	0
5	Does the supply chain system frequently evaluate the supplier performance for satisfactory availability of the products?	SA	205	44%
		A	143	30%
		N	82	17%
		D	43	9%
		SD	0	0

Table -3 Quality of Healthcare Services

S.No	Tangible statements	Division	Quantity	Percentage
1	Do you maintain inventory for all your patient care supplies to avoid shortages to give proper patient care?	SA	245	52%
		A	186	39%
		N	2	0
		D	40	9%
		SD	0	0
2	Do you procure equipment every year with recent technology advancements?	SA	206	43%
		A	132	28%
		N	93	20%
		D	41	9%
		SD	1	0
3	Do you invest in AMC /CMCs and preventive maintenance of medical equipment?	SA	190	40%
		A	194	41%
		N	48	10%
		D	41	9%
		SD	0	0
4	Do you plan Supplies to reduce the cost of treatment for affordability?	SA	144	30%
		A	216	46%
		N	28	6%
		D	85	18%
		SD	0	0
5	Do you state that the Supply chain operations cannot be implemented due to a lack of human, financial, and material resources?	SA	153	32%
		A	238	50%
		N	79	17%
		D	0	0
		SD	3	1%

Table-4 Challenges Faced in the Implementation of SCM

S.No	Supply chain management challenges faced	Minimum range	Maximum range	Mean	Standard Deviation
1.	Lack of proper planning	38	255	157.6	110.2
2.	Stock outs	1	255	94.6	87.5
3.	Lack of financial resources	1	250	94.6	94.6
4.	Lack of qualified personnel	1	245	118.2	101.7
5.	Poor order request form filling	3	320	118.2	141.3
6.	Uncertainty in terms of demand	36	270	118.2	103.6
7.	Uncertainty in terms of supplies	66	218	118.2	70.2
8.	Late arrival of the order request form	46	231	118.2	88.9
9.	Special preference by the doctors for the products of their choice	81	256	157.6	89.4

FINDINGS & DISCUSSION:

The result shows that due to demographic factors such as gender, age, education level, and work experience, there are no significant differences between supply chain management and the quality of healthcare services. In the response to a relationship with suppliers, 45% of respondents believe that the company's suppliers can quickly respond to an increase in orders, 49 % of respondents strongly agree that a good supplier relationship is due to personal relations with the employee, 69% of respondents agree that the delay in the decision-making process of the supply chain lead to the non-availability of products, 56 % respondents agree the change in terms and conditions of suppliers create problems in demand and supplies, and 44% strongly agrees with the supply chain system frequently evaluate the supplier performance for satisfactory availability of the products. El-Shoghari and Abdallah (2016) argue that SCM will affect service quality by allowing institutions to track service quality, optimize the use of existing resources, and recruit additional resources to meet demand by Radwan Choughri January 2016. ^[23] This is an organizational perspective on how SCM will have an effect on service quality. ^[24]

Service quality is the most potential indicator that can lead to many possible benefits for customers and the organization that help to achieve the objectives of the organization. The study examined the impact of the quality of healthcare services. ^[24] The objective is to evaluate and analyze the impact of SCM on the quality of healthcare services. To achieve these objectives a sample of 473 respondents was selected. The study receives some findings on your customer care supplies to avoid shortages to give proper customer care (Mean 118.2). 52% of respondents strongly agreed and 39% of respondents agreed organizations procure equipment every year with recent technology advancements (Mean 94.6),. 41% of respondents agreed and 40% of respondents strongly agree organization invests in annual maintenance contracts (AMC) & comprehensive maintenance contracts (CMC) and preventive maintenance of medical equipment. 18% of respondents organizations plan Supplies to reduce the cost of treatment for affordability. 50% of respondents agree that the organization states that the SCM operations can not be implemented due to a lack of human, financial, and material resources. This can be said that customer satisfaction depends upon the service quality of an organization. ^[25]

Finally, the challenges faced by the rural hospitals in Haryana (Kurukshetra) in implementing SCM practices are: Lack of proper planning 54%, stockouts%, Lack of financial resources 53%, Lack of qualified personnel 52%, Poor order request form filling 68%, Uncertainty in terms of demand 57%, Uncertainty in terms of supplies 46%, Late arrival of the order request form 49%, Special preference by the doctors for the products of their choice 54% were a challenged to a small extent.

CONCLUSION

The aim of this study is to measure the impact of supply chain management on the quality of healthcare services in rural healthcare services from the perspective of supply chain officers. On the basis of information collected during the survey descriptive analysis was done. Thus, these findings indicate that the hospitals of Haryana (Kurukshetra) must realize the significant role that health-relate supply chain activities have on quality because most of the components have a positive and significant association with the quality of healthcare services. These findings could also provide help to the supply chain managers to know about the importance of supply chain-related activities which could increase the quality of healthcare services. Finally, the study conclude that the major challenges faced by rural hospitals in Haryana were: Lack of proper planning, stock out, lack of financial resources, and lack of qualified personnel.

