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REVIEW ARTICLE

Comparison of Hospital Accreditation Standards in Selected Worlds: A Comparative Review

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A B S T R A C T

Background: Accreditation of hospitals plays a significant role in increasing the safety, quality and effectiveness of medical services and increasing the efficiency of hospitals. This study has been conducted with the aim of investigating and comparing the international accreditation standards of the United States, Canada, Australia and France with the national accreditation system of Iran.

Methods: This study examined the accreditation standards of five countries, United States, Canada, Australia, France and Iran, as a comparative study using a six-steps protocol in 2024. Embase, PubMed/MEDLINE, ISI/Web of Science (WOS), Scopus and Iranian databases such as MagIran, SID and Irandoc were searched from 2017 to 2023. Ritchie's framework analysis method was used for data analysis.

Results: The review and comparison of Iran's national accreditation standards with the international accreditation standards of USA, Canada, Australia and France showed that USA, having 304 standards and 1218 measures and covering clinical, managerial and organizational dimensions and education and research, has the most complete and comprehensive standards. In the accreditation standards of the United States, Canada, France and Australia, there is a joint emphasis on improving safety, clinical effectiveness, consumer information, staff development, accountability and patient and community participation. This is while in Iran, the emphasis is on creating facilities and basic information and checking the competence in human and technical resources. The percentage of compliance of Iran's accreditation standards with American, Canadian, Australian and French accreditation standards is 50%, 54%, 57% and 45%, respectively.

Conclusion: Amendments should be made in Iran's accreditation system in order to improve the content of the standards. In order to improve its effectiveness, Iran's accreditation needs the transparency of standards and measures, specific classification and grouping for standards, the use of a comprehensive view in developing standards, and changing the scoring scale of measures.

Keyword: Hospital, Evaluation, Accreditation, International Accreditation

Introduction

Hospitals are very complex bureaucratic and multi-specialized organizations that allocate a significant part of the health system budget and play a key role in providing health care services (1). In today's world, the attention of healthcare policymakers has been directed towards the improvement of hospital indicators, the top of which is quality (2, 3). The primary and final goal of all healthcare organizations is to improve the quality-of-service delivery. Hospital accreditation has been presented

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as a tool to improve health care system and evaluate the quality of health care services (4, 5) and in most cases in the world it is done as a strategy to ensure and improve the quality of health care services. Accreditation is carried out through the evaluation of the quality of organizational processes and its performance based on written standards approved and in accordance with the accreditation standards by experienced and specialized people on a mandatory or voluntary basis (6). The purpose of hospital accreditation is to evaluate the quality, safety and effectiveness of hospital services (1). Accreditation leads to the development of hospital capacity and equipment, increasing organizational commitment, accountability, and accreditation which leads to the optimal use of hospital resources, improves the quality, safety and effectiveness of hospital services, reduces medical errors, and ultimately improves hospital performance (4, 7, 8).

In 1917, in the United States, the Joint Commission Accreditation was established to evaluate the organization healthcare and hospitals and generally the credibility of the organization health, and medical service providers were formed to officially assess and improve the quality of the organization's health care activities (9). Its international branch under the name of International Joint Commission on Accreditation started working in 1998 in order to examine the needs at the international level by compiling and developing a set of accreditation standards. In 1999, the first edition of international accreditation standards was published (10).

Some studies have also shown that accreditation has been associated with challenges. Said Problems There was no consensus among hospital administrators on whether accreditation had a lasting impact on improvement (11). They stated that the preparation of documentation and standards inhibits health care personnel from daily clinical work (12) It requires considerable time and financial resources (13).

In Iran, there have been programs for the evaluation of healthcare centers for many years, but its structured form under the title of criteria and standards for hospital evaluation was established in August 2016 by the Deputy Minister of Medicine and Medicine of the Ministry of Health, Treatment and Medical Education and by the Minister of Health. It was notified to the universities of medical sciences for implementation.

