Review Article

Access this article online

Quick Response Code:

Website: www.jehp.net

DOI: 10.4103/jehp.jehp_1649_20

Countries' experiences in reforming hospital administration structure based on the Parker and Harding model: A systematic review study

Jafar Sadegh Tabrizi, Saber Azami Aghdash, Mahdi Nouri[1]

Abstract:

In recent years, many reforms have been made on the structure of hospital administration, most of which are proposed by Parker–Harding models. Therefore, the purpose of this study is to systematically review global relevant experiences in reforming the hospital governance structure with emphasis on the Parker–Harding model. Required information was collected using keywords autonomization, corporatization, privatization, decentralization, reform, hospital autonomy, governance model, and structural reform in databases such as EMBASE, PubMed, Scopus, SID, MagIran, and other resources. Information on the subjects under study was collected from 1990 to 2020. The content extraction method was used for data extraction and data analysis. Thirty-nine sources were included in the study. Results of searching for relevant evidence on a variety of hospital governance models (government, board, corporate, and private) based on the Parker–Harding model in four categories including strengths (31), weaknesses (30), outcomes (26), and interventions (21) are outlined. In this study, strengths, weaknesses, outcomes, and corrective interventions were presented for different models of hospital administration that could be used by healthcare policymakers. Also, According to the results of this study, governmental model less recommended.

Keywords:

Healthcare reform, hospital administration, systematic review

Tabriz Health Services Management Research Center, Health Management and Safety Promotion Research Institute, Tabriz University of Medical Sciences, Tabriz, Iran, [1]Department of Health Policy and Management, School of Management and Medical Informatics, Tabriz University of Medical Sciences, Tabriz, Iran

Address for correspondence:
Dr. Mahdi Nouri, Daneshgah Square, Health Service Management College, Tabriz University of Medical Sciences, Tabriz, Iran.
E-mail: mehdiinouri@gmail.com

Received: 27-12-2020
Accepted: 05-03-2021
Published: 31-08-2021

Introduction

Hospitals are highly sophisticated, bureaucratic, and multidisciplinary organizations that make up a significant contribution of the health system's budget.[1] In recent years, governments around the world had implemented several types of structural adjustments to hospitals as part of a large reform of the health system.[2] with aim to increased efficiency, responsiveness to local needs, and health outcomes.[3-7]

Over the past decades, many Middle And Low-income Countries (LMICs) have built their health systems based on government funding, and public hospitals, as a major part of the health system, spend most of funds on annual budgets.[8] Some of the major weaknesses of public hospitals are listed as technical and professional inefficiencies, incomplete coverage of low-income groups, and poor accountability to service recipients.[9-11] The results of the studies indicated that the time lapse opportunities lead to the improvement of the hospital's performance with the financial excess available to the hospital.[12-15]

Autonomization, corporatization, and privatization have been major and significant approaches in most countries, all of which have been central to marketing, including reducing direct government control over

How to cite this article: Tabrizi JS, Aghdash SA, Nouri M. Countries' experiences in reforming hospital administration structure based on the Parker and Harding model: A systematic review study. J Edu Health Promot 2021;10:315.

public hospitals and enhancing their links to markets or incentives.[16-20] In the World Bank Study, Parker and Harding (2003) described different types of hospitals in terms of organizational structure and mode of operation in one aspect and divided them into four types: (1) budget hospitals or government hospitals (lowest independence and lowest market relationships): hospitals are often run as part of a government and have a centralized budget; (2) self-governing hospitals (board or trust model): financial independence of the health center (hospital), revenue from services provided, and no need for government funding; (3) corporate hospitals: delivering a portion or a share of the profits of the health center (hospital) to the private sector to attract private equity; (4) private hospitals (most independent of government and most relevant to the market): assign the health center (hospital) to the private sector so that there is no longer any dependence on the public or public sector.[21]

Given the direct and indirect impact of structural reforms on hospitals performance , it is necessary to review the these reforms. More importantly, given the limited documentation available, researches are becoming more necessary. Therefore, the purpose of this study is to systematically review global relevant experiences in reforming the hospital governance structure with emphasis on the Parker–Harding model.

Materials and Methods

This systematic review study was designed and conducted in 2020 and utilized a systematic review approach based on the book Systematic Review to Support Evidence-Based Medicine.[22]

Search strategy

Required information was collected using relevant keywords in EMBASE, PubMed, Scopus, SID, and MagIran databases. To identify and cover more articles, several reputable journals in this field were also manually searched (*International Journal of Hospitality Management*, *Journal of Hospitality Marketing and Management*, *Hospital Topics*, etc.). The period chosen to search for articles was from January 1, 1990, to January 30, 2020. After deleting the articles that had a weak relation with the objectives of the study and selecting the main articles, the references of selected articles were searched again to increase the assurance of identifying and reviewing the existing articles. Experts in the field of hospital management were also contacted. Databases of the European Association for Gray Literature Exploitation and the Healthcare Management Information Consortium were also searched for gray literature. Further, websites (such as the WHO, International Hospital Federation, and other affiliate websites) and Google search engines were also searched.

Inclusion and exclusion criteria

Inclusion criteria for articles and reports include (1) published between 1990 and 2020, (2) published in English and Persian language, (3) at least one aspect of the structure of the hospital administration (government, board [trust], corporate, and private) was mentioned,[21-23] (4) focus study on the Harding model of the hospital, and (5) implementation of hospital-level reforms based on the Parker–Harding model.

Exclusion criteria included (1) studies in primary healthcare and nonhospital studies in general, (2) articles published in non-English and Persian languages, and (3) articles not referring to hospital reform and restructuring (satisfaction, cost-effectiveness studies, etc., which were not related to the structure).

