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REVIEW

Total quality management in the health-care context: integrating the literature and directing future research

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Background: Synergistic integration of predictors and elements that determine the success of total quality management (TQM) implementations in hospitals has been the bane of theoretical development in the TQM research area. Thus, this paper aims to offer a systematic literature review to provide a foundation on which research on TQM can be built and to identify the predictors of successful TQM in the health-care context.

Materials and methods: A systematic literature survey was adopted in this paper, involving the review of 25 relevant researched articles found in the databases Science Direct, EBSCO, MEDLINE, CINAHL and PubMed.

Result: The systematic literature survey reveals five variables to be core predictors of TQM, signifying how important these variables are in the successful implementation of TQM in the health-care context. Also, it is revealed that the identified core predictors have positive effects on an improved health-care system. However, the systematic survey of the literature reveals a dearth of studies on TQM in the health-care context.

Conclusion: As TQM has become an important management approach for advancing effectiveness in the health-care sector, this kind of research is of value to researchers and managers. Stakeholders in the health sectors should introduce and implement TQM in hospitals and clinics. Nevertheless, this study has limitations, including that the databases and search engines adopted for the literature search are not exhaustive.

Keywords: total quality management, total quality management implementation, health care, commitment, systematic literature review, critical success factors

Introduction

Given the snowballing global economic competition and other external pressures, organizations have been compelled to pursue enduring quality and quality management which will, in turn, enhance their competitive advantage. Quality as a concept has metamorphosed over the years, and it involves objective quality bordering on the characteristics and quality of goods and services that meet implicit and explicit customer demands. It also includes subjective quality which denotes the capability to produce goods and services in the best, effective and efficient manner.[1]

Looking at the health-care context, quality has always been aimed at since the time of Florence Nightingale.[2] Given that quality assurance is a requisite for economic survival,[3] and that it is an ethical, legal and social rights matter,[4] the health sector has been worried about it for more than a decade.[2] Quality assurance is significant as it concerns customer satisfaction and the reduction of risks connected with health care to a minimum.[5] In the present time, health care has become a developing profession with an approach to care quality via the appraisal and regulation of structure, process and care result components.[6]

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Given the ever-increasing competitive and dynamic environment in which hospitals operate, and the need to augment hospitals' performance and health-care quality, researchers[2,7–9] have conducted considerable research on enhancement of health-care quality. Moreover, given that nurse performance is crucial to the overall performance of the hospital and effective health-care system, there has been a research focus on nurse performance.[7] Nurses represent a large percentage of the health workers in any hospital. Nurses would play a significant role in the implementation of any intervention programs introduced by any hospital.

Moreover, research[8–11] has shown that the health-care system is facing a myriad of challenges which include high care cost, swiftly increasing dependence on technology, economic pressure on health organizations, reduction in health-care quality,[8,10] fulfillment of patients' needs,[9] augmented numbers of patients who are suffering from multiple illnesses, increased demand for high-quality care, increased health-care costs and cost-containment pressures (Organization for Economic Cooperation and Development [OECD] 2007).[11] Some studies have indicated that an active way of surmounting health-care challenges is through an intervention program that will border on quality management (eg, total quality management [TQM]).[12]

TQM is a system implemented by the management of an organization to achieve the satisfaction of customers/patients.[13] The importance of TQM as a strategy to improve organizational performance has grown in this era of globalization.[14] Numerous research has revealed the role of TQM in the enrichment of system quality and enhancement of both employee and organizational performance. TQM is known for continuous quality improvement, quality management and total quality control.[10] TQM is held to be an innovative approach to the management of organizations. In the medical sector, TQM integrates quality orientation in all processes and procedures in health-care delivery.[15] It is now being widely adopted in the medical sector of many countries. The research by Vituri and Évora[2] indicates that the literature on TQM in health sectors reveals that TQM has been fully adopted in some health institutions.

