SPECTRUM
Journal of Social Sciences

ASPUR PUBLISHING

Vol. 02, No. 02 (2025) 81-94, doi: 10.61552/SJSS.2025.02.003 - http://spectrum.aspur.rs

SYSTEMATIC REVIEW OF TOTAL QUALITY MANAGEMENT (TQM) USING TCM AND ADO FRAMEWORKS

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Received 18.07.2024.
Revised 12.08.2024.
Accepted 13.09.2024.

Keywords:

TQM, customer satisfaction, systematic literature review, SEM, Theory.

Original research

A B S T R A C T

TQM enables businesses to meet the needs of their consumers while also creating value for both customers and businesses. This research conducts a comprehensive review of TQM to improve our understanding of existing studies' theories, enablers, consequences, contingent variables, methodology, and contexts. The research was based on systematic review of forty-three articles published between 2013 and 2023. Previous study employed nine theories to explain TQM. TQM determinants were identified as fourteen. TQM has an impact on several organisational outcomes. Two moderating variables were identified. TQM was investigated using seven mediating variables. TQM researchers prefer quantitative research, primary data, and structural equation modelling SEM techniques. This study identifies future research agenda for TQM advancement. In contrast to previous systematic studies that focused on specific constructs/concepts, this review takes a broader perspective and considers moderating and mediating variables in addition to theories, effects, and determinants of TQM.

1. INTRODUCTION

Total quality management (TQM) is gaining popularity among academics and practitioners worldwide (Permana et al., 2021). TQM research has concentrated on a wide range of topics and contexts. TQM has become a prominent technique for overcoming obstacles as global competition has increased and consumer tastes and preferences have changed (Negron, 2020). Customer satisfaction is critical for the survival and success of any firm (Ameri et al., 2015). In this context, TQM improves process effectiveness and guarantees that customers' expectations are met (Kaur et al., 2020). As a result, firms are investing heavily in TQM to gain competitive advantage (Nasim, 2018; Tavana et al., 2020). TQM is a strategic management approach that focuses on quality management methods and processes to achieve organisational excellence (Chen et al., 2021). TQM encourages innovation (Singh & Smith, 2004), makes businesses more competitive (Douglas & Judge, 2001), and improves organisational culture (Fok et al., 2023). TQM aims to increase product and service quality as well as an organisation's overall efficiency (Kumar et al., 2019; Sahoo & Vijayvargy, 2021). TQM has been designated as an essential research area due to its enhanced advantages for organisations.

Recent systematic literature reviews focused on TQM implementation in firms (Permana et al., 2021), quality-related key terms and their developmental trends (Chen et al., 2021), TQM critical success factors (Aquilani et al., 2017), and the evolution of TQM framework and tools from 1991 to 2020 (Jasti et al., 2022).

Nasim (2018) identified internal and external environmental elements that shape TQM in service

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organisations using SLR. However, it is important to consider how TQM has evolved in terms of theories, antecedents, outcomes, and situational elements. A thorough review of the subject can help us better understand how TQM research is progressing. This review is different from past reviews on TQM in terms of new insights on antecedents, outcomes, theories and contingent variables (moderating and mediating) that previous reviews neglected. Following Paul et al. (2021) and Lim and Tareq (2022), this review uses an integrated framework-based approach (Antecedents, Decisions, and Outcomes ADO) and (Paul et al., 2017) (Theories, Contexts, and Methods TCM). There have been few systematic reviews of TQM that incorporated two frameworks in a single study. This evaluation seeks to solve the inadequacies of previous reviews by evaluating TQM using two frameworks. We reviewed journal articles published in the last 10 years (2013-2023). This adds new perspectives to TQM research. This report recommends future research priorities based on gaps in previously published studies. To fill these gaps, we utilised a systematic review technique to summarise current knowledge on TQM theories, settings, methodologies, antecedents, outcomes, and contingent factors, allowing scholars to draw conclusions about the phenomenon. The SLR method aids in the reconciliation of study volume (Paul & Criado, 2020), addressing shortcomings of previous reviews, and identifying future research opportunities. Both practitioners and researchers can benefit from our review of TQM.

The following research questions are addressed in this review:

RQ1: What are the popular theories employed in TQM research?

R**Q2:** What are the antecedents of TQM?

RQ3: What are the consequences of TQM?

RQ4: What are the contingent variables associated with TQM?

RQ 5: What methods are employed in TQM research?

Providing answers to these questions can enable us to address the gap in the literature and to take stock of existing knowledge more robustly to guide future business research on TQM.

The paper is structured as follows. Section 2 presents an overview of the TQM background, Section 3. Discusses the SLR method, Section 4 Highlights the findings from the review. Section 5 conclusions and recommendations.