Assessment of the quality of articles

The quality of the reports of all the articles after extraction from the databases using the mentioned keywords (MeSH) was assessed by two independent assessors using the STROBE checklist. This was selected for the assessment of observational studies. checklist translation and validation was done in Persian for assessment of the articles in this study.[24] This checklist has 22 items.[25,26] The checklist item scores are 0, 1, and 2, according to matching the checklist question criteria with the contents of the articles. The minimum score for checklists is 0 and the maximum score for checklists is 36. Studies were classified in good-quality (the score in the range 25–36), medium-quality (13–24), and poor-quality (0–12) studies. The disputes between the two scholars were resolved in the first instance by discussion and in cases that were not resolved; the case was referred to a third party.

Data extraction

To extract the data, the data extraction form was first designed manually in the Word software environment. Initially, the data of five papers were tentatively extracted for these forms and the problems in the original form were eliminated. Information extracted in this form included author/authors, year of publication of the article or report, study location, country of study, method and source of data collection, overall/key results, and conclusions.

Information analysis

Content analysis was used to analyze the data, which is a method for identifying, analyzing, and reporting the patterns (themes) contained within the text and was widely used in qualitative data analysis. Data were coded by two researchers. The steps for analyzing and coding the data were as follows: familiarity with the data text, identifying and extracting primary codes, identifying

themes, reviewing and completing identified themes, naming and defining themes, and ensuring the reliability of the extracted codes and themes.

Results

Based on an initial search, 20,548 articles were found from databases and 635 from other search methods. In the duplicate case study, 7291 cases were deleted. 13,060 articles were reviewed in the title and abstract and 793 in the full-text review. Finally, 39 cases were included in the study [Figure 1].[3,4,23,27-58] Reviewed evidence includes books and reports (3 cases) and scientific articles published in journals (36 cases).

The method of gathering evidence was selected in 8 (23%) of the studies qualitatively using focused group discussions, in-depth and semi-structured interviews with policymakers, relevant faculty, chiefs, and hospital managers on the subject under study. 28 (77%) of the studies investigated quantitative studies using Data Envelopment Analysis (DEA) methods and difference-in-difference estimation techniques and hospital documentation.

Based on the results of quality reporting assessment of included articles, 19 studies were classified as good (the score in the range 25–36) and the scores of 9 studies were medium.[13-24] According to the assessment by the STROBE checklist, introductions (1.89), titles, abstracts, and the result sections (1.82) of the reviewed articles received the highest mean score, but the participants' characteristics (0.93) and role of financial suppliers in the study assessment received the lowest score.

The results of the search for relevant evidence on a variety of hospital governance models (government, board [trust], corporate, private) based on the Parker–Harding model are presented in four categories including strengths, weaknesses, outcomes, and corrective interventions.

Government model

Initially, five strengths, 17 weaknesses, five outcomes, and seven recommendations for corrective interventions were extracted from 11 studies . After merging and eliminating duplicates, the number of strengths, weaknesses, probable outcomes, and corrective interventions were redused to 3, 8, 4, and 4, respectively [Figure 2].