The implementation of TQM, upon which the success of TQM hinges, is intricate and complex; it depends on a good combination of certain predictors (ie, critical success factors [CSF]), and its benefits are difficult to accomplish.[16] Different means of integrating predictors of TQM, although inconsistent, have emerged in the literature.[17] Some predictors have been considered crucial to TQM success,[18] and thus the exceptional predictors which can be adopted by organizations, irrespective of their industry, type, size or location.[19] These predictors are regarded as the determinants of firm performance via effective implementation of TQM.

Nevertheless, synergistic integration of predictors and elements, otherwise known as CSFs and which determine the success of TQM implementation, has been the bane of theoretical development in the TQM research area. Some of these predictors have been reported, by extant studies,[20] to have a positive impact on performance.

Likewise, substantive problems exist and can hamper theoretical development in the research area. The literature lacks foundation and structure on which the research on TQM in the health-care context is based, and connections between studies on TQM in the health-care context can hardly be drawn. The current state of extant research on TQM in the health-care context indicates that there is a need for more research in the area.[21] New knowledge development regarding identification of fitting predictors for successful TQM that enhance effectiveness in the health-care sector should be developed and where further research needs to be done should be identified.

Considering the extant works on a systematic literature review on predictors of TQM, two English written studies[14,22] are discernible, but Hietschold et al[14] focused on CSFs of TQM in general contexts while Aquilani et al[22] focused on the identification of TQM research, implementation of TQM research and impact-of-TQM-on-performance research in general contexts. Besides these two studies, no studies have focused on the systematic literature survey of predictors/elements of TQM in the health-care context.

Therefore, undertaking a systematic literature review in this aspect of research is germane, and this paper is poised to do as such. This paper conducts a systematic literature survey to provide a foundation stone on which research on TQM in the health-care context can be built, to evaluate the current state of evidence for TQM in the health-care context, to reveal inadequacies in the literature and to point to where further research needs to be done.

Methods

This research is guided by the following research question: what are the predictors of successful TQM in the health-care context between the period of 2005 and 2016? Like the two previous studies on a systematic literature review

of TQM, this paper adopts and applies the three core steps of planning, execution and reporting that constitute a systematic literature survey.[23]

This research seeks to obtain the most important predictors of successful TQM in the health-care context. This includes the review of published peer-reviewed works in English-language journals, which were published between 2005 and 2016. The literature was sourced from Science Direct, EBSCO, MEDLINE (Medical Literature Analysis and Retrieval System Online), CINAHL (Cumulative Index of Nursing and Allied Health Literature) and PubMed (US National Library of Medicine).

As part of the process of systematic literature analysis in this paper, a structured search of the academic literature was conducted to find published articles that identified TQM, total quality management, implementation, CSFs, health care and nursing. The keywords used in the search are TQM, total quality management, implementation, critical success factors, health care and nursing.

As presented in Figure 1, a search of Science Direct, MEDLINE, EBSCO, CINAHL and PubMed yielded 2133, 6341, 1867, 7 and 474 articles, respectively. Then, repeated citations, dissertations and case studies were deleted. Via reading of the title and abstract, the remaining articles were narrowed down by relevance. Only peer-reviewed academic and practice articles that focus on total quality management, implementation, CSFs health care and nursing were selected. This exercise yielded a

