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BENEFITS OF ACCREDITATION FOR HEALTHCARE PROVIDERS

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Abstract

Background: Accreditation is widely regarded as a reliable approach to assess and improve the quality of medical care. Nonetheless, its effect on efficiency and production remains ambiguous. This review aimed to gather and examine data pertinent to the impact of hospital accreditation on patient outcomes. **Methods**: We conducted a comprehensive search of PubMed, CINAHL, PsycINFO, EMBASE, MEDLINE (OvidSP), CDSR, CENTRAL, ScienceDirect, SSCI, RSCI, and SciELO, along with other pertinent databases, employing key phrases associated with our research inquiry. All expert-reviewed quantitative studies published in the past two decades were incorporated. Two reviewers independently evaluated the primary articles, examined the complete texts of potentially pertinent studies, extracted the requisite data, and assessed the methodological quality of the studies included in the analysis utilizing a validated tool, all in compliance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. Upon examining the data regarding the effects of accreditation, six main themes of influence emerged. **Results**: We reviewed 17,830 studies and identified only 76 empirical research that examined the impact of certification, which matched our criteria for inclusion. Each study employed a distinct methodology for data collection. Our findings indicate that accreditation positively and enduringly influences hospitals' safety cultures, process-related performance metrics, operational efficiency, and patient length of stay. Accreditation had no association with employee satisfaction, patient satisfaction and experience, or the 30-day hospital readmission rate. The presence of inconsistent findings rendered it difficult to make definitive conclusions regarding the impact of certification on healthcare-associated mortality and infections. **Conclusion**: Evidence indicates that a hospital's overall performance may enhance with adherence to accrediting criteria. This is merely one of numerous potential advantages. Despite the lack of conclusive data establishing a direct correlation between hospital certification and enhanced performance or patient safety, hospitals continue to adopt accreditation systems. To institutionalize and sustain performance improvements, it is recommended to update accreditation and offer incentives for its attainment.

Keywords: Accreditation, Hospitals, Quality of health care, Health services

Background

The seminal study "To Err is Human," authored by the Institute of Medicine (IOM) in 1999, is among the most impactful publications in the medical domain. The paper asserts that quality encompasses multiple dimensions, and that assessing quality is essential for enhancing productivity [3, 4]. Consequently, several measures have been employed globally to regulate healthcare quality both internally and externally [5]. External review systems facilitate organizational change, service improvement, and adherence to quality standards [6]. Accreditation is the most established way for assessing the quality of healthcare externally. The American College of Surgeons is recognized for pioneering the hospital certification procedure over a century ago. Since then, hospital accreditation systems have proliferated and become essential components of quality assurance frameworks in the healthcare sector [10, 12]. In the last twenty years, numerous countries have established or modified their hospital certification systems [13].

Accreditation is an assessment of a healthcare provider's adherence to defined performance standards by an independent panel of experts, with the primary objective of enhancing care standards. A variety of public and private agencies oversee it, utilizing an array of ways, some of which are optional and others mandatory. The accrediting scope may encompass an entire medical institution, a specific medical discipline, or a specialism [6, 16]. Numerous esteemed international healthcare organizations have deliberated on the efficacy of employing accreditation standards to improve organizational and clinical performance, and they have officially recognized accreditation as a legitimate quality indicator. Nevertheless, there is limited evidence in the published literature to support this assertion.

The literature presents a nuanced depiction of the effects of healthcare certification [22], notwithstanding the seemingly favorable outcomes [20, 21]. The absence of high-quality trials and inconsistently reported outcomes [23-25] cast doubt on the dependability of accreditation. Inconsistent conclusions in previously published reviews [6, 12, 13, 23, 26–35] have arisen from contradictory results. Hospital accreditation has been associated with beneficial impacts on hospital culture [12, 32, 34], organizational performance [23], clinical practice, patient safety systems [28], service quality [29], care delivery processes [30], and operational efficiency [35]. Numerous assessments have examined the influence of certification on quantifiable alterations in care quality [12], health outcomes [26], patient satisfaction [31], and economic outcomes [13, 26, 34], all concluding that evidence is inadequate. Greenfield and Braithwaite [13] provide contradictory evidence regarding the influence of accreditation, asserting that its effect was restricted to facilitating change and professional development, while outcomes related to other impact categories such as quality measures, financial implications, and public disclosure remained ambiguous. The cost-effectiveness of accreditation has been scrutinized in certain research [6, 32, 33].

