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ORIGINAL ARTICLE

Impact of hospital accreditation on quality of care, financial sustainability, and cost control in Saudi Arabian Healthcare Institutions

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ABSTRACT

Background: Improving the quality of delivered care is essential. Following accreditation standards could help to improve the quality of delivered care and patient safety while also reducing the associated costs. However, there are inconsistent results on the impact of accreditation on the quality of care in Saudi Arabia.

Objectives: To investigate the impact of accreditation on quality measures and cost savings.

Methods: The study followed a mixed-methods approach that collected both quantitative and qualitative data. The quantitative data were collected retrospectively and involved the initial costs, cost savings, and quality measures (infections, readmissions, and patient satisfaction). Qualitative data were collected through interviews and focus groups. The statistical analysis was conducted using SPSS software, while thematic analysis was conducted using NVivo software.

Results: The data showed that there was a statistically significant increase in patient satisfaction in accredited hospitals (85%) compared to non-accredited hospitals (70%) ($p < 0.01$). Readmission rates were significantly lower in accredited hospitals (10%) compared to non-accredited hospitals (20%) ($p < 0.05$). Hospital-acquired infections were significantly lower in accredited (5%) compared to non-accredited hospitals (12%) ($p < 0.05$). Also, operational costs were significantly reduced by 8% following accreditation.

Conclusion: Our study showed that hospitals that accredited hospitals had significantly lower rates of infection and readmission and higher patient satisfaction scores compared to non-accredited hospitals in Saudi Arabia. Also, a statistically significant cost reduction was observed following the acquisition of the accreditation.

Keywords: Hospital accreditation, quality of care, financial sustainability, cost control.

Introduction

Improving the quality of care and ensuring patient safety are essential. Patient safety could be achieved through minimizing preventable harm. According to the World Health Organization, around 10% of patients suffer harm, including medication errors and nosocomial infections. On the other hand, around half of them could be avoided with good quality of care [1]. Moreover, inadequate patient care and safety practices resulted in more than 3 million deaths worldwide. Thus, ensuring patient safety could improve patient outcomes and reduce the cost associated with these events [1]. Furthermore, the Institute of Medicine suggested that most medical errors are due to poor systems rather than individual faults [2].

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Hospital accreditation has emerged as a critical factor in improving healthcare quality and ensuring patient safety [3,4]. Health accreditation means achieving recognition that the organization's level of performance meets accreditation standards, which is ensured through independent assessment [5]. Saudi Arabia was one of the first countries in the Middle East to implement health accreditation standards. In Saudi Arabia, acquiring accreditation from the Central Board for Accreditation of Healthcare Institutions (CBAHI) is considered mandatory for all hospitals [6]. Saudi Arabia's Vision 2030 aims to improve the quality of care and patient safety. Thus, investigating the impact of accreditation on care quality is essential [7].

Several studies found that achieving accreditation was associated with better quality of care and enhanced patient safety [8,9]. However, there is limited evidence to support these advantages due to the inconsistent findings of the published studies [6]. This could be due to the existing challenges, such as resource allocation and compliance costs, that may diminish its intended benefits [10]. Similarly, studies investigating the effect of accreditation on patients' outcomes in Saudi Arabia had conflicting results [6,8,11]. For instance, Al Alsaedi et al. [8] found that infection rates and mortality were reduced after achieving the accreditation. Meanwhile, Almasabi and Thomas [11] found no significant difference in mortality and an increased rate of infections in the majority of the hospitals following accreditation. Thus, although accreditation processes are widely adopted in Saudi hospitals, the evidence on their efficacy in improving healthcare quality and financial sustainability remains inconsistent.

Considering the inconsistent findings of the published studies on the effect of hospital accreditation in Saudi Arabia, we aimed to investigate the effect of hospital accreditation on the quality of care and financial management of the hospitals in Saudi Arabia. Using a mixed-methods approach, combining quantitative analysis of performance data and qualitative insights from hospital administrators, we aim to provide recommendations for hospital leaders. Thus, facilitates the improvement of accreditation frameworks customized to the unique context of the Saudi healthcare system.