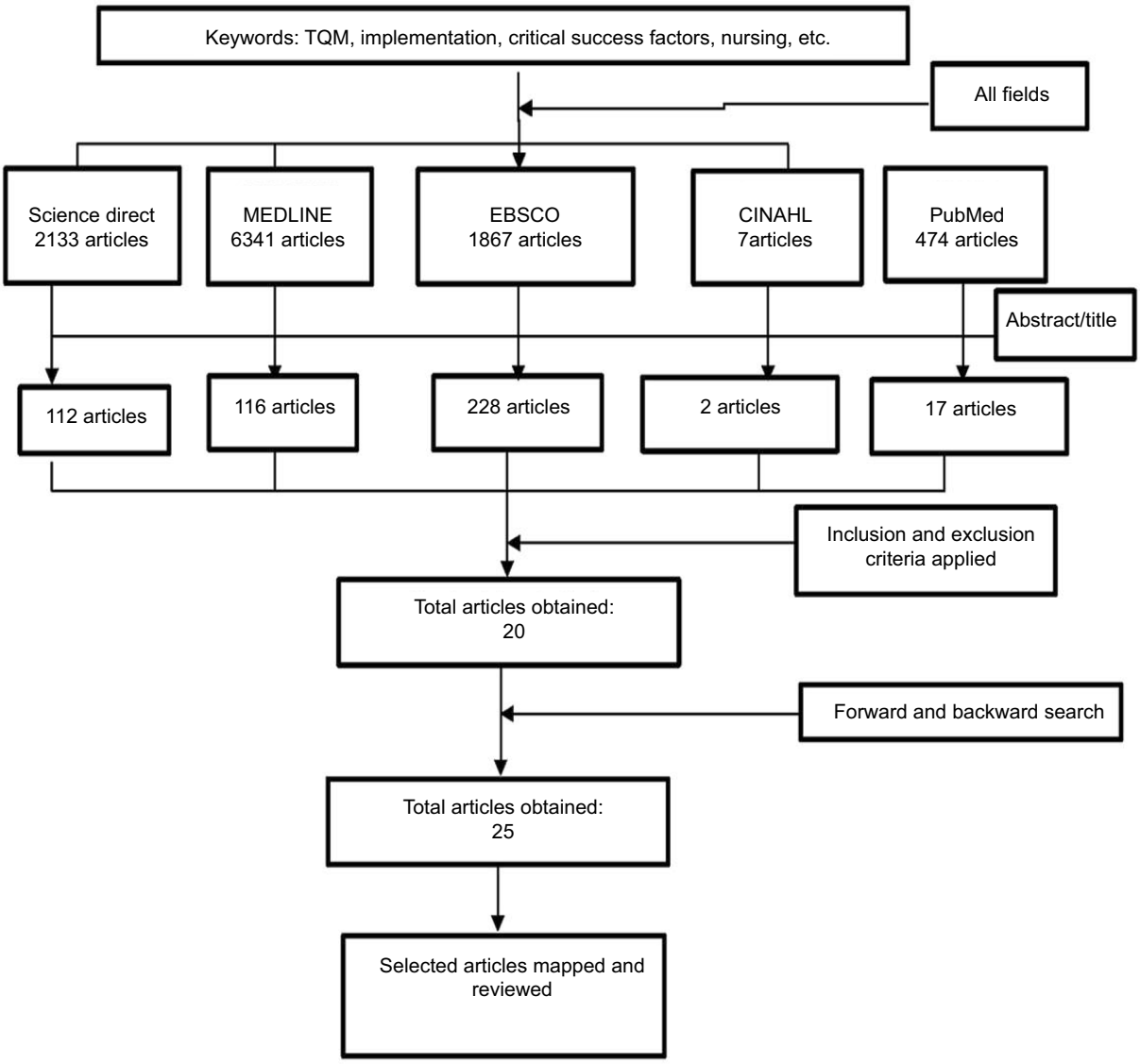

Figure 1 Consort flow chart of systematic review method.
Abbreviation: TQM, total quality management.

total of 475 articles which were published between 2005 and 2016.