2. TOTAL QUALITY MANAGEMENT BACKGROUND

TQM has its origins in the first quarter of the twentieth century, with quality inspection and quality control. Quality gurus such as Crosby (1979), Deming (1982), Deming (1986), Feigenbaum (1961), and Juran (1988) created the groundwork for TQM to emerge from many perspectives, although they did not contribute any definition of TQM, but rather TQM' building blocks. Dahlgaard et al. (1998) submit that TQM has historically grown in four stages: quality inspection, quality control, quality assurance, and finally TQM. The evolution of quality that leads to TQM enables businesses to progressively apply quality standards while satisfying consumers' requirements and expectations in order to delight customers, which may include joy and surprise. According to Kumar and Sharma (2017), TQM is a management concept that aims to attain superior performance to satisfy customers. There are two types of TQM practices: hard practices and soft management practices. The utilisation of quality data and information, product design process, statistical process control (SPC), and other process improvement approaches are examples of hard practices, which are defined as practices that are technically and methodologically oriented (Abdallah, 2013). Hard TQM practices refer to quality improvement tools and techniques, such as quality management systems, cost of quality and statistical process control, benchmarking, etc. (Zeng et al., 2014) defined hard aspect as the practice of managing processes and products via the use of tools and techniques to comply and adhere to preset requirements. Soft TQM practices are intangible and primarily concern practices that emphasise leadership and management development, customer focus, supplier partnerships, human resource management, customer focus, supplier partnership, and leadership and management commitment (Evans & Lindsay, 1999). Human management, actions, behaviours, communications, and leadership are all examples of STQM practices (Prajogo & Cooper, 2017). According to Prajogo and Cooper (2017) and Hwang et al. (2020), top management involvement (TMC), employee empowerment (EE), employee training (ET), employee teamwork (EM), and employee involvement (EI) were the STQM practices most commonly used in the establishment of the TQM model. These five STQM practices have been highlighted as critical components for high-performing SMEs (Sahoo, 2019). Particularly, some empirical research (Lim et al., 2022) places a greater emphasis on soft practices, whereas others (Duggirala et al., 2008) place a greater emphasis on hard TQM practices. Still others (Kaynak, 2003) treat them equally. TQM as a management system can be broadened to include all dimensions of sustainable development, as one of the purposes of TQM is not only to improve organisational performance but also to utilise resources rationally (Shafiq et al., 2017). There is no agreement in the literature on the dimensions that comprise TQM, and these dimensions or elements differ depending on the researcher (Corredor & Goñi, 2011). There are eight elements that, when combined, provide varying classifications of TQM dimensions around the world (Calvo-Mora et al., 2018). Leadership, strategic planning, supplier quality management, process management, product and service design, staff management, customer relationship management, and information and analysis are among them. TQM encompasses all quality-related operations in a business, including quality design and development, quality

control and maintenance, quality improvement, and quality assurance (Kaur et al., 2013).

3. METHODOLOGY

The Theories, antecedents, outcomes, contingent variables, and methodologies employed in earlier TQM research were uncovered using the systematic literature review SLR method. Diverse measurements and techniques are used in the TQM research. Using "structured", "transparent", and "replicable" techniques, the SLR methodology enables thorough literature coverage and in-depth analysis (Paul & Criado, 2020). SLR maps the body of literature using repeatable methodologies and suggests the future research agenda (Paul & Criado, 2020). Systematic reviews' objectives and contributions offer fresh perspectives on a phenomenon; they "identify contradictions, gaps, and enable theoretical, contextual, and methodological development of future research" (Houston & Holland, 2020). The importance of SLR has been recognised by top Journals that publish review papers (e.g., the Academy of Management Review). A systematic review of the TQM domain might uncover inconsistencies, gaps, theoretical, contextual, and methodological development. Many scholars have asked for reviews that improve rigour, relevance, and impact (Hulland & Houston, 2020). As a result, the structure of a systematic review is critical, and organising frameworks are useful in this regard. To provide a comprehensive view of TQM research, this study adheres to the Framework-based systematic review. Scholars can employ an existing framework or create their own in framework-based reviews (Paul & Benito, 2018). In this review, the "ADO" (Paul & Benito, 2018) and "TCM" (Paul et al., (2017) frameworks are used. Recent research has applied this approach in other contexts (Nwachukwu, 2021; Wolf, 2023). ADO stands for antecedents, decisions, and outcomes. Antecedents explain why someone behaves or does not behave in a certain way. Decisions represent behavioural performance or non-performance, while outcomes are the result of behavioural performance or non-performance. The ADO framework is a good framework for organising constructs and the interactions that result from them in an organised assembly (Paul & Benito, 2018). However, the ADO framework may not be sufficient to steer future research on its own because it does not take into account theories, settings, or techniques that could guide future studies (Lim et al., 2020). The acronym TCM stands for "Theories," "Contexts," and "Methods." Theories enable researchers to give meaning to a phenomenon, contexts describe the settings of a study, and methods describe how the research evolved (Lim et al., 2020). This approach ensures a multidisciplinary perspective on a phenomenon's comprehension (Singh et al., 2020) and is used in many business reviews (Aaltonen, 2020). As the TCM framework does not cover topical content as much as the ADO framework, it may not be able to appropriately guide future research on its own (Lim et al., 2020). In particular, the TCM framework handles the question of "how do we know" regarding the prior inquiry, whereas the ADO framework responds to the queries of “where should we be heading" (new ADO) (Khatri & Duggal, 2022). By conducting a systematic review using a theory development, contexts and methodology (TCM) framework (Singh & Dhir, 2019) and antecedents, decisions, and outcomes (ADO), this review aims to address the shortcomings of prior methodologies used to evaluate TQM literature to date. Therefore, by combining the ADO and TCM frameworks, we are able to maximise their strengths and minimise their weaknesses.

