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The roles and functions of future hospitals in health promotion: A systematic review in Iran

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Abstract:

As a main pillar of the health and social welfare system, hospitals affect the public health status in two ways: (1) Prevention, treatment, and rehabilitation services and (2) external effects on society and the environment. The present study aimed to identify the roles and functions of future hospitals in the world. The present study was a systematic review in which all studies about the roles and functions of future hospitals in different countries with a time limit of 2000 to August 2021 were extracted from foreign databases, including PubMed, Cochrane, Scopus, and Web of Science, and search engine, Google Scholar, as well as Persian databases, including Magiran, SID, and Iran Medex. We utilized the STROBE checklists for quantitative studies and SRQR checklists for qualitative studies to critique and evaluate the quality of qualitative studies. We then extracted their results and classified the content according to the main and subtopics. A total of 16 articles met the inclusion criteria of the present study. Hospitals can play four roles: stand-alone, dominant, collaborative, and partner. Findings were classified into six general groups: the role and mission of future hospitals, the way of providing care, funding, staff and patients, technology and information of future hospitals, and the challenges and barriers of current hospitals. Health service policy-makers need to pay special attention to technological innovations and advances as well as changes in the roles and functions of hospitals and seek to turn the threats arising from external changes into opportunities for better hospital performances.

Keywords:

Future hospital, health, performance, role and function, systematic review

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Introduction

As a very important socioeconomic organization in the health service provision system of any country, hospitals are responsible for providing vital, complex, specialized, and expensive up-to-date service and care that is not cost-effective to be provided elsewhere due to needs for service of society, manpower, and facilities.^[1,2]

In terms of roles and functions, hospitals affect public health in two ways, both through the prevention, treatment, and rehabilitation services and the external

impact on society and the environment. Hospitals have experienced their greatest maturity in the last 50 years since their gradual evolution, and their roles have been constantly changing. These changes range from acute to chronic illness, medical treatment to preventive medicine, recovery medicine to holistic medicine, inpatient care to outpatient and home care, individual to social attitude, the third and second-level health care to primary health care, and individual to collective care.^[3,4]

Due to the higher prevalence of lifestyle-related diseases, and the growing number of chronic patients, hospitals need to provide a variety of services as a key

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function for patients and staff.^[5] Furthermore, hospitals as a physical and social environment not only affect their residents' health but also affect the life and work of people living nearby. Hospitals also affect social health by affecting the health of their patients and staff.^[5,6]

Due to increasing health-care costs and the complexity of inpatients, hospitals need to respond in new and innovative ways. The importance of hospital-based care will not diminish in the future, but hospitals will be forced to meet high expectations of people and stakeholders in an environment with growing challenges.^[7]

In March 2012, the Royal College of Physicians in the United Kingdom established the Commission on Future Hospitals in response to challenges of hospitals, and the committee sought to achieve a vision of comprehensive high-quality service for patients by holding regular meetings with patients and health-care experts from various specialties.^[8,9] The results of these meetings were published in a report titled "Future Hospitals: Caring for Medical Patients."^[9] The report was the first attempt to introduce the concept of the future hospital. Furthermore, the commission proposed a new model of organizing patient care.^[10] The model was designed to coordinate service delivery between the hospital and society. The important changes of this model in comparison with the traditional model of hospital organization included the minimization of patient transfer between departments and providing specialized service in all departments. Therefore, hospitals must have a new structure that can meet these needs.^[8,10,11]

Three basic concepts were defined in the structure of future hospitals: medical department, acute care cycle, and clinical coordination center. The medical department is responsible for providing all medical services from the emergency and intensive care departments to departments of specialized and general physicians. The department is responsible for responding to the patients' needs through coordination between the medical team and should have close cooperation with other colleagues at the basic levels of society-based services and care to provide cost-effective services.^[8] The acute care cycle examines patients with urgent needs. The preliminary examination, ambulance and patient transfer center, beds with a low length of stay, and intensive care are specialized domains of this cycle. The acute care coordinator is responsible for coordinating the care as well as a society-based department if needed. The Bedside monitoring department is the unit of the executive orders of hospitals and medical teams. This center provides the necessary and detailed information for employees to provide effective care. Basic and population-based information, mental health, and social care should also be prepared for the providers of long-term care.^[8,9]