Furthermore, inclusion and exclusion criteria were applied to narrow down the yielded articles. The inclusion criteria involved articles which were written in English language and published between 2005 and 2016, articles that dwell on implementation and critical factors clearly, articles from any geographical location which examined TQM, TQM principles, TQM tools and methods in the context of the health-care sector, and TQM studies that used a quantitative research approach and quasi-experimental research design. The exclusion criteria involved articles which are written in non-English language and published before 2005 or after 2016, studies in which the population and sample were not health-care workers practicing inside hospitals, gray literature or works that are not published in a peer-reviewed journal, dissertations/theses, proceedings, published abstracts, studies with qualitative research methods, and commentary articles written to convey opinion or stimulate research or discussion, with no research component. By employing these inclusion and exclusion criteria, 20 articles were generated. Moreover, to guarantee all-inclusiveness and to widen the scope of the review, a forward and backward search of citations in articles was conducted. This was recognized via the database searches, and 25 articles were finally selected. Thereafter, the 25 generated articles were fully perused.

Likewise, for exhaustive research, the approach adopted in this paper also involved the identification and measurement of predictors (CSFs) of TQM. This was done by identifying the most common or important predictors in the selected 25 works that analyze the existing models and/or scales in other contexts, industries or countries. It also includes recognition of the papers that investigate the influence of TQM implementation and/or the impact of predictors of TQM on performance. Additionally, for a proper review of the selected works, adequate plotting of the development of the line of reasoning, integrating and synthesizing the studies, authors, study design, study population, variables, measures of variables and findings of each selected article were identified and noted down. Figure 1 represents the consort flow chart of the systematic review method.

Findings and discussion

Altogether, 25 researched articles were eventually reviewed. All of the selected 25 articles are based on empirical evidence, although a possible limitation of this systematic review strategy might be the exclusion of qualitative studies in the research. Based on Table 1, five predictors were identified. These are presented in Table 2.

The researched literature on predictors of successful TQM implementation was found to be from various countries but in the same health sector. While some predictors adopted by a few of the researched studies were identified, the most frequent and core predictors were identified and considered. As depicted in Table 2, education and training, continuous quality improvement, patient focus/satisfaction, top management commitment and teamwork appear to be the core predictors (CSFs) in this review. This finding validates how important these variables are in the successful implementation of TQM in the health-care context.

It is noteworthy that the core predictors (ie, education and training, continuous quality improvement, patient focus/satisfaction, top management commitment and teamwork) identified in this study were among the variables found to be central and frequently used CSFs in the previous systematic-review-based studies.[14,21] This validates and confirms the findings of the previous studies.

Moreover, it is found that the most adopted research method in TQM in the health-care context is cross-sectional research; 56% of the reviewed researched articles[41–46] used a cross-sectional research design, but 32% of the studies employed a quasi-experimental research approach. This indicates that there is still a need for more research on TQM in the health-care context which will adopt a quasi-experimental research approach, because quasi-experimental research design can be very useful in recognizing general trends from the results, and reduces the difficulty and ethical worries that may be connected with the pre-selection and random assignment of test subjects. On the geographical location aspect, the result of this analysis showed that 28% of the reviewed studies were conducted in Iran while 20% of the reviewed studies were conducted in Jordan; 12% and 8% of the reviewed studies were conducted in Saudi Arabia and Pakistan, respectively. The other studies, 4% each, came from India, Namibia, Turkey, the United States, France and Mauritius.

With regards to the influence of predictors on performance in the researched studies, it is found that all of the selected articles[47,48,49,50,.51] that examined the effects of the core predictors (continuous quality improvement, education and training, patient focus/satisfaction, top management commitment and teamwork) of TQM indicate a positive effect of TQM in the health-care sector.