Following Veltri and Silvestri (2020), author define research questions, locate relevant bibliographic article databases, establish criteria for the inclusion or exclusion of the pertinent papers and describe a methodological review protocol. The process includes four stages (identification, screening, eligibility, and inclusion) to find and choose publications that are relevant to TQM. The reviewing process is guided by these stages (Ter Huurne et al., 2017). For further information on each stage, see Figure 1.

3.1 Identification

Search keywords, search engines, and search periods were used to identify relevant articles. In terms of keywords, the review used “total AND quality AND management". These search keywords will yield papers that can answer the research questions. A search using" total AND quality AND management" would identify articles of interest for this review. To ensure quality, the Scopus database was searched on 1st[h] August 2023 using the defined terms. Articles indexed in the Scopus database enjoy wide readership and citations by scholars (Lungu et al., 2016). Concerning source quality and relevance, articles are considered to be “high quality” and “relevant” if they are published in journals indexed in Scopus and ‘(WoS)’ database with impact factor indexed in the field of “Business’’ ‘’Management’’ and, ‘’Economics’’. This decision was based on quality (novelty) and realistic expectations (manageable). This is in line with similar studies (Lim & Tareq, 2022). Articles published in journals in the Scopus database are of good quality and available to international scholars (Lungu et al., 2009). Hence, the reason for choosing this database. To ensure that all relevant and recent articles are included, the search period for the review is from 2013 to 2023. The review of recent articles published between 2013 and 2023 offers new and timely insights.

3.2. Screening

The source type was examined first, then the content, of the articles. At the screening stage, 78 studies in all were disqualified. 57 publications were eliminated because they weren't published in business, management, and economics journals, and 21 items was excluded because there were not peer reviewed articles. Only top-notch journal publications were used as sources for the review,

according to the authors. In contrast to journal articles, books, book chapters, conference papers, industry reports, and working papers rarely improve scholarly discourse and do not undergo the same rigorous peer review. For these reasons, they were not taken into consideration. (Paul et al., 2021). Based on the objectives of the study, articles from business, management, and economics journals were chosen. The goal is to contribute to the field of business. Hence articles published in Business, Management and Economics journals are relevant. 54 articles pass the screening stage.

3.3. Eligibility

At this point, article type and content relevance were employed to evaluate eligibility. In terms of article type, the writers only took into account empirical studies that were published in journals classified as "Business, Management and Economics" in the Scopus database. A rigorous independent peer-reviewing process is used for journal articles. Conference papers, book chapters, and other non-journal works are typically exempt from the peer-review process. The entire texts of the articles that made it beyond the screening stage were examined for content relevance in order to make sure that only empirical research on TQM were included. 11 articles in total were disqualified from continuing to the inclusion stage because they did not meet the requirements for article type and content relevance. Eleven articles in particular were disregarded because they contained irrelevant conceptual or empirical material.

3.4. Inclusion

Authors conducted a random check in ‘’Business, Management and Economics” journals in the Scopus database for “in-press” articles on TQM.

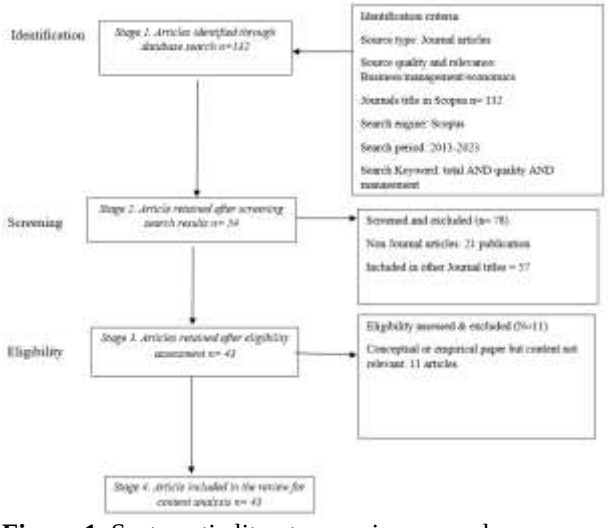

Figure 1. Systematic literature review procedure

There are no new records apart from the ones included in this review. In total, 43 empirical articles were included for the content analysis in the review. The data from the examined publications was extracted and organised using a content analysis guided by the "ADO" and "TCM" frameworks (Paul & Benito, 2018). This review concentrated on three primary areas: (1) Bibliographic information on publishing outlets; (2) Antecedents, Decisions, and Outcomes; and (3) Theories, Contexts, and Methods of the TQM Domain. In line with Braun and Clarke (2006), two coders experienced with TQM and systematic reviews independently read the articles to become acquainted with the content. The initial codes were then compared, and they were then put into groups following the ADO and TCM frameworks. The following sections present the results of the content analysis (See Figure 1).

4. FINDINGS

It is difficult to draw firm inferences from the findings. As a result, the authors summarised the findings by giving bibliographic data, hypotheses, antecedents, outcomes, and moderating/mediating variables used in TQM research.

4.1 Bibliographic data

According to Table 1, Total Quality Management and Business Excellence, published by Taylor & Francis, was the most popular outlet for TQM research during the period under review. This is closely followed by Emerald's International Journal of Quality and Reliability Management (n=11). Emerald Publishing Limited published the most articles (9). Taylor and Francis published two articles, while Elsevier, Wiley & Sons Ltd, and SAGE each published one (table 1).