Prior evaluations of accreditation examined the influence of specialty [30] or disease [34] specific accreditation programs, which may diminish the overall effect of hospital accreditation, employed rigorous inclusion criteria that could restrict its contribution [6, 12], limited search languages, or neglected several significant relevant studies [35]. This study addressed such obstacles to identify and assess evidence concerning the outcomes of hospital accreditation.

Methodology

We adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) criteria [36], as outlined in the supplemental material. Initially, we examined the Prospero and Health Systems Evidence (HSE) databases to ensure that no analogous systematic evaluations were either underway or had been previously undertaken.

Databases and search terms

Additional file 2 demonstrates that systematic searches of electronic bibliographic databases were performed utilizing suitable subject headings and controlled vocabulary phrases to obtain pertinent publications. A multitude of databases is accessible to researchers, including PubMed, CINAHL, PsycINFO, EMBASE, MEDLINE (OvidSP), ScienceDirect, the Cochrane Database of Systematic Reviews (CDSR), the Cochrane Central Register of Controlled Trials (CENTRAL), and the Web of Science, which encompasses the Social Sciences Citation Index (SSCI), the Russian Science Citation Index (RSCI), the SciELO Citation Index, and the KCI-Korean Journal Database. The search strategy outlined herein was executed on February 18, 2020, by the principal author following a consultation with a topic librarian.

We performed a Google Scholar search utilizing terms such as "accreditation," "hospital," "quality," "impact," and "healthcare services." We also examined the websites of the predominant accrediting authorities for any supplementary documents that we may have overlooked.

Screening and eligibility determination

We incorporated comprehensive papers that assessed the impact of hospital accrediting schemes on healthcare quality from January 2000 to February 2020. (i.e., following "To Err Is Human"). All quantitative research satisfied the inclusion criteria. No more linguistic impediment was established. Following the search, we extracted and deduplicated the titles and abstracts, then importing them into the citation management system EndNote X9. Subsequently, two writers (MH, MG) reviewed the complete texts of papers that satisfied the inclusion criteria, following their preliminary evaluation of the titles and abstracts. Eligibility for the study was determined via the PICO criteria [38]: Outcomes—quantifiable effects on structural, process, or outcome metrics; population—all categories of hospitals; intervention—all forms of comprehensive accreditation; comparison of unaccredited hospitals, pre-and post-intervention, or varying accreditation tiers Disagreements between the two writers were resolved either through mutual consensus or by a third author acting as an arbitrator (MP).

Research that was unpublished, unindexed, collated in a review, or presented solely in abstract form was excluded from consideration. Research regarding the impact of accreditation on a particular specialty or disease, as well as studies on the expenses associated with preparing for accreditation, were excluded. Furthermore, no studies were incorporated that investigated the significance participants attributed to accreditation. To evaluate the importance from various perspectives, we incorporated comparative studies utilizing a validated instrument to examine the impact of accreditation on self-reported subjective outcome measures, such as patient satisfaction and job stress.

A kappa inter-rater reliability (IRR) test was employed to assess the consistency of full-text evaluations. Fifty studies deemed eligible for inclusion by the two reviewers were randomly selected and paired. Only four discrepancies were identified, resulting in a kappa coefficient of 0.81 for this pair of measures, signifying a substantial level of agreement.

