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The impact of total quality management on the relationship with suppliers and customers: the case of pharmaceutical Jordanian companies

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The study aimed to define the contribution of total quality management in relations with suppliers and customers in Jordanian pharmaceutical companies. The study population consisted of pharmaceutical companies in Jordan targeting individuals in supervisory positions in these companies. A total of 170 responses were received. The results of the study found that Jordanian pharmaceutical companies apply total quality management in terms of "commitment of senior management, employee empowerment, strategic planning for quality", which had positive relationships with suppliers and customers. It indicates that total quality management and supply chain practices, especially the relationship with suppliers and customers, are among the basic concepts that work to improve supply chain performance. The study recommends devoting the necessary attention and care to empowering workers, and this is where the essential role-play for senior management is to create interest among employees in their work and jobs through training programs. However, developing methods of collective motivation, participating in setting goals, making decisions, and displaying the image of the work "Family" and forming problem-solving teams for the purpose of achieving empowerment is also important.

1. Introduction

Total quality management (TQM) is considered as a strategic weapon for entrepreneurship and occupying new markets locally and globally, through achieving competitive advantage. TQM is also a concept of management that aims to improve operations and performance and reduce costs due to the ability to meet customer needs and desires (Alkhaffaf, & Alzawahreh, 2021). TQM looks at the organization in a systematic and comprehensive manner by creating positive changes, taking every part within the organization and improving it as desired to reach the best possible quality. The success of implementing TQM also depends on the extent of awareness, interest and support of senior management for this philosophy. From a scientific standpoint, this study is important, in which it is evidenced by its variables. TQM has a relevant impact on the relationship with suppliers and customers, both of which are important in achieving competitive advantage for companies, an important addition to global studies. From a practical standpoint, the companies listed on the Amman Financial Market are of high value to the Jordanian economy, which is considered a basic pillar in the process of building the economy. Accordingly, the success of these companies affects the national economy, and therefore this study will be of assistance to the administrative leaders in these companies with the results and recommendations that it will reach. The impact on achieving its goals and performance.

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The study aimed to identify the impact of total quality management (top management commitment, employee's empowerment, strategic planning for quality) in the relationship with customers and suppliers in pharmaceutical companies in Jordan.

2. Research Hypothesis and Model

2.1 Total Quality Management

Goetsch and Davis (2016) define total quality management as an approach to an administrative practice that attempts to maximize the competitiveness of the organization through continuous improvement of quality of its products, services, employees, processes and environment (Goetsch & Davis, 2016). Total Quality Management is a system suitable for further improving process, product and service in a company supply chain management; it aims to increase quality performance, productivity, customer satisfaction, and profitability (Maymand & Mohebi, 2016). It is a constantly expanding philosophy. (Zimon, 2017) Companies should focus on total quality management practices to form chain management systematic and competitive supply. Jermsittiparsert et al. (2019a, 2019b) and Mogdil and Sharma (2017) believe that soft total quality management practices (supporting senior management, customer focus, training and development, and employee empowerment) has a positive impact on supply chain performance and is less important compared to hard TQM practices (Alkhaffaf, & Amomani, 2021: Hammouri et al., 2021).

2.2 Commitment of Senior Management

Top management commitment means that commitment in the organization starts from top management and continues downward to middle management and lower management, which has an effective role in educating workers about quality overall (Alkhaffaf & Al Zwahreh, 2021). Leadership is the main driver in implementing total quality management. In addition, there is importance of leadership style in the successful implementation of total quality management. Top management must be committed to quality and bear responsibility for performance quality and the necessary structure, culture and strategy developed to stimulate organizational learning and provide incentives for employees to achieve quality goals. Total quality management holds senior management responsible for its work. It emphasizes the organization's responsibilities towards society (Sila, 2020). Decisions related to comprehensive quality are considered as a strategic decision, as the commitment of senior management to support, develop and activate the movement of those responsible for it is one of the basic tasks that undoubtedly leads to success of the targeted system. Carnerud et al. (2018) confirm that the commitment of senior management is represented by the following aspects of promoting a culture of quality, enhancing and developing the capabilities of employees in their performance, and providing clear strategic vision milestones of the organization and its goals.

