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TESTING THE EFFECT OF HOSPITAL SUPPLIERS' INTEGRATION ON HOSPITAL SUPPLY CHAIN PERFORMANCE

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ABSTRACT

Supply chain management plays a significant role in the health care industry as it requires to improve operational proficiency and to diminish cost. Effective supply chain management requires the coordination of exercises, capacities, and frameworks among its supply chain accomplices. Therefore, this study was done to scrutinize the impact of integration of hospital suppliers on hospital supply chain performance by measuring the relationship between integration of suppliers and performance of the supply chain. In this work, five variables were tested which were hospital's trust of the supplier (TS), knowledge exchange (KE), IT integration (IT), hospital supplier integration (HIS) and hospital supply chain performance (HP). For this work, the sample population was the employees of King Abdulaziz Medical city, Jeddah, Saudi Arabia. The data were analyzed in terms of reliability analysis, correlation matrix, and regression analysis. The key findings of this work have shown that all the variables have exhibited a positive relationship between hospital supplier integration and supply chain performance.

INTRODUCTION

Nowadays, the supply chain is becoming an important and powerful tool in organizations and societies to improve operational efficiency and reduce costs [1]. The supply chain is consisted of the all parties involved, directly or indirectly, in the fulfillment of the customer's request. The supply chain includes not only manufacturers and suppliers, but also transporters, warehouses and even customers themselves. Supply chain performance refers to all-encompassing production network exercises in the collection of end-customer requirements [2]. This includes access to items, on-time

conveyances and all vital stocks and limits in the store network to convey that performance in a responsive manner [1-2].

Hospital provider integration can be defined as an interaction between the business processes typical of a health institution and its key suppliers [3]. Businesses are increasingly competing at the supply chain level as global completion is strengthened. Effective supply chain management is concerned with the pooling of activities, objectives and structures between supply chain associates in order to jointly improve organizational processes [4].

Supply chain management in the health care industry has experienced a paradigm shift moving from strategic choices to resource utilization and development and to the most recent design. This design is comprised of multi-firm network organization whose capabilities are focused on knowledge sharing and application [5]. There are countless aspects that could underpin the development of the supply chain. The three primary factors are information technology integration, knowledge exchange inclusion and trust between members of the supply chain network [6].

Mandal [7] carried out a survey on supply chain performance. They constituted that the performance of the supply chain had a strong indication of improving the efficiency of all operations in hospital organizations by reducing the cost of the operation. Another research was carried out by Supeekit et al. [8] on the development of integrated supply chain management by optimizing inventory control and reducing costs for pharmaceutical products. The findings of this work showed that for an efficient supply chain network, it requires an overall cooperation between wholesalers, hospitals and pharmaceutical companies. The study conducted by Moons et al. [9] found that the vendor managed inventories helped improve the efficiency of materials handling in healthcare organizations. They also constituted that online procurement is an element that is used in the development of an organization's efficiency. In addition, Young et al. [10] stated that a good supply chain management enables hospitals to improve the efficiency of the organization through the by hiring appropriate employees that will contribute to procurement and inventory control process. Abdulsalam et al. [11] found that that the suppliers are different people with different thoughts and capabilities, thus making their relationship complex. Hence, the hospital administration has to do its best to be able to handle different suppliers so as to enhance the hospital supply chain performance.

Alshahrani et al. [12] conducted research to develop a conceptual model of the impact of hospital integration on the performance of the overall healthcare organization. The results concluded that the integration of the hospital supplier had a positive impact on the performance of the hospital. Salema and Buvik [13] conducted research on the trust effects on hospital supplier integration and hospital supply chain performance. The result has shown that the trust of the supplier has a constructive relationship with the performance of the supply chain.

Currently in Saudi Arabia, King Abdulaziz Medical city in Jeddah is an upcoming hospital with the latest facilities [14]. This hospital has aimed to serve the Saudi Arabian community with its state-of-the-art facilities and health services. To achieve this, optimal cooperation and output between the integration of suppliers and the performance of the supply chain are needed. Therefore, this work was done to this work was therefore carried out to examine the impact of integration of hospital suppliers on hospital supply chain performance by measuring the relationship between integration of suppliers and performance of the supply chain.

METHODOLOGY

The aim of this research was to examine the relationship between supply integration and supply chain performance, internal integration and external integration. Therefore, the following hypotheses were set. H1: Hospital supplier integration is positively linked to hospital supply chain performance. H2: The level of knowledge exchange between the hospital and its suppliers is positively linked to integration between the hospital and its suppliers. H3: The level of IT integration between the hospital and its suppliers is positively linked to integration between the hospital and its suppliers. H4: The level integration between the hospital and its suppliers is positively linked to integration between the hospital and its suppliers. H5: The hospital's trust with its key suppliers is positively linked to the integration of hospital suppliers. This study was carried out based on quantitative method. The sample population of this work was the employees of King Abdulaziz Medical city. The data collection was done survey method. The data were analyzed in terms of reliability analysis, correlation matrix and simple linear regression analysis.