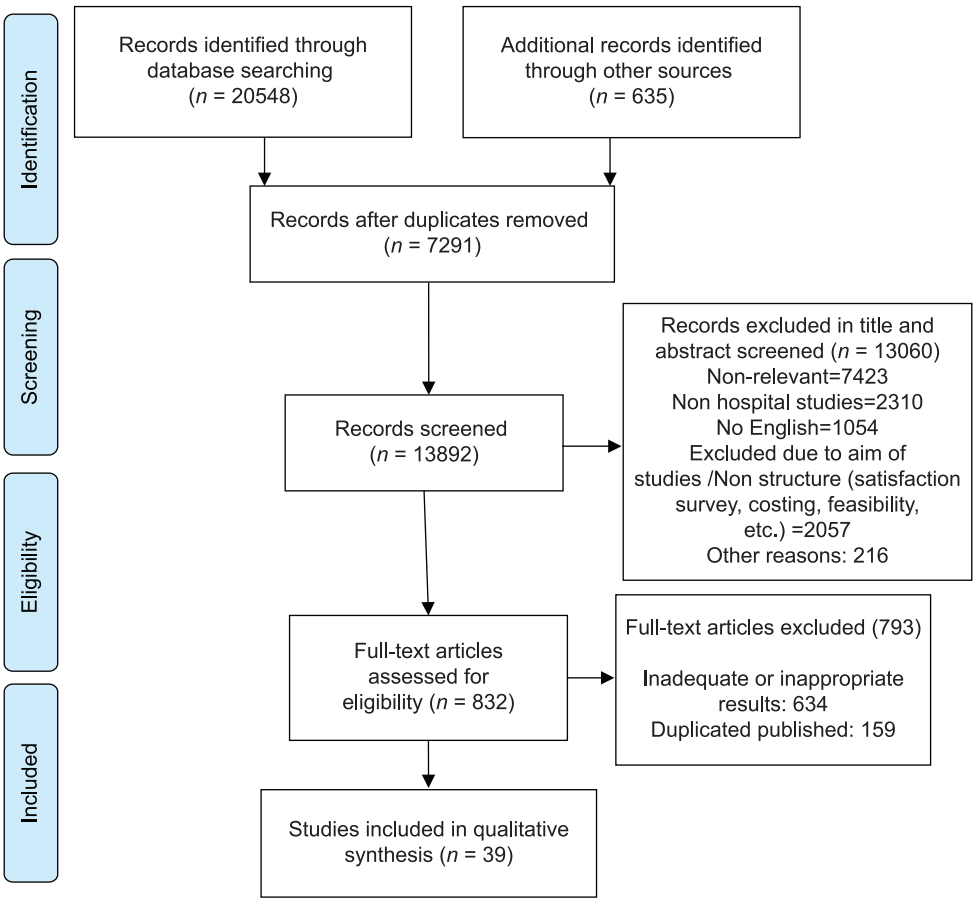

Figure 1: The process of searching and selecting articles

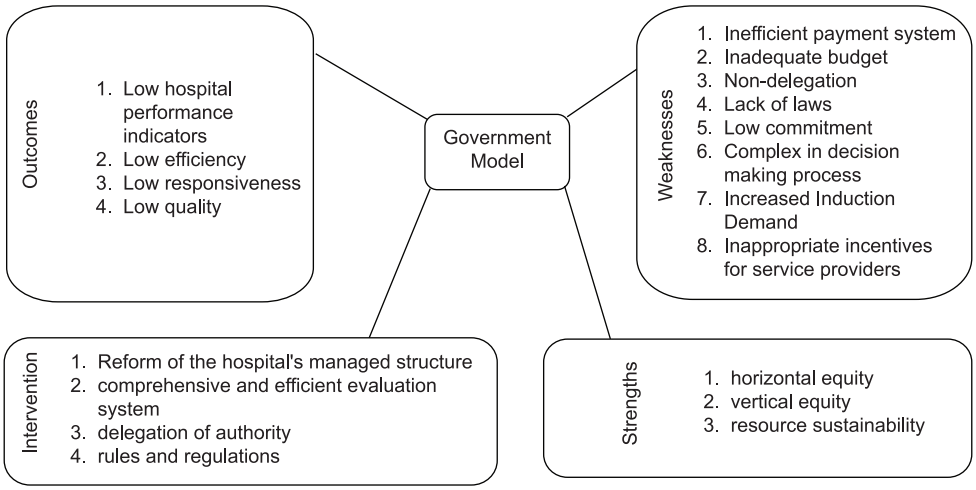

Figure 2: Results of the studies of the government model survey

Strengths

Among the strengths mentioned for this structure can be guaranteed horizontal and vertical equity in providing health services to patients. Horizontal justice refers to the accessibility of people in need of services, regardless of specific criteria, and vertical justice refers to the ability to pay patients according to their economic potential. Of course, other hospital administration structures based on the Parker–Harding model can guarantee fairness in service delivery with considerations. The proper sustainability of the financial resources is the strength of this model, given the reliance on this type of structure for government funding and government assistance in critical times.[32]

Weaknesses

The most important weaknesses mentioned for this structure in the reviewed evidence can be an inefficient payment system, an insufficient budget and lack of funds, lack of authority, lack of rules and regulations, a low commitment of managers and staff, complex and time-consuming decisions process, increased induction demand, and inappropriate incentives for service providers in these hospitals.[32,34,41,43,50]

Outcome

Consequences of this type of hospital administration can be due to low level of hospital performance indicators (low bed occupancy rate, low patients satisfaction, low efficiency, low responsiveness, and poor quality of services).[32,58]

Interventions

To improve the performance of this structure, based on the results of the evidence obtained from the studies, it is possible to reform the hospital structure, design and implement a comprehensive and efficient evaluation system, delegate authority, and establish necessary laws and regulations.[32,34,43,58]

Board (trust) model

In the final assessment of the reviewed articles, 11 articles were selected. Initially, the number of strengths, weaknesses, outcomes, and corrective interventions was 31, 43, 11, and 19, respectively. After content-analysis, these numbers were reduced to 8,12,10, and 9 respectively [Figure-3].

Strengths

Among the strengths that can be considered for this structure are the optimal use of financial resources, high staff involvement in executives, proper market exposure management, patients involvement, increased accountability, optimal supply, proper medical equipment needed, high authority/and decrease of executive-related problems.[23,43,56,59]

Weaknesses

Among the weaknesses of this type of hospital governance structure based on the obtained evidence can be the low transparency of this model's executive style, financial problems, the unclear level of power, human resources management problems, high implementation costs, problems in monitoring programs, coordinating board meetings problems, weakening external oversight, poor management stability, low authority at strategic issues, excessive government interposition in profitable hospitals, and the possibility of abuse of power.[23,43,51,56,57,60]

Outcome

Among the positive outcomes of this method of hospital management can be improved service quality, creativity, innovation, reduced medical errors, patient safety, reduced complaints, increased patient satisfaction, increased bed occupancy, improved hospital performance indicators, and increased efficiency. The negative consequences of this type of hospital administration structure include low staff satisfaction, long waiting times, and reduced justice

Figure 3: Results of the studies of the Board model

Interventions

Amendatory interventions found in reviewing the kinds of literature to improve the model of hospital governance are as follows: adequate budget allocation, development of a comprehensive executive style for this model, selection of capable and responsible board members, motivation change service providers, delegating authority to the hospital, considering appropriate legal, financial and medical mix for board members, developing performance evaluation indicators, enhancing manager accountability, and enhancing managerial authority over other resources, structures, and processes.[3,45,55,56,60]

Corporate model

In the final assessment of the articles reviewed on corporate governance structure, 10 articles were selected, of which the number of strengths, weaknesses, outcomes, and corrective interventions was 36, 11, 10, and 17, respectively, after elimination of duplicates and mergers. Similar cases and content analysis are presented in Figure 4.17, 8, 5, and 7, respectively.