Table 1 Matrix of the reviewed literature

Study number	Authors	Study design	Study respondents	TQM predictors	Findings
1	Alaraki (2014)[41]	Cross-sectional design	400 clinical staff (Saudi)	Leadership, information analysis, continuous improvement, supplier management, employee management, process management, customer focus, and education and training	TQM practices have significant positive effect on performance
2	Al-Shdaifat (2015)[42]	Cross-sectional design	332 nurses (Jordanian hospitals)	Continuous improvement, training, education, customer focus, teamwork and top management commitment	Of all the TQM practices, continuous improvement is the most important factor
3	Irfan et al (2012)[24]	Cross-sectional design	239 doctors (Pakistani public hospitals)	1. HR focus: training, empowerment, reward, recognition and employees' involvement 2. Management structure: key information to all employees, leadership role and culture 3. Quality tools: quality goals and planning, measuring key results and statistical process control	The selected TQM practices have significant positive impact on TQM implementation and also on operational performance
4	Mrayyan and Al-Faouri (2008)[25]	Cross-sectional design	640 registered nurses (Jordanian hospitals)	Leadership, interpersonal relations/communications, critical care, planning/evaluation, professional development and collaboration	The selected six TQM practices have a relationship with nurses' job performance
5	Danial (2009)[26]	Quasi-experimental design	80 nurses (Iranian hospitals)	Management commitment, customerism, education, continuous improvement, cooperation and participation, and evaluation and decision-making	TQM parameters required for the provision of heath care were significantly different
6	Duggirala et al (2008)[44]	Pilot survey	Patients (Indian hospitals)	Infrastructure, personnel quality, quality of communication, process of clinical care, administrative procedures, safety indicators, overall, experience of medical care received and social responsibility	The seven TQS practices have positive relationships with patient satisfaction
7	Naser Alolayyan et al (2011)[45]	Cross-sectional design	400 nurses (Jordanian hospitals and medical center)	Training, employee management, process management, leadership, supplier management, customer focus, continuous improvement and information analysis	TQM practices in Jordanian hospitals have significant impact on the intensity of the operational flexibility of nurses
8	Sweis et al (2013)[46]	Cross-sectional design	320 employees (Saudi hospital)	Teamwork, continuous improvement, training, customer satisfaction and top management support	TQM practices have positive influence on staff empowerment

(*Continued*)

Table 1 (Continued).

Study number	Authors	Study design	Study respondents	TQM predictors	Findings
9	Awases et al (2013)[27]	Cross-sectional design	180 nurses (Namibian hospitals)	Knowledge and skills, organizational mission and objectives, staffing and schedule of duty, performance appraisal, nursing management, commitment and satisfaction, remuneration, benefits, reward and recognition, workspace and environment, leadership and management style, and staff development	Four of TQM practices (absence of recognition of staff with excellent performance, lack of performance appraisal indicators, poor condition of work, quality performance outcomes) have negative effect on nurse performance; other practices have positive effect on nurse performance
10	Al-Ahmadi (2009)[28]	Cross-sectional design	1834 nurses (Saudi hospitals)	Commitment, job satisfaction, personal and professional variables, and commitment	Commitment, personal and professional variables, and job satisfaction have positive effect on job performance
11	AbuAlRub and Al-Zaru (2008)[30]	Cross-sectional design	206 nurses (Jordanian hospitals)	Intention to stay at work, recognition and stress	Job stress and recognition have negative relationship with nurse performance
12	Güleryüz et al (2008)[31]	Cross-sectional design	5550 nurses (Turkish hospitals)	Nurse commitment	Nurse commitment has positive effect on job satisfaction
13	Kumar et al (2016)[47]	Quasi-experimental design	138 workers (experimental group), 137 workers (control group) (Pakistani hospitals)	TQM intervention program: training	The result showed a significant difference in the scores of the control group (62%) and the intervention group (87%) ($p<0.001$) with regards to TQM intervention (training)
14	Lashgari et al (2015)[32]	Quasi-experimental design	200 patients (Iranian general military hospitals)	TQM intervention: focused on improving patient satisfaction via nursing performance, commitment and service quality in emergency department	TQM resulted in a significant 20% improvement of patient satisfaction score for nursing performance quality ($p<0.001$)
15	Sagy (2009)[48]	Experimental design	–	TQM intervention (training) to improve nurse commitment and performance regarding clinical processes in a children's hospital	The intervention is found effective in improving nurse commitment and performance regarding clinical processes as the waiting time for insertion of a peripheral catheter was reduced
16	Navipour et al (2011)[33]	Experimental design	44 patients (Iranian hospitals)	TQM intervention using the FOCUS-PCDA method on nurses to improve patient satisfaction	Consequent upon the intervention, there was an incremental level of satisfaction, but there was no statistically significant difference with that before the intervention ($P>0.05$) in the control group and experimental group

(*Continued*)

Table 1 (Continued).