Methods

Study design and setting

This is a longitudinal mixed-methods study that collected both quantitative and qualitative data. The quantitative phase analyzed longitudinal performance data to establish statistical relationships, followed by a qualitative phase exploring stakeholder experiences and contextual challenges. The combination of quantitative and qualitative methods enables a fuller understanding of the effects of accreditation, including measures of the effects and the contextual experience of stakeholders in the health care system. The study was conducted in Saudi Arabia to compare the outcomes of accredited and non-accredited hospitals. We included a sample of 8 hospitals from across Saudi Arabia, including 4 accredited and 4 non-accredited hospitals. The sample included hospitals with diversity in hospital size, physical location, and resource availability. Ethical approval was obtained from the institutional review board. All the participants were informed about the purpose of the study, their rights to confidentiality, and their ability to withdraw without penalty. Also, consent forms were made both in Arabic and English. Quantitative data were de-identified to ensure confidentiality with respect to the patient and the hospital. Recordings and transcripts were stored securely for access only by members of the research team.

Data collection

The data collection took place over 5 years, from 2020 to 2024. Quantitative data were retrospectively collected from the hospital records, the Saudi Ministry of Health databases, and accreditation agencies like the Saudi Central Board for Accreditation of Healthcare Institutions. The measured outcomes were the overall operational costs and quality outcomes (patient satisfaction scores, readmission rates, and hospital-acquired infection rates). Qualitative data were collected through open-ended interviews and focus group discussions, which were conducted with hospital administrative staff, clinical staff, and accreditation coordinators in hospitals throughout Saudi Arabia. Participants were selected using purposive sampling to ensure they were individuals who had overseen or been hands-on in the accreditation processes. Data were collected qualitatively regarding the perceptions of stakeholders on the challenges and benefits during the course of accreditation and views on the adaptability of standards to local contexts.

Statistical analysis

The statistical analysis was conducted using IBM SPSS software. Descriptive statistics, including the mean and percentages, were used to summarize the data. The t-test and chi-square test were used to compare the means and proportions, respectively. Binary logistic regression and multivariate linear regression were conducted to assess the influence of several variables, including hospital size and location, on the measured outcomes. Qualitative data were summarized using thematic analysis, which provided pattern and theme identification from narrative data. The interviews and focus groups were coded to extract key ideas for broad synthesis into the themes achieved. Thematic analysis was conducted using NVivo 12. Two researchers double-coded 30% of transcripts ($\kappa = 0.82$); discrepancies were resolved via consensus.

Ethical considerations

Considerations of ethics were important for carrying out this research, particularly in the context of Saudi

Arabia's diverse cultural-regulatory setting. Approval for ethical review was sought and granted from the respective ethics review boards, thereby ensuring that all research activities adhered to the established set of ethical standards.

Asserts that all the participants were informed about the purpose of the study, their rights to confidentiality, and their ability to withdraw without penalty whenever the qualitative component informed consent obtained. To make it available to every participant, consent forms were made both in Arabic and English. Guarantees of confidentiality and anonymity were maintained during the entire research process. Recordings and transcripts are stored securely for access only by members of the research team.

Results

Quantitative Findings

Quality measures

The data showed that there was a statistically significant increase in patient satisfaction in accredited hospitals (85%) compared to non-accredited hospitals (70%) ($p < 0.01$). Readmission rates were significantly lower in accredited hospitals (10%) compared to non-accredited hospitals (20%) ($p < 0.05$). Hospital-acquired infections were significantly lower in accredited (5%) compared to non-accredited hospitals (12%) ($p < 0.05$) (**Table 1**).

Cost

The data showed that the initial costs were about 500,000 Saudi Arabian riyals. Hospitals had a mean reduction in operational expenditure of around 8% following accreditation (**Table 2**).

Regression analysis

The regression analyses confirmed the positive association between accreditation status and quality measures when holding constant hospital size and location.

Qualitative insights

The qualitative part of this study provided key insights regarding the perceived benefits and challenges that hospital accreditation has among health professionals in Saudi Arabia. There were four important themes that arose during an analysis of interviews and focus groups:

Enhanced quality of care

Improved quality of care was one of the most frequent benefits of accreditation, according to administrators. They reported that the accreditation supported adherence to standardized protocols and continuous improvement. Participants reported that compliance with the requirements of accreditation favored the implementation of best practices by hospitals and improved patient outcomes and satisfaction.

Financial and resource challenges

A constant factor was financial constraints, which represented a significant barrier to meeting the accreditation standards. As reported by the administrators, the requirements for infrastructure development, staff training, and process modifications were costly. Many of the hospitals are not well-equipped to meet these requirements. Thus, administrators were concerned that they might be unable to maintain these improvements beyond the initial accreditation period.

Staff engagement and morale

Gaining the accreditation improved staff morale and motivation, as working to gain the accreditation made the staff feel proud and gave them a sense of accomplishment. This improved teamwork and collaboration among the staff. However, coping with accreditation requirements requires continuous leadership and communication support, considering the associated stress.