Strengths

Use of specialized committees to solve specialized issues, the sequence of regular meetings, board members benefit from hospital performance, external evaluation and monitoring of hospital performance, make appropriate corrective changes as soon as they feel the need to change, periodic assessment, professional competence of the board of directors, adequate and sufficient communication with key stakeholders and clients, reduced government involvement, increased patient involvement, increased human resource efficiency, cost reduction, sufficient attention to stakeholder benefits, responsive and responsive to strategic changes, high accuracy and transparency of decisions made, high competitiveness of services, and quasi-market performance can be considered as positive features of this structure.[3,27,29,36,37,46,48,54,61,62]

Weaknesses

Low physicians' participation in the Board of Directors, a dependency of hospital performance improvement on the ability and composition of the Board of Directors, dependence of hospital benefits on the individual interests of the Board of Directors, excessive hospital attention to cost-effective services (low attention to essential services). Lack of clear and transparent rules, inadequate oversight, and the risk of bankruptcy can be considered as weakness of this structure.[3,27,29,37,54]

Outcome

Among the positive effects of this structure are increased technical and allocative efficiency, increased service quality, increased average bed occupancy, and reduced service cost, and the most significant negative consequence of this structure can be the increase in injustice.[3,29,37,48,54,63]

Interventions

Developing and assessing key hospital performance indicators, increasing attention to social functions and social responsibility, providing financial autonomy infrastructure, addressing legal issues in using this model, using result-based payment, maximizing staff participation in purchasing/ownership hospital stakes, and attention to support and political support and power were among the corrective interventions that should be addressed in this structure.[3,48,54,61,62]

Private model

In the final assessment of the articles reviewed on the topic of hospital management structure, four articles were selected privately. The number of strengths, weaknesses, outcomes, and corrective interventions was 12, 9, 3, and 4, respectively. After elimination of duplicates and merging the similar cases, these numbers were reduces to 3, 2, 6, and 1 respectively [Figure 5].

Strengths

Reduced government involvement in hospital management, increased patient selection power, and cost-effective care delivery were among the repeated strengths of the studies reviewed.[33,35,37,64]

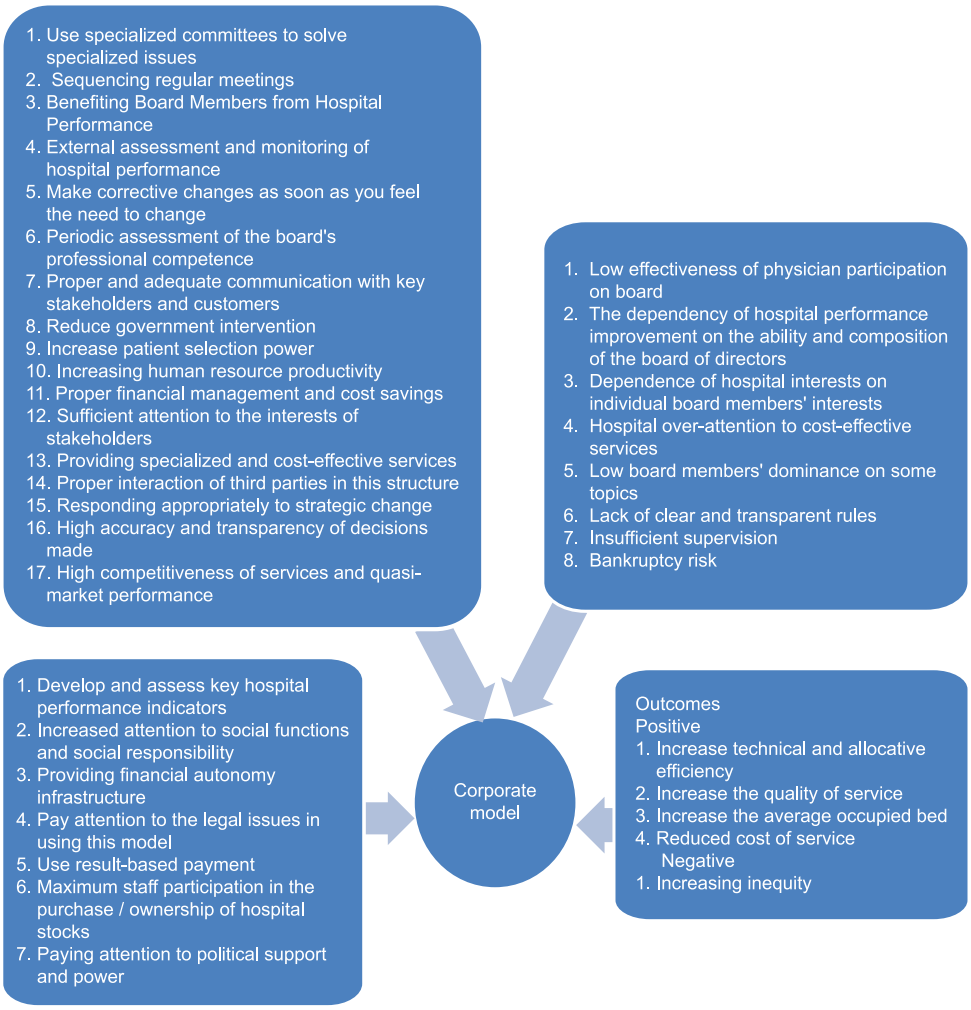

Figure 4: Results of the corporate model survey studies

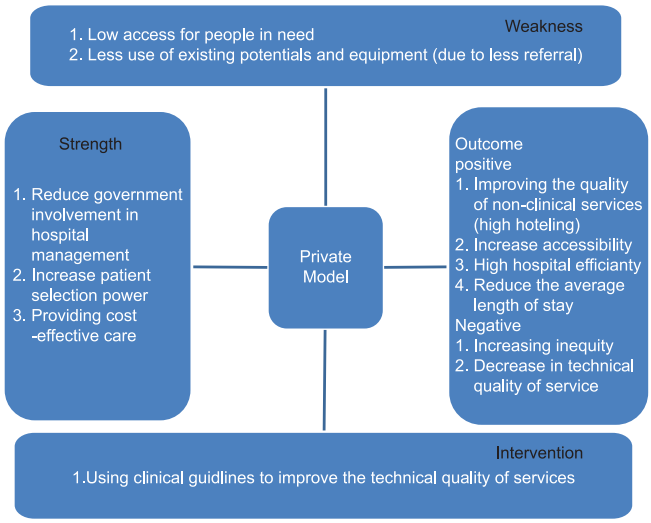

Figure 5: Results of the private model survey studies

Weaknesses

Low access for Poor people and less use of existing potentials and equipment as the most important weaknesses of this structure were mentioned.[35,37]

Outcomes

Among the positive outcomes of this type of structure were increased quality of nonclinical services (high hoteling), increased accessibility, high efficiency of the hospital, and a decrease in the average length of stay, and the negative outcomes studied included increased unfairness and decreased technical quality of service[37,65]

Corrective interventions

The use of clinical guides to improve the technical quality of services was cited as the most effective intervention to improve the quality of services provided.[35,37]

Discussion

Government model

The results of this study showed that public hospitals face many weaknesses, the most important of which is the traditional budgeting.[32,51,61,66] To solve the problem of traditional budgeting of public hospitals, which in most studies has been stated as the most important problem of public hospital management, hospitals should change

the budget according to their circumstances with the conditions of the hospital and participation of the main stakeholders in the hospital. In the next step, it is recommended to eliminate this method of budgeting and take steps toward diagnostic-related groups.