Table 1. Journals, publishers and frequency

Journal and Publisher	**Frequency**
Total Quality Management & Business Excellence Taylor and Francis	16
International Journal of Quality & Reliability Management Emerald	11
Business Process Management Journal, Emerald	3
TQM Journal Emerald	2
Benchmarking Emerald	2
Global Business and Organizational Excellence Wiley and Sons	1
FIIB Business Review Sage	1
Journal of Islamic Accounting and Business Research Emerald	1
Asia Pacific Journal of Marketing and Logistics Emerald	1
International Journal of Contemporary Hospitality Management Emerald	1
International Journal of Quality and Service Sciences Emerald	1
International Journal of Commerce and Management Emerald	1
Quality Management Journal Taylor and Francis	1
International Journal of Hospitality Management Elsevier	1
Total	43

Source: author elaboration

4.2 Popular theories in TQM research

A survey of papers reveals that 25 studies (Bouranta et al., 2019; Arunachalam & Palanichamy, 2017; Foket al., 2023) did not employ theories, accounting for 58% of the

sample articles (N= 43). In the TQM literature, theory is used in 18 research (see Figure 2).

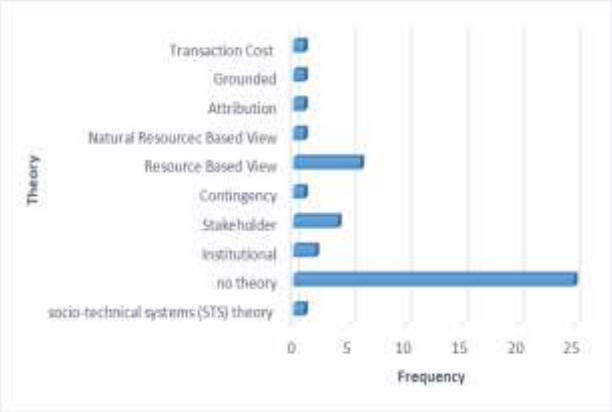

Figure 2. Summary of articles addressing research question (Author, 2023)

4.3 Contexts

Based on this research, seven studies were conducted in India and six in Spain. A single study was carried out in Bosnia and Herzegovina, China, France, Ghana, Iran, Korea, Malawi, Mauritius, Mozambique, Peru, Saudi Arabia, Singapore, Sri Lanka, Syria, Turkey, and Zambia. The context was not mentioned in three of the studies (Table 2). Previous research has focused on many industries (e.g., service, manufacturing, and public sector), which is not surprising given that TQM enhances process effectiveness and ensures that consumers' expectations are satisfied (Kaur et al., 2020).

Table 2. Contextual coverage of TQM research

Contexts	***n articles***
Bosnia & Herzegovina	1
China; manufacturing sector	1
France; manufacturing sector	1
Ghana; manufacturing sector	1
Greece; service sector, manufacturing sector, public sector	3
India; manufacturing, iron and steel industry, pharmaceutical industry, retail banking sector; cement industry, education sector	7
Indonesia; Muslim fashion business; rubber industry	2
Iran; manufacturing SMEs	1
Jordan; hotels, banking sector	2
Korea; manufacturing sector	1
Libya; oil and gas sector, manufacturing sector	2
Malaysia; food and beverages companies, research and development managers, hotels	3
Malawi; manufacturing sector	1
Mauritius; agricultural research and development (R&D) organisations	1
Mexico; service sector, manufacturing sector	2
Mozambique; manufacturing sector	1
Peru; 52 industry sectors	1
Saudi Arabia: Healthcare sector	1
Singapore; container shipping companies	1
Spain; service sector, construction sector, hotels	6
Sri Lanka; apparel manufacturers	1
Syria; manufacturing sector	1
Taiwan: manufacturing sector, insurance sector	2
Turkey; firms	1
United states; banking sector	2
Zambia: manufacturing sector	1

Source: *Author elaboration*

4.4 Antecedents of TQM

In total 4 studies, (Benzaquen & Charles, 2022; Bouranta et al., 2019; Munir Ahmad & Elhuni, 2014; Suárez-Barraza & Ablanedo-Rosas, 2014) proposed quality factors that drive TQM Implementation. This account for 28% of the papers (14) that examined the antecedents of TQM. There are also examples of studies where organisational culture (Haffer et al., 2013; Fok et al., 2023), and knowledge management (Honarpour et al., 2018) influence TQM (see table 3).

Table 3. Summary of articles (chronological order) addressing research question 2

Authors (year)	Determinants of e-CRM	*n*
Haffar et al. (2013) Ababneh (2021) Dimitrantzou et al. (2022), Fok et al. (2023)	+ organisational culture; adhocracy and group + organisational culture + organisational culture	3
Kumar and Gupta (2014)	+ Competency-based training	1
Munir Ahmad and Elhuni (2014) Suárez-Barraza and Ablanedo-Rosas (2014), Benzaquen and Charles (2022)	+ 24 quality factors + 16 quality factors 5 key quality factors	4
Chen (2015)	+ Just-in-time (JIT)	1
Muruganantham et al. (2018)	21 barriers to TQM	1
Honarpour et al (2018)	+ knowledge management	1
Dilawo and Salimi (2019)	3 core categories (motivation, infrastructure and penchants and tendencies) 10 main barriers	1
Durairatnam et al. (2021)	+ teamwork, + training + employee involvement	1
Acquah et al. (2023)	+green procurement + green organizational legitimacy + green product innovation + green process innovation	1

Source: *Author elaboration*

4.5 TQM and its effect

13 studies (Sweis et al., 2013; Lee & Lee 2014; Dubey 2015; Akanmu et al., 2023) reported that TQM has a positive effect on different outcomes. Yet et al. (2014) observed that some TQM dimensions have negative effect on role stressors (See table 4).