2.3 Employee Empowerment

Employee Empowerment is the process of voluntarily transferring ownership of actions or situations and circumstances to individuals within the agency to deal with appropriate cases. They have full authority, responsibility, skill, ability and understanding. Total Quality Management has found its strongest roots not only in improving the quality of products, but also in organizational transformation specifically aims to bring about cultural change, improve employee morale, and provide an enabling work climate to achieve high employee performance (Yaghi et al., 2022; Zimon, 2016). The success of total quality depends on the contribution of all employees in the organization because it is the efforts of all employees and their suggestions, ideas, and performance. These ideas are considered as the basis for that success, as no organization could implement the Total Quality Management program and reap its benefits without its employees. For the organization to motivate employees to present their creative suggestions and ideas, it is necessary to motivate and encourage them to participate in improving quality by giving them full authority and decision-making (Dale et al., 1999). One of the most important benefits of employee empowerment is that they gain new skills and experiences through participation in total quality management, which leads to permanent changes in behavior, and this is what improves quality within the organization. Therefore, the advantages of employee participation are in changing the negative attitudes of some employees and reducing conflict, and this is often the case. Which requires a change in the culture of the organization (Fening et al., 2016).

2.4 Strategic Planning for Quality

Strategic planning for total quality management is concerned with formulating the strategic objectives of total quality management, long-term planning, and developing implementation of quality management programs and measurement and evaluation of the company's activities (Alkhaffaf & Amomani, 2021; Majali et al., 2022). Total Quality Management encourages the involvement of suppliers, distributors and customers in developing quality strategies therefore, quality must be at the heart of a company's mission However, management must allocate the necessary and sufficient resources to implement the success of strategies that focus on quality. Strategies and action plans updating according to changes that face the organization becomes essential to survive. (Sila, 2020). Pambreni et al. (2019) indicated that the design of a strategic plan for total quality management gives the organization a sustainable competitive advantage in the markets. Pambreni et al. (2019)

indicated that establishing a comprehensive quality management process that evaluates and diagnoses the company's operations is one of the most important challenges in the company's total quality management strategy, as this study agreed with another studies, he pointed out that total quality management plays a crucial role in the importance of implementing the overall strategy of the organization.

3.5 *Relationship with Supplier*

The main challenge for organizations is to know which supply chain practices to adopt to enhance organizational performance (Khalil et al., 2019) However, the nature of the relationship between the organization and suppliers reflects an acknowledgment by both that cooperation is beneficial for both parties. Long-term relationships between suppliers and the organization contribute to achieving continuity, commitment, long-term direction, trust and cooperation, as all these aspects help build good and strong relationships based on trust between them.

3.6 Relationship with Customer

Ashiru et al. (2020) define the relationship with customers as a comprehensive strategy and process for acquiring and retaining customers and collaborating with them to create value for company and customer. Customer satisfaction lies at the heart of every supply chain strategy and performance; it cannot be measured without considering customer satisfaction. (Hadrawi, 2019). Ashford et al. (2008) define the relationship with customers as a comprehensive strategy and process for acquiring and retaining customers and collaborating with them to create value company and customer (Alkhaffaf et al., 2024).

To achieve the objectives of the study, the following hypotheses formulated based on the problem of the study and its dimensions,

H_1: *Commitment of senior management positively affects relationships with suppliers.*
H_2: *Commitment of senior management positively affects relationships with customers.*
H_3: *Employee empowerment positively affects relationships with suppliers.*
H_4: *Employee empowerment positively affects relationships with customers.*
H_5: *Strategic planning for quality positively affects relationships with suppliers.*
H_6: *Strategic planning for quality positively affects relationships with customers.*

