

The Role of Total Quality Management Practices in Improving Service Recovery Performance through Service Innovation in Jordan's Five-Star Hotels

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Abstract

Although the importance of Total Quality Management (TQM) practices in improving hotel service performance is well known since it is a key to achieving service excellence, the role of TQM practices in improving service recovery performance through service innovation in service businesses has remained a relatively untapped research field. Thus, the purpose of the current study is to investigate the impacts of TQM practices on service recovery, as well as the mediating role of service innovation between TQM and service recovery. This study used a quantitative survey method, with data collected from a sample of 414 staff working at Jordan's five-star hotels using a questionnaire. The results indicated a significant positive effect of TQM on service innovation and service recovery, and that service innovation fully mediates the relationship between TQM and service recovery. The current study presents an innovative approach since it is one of the first and few research papers that provide empirical evidence for the mediating effect of service innovation between TQM and service recovery. This study contributes to the existing literature by examining the roles of TQM and service innovation in increasing service recovery performance, and it helps practitioners understand how TQM practices support service innovation and the latter's role in improving service recovery performance.

Keywords: Total quality management, service recovery, service innovation, hotels, Jordan

Introduction

Today, customers looking for the best quality of services at the lowest cost and that place hotels under pressure to provide services that exceed customers' expectations in the highly competitive environment and the globalisation age, thus Total Quality Management (TQM) became a top priority in many hospitality organisations to meet customers' search for better services and products (Al-Ababneh et al., 2018). TQM is a continuous improvement process by producing service/product quality and improving organisational efficiency at every level to

satisfy customers (Yusof & Aspinwall, 2000). Quality assurance was implemented in hotels in the 1980s as the first use of TQM practices (Hall, 1990). As a result, many hotels have adopted TQM as a core management concept for increasing quality, productivity, organisational performance, efficiency, solving organisational problems, achieving competitiveness, and business excellence (Al-Ababneh et al., 2018).

Employees in service organisations may make mistakes during providing services and therefore service systems maybe breakdown at any time, and as a result of this, customers will experience service failure and problems (Bell & Zemke, 1987). Service failure occurs when customers feel dissatisfied with the service they received (Hsieh & Yeh, 2018) or they have an unpleasant experience (Bitner et al., 1990). Since the hospitality industry includes complex operations and multitudes of intangible aspects that make service failure is inevitable in this sector (Black & Kelley, 2009). Service failure requires service recovery as an effective response to customer complaints by taking prompt action to resolve these issues (Ogbeide et al., 2017). Accordingly, many hospitality organisations have to address customer dissatisfaction by adopting service recovery into their organisational policy (Melián-González et al., 2013). Service recovery is taken by service providers as a procedure of the corrective actions (explanation of the problem, acknowledgement of the problem, monetary compensation, and apologies) to regain customer satisfaction and minimize customers harm (Cheng et al., 2018; Hsieh & Yeh, 2018; Wong et al., 2016).

Many hospitality organisations work in challenging situations and that forcing these organisations to implement service innovation as a means of meeting changing customer needs and surviving in a competitive environment (Al-Ababneh, 2014). Service innovation became a vital technique in the hospitality industry for business growth and success, business survival and its excellence, and competitiveness (Orfila-Sintes & Mattsson, 2009), by providing new operation methods, organisational structures, techniques, and services/products (Rao et al., 2018). Thus, hospitality organisations may adapt themselves to changes, and that leads to offering new or renewed services/products (Gomezelj, 2016).

Based on the previous literature, TQM's impact on the hotel industry's service recovery has received considerable research attention due to TQM practices having a positive impact on enhancing service recovery performance (Al-Ababneh et al., 2018). Furthermore, TQM is a key driver for service innovation and consequently, TQM plays a vital role in achieving higher levels of service innovation (Khalfallah et al., 2021), and thus service innovation has a positive impact on gaining better service recovery (Al-Ababneh et al., 2021).

To the best of the authors' knowledge, there are no empirical investigations on the role of service innovation as a mediator in the relationship between TQM and service recovery in hotels from the perspective of employees. This study is the first to look into the role of service innovation in mediating the relationship between TQM and service recovery. Thus, there is a need to examine this unexplored research area by investigating the implementation of TQM as a novel approach for improving service recovery performance in the hotel industry through service innovation.

Literature review

Total quality management (TQM)

The TQM started when the concept of Statistical Process Control (SPC) was introduced by Shewhart in Japan in the early 1920s for the first time to monitor the quality of manufacturing production (Shewhart, 1931). Many of the TQM dimensions were developed during the 1950s and 1970s, (Martinez-Lorente et al., 1998), and then the concept of TQM appeared in the world during the 1980s and 1990s (Pavlic et al., 2004). Later, TQM was first used in the hospitality



industry in the 1980s (Hall, 1990), especially when Quality Assurance (QA) system was implemented by the American hospitality industry in 1982 (Walker & Salameh, 1990).

Quality scholars have offered many meanings to TQM based on their perspectives. TQM is defined as “an integrative management philosophy aimed at continuously improving the performance of products, processes, and services to achieve and exceed customer expectations” (Antony et al., 2002: 551). It is defined by Al-Ababneh (2011: 34) as “a management philosophy which involves a set of principles, techniques, and tools that are used for continuously improving the quality of processes, products, services, and people by involving all employees to achieve superior customer satisfaction”.