Data extraction

Two authors independently evaluated each article meeting our inclusion criteria, retrieved pertinent data, and examined the cited literature for further relevant research (i.e., snowballing). Data regarding the studies' methodologies, objectives, outcomes, and overarching interpretations was extracted and assembled for this analysis. Data extraction is impeded by insufficient information. Reach out to the corresponding author of the paper. Systematic evaluations [41, 42] indicate that Google Translate is an effective tool for translating papers published in languages other than English; hence, it was employed to translate all pertinent research initially authored in non-English languages. To verify the validity of the non-English studies included, we emailed the extracted data to the corresponding author and requested confirmation of inclusion. We compiled the papers that failed to satisfy our inclusion criteria and documented the rationale for their omission for potential future audits.

Quality assessment

The methodological rigor of the papers in this review was assessed using the Hawker et al. [43] methodology, which offers a coherent scale for evaluating research of varying designs. The instrument comprises nine components, each evaluated on a four-point scale (1 = good, 2 = acceptable, 3 = poor, 4 = extremely poor): abstract and title; introduction and objectives; methodology and data; sampling; data analysis; ethics and bias; findings; transferability; implications and utility. Grading was executed by calculating the average of these subtotals (1.00-1.49 for good, 1.50-2.49 for fair, 2.50-3.49 for poor, and 3.00+ for very poor) [44]. Two coders (MH, MG) assessed the methodological quality of each study, subsequently assigning grades independently and averaging the results. Twenty randomly selected studies were utilized in a kappa inter-rater reliability test to evaluate the consistency of the assessment. Two discrepancies were identified during the comparison of choices, yielding a kappa of 0.8, indicating reliability [39, 40].

Analysis

Thematic analysis [46] was employed to synthesis the acquired data and provide it in a narrative fashion for text mining [45]. Six impact themes were discovered, all of which had been documented in either complete or partial form in previous studies [6, 12, 13, 26, 29, 32] or models [47]. The consequences of accreditation were perceived as a direct consequence of the accrediting process, with either positive or bad outcomes. If the majority of outcomes were considerably advantageous, the influence was considered positive; if the majority were detrimental, the impact was regarded as negative; and if no significant change was seen, the impact was classified as neutral [26]. The effect themes were alterations in management and culture, modifications at the professional and patient levels, changes in clinical outcomes for patients, adjustments in outcome measurement, and variations in financial results. Each study was allocated one or more outcome topics.

Results

Search results

Our database has 17,830 results. Following the review of titles and abstracts, 327 papers were selected for comprehensive study. Our investigation produced 74 studies that met our inclusion criteria. We incorporated seven research conducted in non-English languages that were validated by their authors, while excluding four studies in non-English languages for which we did not obtain a verification answer. Upon reviewing the referenced works of the included papers, we identified two additional research, increasing the total number of studies accessible for evaluation to 76. Refer to Figure 1.

Features of the included studies

Supplementary file 3 encapsulates the principal findings from all papers incorporated in our review. In the past decade, there has been significant rise in the quantity and scope of research evaluating the consequences of accreditation. Nearly seventy-five percent (n = 52) of the research included in this study were published within the last five years (2015–2019). N = 69 of n = 70 studies were published solely in English. Seven non-English papers were examined and analyzed, encompassing publications in Persian, Danish, Korean, and Hungarian.
This study surveyed twenty-two countries from all seven inhabited continents. Research was performed in the United States (n = 11) and Brazil (n = 9). Two extensive international studies were performed in European medical institutes [19, 28]. The consequences of twenty-three distinct accreditation programs were evaluated. The highest frequency of references (n = 14) pertained to the Joint Commission International Accreditation (JCIA) scheme. A total of 4,400 hospitals were examined, of which 21 (28% of the total) investigated the impact of accreditation on an individual hospital.

Assessment of the methods used

Our study encompasses numerous cross-sectional studies (n = 29). Thirty studies employed a before-and-after design. Twelve research employed a cohort design, while fourteen utilized a

quasi-experimental approach. Our analysis included only a single randomized controlled trial (RCT) [48]. This study indicates a correlation between certification and performance metrics; however, causal conclusions must be approached with caution. The absence of methodological consistency among these observational designs precluded a meta-analysis.