The experiences of hospital accreditation in developing countries can lead to identifying problems of Iran's hospital accreditation method, using corrective measures and strengthening the country's hospital accreditation system. Usually hardware and software aspects, policies and programs are transferable in modeling. Hardware aspects include institutions, laws, regulations, etc., and software aspects include ideas, principles, lessons, and interpretations that can be obtained from those policies. It is natural to pay attention to the policies and accreditation programs of other countries and use their experiences to find out what should be done and what should not be done. Therefore, the present study was conducted with the aim of comparing the hospital accreditation standards of Iran and selected countries.

Materials and methods

This research was conducted as a comparative review in the period of May and June 2024. A comparative review study is a secondary study that identifies, analyzes and interprets the similarities and differences of the main changes of the research subject and their relationship with the background factors in different countries, cultures, and events. A comparative review, like a systematic review, uses a structured process and a systematic search method (14).

In order to conduct this comparative review study, Arksey and O Malley's protocol was used, which includes six steps: 1- Identifying research questions, 2- Identifying related studies using valid databases, 3- Selecting relevant studies for review among studies. 4- Extracting data in the form of graphs and tables, 5- Collecting, summarizing and reporting the findings, and 6- Optional consultation with experts about the findings (15).

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All related Persian and English articles in Google search engine used Persian keywords related to accreditation, evaluation and its English equivalent such as JCI, CAHO, ISQua, ACHS, accreditation, CCHSA, Evaluation based on Mesh. Updated articles were used in Springer, Emerald, Embase, Science Direct, Elsevier, PubMed, Scopus, Web of Science and Iranian databases, such as MagIran, SID, and Irandoc from 2017 up to 2023.

The inclusion criteria for the study included all the research conducted in the field of accreditation standards from 2017 to the end of 2023. Exclusion criteria included studies published before and after the target period, studies published in different languages except Persian and English, and books, conferences and theses, and scientific sources without full text. Two of the authors were responsible for the main task of screening the studies; then, the results of the screening were finalized with the opinion of a third person. In this study, the standards and metrics of hospital accreditation in the countries of America (16), Canada (17), Australia (18), France and Iran (19) were compared.315 articles were found in the initial search. In the first step, by reading the title articles, 25 repeated studies and 4 studies were excluded from the review process due to lack of access to the full text. Then, the review of the title and abstract of the studies led to the removal of 250 unrelated studies, and 36 studies were included in the review of the text of the articles.

In the next step, after a detailed study of the articles, 11 studies were excluded because they did not mention accreditation. 5 studies were added to the final review process after checking the references of the articles. Gray sources such as email discussion lists, blogs, preprint articles, newsletters, press releases, and survey results were excluded from the study. Finally, 30 articles entered the final review stage of comparing accreditation standards.

This study was conducted according to the guidelines and checklist of "Preferred Reporting Items for Systematic Reviews and Meta-Analyses" (PRISMA). The search results are shown in Figure1.