The Critical Success Factors (CSFs) of TQM practices are quality factors that are vital and critical to the success of TQM implementation, hence TQM implementation may fail if these CSFs are not included (Thiagarajan & Zairi, 1998), they are known as the best TQM implementation (Sila, 2005), and these factors are responsible for achieving business excellence (Talib & Rahman, 2010). However, many scholars still provide various sets of TQM factors based on their judgement and experience working with diverse organisations (Tari, 2005). The first study identifying the TQM’s CSFs in service and manufacturing sectors, emerged by Saraph et al. (1989), they divided the major CSFs of TQM practice into eight factors based on literature, namely, the role of top management leadership, the role of the quality department, supplier quality management, quality data and reporting, employee relations, service/product design, process management, and training. Later, as indicated in Table 1, some studies were undertaken in hotels to highlight the TQM’s CSFs practices.

Table 1: List of the common CSFs of TQM practices in hotels

Study	CSFs
Breiter & Kline (1995)	<i>Vision and values, leadership, alignment of organisational systems, communications, customer focus, implementation, empowerment, and training.</i>
Cheung (2006)	<i>Continuous improvement, top management commitment and leadership, employee involvement, and customer focus.</i>
Claver-Cortes et al. (2008)	<i>Continuous improvement, customer focus, process management, leadership people management, quality planning, and supplier management.</i>
Wang et al. (2012)	<i>Leadership, customer focus, continuous improvement, process management, internal/external cooperation, learning, and employee fulfilment.</i>
Arasli (2012)	<i>Teamwork, empowerment, training, change, employee satisfaction, participation, and top management role.</i>
Moghadam et al. (2013)	<i>Focus on customer, management process, leadership, focus on human resources, strategy and policy, business results, and information analysis.</i>
Al-Sabi et al. (2017)	<i>Education and training, quality policy, and quality commitment.</i>
Al-Ababneh et al. (2018)	<i>Education and training, quality policy, and quality commitment.</i>
Al-Ababneh (2021)	<i>Continuous improvement, quality data and reporting, product/service design, the role of quality department, customer focus, top management commitment, quality planning, process management, education and training, leadership support, employee management, and supplier quality management.</i>

Based on previous literature, the researchers selected six TQM’s CSFs that are relevant to the hotel industry as shown in Table 2: quality planning, quality data and reporting, quality education and training, customer focus, top management commitment to quality, and leadership support for quality.



Table 2: A comprehensive list of CSFs of TQM and literature support

CSFs of TQM	Supporting Literature
1. Quality Planning	Quality planning uses in the TQM practices to improve and support the quality programmes through quality mission/vision, quality goals, business plan, quality policy, control and improvement of plans, strategy development, deployment, and communication strategies (Claver et al., 2003; Sila, 2007; Tari, 2005).
2. Quality Data and Reporting	Quality data can be used to improve quality, and quality data feedback can be used to solve problems, while quality reporting measures and assesses quality performance in a timely (Motwani et al., 1994; Saraph et al., 1989). A quality reporting system can be used by organisations to maintain their data on defects or failures, customer complaints, error rates, scrap, warranty reports, vendors, the cost of appraisal as well as the cost of preventive (Motwani et al., 1994).
3. Quality Education and Training	Quality education and training include quality-related training, trade training, and statistical training (Saraph et al., 1989). It involves a statistical process, design tools, quality control methods, technical skills, new work procedures, customer relations, supervision skills, and communication (Flynn et al., 1994; Goetsch & Davis, 2006). Quality education and training is an important part of TQM implementation, which is necessary for all employees in organisations (Zhang et al., 2000). To raise the level of quality, organisations utilize quality education and training (Motwani et al., 1994).
4. Customer Focus	Customer focus encompasses a variety of tools, including customer complaints and compliments, trade surveys and trials, customer satisfaction surveys and trials, market investigations, working closely with key customers, and competitor analysis (Goh & Ridgway, 1994; Zhang et al., 2000). A close relationship with customers can be maintained by customer focus to determine customers' needs, and receive feedback on the existing service/product and how those needs are being addressed (Flynn et al., 1994).
5. Top Management Commitment to Quality	One of the essential parts of the TQM implementation is top management commitment to quality (Ahire et al., 1996; Goh & Ridgway, 1994; Saraph et al., 1989). It is critical to involve managers who are committed to TQM and to encourage employee participation in TQM implementation (Zhang et al., 2000).
6. Leadership Support for Quality	One of the key factors for improving quality is leadership support for TQM by creating quality values, goals, and systems for the implementation of TQM (Zhang et al., 2000). Leadership support for TQM practices and maintains an organisation's vision for customer requirements (Sadikoglu & Zehir, 2010).

Service recovery

Service failure is an unavoidable challenge in the service business, and therefore service recovery is an effective response to mistakes and failures that may occur in services, service failure leads to a damaged relationship between customers and service providers and as well reduced perceived values for customers' services (Albus & Ro, 2017). However, it is difficult for organisations to achieve a service encounter with no defects and to eliminate all service failures. Once a service failure occurs, service recovery is required as corrective actions that service providers can take to recover mistakes in service encounters and help organisations change negative attitudes of customers towards services to become positive attitudes (Maxham, 2001; Wong et al., 2016).