A total of 32 studies exhibited excellent methodological quality, 37 studies demonstrated moderate quality, and 7 research were classified as low quality, based on the assessment of the included studies. Three lower-quality research and four studies with mixed results indicated a positive or neutral accrediting effect; however, these findings should be approached with care. We excluded these research to preserve the integrity of our narrative analysis.

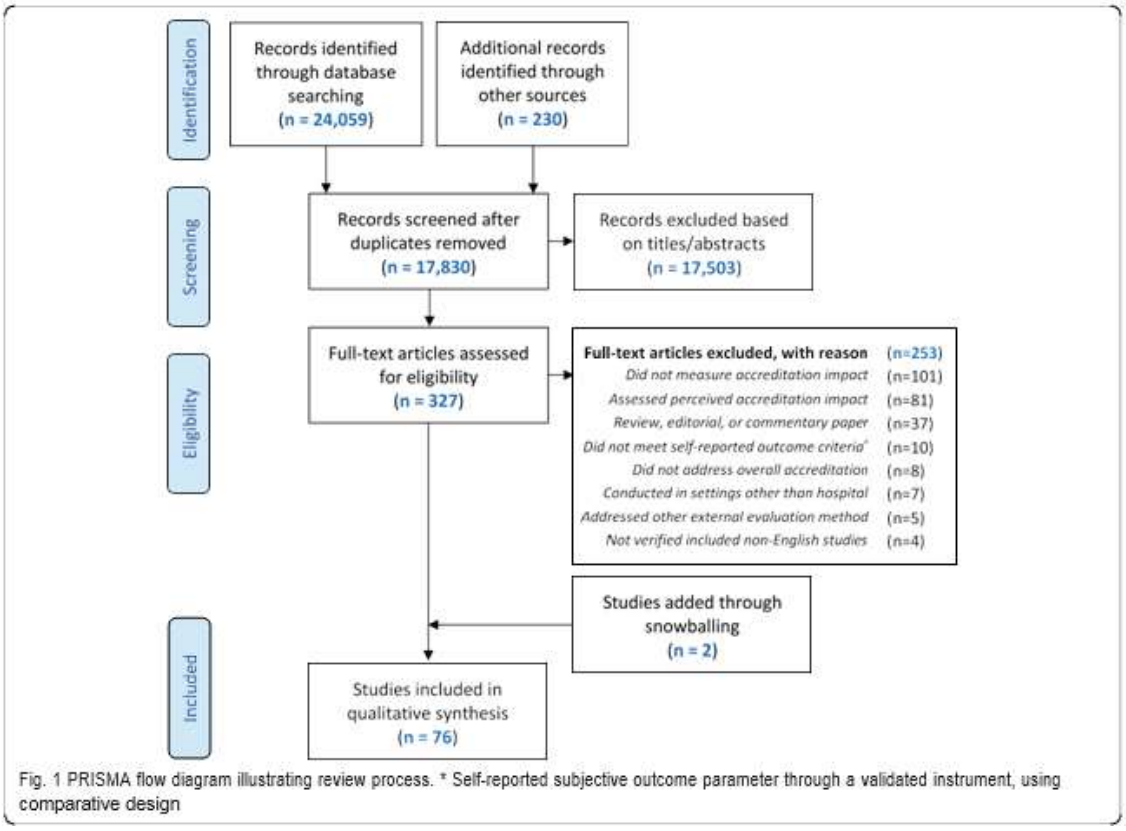

Fig. 1 PRISMA flow diagram illustrating review process. * Self-reported subjective outcome parameter through a validated instrument, using comparative design

The featured publications were categorized into six impact areas according to their subjects. More than sixty percent of the analyzed studies were classified into two categories: those addressing "changes in patient clinical outcomes" and those concerning "changes in performance measures." Indeed, 16% (n = 12) of the studies investigated the impact of accreditation on multiple indicators; so, although our themes are thorough, they are not exhaustive.