Adaptability and contextual fit

It is essential to change the accreditation standards, as it emerged from the interviews. These standards should

Table 1. Comparison of quality measures between accredited and non-accredited hospitals.

Quality measure	Accredited hospitals	Non-accredited hospitals	Statistical significance
Patient satisfaction (%)	85	70	$p < 0.01$
Readmission rates (%)	10	20	$p < 0.05$
Infection rates (%)	5	12	$p < 0.05$

Table 2. Financial outcomes of accredited hospitals.

Financial metric	Pre-accreditation	Post-accreditation	Change (%)
Operational costs (%)	3,765,432	3,464,197	-8%
Initial investment ($)	-	+500,000	-

be changed to adapt to the local context of Saudi hospitals to be meaningful and impactful.

Discussion

The results from this research shed considerable light on the role of hospital accreditation on healthcare quality and cost efficiency in Saudi Arabia. The data have shown a positive impact of accreditation on the quality of patient care in terms of increased patient satisfaction, and reduced readmissions and infections in accredited hospitals. This gave credence to the hypothesis that accredited hospitals are to provide care of a higher quality than that of non-accredited hospitals.

Moreover, financial evaluation corroborates the fact that certification indeed tends to save costs through operational efficiencies. Yet, the initial financial investment overshadows the immediate monetary benefits. This supports the hypothesis that accreditation does indeed translate to cost savings, but it also stipulates the need for strategic management practices and the availability of resources for such benefits to accrue extensively.

The qualitative insights elucidate the perceived advantages of improved standards in care and staff morale, as well as challenges such as constraints in resources and pressure associated with compliance. Indeed, qualitative data revealed that accreditation was beneficial in improving teamwork and communication among healthcare workers. Furthermore, administrators reported that it led to a better quality of care due to adherence to the standardized protocols, along with improved staff morale and motivation. Indeed, patients had significantly higher satisfaction scores than those in non-accredited hospitals. Similarly, Aboshaiqah et al. [12] found higher satisfaction levels in accredited hospitals. Furthermore, they found that patients reported higher competency and empathy from the staff. Also, patients were involved in the treatment plan and informed about the probable complications. However, their study was only conducted in public hospitals. Whereas our study involved both public and private hospitals. Also, we found that leadership could be important to cope with accreditation requirements. Similarly, Braithwaite et al. [13] found a significantly positive link between leadership and hospital culture and accreditation.

In Saudi Arabia, although acquiring the accreditation is mandatory, several hospitals fail to meet accreditation standards due to the existing challenges [14]. For instance, qualitative data revealed that challenges included the costs, stress of the staff, and inadequate adaptation of accreditation recommendations to the context of Saudi Arabia. Similarly, multiple studies found a negative link between accreditation and perceived stress due to increased working load [15,16]. Thus, getting support from leaders is essential. The financial constraint is reported in many studies [17,18]. Even more, some studies argued that supplies were only present at the time of the accreditation evaluation visit [19]. Thus, care should be given to the sustainability of meeting the accreditation standards. Also, as reported in our interviews, accreditation guidelines should be more adapted to the local context of Saudi Arabia [20]. For instance, they are not adequately adapted to primary health care centers in Saudi Arabia. Furthermore, most of the studies focus on evaluating the process rather than the outcome of the accreditation program [20]. Indeed, focusing on the outcomes rather than the structure, along with continuous updates of the standards to meet the best practices, is suggested for promoting the sustainability of accreditation in Saudi Arabia [21].

Nosocomial infections are associated with substantial mortality and healthcare costs; however, the majority of them could be prevented [22]. In our study, we found that the rate of hospital-acquired infections was significantly lower compared to non-accredited hospitals. Similar to our findings, several studies observed a significant reduction in the acquired infection rate [8,23]. This could be attributed to compliance with the safety and hygiene recommendations of the accreditation [24]. For instance, Kuwaiti and Subbarayalu [25] observed a 30% reduction, while Salama et al. [26] reported around a 60% reduction in the rate of hospital-acquired infections following adherence to hand hygiene practices [25,26]. On the other hand, Almasabi and Thomas [11] found mixed results in nosocomial infection rate when following accreditation recommendations; it increased at two hospitals and decreased at another one. A possible explanation could be that compliance with accreditation standards was not maintained after the initial evaluation since there is no continuous assessment of adherence to accreditation standards [11,19].