Service recovery is a process that includes identifying service failure, classifying the root causes for service failure, resolving customer's failures and problems, and yielding data that can enhance the customer service system (Tax & Brown, 1998). It is referred to the actions taken by organisations to correct customers' perceived service failures by solving customers' problems, changing their negative attitudes, and retaining customer patronage (Lewis & McCann, 2004; Maxham, 2001). Consequently, minimising the negative impacts of customers' bad experiences that occur through service failure by rectifying their problems with care, providing them the best possible solutions and to recover their service failure, and as well as increasing customer loyalty (Casidy & Shin, 2015; Cheng et al., 2018; Hsieh & Yeh, 2018).

Service recovery has two types, namely: '*tangible service recovery*' that includes a refund, free ancillary, gratis, compensation, upgrade, coupon, discount, correcting, urgent reinstatement, symbol atonement and replacement; and '*psychological service recovery*' that

includes explanation, providing assurance and owning the problem, acknowledgement, customer input, managerial intervention, empathy and apology (Al-Ababneh et al., 2021; Johnston & Michel, 2008). Tangible service recovery is defined as the attempt to fix service problems by exchanging the product, re-performing the service, refunding the cost, or completing the primary service. It includes a refund, upgrade, coupon, gratis, free ancillary, symbol atonement, and discount are used in resolving most service failures and providing compensation to unsatisfied customers. Tangible service recovery is embodied in the devotion of service providers to providing fair restitution for service failure or carrying out their initial obligation to customers (Lewis & McCann, 2004). While psychological service recovery refers to the attempt to rectify the perceived service failure for customers by expressing concern for them and their problems. It is psychological techniques, which are recommended and critical in the process of service recovery for solving service failure that includes showing empathy for customer's needs, expressing concern by apologising and acknowledging that a problem had occurred (Bell & Zemke, 1987; Miller et al., 2000).

Service innovation

The theory of innovation was firstly developed in the manufacturing industry (Gallouj & Weinstein, 1997). Although there is a difference between the features of production in services and manufacturing (Evangelista & Sirilli, 1995), for example, the role of human resources in production, intangible nature of services, the interaction between production and consumption, and organisational factors (Gallouj, 2002; Gallouj & Weinstein, 1997). However, the service sector is innovative due to many services that can implement innovation as manufacturing that confirmed by several arguments.

Innovation can be defined in different ways with different meanings such as value creation, novelty, and creativity (Wikhamn et al., 2018). Schumpeter introduced the first definition for innovation in 1934 (Martinez-Ros & Orfila-Sintes, 2009: 633) as “the creation of new possibilities for additional value added, taking into account not only the typical product/process innovation of manufacturing but also market, organisational, and resource input innovation”. While, Hyland & Soosay (2008: 231) defined innovation as “the introduction of new and useful products, services, methods, practices or processes that add value to the organisation”.

Innovation can be classified into four different types, namely: organisational innovation, process innovation, service/product innovation, and marketing innovation. ‘*Organisational innovation*’ provides new workplace organisation or business practices by introducing new organisational approaches, ‘*process innovation*’ offers significant modifications in software, equipment, and/or techniques by introducing a new or enhanced delivery approach, ‘*product innovation*’ introduces a new or improved service/product in terms of its characteristics and uses, ‘*Marketing innovation*’ encompasses changes to the service/product design, pricing or positioning, promotion through the use of a new marketing approach (Al-Ababneh, 2014; Rao et al., 2018; Wikhamn et al., 2018). However, based on the production, innovation takes two basic forms, namely: ‘*process innovation*’ that refers to the changes in the production and delivery to offer services/products, and ‘*product innovation*’ that refers to the changes in services or products (Al-Ababneh et al., 2021). Regarding the degree of innovation, innovation can take two major forms, namely: ‘*radical innovation*’ that refers to significant new alterations in organisational structures, practices, processes, procedures, services/products, and outputs, and ‘*incremental innovation*’ that refers to minor adjustments in organisational structures, processes, procedures, services/ products in an organisation (Martínez-Pérez et al., 2016; Oldham & Cummings, 1996; Tidd, 2001). Radical innovation is a costly and risky change to obtain important performance improvements (Martínez-Pérez et

al., 2016). In contrast, incremental innovation improves existing services/products, procedures, and processes with a slight level of novelty, lower cost, and risk, and a lower positive effect on performance (Martinez-Ros & Orfila-Sintes, 2009; Souto, 2015).

Service innovation encompasses new changes in service features, technical characteristics, and customer value characteristics that are providers' and customers' competencies, and provides value to the service provider and its customers rather than others (Gallouj & Weinstein, 1997; Salunke et al., 2011). Verma et al. (2008: 7) defined service innovation as “new or novel ideas which focus on services that provide new ways of delivering a benefit, new service concepts or new service business models through continuous operational improvement, technology, investment in employee performance or management of the customer experience”. In comparison to innovation in manufacturing, service innovation is less radical (Barras, 1986), more quickly implemented, and easier to copy (Voss et al., 1992), it focuses on the process rather than the product and technology applications (Gallouj, 2002; Tether, 2005).). However, some scholars assumed that service innovation has different theories compared to product innovation (Edvardsson & Olsson, 1996), while other scholars propounded that the theories of innovation fit within the context of service (Nijssen et al., 2006). Furthermore, service innovation can indeed be considered as a special case of innovation (Möller et al., 2008), and thus it is often covered by the theories of product innovation (Chen et al., 2009). Service innovation is a competitive advantage that allows businesses to attain high levels of performance, service design improvement, and technological development in the hospitality industry (Souto, 2015), and it is an effective way for developing new services, improving service quality, and refining existing services (Cheng et al., 2012).