Changes in organizational culture and management

The impact of hospital accreditation on management and culture was assessed in five research [56-60]. The impact of hospital accreditation on safety culture has been examined in several self-reported survey surveys. While not all studies [59], the overwhelming majority [56-58] identified a substantial link between the two variables. Accreditation enhances perceived patient safety [56], fosters a safety culture for the reporting of medication errors [57], and promotes an organizational culture characterized by reduced hierarchical practices and increased group and developmental practices [58]. A recent study indicated that, from the nurses' perspective, there were no alterations in the safety management culture following accreditation [59].

Changes at the professionals' level

Our review identified ten papers examining the impact of accreditation on self-reported metrics such as workplace stress, job satisfaction, and the work environment [49, 59, 61-68]. Five of the studies employed before-and-after comparisons, whilst the remaining five utilized a comparative technique comparing accredited and non-accredited facilities. Seven studies examined nurses, revealing that certification had a negative impact in four instances and no effect in four others.

Research indicates that hospital accreditation continuously elevates the stress levels of employees. Four research [59, 61-63] indicated that accreditation was associated with health professionals experiencing increased job-related stress. Elkins et al. [63] discovered that nurses' job satisfaction and sleep quality dramatically enhanced post-accreditation, including reductions in stress, anxiety, and melancholy. Nonetheless, it remains ambiguous if accreditation influences job satisfaction or the workplace environment due to the scarcity of studies on the subject.

Changes at the patient level

Only 14 research [21, 48, 53, 55, 69–78] investigated the impact of hospital accreditation on measurable patient-reported outcome metrics. Eight of the research (or 80%) employed a cross-sectional, observational methodology.

Despite the widely held belief that accreditation contributes to improved patient

Table 1 Methodological quality ratings and impact directions of included studies (n = 76)

Themes	Definition and Examples	Related Studies Cited as per the Reference List	Methodological Quality			Impact Direction of Good & Fair Studies		
			Good	Fair	Poor	Positive	Negative	Neutral
Changes in organizational culture and management (n = 5)	Demonstrated as a significant quantitative hospital managerial or cultural change (e.g., safety culture, communication)	56–60	1	4	0	4	0	1
Changes at the professionals' level (n = 10)	Demonstrated as changes in professionals' self-reported outcome parameters (e.g., job stress, job satisfaction)	49, 59, 61–68	3	6	1	1	4	4
Changes at the patient level (n = 14)	Demonstrated as a measurable change in self-reported subjective outcome parameters from a patient and user perspective (e.g., patient satisfaction, patient experience)	21, 48, 53, 55, 69–78	6	6	2	3	2	7
Changes in patient clinical outcomes (n = 24)	Demonstrated as a statistically significant change in patient health outcome measures (e.g., mortality rate, length of stay)	8, 21, 25, 50–53, 79–95	8	12	4	15	0	5
Changes in the performance measures (n = 28)	Demonstrated as a statistically significant change in clinical performance measures (e.g., hand hygiene compliance, medication utilization)	8, 19, 28, 48, 51, 54, 60, 68, 79, 87, 90, 96–111	14	12	2	18	0	8
Changes in economic outcomes (n = 8)	Demonstrated as quantifiable changes in financial or economic outcome parameters (e.g., efficiency, profitability)	83, 90, 112–117	4	4	0	5	1	2

No correlation was identified in the numerous research comparing accredited and non-accredited hospitals [21, 48, 70, 71, 77, 78] or among accredited hospitals with differing accreditation levels [69, 72]. Sack et al. [77, 78] investigated the relationship between certification and patients' views of superior quality, discovering no association.

Changes in patient clinical outcomes

One-third (n = 24) of the studies examined the impact of hospital accreditation on patient outcomes [8, 21, 25, 50-53, 79-95]. Seventy-five percent of these publications have emerged since 2015, reflecting a definitive reaction to prior appeals for investigation into the impact of certification on clinical outcomes. The data indicated a favorable trend supporting the premise that certification correlates with improved clinical outcomes. Fifteen studies reported positive impacts (n = 5), five reported no effect (n = 5), and none reported a negative effect. Hospital mortality (n = 13) and duration of stay (n = 12) were the predominant metrics of interest. Comparative studies revealed a decline in mortality rates at each level of accreditation [79–84]. Although promising, these investigations are constrained by their concentration on only two certification models: the Joint Commission on certification of Healthcare Organizations (JCAHO) in the United States and the Danish Healthcare Quality Program (DDKM) in Denmark. A recent study revealed that mortality rates for patients in hospitals with strong compliance were markedly lower than those in institutions with poor or consistently low compliance with accrediting standards. Nonetheless, divergent findings were noted in alternative studies [8, 21, 85-88].