Study number	Authors	Study design	Study respondents	TQM predictors	Findings
17	Danial (2009)[26]	Randomized control trial	80 critical wards nurses (Iran)	TQM and nursing performance through education	TQM had a significant impact ($p<0.01$) on nurses' educational needs; about 47% of the intervention group performed below average while 70% of the control group performed below average (effect size=0.23, $p<0.01$)
18	Mosadeghrad (2015)[34]	Cross-sectional design	90 managers and quality managers (Iranian hospitals and health-care centers)	Customer management, process management, leadership, employee management, and information management	TQM practices (employee management, customer management, process management, information management, leadership) have "synergistic" effect on TQM success
19	Mosadeghrad (2014)[35]	Cross-sectional design	20 workers in Iranian health-care organizations and 30 participants working in three ISO-certified hospitals (50 persons)	Poor planning, inconsistent employees' commitment, top management turnover, short-term improvement objectivesand inconsistent managers' commitment	TQM implementation and its impact depend on the ability of managers to adopt and adapt its values and concepts in professional health-care organizations
20	Mosadeghrad (2012)[36]	Longitudinal design	517 employees of an Iranian hospital (70 doctors and 170 nurses)	Performance, practice, leadership and management, process management, strategic quality planning, total continuous learning, customer results, customer management, employee results and employee management	SCQM TQM was effective in improving total quality scores from 38% at baseline to 73.7% post intervention
21	Jones et al (2013)[37]	Two quasi-experimental designs: cross-sectional comparison and pre–post comparison	37 US hospitals	Teamwork, training and education, and continuous improvement	Intervention group HSOPS scores were significantly higher than static group scores in the three dimensions of TQM
22	Ullah et al (2011)[38]	Quasi-experimental design	220 health-care facilities	Strategy, structure, system, staff, skill, style and stakeholder/shared value factors	There was marked improvement in all TQM practices ranging from 20 to 77% following a training program of 3 months

(*Continued*)

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Table 1 (Continued).

Study number	Authors	Study design	Study respondents	TQM predictors	Findings
23	François et al (2005)[50]	Quasi-experimental design	98 trained employees and 100 untrained employees (in a French 2000-bed university hospital)	Training and education, continuous improvement, nurse leader, technical quality, TQM methods and quality improvement	In the experimental departments the untrained staff's knowledge of CQI methods and their participation in work groups did not differ from that of control department staff
24	El-Tohamy and AlRaoush (2015)[51]	Cross-sectional design	1290 health-care professionals in accredited governmental hospitals in Jordan	Leadership commitment to quality, customer focus, continuous improvement, teamwork, employee involvement, education and training	A significant impact of all TQM principles on the overall hospital effectiveness ($p<0.05$); using multiple linear regression analysis showed that TQM is a strong predictor of hospital performance ($\beta=0.818$, $t=46.613$, $R^2=0.669$, $p=0.000$).
25	Ramseook-Munhurrun et al (2011)[40]	Cross-sectional design	200 respondents from public hospital in Mauritius	Teamwork, continuous improvement, management commitment, training, customer focus, employee involvement and organizational culture	TQM dimensions have a significant impact on the perception of management and employees, and management perceives TQM adoption as being relevant and effective, in the case of public hospitals

Abbreviations: HR, human resources; TQM, total quality management.