The time-consuming and complex decision-making process in public hospitals is due to the bureaucratic nature of these hospitals. In today's highly changing situation and the changing need of patients and their families, this authority should be given to public hospitals in the decision-making process so as not to cause problems in the management of the hospital. The decision-making process should be divided into small, medium, and large decisions it means that when hospital face of small and medium problems, the hospital management with the participation of related stakholders to make the right decision in the shortest possible time, but in the case of large decisions, it should be done with the participation of high-level organizations.

In the evidence examined, the researchers concluded that public hospitals face reduced efficiency, low-performance indicators such as low bed occupancy, and low patient satisfaction, which compares the performance of public hospitals with the structure of hospital management and the conditions governing public hospitals can be attributed.[56,58,67]

Due to their structural nature, public hospitals have been able to respond appropriately to horizontal and vertical justice among the Parker–Harding models, and in comparison with other structures of hospital management, it has a positive performance in this field. Perhaps, the reason for the proper response of public hospitals to the issue of horizontal and vertical justice can be attributed to the stewardship duties of governments over public health.

Public hospitals are also in the evidence that the results of this study were consistent with the evidence examined because the reliance on government funding of the stability of financial resources is more appropriate than other structures of hospital management. This means that due to the governmental nature of these hospitals, they can compensate for the possible losses incurred from admitting patients in the form of budget lines. Examining the evidence sought on public hospitals, it can be concluded that, based on the evidence, the management of public hospitals is not recommended in either LMICs. Delegating the necessary authority and decentralization in this type of structure, taking into account the political, economic, social, and cultural conditions of countries, should be on the agenda of health system policymakers.

Board of trust model

It is worth mentioning that this model is referred to as the trust model in the United Kingdom, where patient participation in the decisions of senior hospital managers in this model is much higher than the government model.[51,57] Among the strengths of this type of hospital management structure due to the delegated authority over the government structure, we can mention the high participation of employees in executive programs, proper exposure to the market, high authority, and independence of hospital managers, which is the cause of all strengths. This type of structure can be attributed to the delegation of authority and decentralization to the government structure, which is also confirmed by the evidence examined.[3,15,30,54,55] Despite the strengths presented, in examining the available evidence, the most important weaknesses that can be expressed for this structure are the low transparency of the executive procedures in hospitals, poor management stability, staff dissatisfaction, long waiting time, excessive government interference, and the possibility of corruption and abuse of power.[23,56,57,60,68]

In examining the evidence, one of the most important weaknesses of this structure that can make this structure of hospital management successful and unsuccessful depends on the executive method of this structure in hospitals, which means that there is a direct relationship between the transparency of regulations and responsibilities of directors and the probability of success of this structure. Other weaknesses of this structure include low management stability and excessive government interference in hospitals, which are in a good position in terms of efficiency due to this change in structure, which may be due to the lack of transparency in the executive procedures of this structure.[28,69]

The distinguishing feature of this structure is the high participation of patients in this type of structure in the decisions of the members of the Board of Trustees of the hospital. The results of research in this field showed that patient participation in developed countries is better than in developing countries. Evidence also showed that the United Kingdom can be introduced as a leader in patient participation in hospital management in the form of a trust model.[44,70]

Corporate model

The third model discussed in this study is the Parker–Harding company model. These hospitals have the most independence and delegation of authority compared to government hospitals and the Board of Trustees. The most important issue mentioned in the reviewed evidence was the implementation of this model of corporate hospital management in countries with strong legal systems and regulations.[46,48], multidisciplinary

team and implementation of this structure on a small scale, taking into account the legal rules of companies, the more the probability of success of this structure will increase.[37,67,71] Among the most important strengths of this structure are increasing technical and allocation efficiency, increasing the quality of services provided, and high competitiveness of services. The strengths mentioned in the evidence for this structure can be attributed to the decentralization and delegation of authority to the multidisciplinary board. Due to its nature and the existence of independence in the decisions made, this structure can easily respond to changes and improve its competitiveness in the service market, which is responsive to changes in the environment and enhances competitiveness more than public and board of trustees hospitals.[3,46,48,63]

The most important weakness of this structure, which has been confirmed by a lot of evidence in this study, is the excessive attention to cost-effective services, due to the improvement of efficiency. Critics of this structure point out that the issue of public health should be considered. at the governmental level and also mentioned that the view of the health system of each country toward the health of the people of that country can determine the use of this structure. On the contrary, the proponents of using this structure against this criticism believe that it is possible to adopt indicators. Performance appraisal and strengthening appraisal solved this problem.[48,61]

Another important problem of this structure is the possibility of bankruptcy in this structure due to the lack of clear and transparent legal laws. This issue is of great importance in LMICs compared to developed countries and more than the possibility of failure in LMICs due to this problem. Unlike developed countries, Another problem that this structure is more prevalent in LMICs is that, the number of specialized hospital management companies is low, and if they have the experience of transfer in the form of corporate hospitals in LMICs face many possible problems.[36,61,67]