Table 4. Summary of articles (chronological order) addressing research question 3

Authors (year)	Effects of TQM
Sweis et al. (2013)	+ employee empowerment
Meftah and Gibson (2013), García-Bernal and Ramírez-Alesón (2015)	+ organisational performance
Mehta et al. (2014)	+ quality improvement in engineering education
Lee and Lee (2014) Benavides-Velasco et al. (2014).	+ organisational learning, Business performance + business performance
García-Bernal and García-Casarejos (2014)	capacity to generate wealth
Fallah Ebrahimi et al. (2014)	-role stressors (information analysis, supplier management, employee

	involvement, process management, customer focus, strategic planning) + role stressors (Leadership and human resource focus)
Dubey (2015)	+ firm performance
Salhieh and Abu-Doleh (2015)	+ banks' technical efficiency
Chen (2015)	+ production operations performance (POP) (insignificant)
Maistry et al. (2017)	+innovation + performance
Pattanayak et al. (2017)	+ service quality + market orientation
Psomas et al. (2017)	+ operational and quality performance +citizen satisfaction and society results + employee satisfaction.
Amin et al. (2017)	+employee satisfaction +hotel performance
Putri et al. (2017)	+ employees' productivity
Thai and Jie (2018)	+service quality +financial performance +supply chain integration
Banna et al. (2018)	+ Bank loan quality
Honarpour et al. (2018)	+process and product innovation + knowledge management
Wei et al. (2019)	+ financial performance + quality performance + inventory management performance
Yu et al. (2020)	+sales and revenue
Sila. (2020)	+corporate social performance +financial and market performance
Sharma and Modgil (2020)	+ operational performance. + supply chain components
Makhlouf et al. 2023	+ corporate sustainability + green Supply chain management
Akanmu et al. (2023)	+ sustainability
Arunachalam and Palanichamy (2017)	+ job satisfaction

Source: Author elaboration

4.6 Moderating and mediating variables used in TQM research

Table 5 shows that 14 studies (Haffar et al., 2013; Wei et al., 2019; Sila, 2020; Ababneh, 2021; Biwas et al., 2023) investigate contingent factors that interact with TQM, accounting for 33% of the sample studies (43).

Table 5. Summary of articles (chronological order) addressing research question 4

Authors (year)	Moderating/mediating effects
Haffar et al. (2013)	OC→IRFC→TQM; individual readiness for change partially mediates the effect of organisational culture (group culture and adhocracy culture) on TQM implementation
Lee and Lee (2014).	TQM→OL→BP; organisational learning mediates the effect of total quality management on business performance.
Wei et al. (2019)	P-O fit of PMS→TQM→FP; TQM mediates the effect of person–organisation fit of performance measurement systems on multi-level firm performance
Yu et al. (2020)	Proactive strategy positively moderates the effect of TQM on sales and revenue. Growth stage in term of product lifecycle moderate the effect of TQM on sales and revenue
Sila (2020)	TQM→CSP→FMP; corporate social performance mediates the effect of TQM on financial and market performance.
Jiménez-Jiménez et al. (2020)	TQM→MO→ INNV; market orientation mediates the relationship between TQM and innovation TQM→KM→ INNV; Knowledge management mediates the relationship between TQM and innovation
Sharma and Modgil (2020)	TQM →SC→OP; supply chain mediates the effect of TQM on operational performance
Ababneh (2021)	AC→EE→TQM; employee engagement mediates the effect of adhocracy culture on TQM implementation. HC→EE→TQM; the impact of hierarchy culture on TQM implementation was mediated by employee engagement.
Veselinović et al. (2021)	EO→TQM→FP; TQM partially mediates the effect of EO on firm performance. Intensity of competition moderates effect of EO on firm performance.
Fikri et al. (2022)	MO→TQM→BP; TQM mediates the effect of market orientation on business performance.
Makhlouf et al. (2023)	TQM→GSCM→CS; green supply chain management mediates the effect of TQM on corporate sustainability.
Biswas et al. (2023)	TQM moderates the impact of technology management on corporate sustainability performance.
Acquah et al. (2023)	GP→TQM→GOL; GPI→TQM→GOL GPRI→TQM→GOL GP→TQM→AGF GPI→TQM→AGF GPRI→TQM→AGF TQM mediates the effects of green procurement, green product innovation, and green process innovation on green organizational legitimacy and access to green finance.
Fok et al. (2023)	GP→TQM→SP; TQM mediates the effect of green practices on sustainability performance dimensions

Source: *Author elaboration*

4.7 Methods used in TQM literature

Methods show how empirical evidence is generated (Paul et al., 2017). This review focuses on two major parts of methods: the "research approach" and the "data". The research approaches used in the TQM literature are qualitative, quantitative, and mixed (Table 6). The quantitative method was used in over 90% of the studies (39 publications). Twenty-two studies used Structural Equation Modelling (SEM), and thirteen papers used regression-based analysis. These SEM and regression-based approaches are popular because of their robustness for assessing various quantitative data sets. SEM is a multivariate technique that can include both measurement and structural models (Hair et al., 2021).