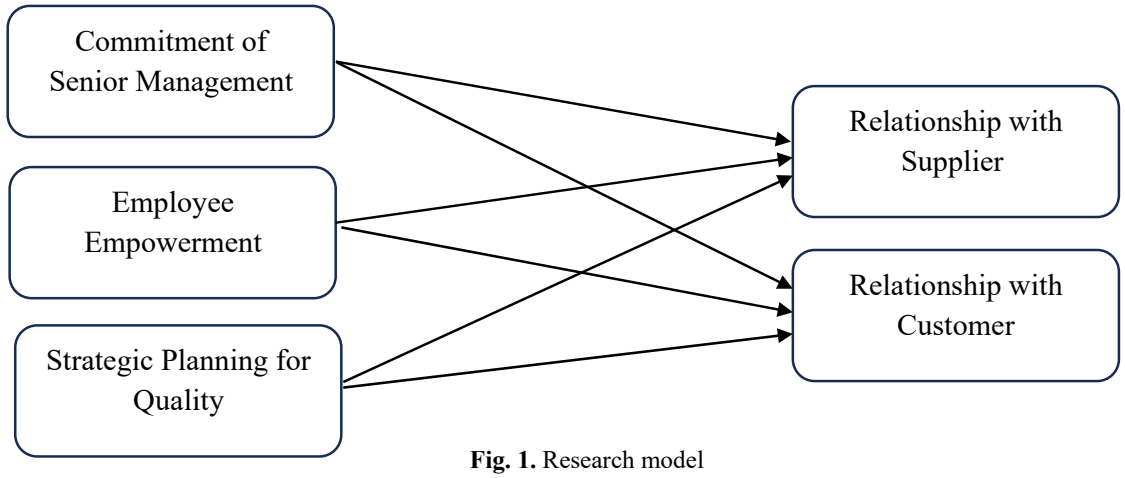

Fig. 1. Research model

3. Methodology

To apply quantitative methods to this research paper, we have used a questionnaire to collect data to validate a conceptual framework and test hypotheses. Participants, all of whom were employees in the supervision level in pharmaceutical companies in Jordan, received the questionnaire through a link on Google Drive. A total of 170 questionnaires were distributed to pharmaceutical companies in Jordan, 23 surveys being filled out incompletely, they were excluded, and culminating in 147 completed responses that were adequate for analysis. Table 1 demonstrates the information of demographic samples. The data indicates that male participants constituted 54.7% of the survey respondents, with women representing a slightly smaller proportion at 45.2%. A minor segment of the surveyed population, 16.9%, were aged over 47, with the largest group (11.1%) falling within the 18 to 27 age group. Furthermore, the predominant educational attainment among respondents was a bachelor's degree, which 48.2% of participants possessed.

Table 1
Sample Demographic

Measure	Category	Count	Percentage
Age	18 – 27	64	37.6
	28 – 37	56	32.9
	38 – 47	31	18.2
	Older than 47	19	11.1
Education	Secondary School	28	16.4
	Diploma	23	13.5
	Bachelor	82	48.2
	Postgraduate	37	21.7
Gender	Male	93	54.7
	Female	77	45.2

4. Data Analysis and Results

We used SmartPLS 4 (Ringle et al., 2022) to test the model developed for this study. We reported the results follow a 2-step approach (Anderson & Gerbing, 1989).

4.1 Measurement Model

The research model assessed reliability and validity using various statistical techniques. In line with Hair et al. (2022) recommendations, the analysis incorporated composite reliability, internal consistency reliability, as well as measures of convergent and discriminant validity. The results of these statistical tests are presented in Table 2. Notably, Cronbach's alpha (α) scores ranged between 0.886 and 0.944, and the CR scores spanned from 0.867 to 0.947, such values suggest the scale is reliably internally consistent. Moreover, all factors surpassed the 0.70 threshold for Factor Loading values, indicating a satisfactory level of reliability. AVE values were determined in accordance with Hair et al., (2020) with 0.5 being the minimum benchmark for establishing convergent validity.

Table 2
Convergent Validity

Construct	Items	Factor loading	Cronbach's Alpha	Composite Reliability	AVE
Commitment of Senior Management	CSM1	0.788	0.894	0.867	0.856
	CSM2	0.852			
	CSM3	0.826			
	CSM4	0.790			
Employee Empowerment	EE1	0.859	0.916	0.909	0.858
	EE2	0.897			
	EE3	0.886			
	EE4	0.849			
Strategic Planning for Quality	SPQ1	0.915	0.905	0.889	0.889
	SPQ2	0.898			
	SPQ3	0.851			
	SPQ4	0.898			
Relationship with Suppliers	RWS1	0.916	0.886	0.947	0.921
	RWS2	0.909			
	RWS3	0.927			
Relationship with Customers	RWC1	0.943	0.944	0.896	0.871
	RWC2	0.899			
	RWC3	0.916			

Table 3
HTMT ratio

Variable	CSM	EE	SPQ	RWC	RWS
Commitment of Senior Management	0.216				
Employee Empowerment	0.336	0.349			
Strategic Planning for Quality	0.498	0.409	0.469		
Relationship with Customers	0.369	0.367	0.217	0.594	
Relationship with Suppliers	0.428	0.409	0.116	0.297	0.409

To evaluate discriminant validity, the study utilized the Fornell-Larcker criterion, and the Heterotrait-Monotrait ratio. The findings have indicated that the outer-loadings of latent variables were greater than the cross-loadings with other measures. HTMT values are considered acceptable if below 0.90, and the HTMT values listed in Table 3 shows that we do not have an issue of discriminant validity. Consequently, the study confirmed the scale's reliability, along with discriminant and convergent validity. The inquiry then moved forward to analyze the structural outer model to test the proposed hypotheses of the research.