Based on the evidence found, corporate hospitals in LMICs do not have the necessary political support and power due to the excessive centralization of the health system of these countries, and this problem should be addressed at the macrolevel of government by empowering specialized companies, confidence to the private sector, and use the power of this sector in services providing along with considering regulatory and performance standards.[51,72]

Private model

Based on the evidence examined, the use of this model in the view of health system policy makers to the health of society and the ability of society to pay for health costs. For example, the use of this model is more common in the United States due to its capitalist system. This model is not recommended in LMICs compared to developed countries due to the lack of financial, economic, political, and social infrastructure.[73,74] Reduction or noninterference of the government in the management of the hospital, due to its private nature and independence from the government, is one among the strengths of this structure. Therefore, increase the quality of nonclinical services, high efficiency, and decrease the average bed stay are strengths of this type of hospitals.[64,75] In contrast to the mentioned strengths of this structure, these hospitals have major weaknesses such as low access to people in need, increased injustice, and reduced technical quality of services based on the evidence found, which considers the nature of this type of hospital structure. The studied evidence shows that private hospitals, considering that the mission of establishing these hospitals is to make a profit and benefit from providing services to the people, face challenges such as justice and also their main criterion for public access to money services and material resources that due to the characteristics of the health market of this model was not able to respond to issues such as justice, but these hospitals due to the freedom of action regarding the selection of workforce, the choice of best strategies for hospital. These have the necessary flexibility in providing services and in terms of having an organic organizational structure in the face of issues related to the market and the environment, and they can have the best performance due to the highly variable conditions.[5,37,64,71]

One of the points emphasized in the evidence was the intensification of internal and external assessments by health system policymakers of this structure, which means that the ability of the private sector to improve the quality of services provided can be guaranteed. Further, the advice given to LMICs in the evidence has been to highlight the authority in the health system by taking into account professional rules and regulations.[5,13,66]

In summary, if we regard at the five functions of hospitals such as decision-making, facing the market, accountability, social function, and financial authority for hospitals. As we move from public hospitals to private hospitals, the degree of hospital autonomy and discretion granted to hospital managers to move on to the ever-changing conditions is increasing by as much as we move from public hospitals to current hospitals, Their success will be furthered in achieving the goals but decision on whether to run a hospital as a board of trust, corporate or private structere depends on the prevailing view of the country's health system. However, the results of the evidence review showed that few studies recommended public hospitals as a proper management structure.[41,42,58]

Strength and limitations

Although in the present study the results of structured studies of hospitals and experiences of different countries in this field have been systematically summarized and analyzed, comprehensive and useful information has been provided to health policymakers and managers. However, this study has several limitations, one of which is the limited number of articles and resources searched in both Persian and English, as articles and reports may be published in local languages in different countries. Further, in this study, it was not possible to perform a meta-analysis of the results of the studies, due to the type of report.

Conclusion

Based on the cases cited in this article, it can be concluded that government-run hospitals are less recommended in developing and developed countries. In this study, the strengths, weaknesses, outcomes, and interventions required of each of the proposed structures were comprehensively summarized, analyzed, and reported by Perker *et al*. However, the decision to use these models largely depends on the characteristics of the health system, economic, social, political, and legal conditions of the countries. Dear readers of the article, if you want to access the appendixes of the article, you can write to this email. mehdiinouri@gmail.com

Financial support and sponsorship

This study was supported by the Tabriz University of Medical Sciences (grant no IR.TBZMED.REC.1398, 495).

Conflicts of interest

There are no conflicts of interest.