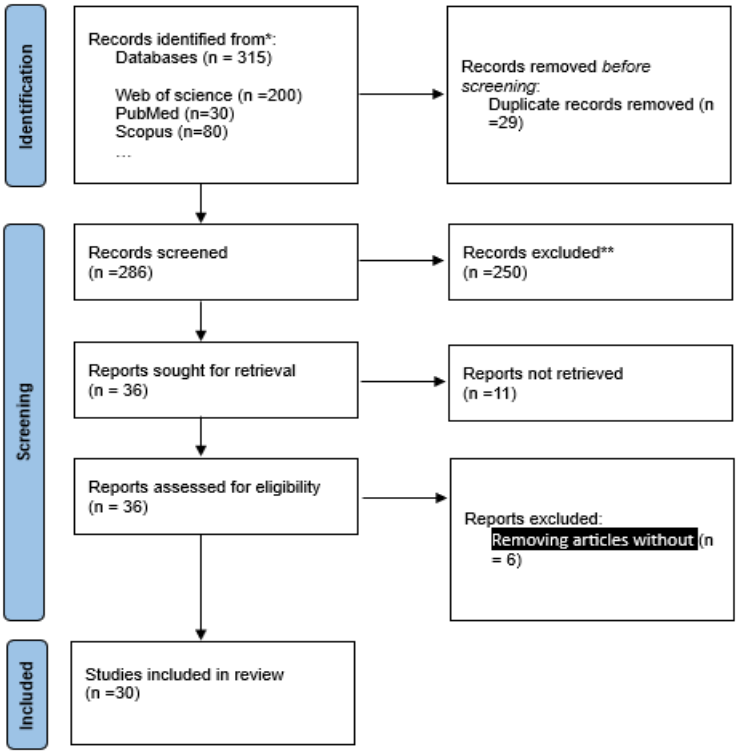

Figure 1. Flowchart of screened, excluded, and included studies

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In the second step, Ritchie and Spencer's (1994) framework analysis method was used for data analysis, which includes 5 steps of familiarization, identification of a thematic framework, indexing, drawing tables and interpretation (20). In the interpretation part of the second step, with 20 well-known people, including university experts and experienced professors or successful managers and experienced experts and evaluators who have opinions in the fields of certification, a meeting was held for the degree of compliance. After extracting the standards and measures in the meeting, to express the compliance status of the standards and measures and weighting from the following formula was used:

$$Compliance\ rate = (0(\text{Frequency of non} - \text{compliance}) + 1(\text{Frequency of relative compliance}) + 2(\text{Frequency of full compliance})) / 2(\text{Total number of } Frequncy)$$

It was used for overall compliance.

Table 1. Frequency distribution of participants according to demographic variables

Variable	Type	Abundance	percentage
gender	Man	6	%30
	Woman	14	%70
Level of education	Bachelor and below	2	%10
	Master's degree	3	%15
	Professional doctor - specialist	10	%50
	Specialized Ph.D.	5	%25
Respondents	Professors in the field of health care management	3	%15
	Managers and heads of public hospitals	5	%25
	National accreditation assessors working in public hospitals	7	%35
	Heads and experts of the improvement and accreditation department	3	%15
	Experts of the deputy of treatment	2	%10

Results

This study was conducted with the aim of investigating and comparing the hospital accreditation standards of Iran with the hospital accreditation standards of the target countries. In this research, by examining 315 documents obtained from the search of 8 databases and a search engine, the accreditation standards of the countries in question were identified until the end of 2023. The general information of hospital accreditation standards in selected countries is shown in Table 2.

This study was conducted with the aim of investigating and comparing the hospital accreditation standards of Iran with the hospital accreditation standards of the target countries. In this research, by examining 315 documents obtained from the search of 8 databases and a search engine, the accreditation standards of the countries in question were identified until the end of 2023. The general information of hospital accreditation

standards in selected countries is shown in Table 2.

Table 2 shows the international accreditation axes of the countries of America, Canada, Australia, France, as well as the national accreditation axes of Iran in comparison. In this table, similar axes are placed in the same category. The naming of axes in countries can be different from each other. While the reviewed content was similar. In the second step, by using the opinions of experts in the meetings held, considering the five countries under study, the main and secondary axes and the diverse standards with different names, and for the researcher to be able to compare these standards, the conceptual model (Table 2) was used to compare the standards.

Comparative comparison of accreditation standards

Table 3 shows the number of standards and measures of different countries in each of the axes of the conceptual model.

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Table 2. Comparison of international and national hospital accreditation axes in the studied countries