RESULT AND DISCUSSION

Reliability Analysis

Table 1 shows the Cronbach alpha for the tested variables. Based on Table 1, the hospital's trust of the supplier (TS) variable has an acceptable level of reliability of 0.873. Likewise, based on Table 1, knowledge exchange (KE) variable has a reliability value of 0.851 which is acceptable. Moreover, based on Table 1, IT integration (IT) variable exhibited a reliability value of 0.894. In addition, based on Table 1, hospital supplier integration (HIS) attained a reliability value of 0.914. Furthermore, based on Table 1, hospital supply chain performance (HP) showed an acceptable reliability level of 0.968. Thus overall, based on the results in Table 1, all the variables showed have Cronbach alpha score above 0.65 [15], thus all the values were acceptable.

Table 1: Reliability Analysis

Variable	Cronbach Alpha
Hospital's trust of the supplier (TS)	0.873
Knowledge exchange (KE)	0.851
IT integration (IT)	0.894
Hospital supplier integration (HIS)	0.914
Hospital supply chain performance (HP)	0.968

Correlation Matrix

This section found a link between the variables under study (Supplier Trust Hospital, Knowledge Exchange, IT Integration, Hospital – Supplier Integration and Hospital Supply Chain Performance) using a correlation matrix that provides a Pearson correlation. Based on Table 2, the result showed that correlation between the variable hospital's trust of the supplier (TS), knowledge exchange (KE), IT integration (IT), hospital supplier integration (HIS) and hospital supply chain performance (HP) were in between 0.594 and 0.784 respectively. Therefore, this result shows that the value refers to positive and that there is a significant correlation between the variables.

Table 2: Correlation Matrix for The Variables

Variable	TS	KE	IT	HIS	HP
TS	1	0.921	0.608	0.594	0.646
KE	0.921	1	0.700	0.722	0.696
IT	0.608	0.700	1	0.772	0.678
HIS	0.594	0.722	0.772	1	0.784
HP	0.646	0.696	0.678	0.784	1

Regression Analysis

Table 3 shows the regression analysis result. Based on Table 3, the result showed that hospital's trust of the supplier (TS) had a r2 value of 0.522 and beta coefficient of 0.722. Furthermore, the result showed that knowledge exchange (KE) had a r2 value of 0.596 and beta coefficient of 0.772, IT integration (IT) had a r2 value of 0.848 and beta coefficient of 0.921, hospital supplier integration (HIS) had a r2 value of 0.590 and beta coefficient of 0.700 and finally, hospital supply chain performance (HP) had a r2 value of 0.614 and beta coefficient of 0.784. Therefore, the results showed that there is a positive relationship between all mentioned variables.

Table 3: Simple Linear Regression Analysis Result

Variable	R Square	Beta coefficient	Significant
TS	0.522	0.722	0.000
KE	0.596	0.772	0.000
IT	0.848	0.921	0.000
HIS	0.590	0.700	0.000
HP	0.614	0.784	0.000

OVERALL DISCUSSION

In this study, the relationship between supply integration and supply chain performance, internal integration and external integration were analyzed. For this work, five hypotheses were set. The variables were testing using Cronbach alpha reliability test, correlation matrix and simple linear regression test. The outcomes of all three tests have confirmed that that there is a positive

relationship between all mentioned variables and tested hypotheses. Therefore, it is deduced that hypothesis are true and accepted where H1: hospital supplier integration is positively linked to hospital supply chain performance, H2: the level of knowledge exchange between the hospital and its suppliers is positively linked to integration between the hospital and its suppliers, H3: the level of IT integration between the hospital and its suppliers is positively linked to integration between the hospital and its suppliers, H4: the level integration between the hospital and its suppliers is positively linked to integration between the hospital and its suppliers, and H5: the hospital's trust with its key suppliers is positively linked to the integration of hospital suppliers. The findings of this work is in accordance to the work of Abdallah et al. [16] where it was confirmed the variable trust had exhibited a positive impact on hospital supplier integration and supply chain performance. Furthermore, it was found that supplier integration has contributed to the enhancement of supply chain performances. Furthermore, the work of Malik et al. [17] found that hospital supply chain performance was highly influence by hospital supplier integration, which has improved the overall supply chain efficiency of the hospital.

CONCLUSION

Supply chain management is an exciting area of study and it is playing a huge role in the medical and health care industry. This work has examined the relationship between hospital supplier integration and supply chain performance by in terms of hospital's trust of the supplier, knowledge exchange, and IT integration. The key findings of this work have shown that there is a positive relationship for all the variables and the tested hypotheses are accepted. For future works, the authors recommend obtaining data from the other hospital in Saudi Arabia so that a more detailed comparison can be made.

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