References

1. Mosadeghrad A. Handbook of Hospital Professional Organization and Management. Tehran, Iran: Dibagran Tehran; 2004.
2. Lebni JY, Toghroli R, Abbas J, Kianipour N, NeJhaddadgar N, Salahshoor MR, *et al*. Nurses' work-related quality of life and its influencing demographic factors at a public hospital in Western Iran: A cross-sectional study. Int Q Community Health Educ 2020;12:272684X20972838.
3. Erwin CO, Landry AY, Livingston AC, Dias A. Effective governance and hospital boards revisited: Reflections on 25 years of research. Med Care Res Rev 2019;76:131-166.
4. Fiorio CV, Gorli M, Verzillo S. Evaluating organizational change in health care: The patient-centered hospital model. BMC Health Serv Res 2018;18:95.
5. Mercille J. Privatization in the Irish hospital sector since 1980. J Public Health (Oxf) 2018;40:863-70.
6. Schroeder GD, Kurd MF, Kepler CK, Radcliff KE, Maltenfort MG, Murphy H, *et al*. The effect of hospital ownership on health care utilization in orthopedic surgery. Clin Spine Surg 2018;31:73-9.
7. Nouri M, Ghaffarifar S, Sadeghi-Bazargani H. Development of the Persian patient satisfaction questionnaire. Int J Health Care Qual Assur 2018;31:988-99.
8. Moradi F, Toghroli R, Abbas J, Ziapour A, Lebni JY, Aghili A, *et al*. Hospital managers' skills required and onward challenges: A qualitative study. J Educ Health Promot 2020;9:228.
9. Mohammadi M, Ziapoor A, Mahboubi M, Faroukhi A, Amani N, Hydarpour, F, *et al*. Performance evaluation of hospitals under the supervision of Kermanshah Medical Sciences using pabonlasoty diagram of a five-year period (2008-2012). Life Sci J 2014;11:77-81.
10. Lebni JY, Azar F, Sharma M, Zangeneh A, Kianipour N, Azizi S, *et al*. Factors affecting occupational hazards among operating room personnel at hospitals affiliatedin in Western Iran: A cross-sectional study. J Public Health 2020;1:1-8.
11. Nouri M, Ghaffarifar S, Sadeghi Bazargani H, Ghaffari R. Patients' satisfaction with medical residents' communication skills at the largest teaching and treatment center in North West Iran in 2016. Shiraz Emed J 2017;18:4.
12. Roggenkamp SD, White KR, Bazzoli GS. Adoption of hospital case management: Economic and institutional influences. Soc Sci Med 2005;60:2489-500.
13. Parker D, Kirkpatrick C. Privatisation in developing countries: A review of the evidence and the policy lessons. J Dev Stud 2005;41:513-41.
14. Logan IB, Mengisteab K. IMF-World Bank adjustment and structural transformation in sub-Saharan Africa. Econ Geogr 1993;69:1-24.
15. Maharani A, Femina D, Tampubolon G. Decentralization in Indonesia: Lessons from cost recovery rate of district hospitals. Health Policy Plan 2015;30:718-27.
16. Grimshaw D, Jaehrling K, Van Der Meer M, Méhaut P, Shimron N. Convergent and divergent country trends in coordinated wage setting and collective bargaining in the public hospitals' sector. Ind Relat J 2007;38:591-613.
17. Duncan C. The impact of two decades of reform of British public sector industrial relations. Public Money Manage 2001;21:27-34.
18. Schulten T, Brandt T, Hermann C. Liberalisation and privatisation of public services and strategic options for European trade unions. Transf Eur Rev Labour Res 2008;14:295-311.
19. Galetto M, Marginson P, Spieser C. Collective Bargaining and the Changing Governance of Hospitals: A Comparison between the United Kingdom, Italy, and France. In SASE Conference, MIT; June, 2012.
20. Bordogna L, Hazard M. Transaction costs and the reform of public service employment relations. Eur J Ind Relat 2008;14:381-400.
21. Preker AS, Harding A. Innovations in Health Service Delivery: The Corporatization of Public Hospitals. Washington, D.C.: The World Bank; 2003.
22. Khan K, Kunz R, Kleijnen J, Antes G . Systematic Reviews to Support Evidence-Based Medicine. United States: CRC Press; 2011.
23. Jafari M, Rashidian A, Abolhasani F, Mohammad K, Yazdani S, Parkerton P, *et al*. Space or no space for managing public hospitals; A qualitative study of hospital autonomy in Iran. Int J Health Plann Manage 2011;26:e121-37.
24. Poorolajal J, Tajik P, Yazdizadeh B, Sehat M, Salehi AR, Rezaei M and e*t al*. Quality assessment of the reporting of cohort studies before STROBE statement. Iran J Epidemiol 2009;5:17-26.
25. Von Elm E, Altman D, Egger M, Pocock S, Gøtzsche P, Vandenbroucke J.The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: Guidelines for reporting observational studies. Ann Intern Med 2007;147:573-7.
26. Vandenbroucke JP, von Elm E, Altman D, Gøtzsche PC, Mulrow CD, Pocock SJ and *et al*. Strengthening the Reporting of Observational Studies in Epidemiology (STROBE): Explanation and elaboration. Int J Surg 2014;12:1500-24.
27. Arndt M, Bigelow B. Benefits and disadvantages of corporate restructuring – The hospital view. Hosp Top 1996;74:21-5.
28. Bryan YE, Hitchings KS, Fox MA, Kinneman MT, Young MJ. The