Iran's accreditation axes	Canada's accreditation axes	American accreditation axes	Australia's accreditation axes	France accreditation axes
Management and leadership	Sovereignty Leadership	Governance, leadership and management	Leadership and management	Hospital management
Medicine and equipment management	Medication management	Medication use and management	-	Medication management
Prevention and health	Infection prevention and control	Infection prevention and control	-	Infection control management
-	-	Improving patient safety and quality	Safety	-
	-	International patient safety goals	Quality improvement and risk management	Comprehensive risk management and quality management program
Respecting the rights of the service recipient	-	Patient and family rights	Patient participation	Patient rights and appropriate treatment
Information management	-	Information management	Information management	Informatics
Care and treatment and management of nursing services	Medical services Emergency department services Midwifery services Anesthesia and surgery services Cancer care services	Patient care Evaluation of patients Anesthesia and surgical care	Continuity of care access Being proportional Effectiveness	Continuity and coordination of treatment care Caring for vulnerable patients Monitoring and evaluation system Patient identification Emergency and unexpected care
-	Special care services	Access to care and continuity of care		-
-	-	Human subject research programs	Research	-
-	Preparedness for disasters and emergencies	Facility management and safety	Safe environment	Infrastructure management and support
-	-	Qualification of employees and education	Human resource management	Human resource management
Management of paraclinical services	Rehabilitation services Diagnostic imaging services Laboratory service standards Blood transfusion services Clinical care services	-	- - - - -	Rehabilitation activities Imaging management Laboratory management Managing blood transfusion risks Elderly patient care
-	-	Professional medical education	Population health	-
-	-	Patient and family education	-	Patient and family health education

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Table 3. Comparison of international and national hospital accreditation axes in the studied countries based on the conceptual model

accreditation axis	American International		Canada International		Australia International		Iranian National		International France	
	The number of Standard	The number of criteria	The number of Standars	The number of criteria	The number of Standard	The number of criteria	The number of Standard	The number of criteria	The number of Standard	The number of criteria
Management and leadership planniP	17	69	41	294	8	74	31	129	9	22
Teaching and learning	7	27	3	13	1	15	3	9	0	0
Staff management	40	168	6	40	3	24	10	42	0	0
Patient management	42	170	25	232	4	37	25	84	11	25
Resource management	119	472	100	820	23	154	85	270	31	127
Process management	30	126	56	213	9	130	65	246	14	47
Employee results	43	165	58	461	7	15	29	119	21	67
Patient outcomes	0	0	8	64	1	14	0	0	0	0
Hospital results	1	3	0	0	0	0	0	0	0	0
Community results	4	15	2	5	0	0	0	0	0	0
total sum	1	3	1	4	4	19	0	0	0	0
	304	1218	300	2346	60	552	248	899	86	298

The axis of management and leadership

The role of management and leadership in continuous quality improvement is critical. Hospital managers should promote quality management changes, support the culture of continuous quality change, and provide a framework for planning, directing, coordinating, providing and improving health care services for the needs of patients and society. This axis includes the sub-axis of organizational governance, organizational leadership, evidence-based management, crisis management, change management and management commitment and participation. In total, the credit department of America with 17 standards and 69 criterias, Canada with 41 standards and 294 criterias, Australia with 8 standards and 74 criterias, France with 9 standards and 22 criterias and Iran with 31 standards and 129 criterias have focused on management and leadership. (Table 3)

A comparison of Iran's national accreditation standards with the standards of the United States, Canada, Australia and France in the management and leadership axis showed that Canada had 41 standards (i.e. 13.66% of all Canadian international accreditation standards) and Australia had 8 standards (13.33% Australia's total international accreditation standards) which had the largest number of specific standards in the management and leadership axis compared to the total number of their international accreditation standards. Also, the largest number of criterias in the axis under discussion according to the standards assigned firstly for the national accreditation of Iran with

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127 criterias (14.34% of the total criterias of Iran) and secondly for the international accreditation of Australia with 74 criterias (13.41% of the total criterias rating of Australia). In total, the comparison of management and leadership standards in the countries of America, Canada, Australia and France showed that in this axis Iran had a 53% relative compliance and 47% non-compliance with the American standards; with Canadian standards, it had a 34% relative compliance and 66% non-compliance, with Australian standards, it had a 38% relative compliance and 63 non-compliance, with French standards, it had a 55% relative compliance and 45% non-compliance (Table 4).