Numerous research [21, 84, 89, 90] have shown no association between hospital accreditation and the 30-day readmission rate, whilst others [25, 85, 91, 92] have reported inconsistent impacts on the incidence of healthcare-associated infections. Accreditation has been demonstrated to decrease patient durations in hospitals [84, 86, 89, 93] and specific departments [91, 94, 95].

Changes in the performance measures

The accreditation of hospitals has demonstrated an elevation in service standards. It is feasible to improve performance indicators for both the structure and the process [21, 83]. Our study included 28 papers ([8, 18, 19, 28, 48, 51, 54, 60, 68, 79, 87, 90, 96-111]) investigating the impact of accreditation on performance metrics. Although the impact of certification on performance metrics is intricate and cyclical, most research (n = 18) indicated that accreditation enhanced service quality at both the organizational and unit levels.

Despite the inclusion of one randomized controlled trial in this analysis that revealed no or a poor correlation between accreditation and quality metrics [48], the study's methodology was appropriate yet insufficient for generalizing these findings. Multiple prospective longitudinal and quasi-experimental investigations [8, 60, 96–99] revealed that accreditation markedly enhanced service quality in various aspects. Compliance with standards [60], adherence to recommended guidelines [97], enhancement of structural and procedural components [19, 28], and sustainable transformation [98] all improved with extended involvement in the certification process. Stepped-

wedge multi-level research [99] shown that accreditation resulted in substantial enhancements in some processes that had failed to achieve target performance in the six months preceding the accreditation survey. Statistically substantial improvements in performance measures have been observed for acute myocardial infarction [79, 100], heart failure [100], and pneumonia [100] following participation in accreditation. Conversely, certain research indicate that accreditation does not enhance performance regarding hand cleanliness [101], medicine delivery errors [102], or other metrics [87, 103, 104].

Changes in economic outcomes

Eight research [83, 90, 111–117] have examined the financial implications of accreditation. Five of them positively benefited various economic outcomes, with healthcare effectiveness being the most notable beneficiary.

Accreditation significantly enhances cost reduction [90], increases outpatient revenue share [83], boosts productivity [112], and improves efficiency [113-115], however the expenses associated with accreditation differ markedly among countries and programs. A comprehensive retrospective longitudinal analysis monitoring 748 hospitals over 10 years revealed that hospital accreditation significantly enhanced mean efficiency during the accreditation year and the subsequent two years [113]. Two hospitals realized a cumulative savings of US$593,000 over three years in an observational research, which indicated that hospital accreditation correlated with a 119% enhancement on a quality indicator compared to baseline data. Conversely, hospitals that opt to engage in accrediting programs exhibit reduced efficiency due to the necessity of hiring additional personnel and acquiring costlier equipment [116]. Accreditation has had no significant impact on operating room productivity [117], cash-flow margin, or total cost per case [83].

Discussion

This review examined the published literature on hospital accreditation from the previous twenty years to elucidate its impact on healthcare quality. Seventy-six studies fulfilled the requirements and were categorized based on their impact.

More than fifty percent of the studies examining the impact of certification had favorable results, indicating that the study is not entirely adverse. Our research indicates that accreditation regularly enhances process performance metrics, safety culture, hospital efficiency, and patient length of stay. Nonetheless, employee job stress was observed to be adversely affected in all trials. The conflicting findings concerning mortality and healthcare-associated infections hindered generalization. Staff job satisfaction, patient happiness and experience, and the 30-day readmission rate were determined to be unrelated to accreditation. The results may be influenced by several factors, including the diversity of hospital characteristics, the inability to identify extrinsic confounders, and variations in accrediting processes [19].