The qualitative methodology was employed in three papers and one article used mixed-method approach. Concerning research data used, primary data (questionnaire, survey, interviews) is the most preferred (see Table 6).

Table 6. Summary of articles (chronological order) addressing research question 5

Authors (year)	Methods
Sweis et al. (2013)	Quantitative, questionnaire, correlation analysis, 1,224 employees.
Haffar et al. (2013)	Quantitative, questionnaire, 350 managers, multiple regression analysis
Meftah Abusa and Gibson (2013)	Quantitative, questionnaires, 56 firms, descriptive statistics (means and frequencies), *t*-test, correlation analysis, stepwise regressing analysis.
Mehta et al. (2014)	Qualitative, interpretive structural modelling (ISM) methodology
Lee and Lee (2014)	Quantitative, 850 questionnaires, *t*-test, analysis of variance ANOVA, multiple regression
Khanna and Gupta (2014)	Quantitative, Open-ended questionnaire, sample size 84, 2-sample t-test analysis, correlation analysis
Benavides-Velasco et al. (2014)	Quantitative, Questionnaires, 141 hotels, structural equation modelling SEM
Munir Ahmad and Elhuni (2014)	Quantitative, descriptive, 42 questionnaires.
García-Bernal and García-Casarejos (2014)	Quantitative, 295 questionnaires, descriptive analyses, Pearson statistic and Likelihood ratio, chi-square.
Fallah Ebrahimi et al. (2014)	Quantitative, 410 questionnaires, factor analysis, correlation, multiple regression.
Suárez-Barraza and Ablanedo-Rosas (2014)	Quantitative, survey, 50 firms, ANOVA, Pearson product moment correlation.
Dubey (2015)	Quantitative research techniques, questionnaire, exploratory factor analysis (EFA)
García-Bernal and Ramírez-Alesón (2015)	Quantitative approach, questionnaires, 208 Spanish firms., structural equation modelling
Salhieh and Abu-Doleh (2015)	Survey questionnaire, quantitative data, Data envelopment methodology, 39 Italian banks
Chen (2015)	Quantitative research, Questionnaires, 173 Chinese manufacturing firms, structural equation modelling
Ooi (2015)	Quantitative research, survey questionnaire, multi-group analysis of structural invariance
Maistry et al. (2017)	Quantitative approach survey, 60 participants, Structural equation modelling
Pattanayak et al. (2017)	Quantitative, survey method, Structural equation modelling
Psomas et al. (2017)	Interviews, 125 chief executive officers (CEOs), structured questionnaire, descriptive statistics, linear regression analyses
Amin et al. (2017)	Quantitative, judgmental sampling technique, 625 questionnaires, partial least square structural equation modeling (PLS-SEM)
Putri et al. (2017),	Quantitative and qualitative, primary data; interview and questionnaire, secondary data; literatures, internet, and company's documents, 191 respondents, structural equation modeling (SEM).
Thai and Jie (2018)	Quantitative, survey, 159 participants, stepwise multiple regression analysis
Banna et al. (2018)	Quantitative, secondary data, sample 581 US commercial banks, SNL Financial database, period 1991–2013, Fama–MacBeth regression
Muruganantham et al. (2018)	Survey, literature analysis, interpretive structural modelling (ISM
Honarpour et al. (2018)	Quantitative, survey, 190 managers, Structural equation modelling (SEM)
Dilawo, and Salmi. (2019)	Qualitative approach, 6 major contractors, semi-structured interviews, grounded theory
Bouranta et al. (2019)	Quantitative, questionnaire, Sample service firms from three countries (131 from Greece, 70 from Mexico and 151 from Spain), factor analysis, descriptive statistics, ANOVA, multiple linear regression analysis
Wei et al. (2019)	Quantitative, survey, 1000 manufacturing companies, structural equation modelling (SEM)
Ababneh (2021)	Quantitative, survey 153 participants partial least squares path modeling (PLS-SEM)
Durairatnam et al. (2021).	Quantitative, survey, 100 apparel exporters, structural equation modelling (SEM)
Yu et al. (2020)	Quantitative, panel survey, 601 respondents, descriptive statistics, correlations, Ordinary least square (OLS) regression
Sila (2020)	Quantitative, survey, 156 firms, structural equation modeling (SEM).
Jiménez-Jiménez et al. (2020)	Quantitative, survey, 706 Spanish CEOs, structural equation modelling
Sharma and Modgil (2020)	Quantitative, self-administered questionnaire, 262 respondents, structural equation modelling
Veselinović et al. (2021)	Quantitative, online questionnaire, 477 participants, structural Equation Modelling (SEM)
Benzaquen and Charles (2022)	Survey, Sample 4,668 Peruvian companies, bootstrapping approach
Dimitrantzou et al. (2022)	Quantitative, survey, 292 respondents, Confirmatory Factor Analysis (CFA) Multiple Linear Regression analysis
Fikri et al. (2022)	Quantitative approach online questionnaire, 100 respondents, structural equation modelling-partial least square analysis techniques.
Makhlouf et al. (2023)	Quantitative research, survey questionnaires, 120 respondents partial least squares structural equation modeling (PLS-SEM)
Biswas et al. (2023)	Quantitative research, survey, multistage sampling technique, 514 respondents, Structural equation modelling technique.
Akanmu et al. (2023)	Quantitative research, survey questionnaire 98 respondents, partial least squares structural equation modelling
Acquah et al (2023)	Quantitative research, survey, 244 manufacturing firms, partial least square structural equation modeling (PLS-SEM)
Fok et al. (2023)	Quantitative research, structured questionnaire 441 managers, structural equation modeling (SEM)