Axis of planning

In total, the United States has addressed this issue with 7 standards and 27 criterias, Canada with 3 standards and 13 criterias, Australia with 1 standard and 15 criterias, and Iran with 3 standards and 9 criterias. The comparison of Iran's national accreditation standards with the standards of the United States, Canada, Australia, and France in the axis of planning showed that the United States, with 7 standards (2.30% of the total American international accreditation standards). The highest number of criterias in the planning axis relates to Australia's international accreditation standards, accounting for 2.72% of the total indicators in the country. France did not have any standards in this regard. Overall, comparing the standards of the planning axis showed that in this axis, Iran has a 14% relative compliance and 86% non-compliance with American standards, a 67% relative compliance and 33% non-compliance with Canadian standards, and a 100% relative compliance with Australian standards. (Table 4).

The axis of education and learning

The sub-centers of this section included staff training, patient and companion training, student and learner training, community training, and human-related research. In total, there were 40 standards and 168 criteria in the American accreditation sector, 6 standards and 40 criteria in Canada, 3 standards and 24 criteria in Australia, and 10 standards and 42 criteria in Iran. The comparison of the national accreditation standards of Iran with the standards of the United States, Canada, France and Australia in the axis of education and learning showed that this axis in the studied countries dealt with 2 subjects of education and research and the standards of education in three parts of education to the patient and the patient's family training for hospital staff, and professional training of medical sciences for students and interns of medical sciences were separated. The comparative study of the standards of this axis in the studied countries with Iran showed that: American international accreditation had the most complete and comprehensive teaching and learning standards, and a higher percentage of its accreditation standards compared with other studied countries was dedicated to this axis. (The number of 40 standards out of 304 total standards of this country) and by allocating almost 13% of standards and almost 14% of criterias to teaching and learning, it had the highest percentage in both standards and measures. In addition, France did not have a standard in this regard (Table 3). The review and adaptation of the standards of this axis in the countries of America, Canada, Australia and France with Iran showed that Iran had a 33% relative compliance with American standards and a 67% non-compliance, with Canadian standards, it has a 50% relative compliance and a 50% of the non-conformity did not conform to the Australian and French standards (Table 4).

The core of employee management

The sub-axis of this section included recruitment, promotion and service, qualification conditions, safety and health of employees and respect of employees' rights. The study showed that in total the international hospital accreditation of America with 42 standards and 170 criteria, Canada with 25 standards and 232 criteria, Australia with 4 standards and 37 criterias, France with 11 standards and 25 criteria and the national accreditation of Iran with 25 standards and 84 criteria focused on employee’s management. The

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comparison of Iran's national accreditation standards with the standards of the United States, Canada, Australia and France in the axis of employee management showed that the American standards with the largest number as well as the most comprehensive and inclusive standards addressed the axis of employee management (13.49% of the standards) and then France, Iran, Canada and Australia with 12.79%, 10%, 8.33% and 6.67% had addressed this axis. In this axis, Iran had a 78% relative compliance and a 22% non-compliance with American standards, a 44% relative compliance and a 56% non-compliance with Canadian standards, 50% relative compliance and 50% non-compliance with Australian standards. French standards had a 64% relative compliance and a 36% non-compliance (Table 4).

Patient management axis

The subcategories include patient admission, patient assessment, patient care, transfer and discharge, error management, and adherence to the rights of service recipients, as well as pharmaceutical services, medication administration, and the patient's medical record. The United States has addressed patient management with 119 standards and 472 criteria, Canada with 100 standards and 820 criteria, Australia with 23 standards and 125 criteria, France with 31 standards and 127 criteria, and Iran with 85 standards and 274 criteria. A comparison of Iran's national accreditation standards with those of the United States, Canada, France, and Australia in the axis of patient management showed that the United States, with the highest percentage of standards and criteria allocated to patient management, has the most comprehensive and complete standards in this axis (39.14% of standards and 38.75% of metrics). The standards of the United States address all necessary aspects of patient management, covering all facets of care and treatment, as well as the rights of patients. Overall, the alignment of patient management standards in the United States, Canada, Australia, and France with those in Iran indicated that in this axis, Iran has a 49% relative alignment and 51% non-alignment with U.S. standards, a 71% relative alignment and 29% non-alignment with Canadian standards, an 83% relative alignment and 17% non-alignment with Australian standards, and a 39% relative alignment and 61% non-alignment with French standards. (Table 4).