Innovation may provide many benefits in the hospitality industry such as better customer services, continuous improvement, and competitive advantage (Ottenbacher & Gnoth, 2005; Wong & Pang, 2003). Thus, organisations in the hospitality industry must become more innovative in processes, services, and procedures (Al-Ababneh, 2014) to keep up with the changing needs and desires of customers by updating and modifying existing services, distinguishing products and services, developing services delivery, offering new services, adding value to customers, upgrading operations and increasing the market competitiveness (Al-Ababneh, 2014; Ottenbacher, 2007; Ottenbacher & Gnoth, 2005). So, innovation becomes a significant technique for developing hotels by implementing new ideas in processes and service/product (Al-Ababneh et al., 2021; Wikhamn et al., 2018). Thus, hotels use innovation by differentiating them, implementing innovative technology solutions to enhance their services, increasing competitive advantage, and improving efficiency (Martinez-Ros & Orfila-Sintes, 2012; Nieves & Segarra-Ciprés, 2015).

TQM and service recovery

Implementing TQM effectively as a strategy is important for supporting service recovery process. The relationship between TQM and service recovery has been investigated in a few studies. Bagozzi (1992) discovered that there is a significant link between Management Commitment to Service Quality (MCSQ) practices (servant leadership, supportive management, empowerment, employee rewards, training, and service technology) and service recovery in public service organisations. Similarly, Rod & Ashill (2010) revealed a significant impact of the MCSQ practices (customer service training, employee rewards, customer service orientation, and empowerment) on service recovery in private and public hospitals. Few studies were conducted in the hospitality industry, Beirami (2012) confirmed that the factors of TQM (training, empowerment, top management leadership, teamwork, and reward) have positive impacts on hotel service recovery. Similarly, Suk et al. (2013) found that the factors of TQM (process management, top management leadership, information and analysis system, education

and training, and employee involvement) have positive impacts on restaurants service recovery. Recently, two studies were conducted by Al-Sabi et al. (2017) and Al-Ababneh et al. (2018), they revealed that the TQM practices (quality policy, quality education and training, and quality commitment) have positive effects on service recovery in hotels. The study offered the following hypothesis based on the prior discussion and findings.

H1: TQM has a positive and significant effect on service recovery

TQM and service innovation

Although TQM and service innovation have some differences in some features, both of them share in common some features. For example, one of the shared features that TQM and innovation have in common is continuous improvement, this may indicate that TQM implemented service organisations are more innovative than TQM non-implemented service organisations, and therefore TQM is a key driver for innovative service organisation and consequently, TQM plays a vital role in achieving innovation (Singh & Smith, 2004). The majority of past research has found that TQM has a positive association with innovation (i.e. Al-Ababneh, 2011; Antunes et al., 2017; Bon & Mustafa, 2013; Gambi et al., 2020; Hoang et al., 2006; Khalfallah et al., 2021; Khan and Naeem, 2018; Martinez-Costa & Martinez Leorente, 2008; Pekovic & Galia 2009; Pinho, 2008; Prajogo & Sohal, 2003; Sadikoglu & Zehir, 2010; Sahoo, 2019; Santos-Vijande & Alvarez-Gonzalez, 2007), those who agree that implementing different TQM's CSFs leads to a positive association between TQM and innovation.

In contrast, the link between TQM and innovation has been refuted by other studies (i.e. Leavengood & Anderson, 2011; Lorente et al., 1999; Prajogo & Sohal, 2001; Singh & Smith, 2004). The conclusion of previous studies revealed inconsistent results in terms of the relationship between TQM and innovation. Therefore, such positive and negative results of this complicated relationship are highlighting a further investigation between TQM and innovation. Consequently, the following hypothesis was proposed in the study.

H2: TQM has a positive and significant effect on service innovation

Service innovation and service recovery

Service innovation can improve the quality of service/product and the efficiency of the existing service delivery process (Barras, 1986) by improving and developing existing services (Cheng et al., 2012; Seesaiprai, 2016). Service innovation lowers the number of service failure incidents, which is followed by service recovery (Shahriar et al., 2018). The relationship between service innovation and service recovery has only been studied in a few studies. Heijden et al. (2013) revealed that improving the speed and quality of service recovery through innovation had a major positive impact, this means the speed and quality of service recovery can enhance by improving service procedures and product solutions through improvement ideas by sourcing knowledge from customers, and therefore innovation may both impair and benefit service recovery. While Shahriar et al. (2018) confirmed that service innovation is a vital issue in recovering from service failure and improving service recovery in a restaurant environment. A recent study was conducted by Al-Ababneh et al. (2021) confirmed that service innovation improves hotel service recovery. The study proposed the following hypothesis based on the prior discussion and findings.

H3: Service innovation has a positive and significant effect on service recovery

To the best of the authors' knowledge, no research has been done on the role of service innovation as a mediating factor in the relationship between TQM and service recovery in hotels. In light of the previous findings that argued TQM had a relationship with service recovery and service innovation, and service innovation had the same with service recovery, the following hypothesis was proposed in the study.