The analysis revealed that certification positively influences an organization's safety culture, even though culture is frequently held responsible for failures. However, accreditation adversely impacts the stress levels of professionals on an individual basis [59, 61-63]. Consequently, it may be essential to reconcile the risks and advantages of accreditation to secure the support of health practitioners and engage them in the process [30, 118]. There appears to be no method to avert such a dire consequence. Enhanced certification standards and procedures, coupled with public education initiatives, are necessary [119].

In accordance with prior studies [13, 31, 32, 34], we found no correlation between accreditation and patient satisfaction. Patient satisfaction is considered a measure of a hospital's quality of care; however, our review refuted this idea [120]. While our research supports the notion that certification serves as a mechanism for enhancing internal process delivery [121], the specific threshold for meaningful improvement remains ambiguous. The configuration of the accrediting criteria and procedures is likely the determining element [4, 122].

Our analysis revealed benefits of hospital accreditation prior to [56, 96], during [80], and subsequent to [97, 107]. The cyclical structure of accreditation raises concerns regarding its impact and duration. Research indicates that the advantageous impact of accreditation on economic results stems from improved performance [90]. Nevertheless, the available studies were insufficient to draw reliable conclusions. Limited research has been undertaken in this domain [13, 124], likely because isolating the financial effects of accreditation from other contextual variables is challenging.

Further examination of hospital certification is required to finalize the riddle. The diversity and observational characteristics of the accreditation literature may render it suboptimal for deriving definitive findings regarding the efficacy of accreditation [125]. Absence of observable impacts does not imply the absence of cause for concern. Given the challenges associated with executing randomized trials on such a complex process [11], observational studies are undeniably valuable, notwithstanding their limitations.

Our review predominantly encompassed cross-sectional and two-group comparative studies (i.e., pre-and-post). Therefore, one may argue that the improvement in quality noted in observational studies may not be directly linked to the accreditation they obtained. Even if the reported enhancements were purely coincidental to other accreditation-related aspects, it remains a mutually beneficial scenario, and this premise does not warrant the dismissal of existing findings.

Our analysis contains shortcomings. This is among the greatest systematic assessments yet undertaken about hospital certification and its impacts. The study detailed the measurements and factors impacted by the implementation of hospital accreditation to elucidate the intricate

perspective for academics, policymakers, and stakeholders in the accreditation domain. The application of inclusion criteria, citation indices, and numerous databases significantly increased the likelihood of identifying all pertinent papers. We recognize that certain research may remain unacknowledged due to its absence from scholarly publications. Nevertheless, our analysis indicates that such bias is exceedingly unlikely to have influenced our results. Our review was indeed superficial due to the omission of gray literature. The inclusion of grey literature in the review may reduce publication bias [126]. We exclusively examined research that were peer-reviewed or indexed in academic publications to ensure the reliability of the results. Our review did not distinguish between developing and developed nations, even though it incorporated evidence regarding the efficacy of accreditation in both contexts.

Conclusion

For certification to significantly impact the healthcare system, it must be regarded as a complement to other performance enhancement measures. Accreditation serves as an intervention that facilitates the "knowledge translation" of standards into everyday practice; hence, any viewpoint on it must align with this reality [128]. Notwithstanding certain disadvantages, accreditation ought to be sought. To assess whether the advantages of accreditation surpass the expenses, we align with prior evaluations [6, 12, 23, 32, 33, 129] in advocating for more comprehensive study on the effects of accreditation, especially regarding economic results. Longitudinal designs that consider potential exogenous variables may facilitate the identification of causal findings regarding accreditation impacts, hence improving decision-making in this area.

Our research supports the notion that adhering to accreditation criteria can yield several credible advantages for enhancing hospital performance and results. We determine that the implementation of hospital accreditation enhances performance improvement and patient safety, notwithstanding the absence of definitive data about causality and the minimal unanticipated adverse effects, such as job-related stress. It is advised to incentivise and upgrade accreditation with other health policies to achieve institutionalization and maintain performance improvements.

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