Resource management axis

Management of facilities and installations, management of hospital equipment and supplies, management of pharmaceuticals and blood products, financial management and information management are the sub-axis of resource management. The findings of the study in this axis included 30 standards and 126 criteria in America, 56 standards and 413 criteria in Canada, 9 standards and 120 criteria in Australia, 65 standards and 246 criteria in Iran, and 14 standards and 47 criteria in France. The comparison of Iran's national accreditation standards with those of the United States, Canada, France, and Australia in the axis of resource management showed that Iran's national accreditation, with 26.21% of its standards dedicated to resource management, has the highest frequency of standards among the studied countries. In terms of comparing and aligning Iran's standards with those of the United States, Canada, and Australia, it can be said that Iran's standards cover some aspects and topics mentioned in the resource management standards of the studied countries. The results of aligning the resource management standards in the studied countries with those of Iran indicated that in this area, Iran has a 63% relative alignment and 37% non-alignment with U.S. standards, a 75% relative alignment and 25% non-alignment with Canadian standards, a 56% relative alignment and 44% non-alignment with Australian standards, and a 43% relative alignment and 57% non-alignment with French standards. (Table 4).

Process management axis

The quality management system, policies and procedures, continuous quality improvement, risk management, and performance evaluation constitute the sub-axis of process management.

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The research findings showed that America had 43 standards and 165 criteria, Canada had 58 standards and 461 criteria, Australia had 7 standards and 95 criteria, France had 21 standards and 67 criteria, and Iran had 29 standards and 119 criteria in this axis. The comparison of Iran's national accreditation standards with those of the United States, Canada, France, and Australia in the axis of process management showed that France's international accreditation, with 24.41% of its international accreditation standards dedicated to process management, has the highest percentage among the studied countries. Canada follows in second place, allocating 19.33% of its standards to the process management axis. (Table 3). This axis of Iran has a 42% relative compliance and a 58% non-compliance with American standards, a 33% relative compliance and a 67% non-compliance with Canadian standards, a 57% relative compliance and a 43% non-compliance with Australian standards, and with the standard of France, there was no match (Table 4).

Employee results axis

The quality of work life, job satisfaction and organizational commitment of employees are the three sub-axis of employee results, in total, the United States did not assign a standard, Canada had 8 standards and 64 measures, Australia had 1 standard and 14 criterias, Iran and France also did not assign a standard to this. The axis had been paid. The comparison and examination of standards based on the results of employees in the countries of America, Canada, Australia, France and Iran showed that the countries of America, Iran and France did not have standards on the axis of employee results. The countries of Canada and Australia, each by assigning 1 and 8 standards to this axis, examined the concepts of promoting work-life balance and well-being for team members through specific working hours for each shift, the clarity of the roles and responsibilities of each person in various roles, team members' access to suitable work environment strategies to improve their health and well-being, team leaders' monitoring of the stress and fatigue level of each team member in order to help them, members' access to consulting services and promotion of personal development program regularly and promoting and improving the health of employees and a positive work environment through support systems (Table 3). Since Iran's accreditation in this axis is without standards, therefore, the possibility of matching these standards in this axis is meaningless and 100% non-matching (Table 4).

Focus on patient outcomes

Patients' and service recipients' satisfaction with hospital services, improvement of patients' health and safety, and the desirability of health services constitute the sub-axis of patient outcomes. In this axis, only American international accreditation had 1 standard and 3 criteria, and in the accreditation standards of Canada, Australia, France and Iran's national accreditation, no standard had been assigned to this axis (Table 3). Iran's accreditation in this axis had no standards. Therefore, the possibility of matching in these standards of this axis was meaningless and it was 100% non-matching (Table 4).