4.2 Structural Model- Direct Effects

Six hypotheses were formulated in this study, all have direct relationships. According to the results, all of them have shown a positive and statistically significant association, as follows: Commitment of Senior Management → RWC (β = 0.169, t-value = 1.965); *Commitment of Senior Management → RWS (β = 0.297, t-value = 4.029);* Employee Empowerment → RWC (β = 0. 565, t-value = 3.679); Strategic Planning for Quality → RWS (β = 0.473, t-value = 5.697); Relationship with Customers → RWC (β = 0.213, t-value = 3.945); Relationship with Suppliers → RWS (β = 0.166, t-value = 4.012).

Table 4
Hypotheses Results

Hypothesis	Path	Std. Beta	t-value	p-value	Supported
H1	CSM → RWC	0.169	1.965	p< .001	Yes
H2	CSM → RWS	0.297	4.029	0.002	Yes
H3	EE → RWC	0.565	3.679	0.036	Yes
H4	EE → RWS	0.362	3.614	0.026	Yes
H5	SPQ → RWC	0.473	5.697	p< .001	Yes
H6	SPQ → RWS	0.166	4.012	0.002	Yes

5. Conclusion and Recommendations

Total quality management applications in pharmaceutical companies in Jordan contribute to reducing waste, defective products and smooth flow of operations. Both are management philosophies that focus on achieving customer satisfaction and optimal performance thus achieving a sustainable competitive advantage. In addition, pharmaceutical companies in Jordan are interested in implementing applications of total quality management at a high level. Moreover, the focus of pharmaceutical companies is on significant implementation of employee empowerment -as a dimension of total quality management applications- it has occurred the first ranked among other dimensions of total quality management and has high relative importance. In addition, pharmaceutical companies in Jordan pay sufficient attention to relying on the quality of the materials purchased and not on the lowest price, as it strengthens good relations with suppliers to obtain the materials or services you need from them with the highest possible quality. Furthermore, it was found that there is a statistically significant effect of total quality management applications on relationship practices supply chain, so the companies studied must pay more attention and continuous applications of total quality management because of its strong positive impact on enhancing practices of supply chain. Moreover, based on the results of the statistical description and the results of hypothesis testing, the study recommends the following:

- Devoting the necessary attention and care to empowering employees, and here is the main role of senior management creating interest among employees in their work and jobs through conducting training programs developing collective motivation methods. Participating in setting goals and making decisions. Demonstrating Image of "family" work (forming problem-solving teams) for achieving empowerment.
- Paying great attention to adopting the strategic planning approach to quality as a management application of total quality through the formation of a quality council from members of senior management to be responsible about formulating and developing a quality strategy. It is also necessary to have a quality strategy specific and known to internal and external parties so that the relationship between them can be consolidated organization products.
- Continuous improvement is a belief and behavior of every individual within the organization and is an essential aspect of the philosophy of total quality management and its implementation, so continuous improvement must be viewed as the practices of endless improvements in various aspects of the organization's work by relying on the platform improvement (Keznam method, Joranum trilogy method, scientific method or what is known as the solution method problems and improvement cycle).
- The researched companies can pay greater attention to strengthening and consolidating the relationship with distributors through activating various methods and tools and making more room for them in distribution operations by holding workshops or training courses for this purpose.
- The customer is the focus of the production process of any organization, so attention must be paid to focusing on customers by consolidating the relationship between all parties, care must also be taken to achieve customer satisfaction using tools to follow up and measure customer satisfaction (complaints and suggestions system, survey). Fields, mock shopping, personal interviews, and customer participation in quality circles.

References

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, *103*(3), 411-423.

Alkhaffaf, M., & Al Zwahreh, H. (2021) The impact of strategic leadership on organizational ambidexterity at the king Abdullah II and development bureau (KADDB) *International Journal of Engineering Science Technologies, 5*(3), 20-38

Alkhaffaf, M., & Amomani, H. (2021) Role of Intelligent Technology in Crises Management: Systematic Litrature Review the Case of Corona Virus. In book: The Effect of Coronavirus Disease (COVID-19) on Business Intelligence.