H4: Service innovation mediates the relationship between TQM and service recovery

Figure 1 illustrates the study's theoretical framework including three variables, namely: TQM (independent variable), service innovation (mediator variable), and service recovery (dependent variable).

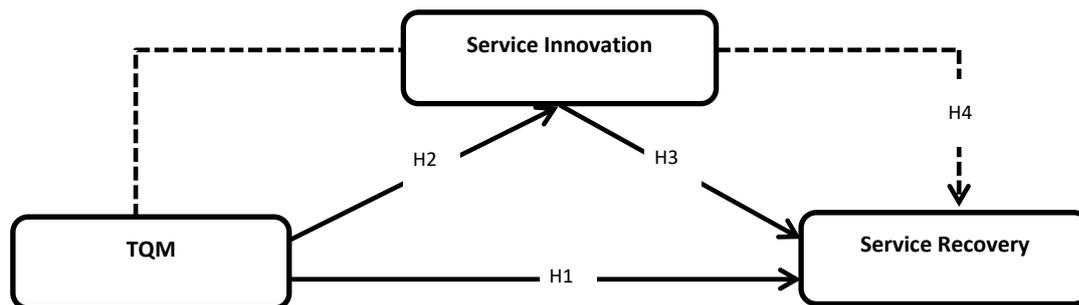


Figure 1: The Conceptual Research Model

Research methodology

Research approach and measurement

A quantitative survey was used in this study by using the questionnaire method. A self-administered questionnaire was designed based on multidimensional measurement of TQM, service recovery, and service innovation from the viewpoints of hotel employees. The survey was divided into four sections. The first section, the TQM scale contained 33 items in total, included six dimensions: *quality planning* (5 items), and *leadership support* (4 items) were adapted from Claver et al.'s (2003) scale; *education and training* (6 items) was adapted from Zhang et al.'s (2000) scale; *customer focus* (4 items), and *top management commitment* (6 items) were adapted from Ahire et al.'s (1996) scale; *quality data and reporting* (8 items) was adapted from Saraph et al.'s (1989) scale. The second section, the service recovery scale contained 14 items in total, included two dimensions: *psychological service recovery* (10 items) and *tangible service recovery* (4 items) were adapted from Al-Ababneh et al.'s (2018) scale. The third section, the service innovation scale contained 9 items in total, included two dimensions: *process innovation* (4 items) and *product innovation* (5 items) were adapted from Prajogo & Sohal's (2003) scale. The items of TQM, service recovery and service innovation were rated on a five-point Likert scale ranging from 1 to 5, with 1 indicating "strongly disagree" and 5 indicating "strongly agree". The demographic characteristics of respondents were covered in the fourth section, which comprised age, gender, education, work experience, and working department.

Sampling procedure and data collection

The study was carried out in Jordan's five-star hotels. During the mid of 2021, a number of 510 questionnaires were delivered at random to staff of 17 hotels. Due to incompleteness, 23 of the 437 returned questionnaires were deemed invalid. Consequently, the data analysis was based on a sample of 414 valid questionnaires.



Research results

To empirically test the study’s model, the study used the SPSS program to analyse the data using statistical tests such as descriptive analysis, Exploratory Factor Analysis (EFA), correlation analysis, linear regression analysis, and multiple regression analysis using “Hayes PROCESS macro”.

Demographic results

According to the demographics of the respondents, as shown in Table 3, the hotel sector in Jordan is overwhelmingly male-dominated with (80.4%) males and (19.6%) females. the majority of respondents (52.4%) had a secondary school or less, while (34.5%) had a bachelor's degree and only (2.4%) had a master's degree. In terms of age, (59.7%) of respondents were under the age of 36, while (38.6 %) were between the ages of 36 and 55. The majority of respondents (59.2%) were working in the front departments, while (40.8%) were working in the back departments. The experience reported by respondents showed that (60.1%) had 2–7 years, (33.1%) had more than 8 years, and only (6.8%) had less than 1 year.

Table 3: Profile of hotel employees (N=414)

Variables	N	Per cent %
Gender:		
Male	333	80.4
Female	81	19.6
Age:		
25 or under	110	26.6
26-35	137	33.1
36-45	141	34
46-55	19	4.6
56 and more	7	1.7
Education:		
Secondary school or less	261	63
Bachelor degree	143	34.5
Master degree	10	2.5
Experience:		
One year or less	28	6.8
2-4 years	128	30.9
5-7 years	121	29.2
8 years and more	137	33.1
Department:		
Front departments	244	64
Back departments	137	36

Validity and reliability of the study’s scales

The EFA was used to determine the construct validity, while Cronbach's alpha (α) was used to determine the construct reliability. The significant factor loadings for the study’s items were tested by using a principal component analysis with Varimax rotation. The findings of the factor analysis after rotation are presented in Table 4. Cronbach's alpha values for all scales were determined to be ($\alpha > 0.7$), confirming the internal consistency (Hair et al., 2010). Table 4 shows the EFA result, which revealed a two-dimensional structure for TQM with an Eigenvalue greater than 1. The two-dimensional solution, namely: ‘*quality policy*’ and made up of four dimensions (customer focus, quality education and training, quality data and reporting, and quality planning) with item loadings ranging from 0.668 to 0.813 and ‘*quality commitment*’ and made up of two dimensions (leadership support, and top management commitment) with item loadings ranging from 0.636 to 0.826, This finding is in line with earlier studies (Al-Ababneh et al., 2018; Al-Sabi et al., 2017). The EFA also found that service recovery has a dual-dimensional structure with an Eigenvalue greater than 1. The ‘*tangible service recovery*’ with item loadings ranging from 0.743 to 0.852, and the ‘*psychological service recovery*’ with item loadings ranging from 0.673 to 0.934. This finding is in line with



prior research studies (Al-Ababneh et al., 2021; Masadeh, et al., 2020), which considered service recovery as a dual dimensional variable. Furthermore, the EFA provided a one-dimensional structure for innovation, as shown in Table 6, which is named ‘service innovation’, with item loadings ranging from 0.851 to 0.910. The extracted dimension is in line with prior research studies (Al-Ababneh et al., 2021, Al-Sabi et al., 2019), which considered innovation as a one-dimensional variable.