Hospital results axis

Evaluation of operational, clinical and financial performance of the organization was included in this axis. America by assigning 4 standards and 15 criteria, Canada with 2 standards and 5 criteria, Australia, France and Iran had addressed it without assigning standards in this axis. Examining and comparing the results axis standards of hospitals in the countries of America, Canada, Australia, France and Iran showed that America, by assigning 4 standards (1.31% of its standards) to this axis had the most comprehensive accreditation standards in this axis. After that, Canada was in the next position with 2 standards (Table 3). Iran's accreditation in this axis was without standards, so the possibility of adapting to these standards of this axis was meaningless and there was 100% non-adaptation (Table 4).

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The focus of community results

The hospital's social responsibility and society's satisfaction with the hospital's services were included in this axis. In international accreditation, the United States had a total of 1 standard and 3 criteria, Canada had 1 standard and 4 criteria, Australia had 4 standards and 19 criteria, France and Iran had no standards in this axis. Examining the standards based on community results in the countries of America, Canada, Australia, France, and Iran showed that Australia by devoting 6.67% of its accreditation standards to the community results axis had inclusiveness in this axis compared to the countries of America and Canada. Moreover, the national accreditation of Iran and France did not have a standard in the axis of community results, and like other axes of the results, there was not 100% compliances with the standards mentioned in other countries (Table 4).

Table 4. Matching Iranian hospital accreditation standards with American, Canadian, Australian and French hospital accreditation standards

Accreditation axis	Iran with America				Iran with Canada				Iran with Australia				Iran with France			
	Relative matching		Failure to match		Relative matching		Failure to match		Relative matching		Failure to match		Relative matching		Failure to match	
Management and leadership	9	53%	8	47%	14	34%	27	66%	3	38%	5	62%	5	55%	4	45%
Planning	1	14%	6	86%	2	67%	1	33%	1	100%	0	0	0	0	0	0
Teaching and learning	13	33%	27	67%	3	50%	3	50%	0	0	3	100%	0	0	0	0
Staff management	33	79%	9	21%	11	44%	14	56%	2	50%	2	50%	5	64%	4	36%
Patient management	58	49%	61	51%	71	71%	29	29%	19	83%	4	17%	12	39%	19	61%
Resource management	19	63%	11	37%	42	75%	14	25%	5	56%	4	44%	6	43%	8	57%
Process management	18	42%	35	58%	19	33%	39	67%	4	57%	3	43%	9	43%	12	57%
Employee results	-	-	-	-	0	0	8	100%	0	0	1	100%	0	0	0	0
Patient outcomes	0	0	1	100%	-	-	-	-	-	-	-	-	0	0	0	0
Hospital results	0	0	4	100%	0	0	2	100%	-	-	-	-	0	0	0	0
Community results	0	0	1	100%	0	0	1	100%	0	0	4	100%	0	0	0	0
Final match	151	50%	153	50%	162	54%	138	46%	34	57%	26	43%	39	45%	47	55%

Discussion

This study was conducted with the aim of comparing the standards of Iran's hospital accreditation program with the international accreditation program of the United States, Canada, Australia and France. The review and comparison of Iran's national accreditation standards with the international accreditation standards of America, Canada, Australia and France showed that America, with 304 standards and 1218 measures and covering clinical, managerial and organizational dimensions and education and research, had the most complete and comprehensive standards. It was been recognized as a hospital among the studied countries. This research finding was consistent with Sauer et al.'s and Wise's study, which emphasized the comprehensiveness of American standards (21, 22). In addition, Australian standards with the lowest number of standards and measures compared to other countries considered comprehensive aspects and categories