Source: *Author elaboration*

Almost all the articles in the review employed primary data. The nature of TQM research has made primary data popular among researchers.

5. DISCUSSION

TQM is the use of quantitative tools and human resources to enhance all processes within an organisation and exceed current and future customer needs (Yu et al., 2020). Organisations are becoming more conscious of the need to develop robust processes to improve the customer experience. The authors conducted a systematic literature review to improve the understanding of the theories

(RQ1), antecedents (RQ2), consequences (RQ3), contingent variables (RQ4), and methods (RQ5) related with prior TQM research. In response to RQ1, theories allow researchers to explain a phenomenon while also advancing the field (Lim et al., 2020). Theories can help solve research problems by providing insight. Based on this review, nine theories were identified. These theories include Resource Based View (RBV); Stakeholder Theory; Institutional theory; Contingency; Natural Resource Based View; Transaction Cost Theory; Grounded Theory; Attribution Theory and Socio-technical Systems Theory. Based on RBV, TQM is a unique resource that generates competitive advantages (García-Bernal & García-Casarejos, 2014) and enhances business sustainability (Makhlouf et al., 2023). Arguably RBV is important for explaining how TQM can lead to sustained competitive advantage and business sustainability in the dynamic and competitive business environment. It is critical to optimise TQM in order to attain superior performance. Acquah et al. (2023) employed institutional theory and stakeholder theory to explain TQM as a mechanism through which green procurement and green innovation enhance green organisational legitimacy and access to green finance. Based on stakeholder theory, Benavides-Velasco et al. (2014) examines TQM implementation, CSR and business performance. In light of the Natural Resource Based View, Makhlouf et al. (2023) assessed the impact of TQM on corporate sustainability (CS) and green supply chain management (GSCM). Based on contingency theory, Akanmu et al. (2023) examine how strategic practices enhance firm sustainability via TQM implementation. Contingency theory identifies distinct aspects of the organization's characteristics that are associated with certain defined conditions (Nwachukwu & Chladkova, 2019). Using transaction cost theory, García-Bernal and García-Casarejos (2014) examine a firm's optimum level of TQM adoption, size and subsector. Dilawo and Salimi (2019) employ the Grounded Theory to explore factors influencing TQM implementation in construction firms. From the attribution Theory stance, Ababneh (2021), provide a model that presents a differential impact of organisational culture archetypes on quality performance and TQM. Durairatnam et al. (2021) used socio-technical systems theory to predict the effects of people-related total quality management (PTQM) practices on work attitudes. The STS theory is built on the premise of combined optimisation of social and technical considerations, rather than prioritising one over the other (Pasmore et al., 2019). This review suggests that the RBT and ST are more popular among TQM researchers. This is unsurprising given the comprehensive perspectives they provide for understanding and implementing effective quality management practices. RBT offer insights into how strategic resources contribute to quality management, whereas ST provides a complete perspective on managing relationships with multiple stakeholders, which is consistent with TQM's collaborative and customer-focused approach (Sila, 2020).

In response to (RQ2), 14 antecedents of TQM are reported. Organisational culture (Haffar et al., 2013; Ababneh, 2021; Dimitrantzou et al., 2022; Fok et al., 2023), Competency-based training (Kumar & Gupta, 2014), quality factors (Munir Ahmad & Elhuni, 2014; Suárez-Barraza & Ablanedo-Rosas, 2014; Benzaquen & Charles, 2022), Just-in-time (Chen, 2015), knowledge management (Honarpour et al., 2018), teamwork, training and employee involvement (Durairatnam et al., 2021), green procurement, green organizational legitimacy, green product innovation and green process innovation (Acquah et al., 2023). Organisational culture has been found to enhance TQM in varying contexts. As such, firms that want to be competitive must adopt a robust culture to benefit from TQM practices. Previous studies underscore the importance of competency-based training, quality factors, Just-in-time, knowledge management, teamwork, training, employee involvement, green procurement, green organizational legitimacy, green product innovation and green process innovation in supporting TQM practices.

In addressing (RQ3), the review links the positive impact of TQM to organisational outcomes such as employee empowerment (Sweis et al., 2013), financial performance (Meftah and Gibson, 2013; Dubey, 2015; Maistry et al., 2017), quality improvement (Mehta et al., 2014) role stressors; Leadership and human resource (Fallah Ebrahimi et al. (2014), service quality (Pattanayak et al. 2017; Thai & Jie, 2018), process, product innovation and knowledge management (Honarpour et al., 2018), supply chain (Sharma & Modgil, 2020) and sustainability (Akanmu et al., 2023; Makhlouf et al., 2023). However, Fallah Ebrahimi et al. (2014) observed that TQM dimensions namely, employee involvement, process management, information analysis, supplier management, customer focus and strategic planning have significant and negative association with role stressors. Arguably, robust information analysis, supplier management, and process management will reduce role conflict. Likewise, information analysis, strategic planning, employee involvement, and process management will reduce role ambiguity. Firms that give attention to customer focus, supplier management, and employee involvement will reduce role overload.