Table 4: The output of factor analysis for TQM

Varimax Rotation			
Factor Loading			
Factor (1): TQM	Quality Policy	Quality Commitment	Community
Items	$\alpha = .973$	$\alpha = .932$	
TQM1	.695		.697
TQM2	.668		.714
TQM3	.689		.818
TQM4	.804		.813
TQM5	.804		.768
TQM6	.748		.832
TQM7	.699		.765
TQM8	.802		.821
TQM9	.807		.819
TQM10	.741		.772
TQM11	.724		.833
TQM12	.762		.864
TQM13	.714		.772
TQM14	.813		.861
TQM15		.738	.788
TQM16		.826	.786
TQM17		.744	.709
TQM18		.703	.786
TQM19		.681	.725
TQM20		.685	.653
TQM21		.636	.701
Eigen-value	8.845	5.971	
Percentage of variance explained	42.121	28.431	
Cumulative (Total explained)	42.121	28.431	70.552
Factor (2): Service Recovery	Psychological Service Recovery	Tangible Service Recovery	Community
Items	$\alpha = .929$	$\alpha = .877$	
PSR1	.871		.776
PSR2	.934		.913
PSR3	.768		.657
PSR4	.818		.690
PSR5	.673		.583
PSR6	.763		.610
TSR1		.767	.588
TSR2		.743	.656
TSR3		.759	.653
TSR4		.852	.754
Eigen-value	4.134	2.652	
Percentage of variance explained	41.343	26.517	
Cumulative (Total explained)	41.343	26.517	67.859
Factor (3): Innovation	Service Innovation		Community
Items	$\alpha = .969$		
SI1	.855		.731
SI2	.902		.814
SI3	.910		.828
SI4	.855		.731
SI5	.886		.785
SI6	.900		.811
SI7	.879		.773
SI8	.890		.793
SI9	.851		.724
Eigen-value	6.989		
Percentage of variance explained	77.658%		
Cumulative (total explained)	77.658%		

Descriptive Statistics of The Study's Variables

To investigate the extracted dimensions and overall scales, the study used descriptive analysis.

Table 5: The output of the descriptive analysis

Scale	No. of Items	Mean	Standard Deviation (SD)
1. TQM	21	3.87	1.48
• Quality Policy	14	3.71	1.60
• Quality Commitment	7	4.20	1.44
2. Service Recovery	10	3.62	0.759
• Psychological Service Recovery	6	3.79	0.875
• Tangible Service Recovery	4	3.37	0.933
3. Service Innovation	9	3.52	1.088

As shown in Table 5, the study scales were calculated using the mean scores of the subscales. The overall mean score for the two-dimensional TQM scale (21 items) was (3.87) with a Standard Deviation (SD) at (1.48). This result indicates that hotels have moderately implemented TQM practices, employees perceived their hotels' support and commitment to TQM practices (mean= 4.20, SD= 1.44) more than its quality policy (mean= 3.71, SD= 1.6). The overall mean score for the two-dimensional service recovery scale (10 items) was (3.62) with SD at (0.759). The findings revealed that employees perceived psychological service recovery (mean= 3.79, SD= 0.875) more than tangible service recovery (mean =3.37, SD= 0.933), implying that employees believe they can provide service recovery psychologically more than tangibly. Finally, the overall mean score for the one-dimensional service innovation scale (9 items) was (3.52) with SD at (1.088). This finding implies that employees thought their hotels did a good job of implementing service innovation.

Correlation analysis among variables

This study used a correlation analysis to look into the connections between TQM, service innovation, and service recovery. The output of correlations among the study's variables is shown in Table 6.

Table 6: The output of the correlations between variables

		TQM	Service Innovation	Service Recovery
TQM	Pearson Correlation Sig. (2-tailed)	1		
Service Innovation	Pearson Correlation Sig. (2-tailed)	.762** .000	1	
Service Recovery	Pearson Correlation Sig. (2-tailed)	.303** .000	.426** .000	1

**Correlation is significant at the 0.01 level (2-tailed)

As shown in Table 6, the results of correlation analysis revealed a strong correlation relationship between TQM and service innovation ($R=0.762$), as well as moderate correlation relationships between TQM and service recovery ($R=0.303$) and service innovation and service recovery ($R=0.426$). These findings suggest that TQM encourages service innovation, and that service innovation is a critical component of resolving service failure. When TQM is applied effectively, service failure is reduced, and service recovery is minimal because TQM assumes zero faults. All of the associations between TQM (independent variable), service recovery (dependent variable), and service innovation (mediating variable) had correlation coefficients less than 0.90, indicating that a serious collinearity problem has not existed in the data (Hair et al., 2010).