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in a small number of standards. The comparison of all Iranian hospital accreditation standards with hospital accreditation standards of different countries showed that Iranian standards had a 50% relative compatibility with American standards, 54% relative compatibility with Canada, 57% relative compatibility with Australia and 45% relative compatibility with France. Also, Iran's national standards did not match 50% of American standards, 46% of Canadian standards, 43% of Australian standards, and 55% of French standards. Examining the accreditation standards of the studied countries in the developed conceptual model showed that Iran had allocated a large percentage of its standards to the axis of resource management with a significant difference with the studied countries. This was despite the fact that Iran's proposed standards in this area were more of the type of licensing and their expression in accreditation standards was questionable. Also, the standards of the process management axis in Iran were very different from other countries due to the existence of the sub-axis of prevention, and health in this axis, the results of this study proved that Iran's national accreditation standards need a review and fundamental changes in the content and type of standards. The lack of clarity in the content of the standards and their emphasis on more than one issue in some standards (19, 23) was one of the main shortcomings of Iran's accreditation standards compared to the standards of the studied countries. In a study aimed at evaluating the national accreditation standards of Iran, Youssefinejad showed that hospital managers were dissatisfied with the content of the accreditation standards. The greatest dissatisfaction among hospital managers was related to the ambiguity of the standards, the large number of indicators, excessive emphasis on documentation, equal weighting of criterias, the lack of comprehensiveness of the standards, and the non-implementability of certain criterias in some hospitals. (24, 25).

It is necessary that Iran's accreditation standards be separated from licensing standards and this should be taken into consideration in the revision of accreditation standards. In comparing Iran's accreditation standards and metrics with the international standards and metrics of the studied countries, this issue was clearly identified in the implementation. In the standards related to the axis of resource management, the national accreditation of Iran had stated the minimum items and requirements of health and treatment centers, such as the presence of furniture with a waiting room for companions, while in the axis of resource management, the other four countries collected data for planning the long-term needs of the organization to upgrade or replace the system and reduce risks in the environment, collect, store and use data to improve strategic and operational goals and organization services. Furthermore, allocation and control of financial resources to maximize the productivity of the organization and response to the needs of the society were discussed. In the comparative review of the standards with the conceptual framework developed in the axes of the results of employees, patients, society and hospitals, no standard was found in Iran, France, while in the United States, Canada, Australia, there were standards of consequences and type of results, as well as metrics. A consequence was repeated in most axes. The results of previous studies also showed a very low emphasis on outcome standards, and most of them had emphasized on the outcomes related to patients and little attention was paid to the outcomes related to community and hospital employees, which was consistent with the findings of this study (26, 27). The findings of the present study and previous studies demonstrated that using a systemic and functional approach in formulating standards and making them more transparent and changing the scoring scale helps to improve the content of Iran's accreditation standards. Accreditation standards and metrics should be in the form of an adjusted system model so that their implementation leads to improvement of quality, safety, effectiveness and efficiency of hospital services (28-30).

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Conclusion

Considering the adaptation of national accreditation standards with international accreditation standards and the non-adherence of nearly 50% in all 4 countries under study, it is necessary to take measures to eliminate the weaknesses in various axes to reach stronger standards. Fundamental changes in the content of standards and Criterias, the categorization and clarification of Criterias, the modification of scoring scales, a more comprehensive view of standards, and the pursuit of patient safety and quality improvement in the development of all standards can contribute to the enhancement of Iran's national accreditation standards. According to the numerous meetings and providing an executive solution to improve the accreditation standards, suggestions are presented: functionalizing and clarifying the standards, balancing the standards and paying attention to the structural, process and outcome indicators, modifying the scoring of the criteria, separating the patient-centered standards from the standards management and support in specific segmentation.

Research Limitations

Comprehensive information on the accreditation system of the studied countries was not clearly available on the accreditation sites of the countries in question. Also, access to the accreditation standards of the studied countries in the new edition was limited, which was resolved by Internet correspondence with the accreditation managers of the studied countries.

Implications of the study

The findings of the research can be used in the planning of the programs of the Ministry of Health, Treatment and Medical Sciences as well as universities of medical sciences. The findings of this research can improve the quantitative and qualitative indicators as well as the standards of care provided by the hospital and ultimately improve the performance of the hospitals.

Ethical considerations

Ethical issues (including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancy) were thoroughly observed by the authors. The interpretation of information was observed without any bias in all steps of the research.

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Conflict of interests

The authors declared no conflict of interests.

Authors' contributions

A.R, A.M, S.Z, designed research; A.R, conducted it; A.R, A.M, and T.M analyzed data; and A.R wrote the manuscript. All authors read and approved the final manuscript.

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