Alkhaffaf, M., Mofleh, M., Kandil, T., Almomani, H., Almajali, D., & Almajali. H. (2024) Electronic payment acceptance model: A study on United Arab Emirates consumers. *International Journal of Data and Network Science.8* (2): 881-892

Ashiru, A. R., Aule, T. T., & Anifowose, K. (2020). The Use of Total Quality Management (TQM) Principles for Construction Projects in Nigerian Tertiary Institution. *Journal of Mechanical and Civil Engineering, 17*, 7 – 12.

Carnerud, D., Jaca, C., & Bäckström, I. (2018). Kaizen and continuous improvement–trends and patterns over 30 years. *The TQM Journal*. *30*(40), 340 – 371.

Dale, B. G., Van der Wiele, A., & Van Iwaarden, J. D. (1999). TQM: An overview. *Managing quality*, 3-33.

Fening, F. A., Amaria, P., & Frempong, E. O. (2016). Linkages between total quality management and organizational survival in manufacturing companies in Ghana. *International Journal of Business and Social Science*. *4*(10), 1 – 15.

Goetsch, D., & Davis, S. (2010). Quality management for organizational excellence: introduction to total quality management (6th ed.). *Pearson*, New York.

Goetsch, D., & Davis, S. (2016). Quality Management for Organizational Excellence: Introduction to Total Quality Management. (8th ed.). *New Jersey*: USA, Prentice Hall.

Hadrawi, H. (2019). The impact of firm supply performance and lean processes on the relationship between supply chain management practices and competitive performance. *Uncertain Supply Chain Management*, *7*(2), 341-350.

Hair, J. F., Thomas, G., Hult, M., Ringle, C. M., & Sarstedt, M. (2022). A Primer on Partial Least Squares Structural Equation Modeling (3rd ed.). Thousand Oakes, CA: Sage.

Hammouri, Q. M., Abu-Shanab, E. A., & Nusairat, N. M. (2021). Attitudes toward implementing E-government in health insurance administration. *International Journal of Electronic Government Research* (IJEGR), *17*(2), 1-18.

Jermsittiparsert, K., Jemsittiprasert, W., & Phonwattana, S. (2019a). Mediating Role of Sustainability Capability in Determining Sustainable Supply Chain Management in Tourism Industry of Thailand. *International Journal of Supply Chain Management*, *8*(3), 47-58.

Jermsittiparsert, K., Namdej, P., & Sriyakul, T. (2019b). Impact of quality management techniques and system effectiveness on the green supply chain management practices. *International Journal of Supply Chain Management*, *8*(3), 120-130.

Khalil, M., Khalil, R., & Khan, S. (2019). A study on the effect of supply chain management practices on organizational performance with the mediating role of innovation in SMEs. *Uncertain Supply Chain Management*, *7*(2), 179-190

Maymand, M. M., & Mohebi, N. (2016). The Effect of Electronic Supply Chain Management E-SCM on Customers' Loyalty in Consumer Goods. *International Journal of Humanities and Cultural Studies (IJHCS),* 352-364

Mogdil, S., & Sharma, S. (2017). Impact of hard and soft TQM on supply chain performance: empirical investigation of pharmaceutical industry. *International Journal of Productivity and Quality Management*, *20*(4), 513-533.

Majali, T. E., Alsoud, M., Yaseen, H., Almajali, R., & Barkat, S. (2022). The effect of digital review credibility on Jordanian online purchase intention. *International Journal of Data and Network Science, 6*(3), 973-982

Pambreni, Y., Khatibi, A., Azam, S., & Tham, J. (2019). The influence of total quality management toward organization performance. *Management Science Letters, 9*(9), 1397-1406

Ringle, C. M., Wende, S., & Becker, J-M. (2022). SmartPLS 4. Oststeinbek: SmartPLS. Retrieved from https://www.smartpls.com

Sila, I. (2020). Investigating changes in TQM's effects on corporate social performance and financial performance over time. *Total Quality Management & Business Excellence, 31*(1-2), 210-229.

Yaghi, K., Barakat, S., Alfawaer, Z. M., Shkokani, M., & Nassuora, A. (2011). Knowledge sharing degree among the undergraduate students: a case study at applied science private university. *International Journal of Academic Research, 3*(1), 20-24.

Zimon, D. (2017). The Impact of TQM Philosophy for The Improvement of Logistics Processes In The Supply Chain. *International Journal for Quality Research, 11*(1), 3 – 16