Testing the hypotheses

A linear regression technique was used to analyse and assess the relationship between TQM, service recovery, and service innovation to test the study's hypotheses. According to the regression analysis findings as shown in Table 7, TQM is a modest and significant predictor of service recovery. Statistically, TQM and service recovery have a significant relationship ($\beta=0.303$, $R^2=0.092$, $P=0.000$), implying that TQM has a small positive impact on service recovery because the TQM implementation leads to fewer numbers of service failure and thus fewer numbers of service recovery, implying that hotels that implemented TQM had fewer numbers of service recovery. As a result, the hypothesis (H1) of the study is accepted. The results found that TQM is also a strong and significant predictor of service innovation, this means TQM and service innovation have a statistically significant relationship ($\beta=0.762$, $R^2=0.580$, $P=0.000$), and this means that TQM has a high positive impact on service innovation, indicating that when TQM was effectively implemented at the workplace and that led to employees perceiving more service innovation. Hence, the study's hypothesis (H2) is accepted. It was also revealed that service innovation is a modest and significant predictor of service recovery. Statistically, the relationship between service innovation and service recovery is ($\beta=0.426$, $R^2=0.182$, $P=0.000$), indicating that service innovation has a moderately positive impact on service recovery and that employees who work in hotels with high service innovation have high levels of service recovery performance in their work. As a result, the study's hypothesis (H3) is accepted.

Table 7: The output of the linear regression analysis

Independent	Dependent: Service Recovery				
	R	t	P-Value	R ²	F Ratio
TQM	.303	6.452	.000	.092	41.631
TQM	Dependent: Service Innovation				
	0.762	23.857	0.000	0.580	569.143
Service Innovation	Dependent: Service Recovery				
	.426	9.567	.000	.182	91.535

To test the hypothesis (H4) of the study that states service innovation mediates the relationship between TQM and service recovery. Thus, the mediating model was tested using multiple regression analysis and the Hayes PROCESS macro (Model 4) by bootstrapping it to the indirect effect test at 95% Confidence Intervals (CI) as presented in Table 8. This test was run on 10,000 bootstrap samples with 10,000 computed indirect effects, and to determine the CI's lower and upper bounds, these effects are placed in ascending order (Hayes, 2017).

As shown in Table 8, TQM was found to be a strong and significant predictor of service innovation ($B=.559$, $SE=.023$, $p=.000$), and service innovation was a moderate and significant predictor of service recovery ($B=.325$, $SE=.048$, $p=.000$). The findings revealed that TQM was no longer a significant predictor of service recovery after controlling for service innovation (mediator) on the relationship between TQM and service recovery ($B=-.027$, $SE=.035$, ns , $P>.05$). This finding backs up the mediational hypothesis, which is supported by full mediation. The predictors accounted for approximately (18.3%) of the variance in service recovery ($R^2=.183$). These findings also indicated that the indirect coefficient was significant ($B=.182$, $SE=.031$, 95%, $CI=0.1243-0.2458$). The values of CIs are entirely above zero and this indicates that the indirect effect is positive.

Table 8: Mediating test of service innovation between TQM and service recovery by using multiple regression analysis and Hayes PROCESS Macro (model 4)

Outcome variable: Service Innovation

Model Summary							
R	R-sq	MSE	F	df1	df2	p	
.762	.580	.498	569.143	1	412	.000	
Model							
	coeff	se	t	p	LLCI	ULCI	
Constant	1.350	.097	13.885	.000	1.159	1.541	
TQM	.559	.0234	23.856	.000	.513	.605	
Outcome variable: Service Recovery							
Model Summary							
R	R-sq	MSE	F	df1	df2	p	
.428	.183	.473	46.003	2	411	.000	
Model							
	coeff	se	t	p	LLCI	ULCI	
Constant	2.580	.114	22.473	.000	2.354	2.805	
TQM	-.027	.035	-.754	.451	-.096	.043	
Service Innovation	.325	.048	6.771	.000	.231	.419	
TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y							
Total effect of X on Y							
Effect	Se	t	P	LLCI	ULCI	c_ps	c_cs
.155	.024	6.452	.000	.108	.203	.205	.303
Direct effect of X on Y							
Effect	Se	t	P	LLCI	ULCI	c'_ps	c'_cs
-.027	.035	-.754	.451	-.096	.043	-.035	-.052
Indirect effect(s) of X on Y:							
	Effect	BootSE	BootLLCI	BootULCI			
Service Innovation	.182	.031	.124	.246			

It was found that TQM is related to service recovery scores that were approximately (0.182) points higher as mediated by service innovation, this finding confirmed that service innovation is a full mediating variable in the relationship between TQM and service recovery. As a result, when service innovation is a full mediator in the relationship between TQM and service recovery, the indirect impacts of TQM on service recovery are higher. This means that TQM becomes more effective as a predictor of service recovery through service innovation. The standardised path coefficients for the study's model are shown in Figure 2. As a consequence, the hypothesis (H4) of the study is accepted.