In addressing (RQ4), two moderating variables namely, proactive strategy and growth stage. Yu et al. (2020) found that proactive strategy and growth stage positively moderates the effect of TQM on sales and revenue. Arguably proactive strategy and growth stage will enable TQM to deliver superior sales and revenue. Biswas et al. (2023) highlight the moderating effect of TQM on technology management and corporate sustainability performance. This finding suggests that for technology management to improve corporate sustainability, TQM practices should be implemented. In this review several mediating variables were identified. We identified individual readiness for change (Haffar et al., 2013), organisational learning (Lee & Lee (2014), corporate

social performance (Sila, 2020), market orientation and Knowledge management (Jiménez-Jiménez et al., 2020), supply chain (Sharma & Modgil, 2020), employee engagement (Ababneh, 2021) and green supply chain management (Makhlouf et al., 2023). Based on this literature review, the effectiveness of TQM is contingent on individual readiness for change, organisational learning, corporate social performance, market orientation, Knowledge management, supply chain, employee engagement and green supply chain management. In 5 studies TQM was used as the mediating variable see table 6. Accordingly, organisational outcomes such as green procurement, green product innovation, green process innovation, green organisational legitimacy access to green finance, business performance, firm performance and sustainability performance need TQM practices to flourish. In the context of TQM, contextual factors could explain why TQM practices differ from one organisation to another.

In response to (RQ5), the dominant research approach is quantitative, surveys and structural equation modelling (SEM) techniques. Survey research is a distinct way of eliciting information from a large group (Jones et al., 2013). Structural Equation Modelling (SEM) technique enables researchers to analyse causality involving many variables (Tarka, 2018) and test theories with ease. In light of this review, primary data and quantitative approaches are popular among TQM researchers. Primary data and quantitative research are preferred due to the nature of TQM research which is based on participants' opinions or perceptions.

6. THEORETICAL AND PRACTICAL IMPLICATIONS

This review uses a framework-based systematic review to enrich our understanding of TQM by highlighting the theories, contexts, and methods (TCM) (e.g., Nwachukwu, 2021) as well as the antecedents, decisions, and outcomes (ADO) (Paul & Benito, 2018). This study informs scholars and practitioners of the trends in TQM literature, which could advance the field (Kumar et al., 2019). Researchers and practitioners will benefit from a structured synthesis of existing literature, including the direction of future research in TQM. The systematic review of previous studies can assist managers in connecting different antecedents and outcomes of TQM. This information will be managers develop and executive robust strategies.

7. CONCLUSION

The study uses ADO-TCM framework to draw insights into TQM literature. We reviewed forty-three empirical studies conducted in different countries from 2013-2023. The theories, antecedents, outcomes, contingent variables and methods used in TQM studies were analysed and summarised. The proposed research questions (5) were answered through in-depth analyses of existing literature. Our review focused on studies published in Business, Management, Economics and Information Science Journals indexed in Scopus database. This decision was based on quality and realistic expectation. However, it is possible that some studies on TQM were not included in this review. Nonetheless, the authors believe that the robust methodology employed is appropriate for a framework-based systematic review.

8. RESEARCH AGENDA

The present review shows some gaps in the literature that need to be filled. We observe that TQM literature is not well-grounded theoretically. About 42% of studies did not use theories to examine TQM. Yet, theories are interconnected ideas used to explain a phenomenon (White et al., 2015). Hollebeek et al. (2019) opines that collection of theories offers better insights into a phenomenon. Given this, future studies should incorporate/integrate multiple theories to give a robust perspective of TQM. Our review shows that while studies that examined mediating effects in TQM literature are well documented, studies that explored the moderating effect are scarce. The two studies that examined moderating effect used on proactive strategy and growth stage. To deepen our understanding of TQM, we call for more research on the moderating variables that enhance TQM practices and organisational outcomes. It will not be out of place to examine the moderating effect of TQM on antecedents and organisational outcomes. *Arguably*, such a pathway would shed more light on TQM. Context makes more sense when the unique circumstances that characterize TQM are grouped (e.g., country) in a way that improves representation. Based on this review, TQM is under-researched in Sub-Saharan Africa. More so most of the research were done in a single country. The geographic scope has been limited, hence there is a need to advance the field by exploring TQM in other countries and industries, especially in Sub-Saharan Africa. Such studies should enhance the generalizability and representation of findings due to cross-cultural differences. In terms of method, this review provides some suggestions that should improve the rigour of research focusing on TQM. To improve the research rigour, we suggest that future studies on TQM should consider bibliometric and meta-analysis methods (Lim et al., 2022) supported by Preferred Reporting Items for Systematic reviews and Meta-Analyses PRISMA protocol (Moher et al., 2009). Most of the studies employed quantitative approach. Authors call for more studies using qualitative and mixed methods to enrich our understanding of TQM.

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