RECOMMENDATIONS

Based on the study results, some recommendations can be proposed by the study; Firstly, rural hospitals need to focus on SCM practices in order to improve the quality of healthcare services. Secondly, supply chain officers need to contribute significantly to increase the quality of healthcare services provided to different customers. Thirdly, hospital SCM should focus on building strong relationships with suppliers in accordance with specific guidelines.

FURTHER STUDY:

The present study used only rural hospitals in Haryana (Kurukshetra), future studies should consider expanding their scope to include urban hospitals.

Further studies related to the health sector can be conducted especially comparative studies between rural, urban, and military health service sectors.

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REFERENCES:

- [1] Getele, Gutama & Li, Tieke & Arrive, Jean. (2020). The Role of Supply Chain Management in Healthcare Service Quality. IEEE Engineering Management Review. PP. 1-1. 10.1109/EMR.2020.2968429.
- [2] Al-Saa'da, Raeeda & Abu Taleb, Yara & Abdallat, Mais & Al-Mahasneh, Rasmi & Nimer, Nabil & Al-Weshah, Ghazi. (2013). Supply Chain Management and Its Effect on Health Care Service Quality: Quantitative Evidence from Jordanian Private Hospitals. Journal of Management and Strategy. 4. 10.5430/jms.v4n2p42.
- [3] Arora, Monika & Gigras, Yogita. (2018). Importance of Supply Chain Management in Healthcare of Third World Countries. International Journal of Supply and Operations Management. 5. 101-106. 10.22034/2018.1.7.
- [4] Jiang, H. J., Friedman, B., & Begun, J. (2006). Factors Associated with High-Quality/Low-Cost Hospital Performance. Journal of Health Care Finance, 32(3), 39-52.
- [5] Toba, S., Tomasini, M., & Yang, H. (2008). Supply chain management in hospitals: a case study. California Journal of Operations Management, 6(1), 49-55.
- [6] Hong, P., Kim, S., & Dobrzykowski, D. (2012). The healthcare supply chain for competitive advantage: the case for Korea. 5TH Annual Symposium and Workshop in Global Supply Chains, March 8-10, 2012, Tokyo, Japan.
- [7] Al-Taher, A. (2008). The Impact of Financial Resources on Health Services Performance: Ministry of Health, Khartoum State. Unpublished master's thesis, Institute of Development Studies and Research Institute, University of Khartoum- Sudan.
- [8] Lillrank, P. Groop, J. & Venesmaa, J. (2011). Processes, episodes, and events in health service supply chains. *Supply Chain Management: An International Journal*. 16 (3). Pp.194 –201.
- [9] Lenin, K. (2014). Measuring supply chain performance in the healthcare industry. *Science Journal of Business and Management*. 2(5): 136-142.
- [10] Li, S., Ragu-Nathan, B. & Rao, S. S. (2006). The impact of supply chain management practices on competitive advantage and organizational performance. *Omega: The International Journal of Management Science*. 34: 107–124\
- [11] Butt, M.M. & de Run, E.C.(2010). Private healthcare quality: applying a SERVQUAL model. *International Journal of Health Care Quality Assurance*. 23(7): 658-673.
- [12] Lewis, B.R. and Mitchell, V.W. (1990), "Defining and measuring the quality of customer service", *Marketing Intelligence & Planning*, Vol. 8, No. 6, pp. 11-17.
- [13] Chopra, S., & Meindl, P. (2007). *Supply Chain Management: Strategy, Planning, and Operation*. Pearson Education, New Jersey.
- [14] Liu, E., & Kumer, A. (2003). Leveraging information sharing to increase supply chain configurability-fourth international conference on information systems.
- [15] Ovreteit, J. and Al Serouri, A. (2006) 'Hospital quality management system in low-income Arabic country: an evaluation', *International Journal of Health Care Quality Assurance*, Vol. 19, No. 6, pp.516–532.
- [16] Mosadeghrad AM. Healthcare service quality: towards a broad definition. *Int J Health Care Qual Assur*. 2013;26(3):203-19. doi: 10.1108/09526861311311409. PMID: 23729125.
- [17] Paula, C. (1997) 'The measurement of TQM principles and work-related outcomes', *Journal of Organization Behavior*, Vol. 18, No. 4, pp.363–376.
- [18] Buchbinder, S.B. and Shanks, N.H. (2007) *Introduction to Health Care Management*, Jones and Bartlett Publishers Inc., USA.