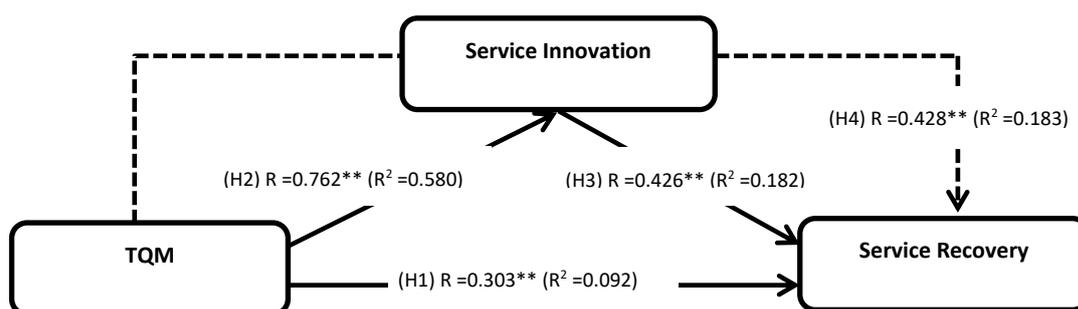


Figure 2: Hypothesised Model

Discussion

Even though the association between TQM, service innovation, and service recovery has been extensively researched in the literature, the mediating influence of service innovation on the relationship between TQM and service recovery remains unknown. The current study investigated the effect of TQM and service innovation on hotel service recovery. This is also the first study to investigate the mediating influence of service innovation on the link between

TQM and service recovery. The study's instrument was empirically tested and validated, it consists of three scales: TQM scale (21 items), service recovery scale (10 items), and service innovation scale (9 items). The present study's findings that TQM practices had positive impacts on service recovery are consistent with earlier research (Al-Ababneh et al., 2018; Al-Sabi et al., 2017; Bagozzi, 1992; Beirami, 2012, Rod & Ashill, 2010; Suk et al., 2013). The study found that TQM practices have positive impacts on service innovation were consistent with previous studies (i.e. Al-Ababneh, 2011; Antunes et al., 2017; Gambi et al., 2020; Hoang et al., 2006; Khalfallah et al., 2021; Khan & Naeem, 2018; Martinez-Costa & Martinez Leorente, 2008; Pekovic & Galia 2009; Pinho, 2008; Prajogo & Sohal, 2003; Sahoo, 2019; Santos-Vijande & Alvarez-Gonzalez, 2007; Sadikoglu & Zehir, 2010). It was also revealed that service innovation has a positive influence on service recovery, which was consistent with earlier research (Al-Ababneh et al., 2021; Heijden et al., 2013; Shahriar et al., 2018). These findings argued that service innovation acts as a full mediator in the link between TQM and service recovery.

The current study revealed that TQM is strongly and positively associated to service innovation and service recovery, which suggests that successful TQM implementation increases the degree of service innovation and, as a result, improves service recovery performance. Furthermore, this is the first study to show that service innovation acts as a full mediator in the positive association between TQM and service recovery, and therefore service innovation is a crucial aspect of the TQM implementation, and it has the potential to significantly enhance service recovery performance. These findings bolstered the positive arguments that TQM can foster an environment conducive to service innovation, hence improving service recovery performance. So, service innovation boosted service recovery performance successfully in a TQM environment, indicating that service innovation is certainly required for boosting the effectiveness of TQM on service recovery performance.

Implications, research limitations, and future research

This study adds to the existing literature by providing theoretical knowledge of the role of service innovation as a mediator in the relationship between TQM and service recovery. The study's instrument was confirmed as a valid and reliable instrument, it comprises of three scales: TQM scale, service recovery scale, and service innovation scale. Thus, the study's instrument can be used in other studies for different populations, it will also be useful to researchers in developing theories of TQM, service recovery, and service innovation.

This study has several practical implications for hotel practitioners. It helps practitioners in understanding how TQM practices support service innovation and the latter's role in encouraging TQM practice implementation and improving service recovery performance. Service innovation is necessary as a critical mediator to create more effective TQM impacts on service recovery, and managers must realize that TQM will not operate well on service recovery performance without service innovation as the main mediator. Managers can take advantage of the present solid evidence that TQM implementation can increase service recovery through service innovation. Managers will also be able to use the study's instrument to assess TQM practices, service recovery, and service innovation.

In this study, the researchers encountered some limitations, for example, a lack of studies that assess the mediating role of service innovation in the relationship between TQM and service recovery, as well as a scarcity of studies on the influence of TQM and service innovation on service recovery performance. Furthermore, some respondents from the same hotel provided different perspectives of TQM, service recovery, and service innovation. Future studies can be carried out to analyse the levels of TQM implementation, service recovery, and service innovation from the perspective of managers. Because of the positive correlations

between TQM, service recovery, and service innovation, other researchers may be inspired to assess the effects of TQM on various service performance measures. A future study can be done to investigate the links between the CSFs of TQM, service recovery, and service innovation, as well as the effects of each CSF on various service performance measures.

Conclusion

The study's findings emphasized the relevance of TQM implementation by demonstrating the positive effects of TQM practices on service recovery and service innovation in the hotel industry. These results confirmed moderate relationships between TQM, service recovery, and service innovation. This is the first study that explored the mediating role of service innovation between TQM and service recovery. The findings of this study confirmed that service innovation acts as a full mediator between TQM and service recovery. The study's results bridged the gap in the literature by providing an argument that TQM creates a suitable environment for service recovery through service innovation, and this confirms that TQM tended to be more effective on service recovery when service innovation acts as a full mediator between TQM and service recovery.

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