Chapter 12
The Effect of Total Quality Management on Supply Chain Management in the Digital World:
Case of Healthcare Services

Gülay Tamer
https://orcid.org/0000-0002-7897-1603
Istanbul Gelisim University, Turkey

ABSTRACT

The dimensional structure was revealed by the exploratory factor analysis of supply chain management (SCM) scale and total quality management (TQM) scale. The scales applied in the research and construct validity were checked by the confirmatory factor analysis of the dimensions. In the reliability analysis, Cronbach's alpha values and values of composite reliability and convergence reliability were calculated. The relationship between total quality management (TQM) and supply chain management (SCM) was revealed by the correlation analysis. The effect of total quality management (TQM) on the variable of supply chain management (SCM) was tested by the structural equation model applied by implicit variables. And the comparison of total dimensions and sub-dimensions of supply chain management (SCM) scale and of total quality management (TQM) scale as per demographic attributes were analyzed by the independent samples t-test and one-way analysis of variance (ANOVA).

INTRODUCTION

Effective supply system in health sector determines the rapidity and quality of care and service process. The rapidity and quality of service process increases, and the cost decreases at healthcare organizations that manage the supply chain most effectively and efficiently. Moreover, the efficient use of resources at macro level contributes to country's economy. It is being thought that total quality management ap-

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plications have significant contribution in effective and efficient management of supply chain process. This study was performed in order to determine the effect of total quality management in health care services on supply chain management. As data collection tools for this purpose, information form covering the introductory and professional attributes of healthcare professionals, and the questionnaires of supply chain management and total quality management were used. The questionnaire of supply chain management consists of 7 dimensions, and 27 articles. And for measuring the total quality management, the questionnaire developed by the researcher consisting of 10 articles was used. The questionnaires were applied to 211 employees consisting of physicians, nurses, and other healthcare professionals working at hospitals located at the center of Istanbul province. The answers provided for the questionnaires' questions were analyzed by the use of SPSS for Windows 22.00, and AMOS 24.0 programs. The dimensional structure was revealed by the exploratory factor analysis of supply chain management (SCM) scale, and total quality management (TQM) scale, the scales applied in the research, and construct validity was checked by the confirmatory factor analysis of the dimensions. The relationship between total quality management (TQM), and supply chain management (SCM) was revealed by the correlation analysis. And the comparison of total dimensions and sub-dimensions of supply chain management (SCM) scale, and of total quality management (TQM) scale as per demographic attributes was analyzed by the independent samples t-test, and one-way analysis of variance (ANOVA). In groups where difference had been determined by ANOVA, the source of difference was searched by the Bonferroni test. As the result of this research, significant and positive relationship was found between the variable of total quality management (TQM) in health care services, and all the sub-dimensions of supply chain management. It was considered that this study will play a significant role in and will contribute to establishment and operation of supply chain management at healthcare organizations through the contributions of total quality management system on supply chain management.

THEORETICAL FRAMEWORK

Quality gradually became the more dominant attribute of our lives. Today, the people are continuously in the search of abstract concepts such as quality products, quality services, and even quality time for spending with their families. The presence of this desire for quality has caused the industries and institutions in the whole world to develop a philosophy that will be able to provide the quality that their customers require. Managing production, transportation and warehouse operations with data-based decisions by providing end-to-end visibility forms the basis of the digital supply chain.All today's value chains and logistics networks are transforming with the effect of this. Sensors and network connections allow machines, storage systems and equipment, and products to generate continuous signals. The data pools in which these signals are accumulated provide the infrastructure for artificial intelligence-supported automatic decision-making systems.The biggest promise of the industrial Internet is to provide seamless transparency from supplier to customer, processes that transmit signals to each other in a chain, and distributed management initiative free from central administration. All these goals are only possible if a digital supply chain using Logistics 4.0 technologies is established.