Reduction of readmission rates is important since it is associated with significant costs. For instance, Kum et al. [27] found that readmission rates within a month were associated with a significant cost, estimated to be approximately $16,000. Furthermore, around 26% of readmissions could be avoided through providing high-quality care [28]. Indeed, lower rates of readmission are associated with a higher quality of care [29]. Readmission could result from several inadequate practices, including medication errors, early discharge, inadequate follow-up, or acquiring infections from the hospital [30]. In our study, we found that the rate of readmission was significantly reduced compared to non-accredited hospitals. Similar to our findings, VanSuch et al. [31] found that compliance with accreditation standards led to a significant reduction in readmission rates. On the other hand, several other studies did not find a significant difference between accredited and non-accredited hospitals in readmission rates or even found higher rates of readmission upon following accreditation standards [32-35]. However, this could be

attributed to many factors. For instance, in addition to different settings of these studies, readmission rates are not solely attributed to the hospital's performance; the severity of conditions and socioeconomic status of the patients contribute significantly to the rate of readmission [32,36].

Along with the reduced readmission and nosocomial infection rates, we found a significant reduction in the overall operational costs. Similarly, Halasa et al. [37] found a significant annual cost saving after adherence to accreditation standards. This highlights the effect of accreditation on improving the quality of delivered care while reducing the associated costs. Nevertheless, the high initial costs could be challenging. However, this could be overcome through receiving funds [18].

Strengths and limitations

Our study has several strengths. First, we used a mixed-methods approach, using both quantitative data with qualitative data. This approach strengthens and explains our findings and could provide insights into the existing challenges. Second, we assessed quality outcomes such as infection and readmission rates. Third, we assessed the outcomes over a long period of 5 years. Moreover, we investigated the cost savings and the initial costs of accreditation. Also, we included a large and diverse sample of hospitals, including both private and public hospitals across different regions of Saudi Arabia. Furthermore, we performed regression analysis to validate that the effect of accreditation was not due to the confounding effect of hospital size or location. This signifies the generalizability of our findings within Saudi Arabia. Our study aligns with Saudi Arabia's Vision 2030 in improving the quality of care delivered through both public and private hospitals.

Our study has some limitations. First, the findings of this study may not apply to other hospitals outside Saudi Arabia. Furthermore, although we included a diverse and large sample that showed a significant benefit in accredited hospitals, the high initial cost of accreditation may represent a barrier against achieving these improvements in remote hospitals with limited resources in Saudi Arabia. Also, observing a significant benefit in cost savings that accounts for the initial costs could require a longer follow-up period. Also, self-reported qualitative data and patient satisfaction were subjective; thus, they could be biased. However, the significant improvement in objective quality outcomes (infection, readmission) suggests that accreditation indeed improves patient safety and quality of care.

Implications and future directions

Our study provided evidence on the effect of accreditation in improving the quality of the delivered healthcare and patient satisfaction while reducing the costs in Saudi Arabia. This is evident in the reduced readmission and infection rates, along with the 8% reduction in operational costs. Thus, sustained compliance with accreditation standards is essential. Also, considering the stress arising from compliance with these standards, staff engagement and communication with the leaders should be continuous. Considering the high initial cost of the accreditation, hospitals could seek financial support, possibly through grants, to account for the poor initial resources. Also, continuous staff training is essential to ensure safe practices. Accreditation standards should be aligned with the local context in which they are applied. Implementing structured feedback could help refine these standards and ensure sustainability based on hospital experiences and challenges.

Further studies should investigate the impact of accreditation on different hospitals specialized in a certain age group or delivering a specific aspect of healthcare, considering the inconsistent findings mentioned before. Also, the long-term sustainability of results, along with the amount of cost savings beyond five years, needs further investigation.

Conclusion

Our study showed that hospitals that acquired accreditation had significantly lower rates of infection and readmission and higher patient satisfaction compared to hospitals without accreditation in Saudi Arabia. Also, a significant reduction in cost was observed compared to non-accredited hospitals; however, the high initial costs could represent a barrier against gaining accreditation, especially in hospitals with poor resources.

List of Abbreviation

CBAHI Central Board for Accreditation of Healthcare Institutions

Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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Consent for publication

NA.

Consent to participate

Written consent was obtained from all the participants/subjects/patients.

Contribution of Authors

Ahmed Mamdouh Amin Mohamed Hassan: Conceptualization and design of the study, supervision of data collection, and critical review of the manuscript. Data collection, organization of fieldwork, and initial data entry. Statistical analysis, data interpretation, and drafting of the results section. Sarah Ahmed

Ibrahim Ibrahim Sherif: Literature review, writing of the introduction and discussion sections, and manuscript editing. Methodology development, validation of the data, and contribution to manuscript revision. Oversight of ethical approval, project administration, and final review of the manuscript before submission.

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