Table 2 TQM predictors in the reviewed studies

Study number	TQM predictors in the reviewed studies	% of occurrence	Ranking (based on frequency)
1	Education and training	52	1
2	Continuous quality improvement	36	2
3	Customer (patient) focus/satisfaction	32	3
4	Top management commitment	32	3
5	Teamwork	24	4
6	Others (human resources focus [employee management process, reward, etc]; management structure; quality tools; leadership and management style; interpersonal relations/communications; cooperation and participation; information analysis; job satisfaction)	40	5

More so, the findings of this review signify that predictors of TQM implementation will result in higher levels of nurse performance.[51] In addition, the literature and empirical evidence have shown that TQM in an organizational process always results in better performance of the organization. TQM focuses on patient satisfaction, organization problem identification, building and promotion of open decision-making among employees. It embraces a holistic strategy that gives room for every worker to share responsibility for the quality of the work done. It makes use of analytical mechanisms, such as flow and statistical charts and checksheets, to gather information about activities in an organization.[52] In the medical sector, TQM aims at embedding orientation of quality in all processes and procedures in the delivery of health services.[15]

Nevertheless, this literature survey is not an exhaustive review of the literature on TQM as it solely focused on the effect of TQM. Future research should widen the scope of this paper by including studies conducted in other contexts (eg, education, manufacturing, etc) and studies that use different research methods (eg, longitudinal research method, randomized control trial method). While TQM predictors have increased in number to reach a total of 59 TQM practices,[21] TQM predictors in the context of health care are few but growing. Investigating the nature of TQM predictors and the methods used in examining them indicates that researchers may have been keen in searching for new predictors instead of trying to cluster them and identify those that are critical for successful TQM implementation. In addition, research on TQM predictors in the health-care sector is scanty, as noted previously.

Practically, given the identified core TQM predictors in this study, it is evident that hospitals' management should consider entrenchment of continuous quality improvement, education and training, patient focus/satisfaction top management commitment and teamwork in the implementation of TQM, which will consequently enhance hospital performance. Given that TQM predictors are many and some of them have been considered core in several specific contexts, industries, dimensions, etc, it is held that stakeholders in different sectors/industries should begin to identify the most vital TQM practices that suit their situations, goals, strategies and expected performances.

Conclusion and recommendations

As TQM has become an important management approach for advancing performance, this kind of research is of value to researchers and managers. Nevertheless, this study has limitations, including that the databases and search engines adopted for the literature search are not exhaustive. Although a good number of keywords are used, there can be other likely keywords that can be included.

This work has contributed to the enrichment of the relevant literature and made theoretical and methodological contributions. It has provided a foundation on which research on TQM can be built via review of the work done between 2005 and 2016, plotting the development of the line of reasoning, and integration and synthesis of studies from TQM in the health-care context. It has also contributed by evaluating the current state of evidence regarding TQM, indicating inadequacies in the literature and pointing to where further research needs to be done. Thus, it contributes to the present body of knowledge as well as the research on TQM in the health-care context.

This work has also established that the most adopted research method in health-care-based TQM is cross-sectional

research, followed by quasi-experimental research, and the researched studies were mostly conducted in Asia. The findings of the researched literature indicate a positive effect of TQM in the health-care context, indicating that TQM implementation, which contains the identified core predictors, will result in higher levels of performance. Furthermore, TQM implementation can help health-care professionals to gain more qualified behaviors with total commitment to work toward handling the patients, which in the long run will augment their performance.

The findings of the reviewed studies indicate how it would be useful for stakeholders in the health sectors to introduce and implement TQM in the hospitals and clinics, as this would enhance the performance of the health workers and consequently improve organizational performance. Given the limitations of this work, it is sufficed to suggest that future research should widen the scope of this paper by including studies conducted in other contexts and studies that use different research methods, and it should also develop a comprehensive TQM taxonomy to explain how and why TQM practices coalesce within systems that facilitate higher performance.

Disclosure

The authors report no conflicts of interest in this work.

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