evaluation of hospital restructuring efforts: Satisfaction, quality, and costs. Qual Manag Health Care 1998;6:22-34.
29. Eeckloo K, Van Herck G, Van Hulle C, Vleugels A. From corporate governance to hospital governance. Authority, transparency and accountability of Belgian non-profit hospitals' board and management. Health Policy 2004;68:1-5.
30. Abdullah MT, Shaw J. A review of the experience of hospital autonomy in Pakistan. Int J Health Plann Manage 2007;22:45-62.
31. Hartwig, K, *et al*. Erratum: Hospital management in the context of health sector reform: A planning model in Ethiopia. Int J Health Plann Manage 2009;24:187-90.
32. Eggleston K, Shen YC, Lau J, Schmid CH, Chan J. Hospital ownership and quality of care: What explains the different results in the literature? Health Econ 2008;17:1345-62.
33. Herr A. Cost and technical efficiency of German hospitals: Does ownership matter? Health Econ 2008;17:1057-71.
34. Tjerbo T. The politics of local hospital reform: A case study of hospital reorganization following the 2002 Norwegian hospital reform. BMC Health Serv Res 2009;9:212.
35. Aksan HA, Ergin I, Ocek Z. The change in capacity and service delivery at public and private hospitals in Turkey: A closer look at regional differences. BMC Health Serv Res 2010;10:300.
36. Rego G, Nunes R, Costa J. The challenge of corporatisation: The experience of Portuguese public hospitals. Eur J Health Econ 2010;11:367-81.
37. Braithwaite J, Travaglia JF, Corbett A. Can questions of the privatization and corporatization, and the autonomy and accountability of public hospitals, ever be resolved? Health Care Anal 2011;19:133-53.
38. Tiemann O, Schreyögg J, Busse R. Hospital ownership and efficiency: A review of studies with particular focus on Germany. Health Policy 2012;104:163-71.
39. Gholipour K, Delgoshai B, Masudi-Asl I, Hajinabi K, Iezadi S. Comparing performance of Tabriz obstetrics and gynaecology hospitals managed as autonomous and budgetary units using Pabon Lasso method. Australas Med J 2013;6:701-7.
40. Mousazadeh Y, Jannati A, Beiramy HJ, AsghariJafarabadi M and Ebadi A. Advantages and disadvantages of different methods of hospitals' downsizing: A narrative systematic review. Health Promot Perspect 2013;3:276.
41. Czypionka T, Kraus M, Mayer S, Röhrling G. Efficiency, ownership, and financing of hospitals: The case of Austria. Health Care Manag Sci 2014;17:331-47.
42. Jehu-Appiah C, Sekidde S, Adjuik M, Akazili J, Almeida SD, Nyonator F, *et al*. Ownership and technical efficiency of hospitals: Evidence from Ghana using data envelopment analysis. Cost Eff Resour Alloc 2014;12:9.
43. Markazi-Moghaddam N, Aryankhesal A, Arab M. The first stages of liberalization of public hospitals in Iran: Establishment of autonomous hospitals and the barriers. Iran J Public Health 2014;43:1640-50.
44. Shwekerela B. The effects of hospital reforms on the management of public hospitals in Tanzania: Challenges and lessons learnt. World Hosp Health Serv 2014;50:23-6.
45. Farrow G. Can organisational restructuring of hospitals improve quality and safety? the experience at sydney children's hospitals network.London: BMJ Publishing Group Ltd; 2015.
46. Ferreira D, Marques RC. Did the corporatization of Portuguese hospitals significantly change their productivity? Eur J Health Econ 2015;16:289-303.
47. Kahancová M, Szabó IG. Hospital bargaining in the wake of management reforms: Hungary and Slovakia compared. Eur J Ind Relat 2015;21:335-52.
48. Lindlbauer I, Winter V, Schreyögg J. Antecedents and consequences of corporatization: An empirical analysis of German public hospitals. J Public Adm Res Theory 2016;26:309-26.
49. Pan J, Qin X, Hsieh CR. Is the pro-competition policy an effective solution for China's public hospital reform. Health Econ Policy Law 2016;11:337.
50. Pesheva P, Georgieva E, Hristov N, Zahariev V and Dimitrova V. The hospital sector reform in BulgariaNikolai Hristov. Eur J Public Health 2017;27 Suppl 3:56-78.
51. De Geyndt W. Does autonomy for public hospitals in developing countries increase performance? Evidence-based case studies. Soc Sci Med 2017;179:74-80.
52. Fu H, Li L, Li M, Yang C, Hsiao W. An evaluation of systemic reforms of public hospitals: The Sanming model in China. Health Policy Plan 2017;32:1135-45.
53. Sajadi HS, Sajadi ZS, Sajadi FA, Hadi M and Zahmatkesh M. The comparison of hospitals' performance indicators before and after the Iran's hospital care transformations plan. J Educ Health Promot 2017;6:44-76.
54. Thiel A, Winter V, Büchner VA. Board characteristics, governance objectives, and hospital performance: An empirical analysis of German hospitals. Health Care Manage Rev 2018;43:282-92.
55. Jones L, Pomeroy L, Robert G, Burnett S, Anderson JE, Fulop NJ. How do hospital boards govern for quality improvement? A mixed methods study of 15 organisations in England. BMJ Qual Saf 2017;26:978-86.
56. Verzulli R, Jacobs R, Goddard M. Autonomy and performance in the public sector: The experience of English NHS hospitals. Eur J Health Econ 2018;19:607-26.
57. Jafari M, Habibirad A, Pourtaleb A, Salarianzadeh MH. Health system organizational reform in governing Iranian public hospitals: A content analysis to comprehend the barriers in Board of Trustees' hospitals. Int J Health Plann Manage 2018;33:e612-20.
58. Zhao D, Zhang Z. Qualitative analysis of direction of public hospital reforms in China. Front Med 2018;12:218-23.
59. Govindaraj R, Chawla M. Recent experiences with hospital autonomy in developing countries: What can we learn? Boston, MA: Harvard School of Public Health; 1996.
60. Tao D, Hawkins L, Wang H, Langenbrunner J, Zhang S, Dredge R. Fixing the public hospital system in China. Volume 2010;2:8-20.
61. Mordelet P. The future of public hospitals in a globalized world: Corporate governance, corporatization or privatization? World Hosp Health Serv 2008;44:23-5.
62. Hartwig K, Pashman J, Cherlin E, Dale M, Callaway M, Czaplinski C and *et al*. Hospital management in the context of health sector reform: A planning model in Ethiopia. Int J Health Plann Manage 2008;23:203-18.
63. Bazzoli GJ. The corporatization of American hospitals. J Health Polit Policy Law 2004;29:885-905.
64. McKee M, Edwards N, Atun R. Public-private partnerships for hospitals. Bull World Health Organ 2006;84:890-6.
65. Nurunnabi M, Islam SK. Accountability in the Bangladeshi accountability in healthcare privatized healthcare sector. Int J Health Care Qual Assur 2012;25:625-44.
66. Tiemann O, Schreyögg J. Changes in hospital efficiency after privatization. Health Care Manage Sci 2012;15:310-26.
67. Kahancová M, Szabó IG. Acting on the Edge of the Public Sector: Hospital Corporatization and Collective Bargaining in Hungary and Slovakia; 2012.
68. Collins D, Njeru G, Meme J, Newbrander W. Hospital autonomy: The experience of Kenyatta National Hospital. Int J Health Plann Manage 1999;14:129-53.
69. Filerman GL. Book Review: Innovations in Health Services Delivery: The Corporatization of Public Hospitals. Los Angeles, CA: SAGE Publications; 2004.
70. Jackson R, Kartoglu I, Stringer C, Gorrell G, Roberts A, Song X, *et al*. CogStack-experiences of deploying integrated information retrieval and extraction services in a large National Health Service Foundation Trust hospital. BMC Med Inform Decis Mak

2018;18:47.
71. Villa S, Kane N. Assessing the impact of privatizing public hospitals in three American states: Implications for universal health coverage. Value Health 2013;16:S24-33.
72. Grover C. Privatizing employment services in Britain. Crit Soc Policy 2009;29:487-509.
73. Roemer MI. Foreign privatization of national health systems. Am J Public Health 1987;77:1271-2.
74. Spackman M. Public-private partnerships: Lessons from the British approach. Econ Syst 2002;26:283-301.
75. Albreht T. Privatization processes in health care in Europe – A move in the right direction, a 'trendy' option, or a step back? Eur J Public Health 2009;19:448-50.