Given the provision of safe, high-quality, and sustainable services for patients in a suitable environment, there is a need for the future hospital model. The basic bases of the future hospital model include patient-centered care, access to necessary specialized services in the shortest possible time, and the provision of complete information-based services. Limitations such as organizing these services have also been reported depending on the number of beds in each hospital, and the degree of cooperation with other departments in the implementation of this model, and they require more detailed studies.^[9]

The effectiveness of patient safety education in future hospitals,^[12] reducing admission and readmission, reducing the length of patient stay, increasing the speed of patient examination, and improving patient feedback^[11] have been considered as the effects of future hospitals. About 20 hospitals in the UK have joined the Future Hospital Program.^[11] Given the importance of the roles and functions of hospitals, and challenges in this field, the present study aimed to identify the roles and functions of future hospitals in the world.

Materials and Methods

To conduct the present systematic review, all studies related to roles and functions of future hospitals in Iran and different countries with a time limit from 2000 to August 2021 were extracted from foreign databases, including PubMed [Table 1], Cochrane, Web of Science, Scopus, and Google Scholar search engine, as well as Persian databases, including Magiran, SID, and Iran Medex. To review and evaluate the quality of studies, we utilized STROBE checklists for quantitative studies and SRQR checklists for qualitative studies.

Table 1: Structure and policy at future hospitals

Attention to the construction of hospitals in the future and attention to standards ^[13,14]
Providing hospital services at counties, and determining the population covered by hospitals ^[13,15]
Reducing the length of stay of patients ^[13,16]
Hospitals' health-centralization ^[5,6,15,17]
Participation of hospitals in research ^[17,18]
Establishment and development of clinics and offices that provide clinical and surgical services ^[13,19]
Existence of evaluation system outside the public system ^[18]
Competition with external environments and other providers ^[19]
Development of clinical and preventive services, development of the scope and domain of hospital services ^[6,17,18]
Identifying the patient's needs using equipment and technology ^[14]
Minimizing the destructive effects of the environment ^[20]
Increasing green hospitals ^[20]
Improving and promoting medical and health education ^[13]
Education and awareness of the population ^[17,18]
Outsourcing and transfer of hospital laboratories (Megalab) ^[21]

We used a data extraction form designed based on the research objectives to collect data. The form included the authors' characteristics, year of publication, country of study, the purpose of study, study population, and conclusion. Keywords for the search contained Mesh, as well as common keywords related to the research subject, including Hospital Type, Health-Promoting Hospitals, New Hospital, Accountable Hospital, Responsive Hospital, Practical Frame, People-Centered Hospital, Friendly Hospital, Learning Hospital, Green Hospital, Modern Hospital, Electronic Hospital, Integrative Hospital, and Future Hospital.

Inclusion criteria of research were as follows: articles published in Persian and English and the most relevant articles to the research topic based on certain keywords. Exclusion criteria: The lack of full text, duplication, and review articles. Box 1 presents the PubMed search strategy.

Results

After the search, we identified 4706 articles about the study and excluded 75 studies due to duplication. We evaluated the remaining articles according to their titles and abstract, and inclusion and exclusion criteria, and excluded 4631 articles due to irrelevance. According to the titles and abstract of the articles, 200 articles remained for review. We selected 16 articles for the final review based on the inclusion criteria. We also evaluated the quality of studies and they had a good to medium quality. Figure 1 shows the screening process and search results.

We classified the results of content analysis of the articles into six main groups: the roles and mission of future hospitals, care provision, funding, staff and patients, technology and information, and challenges, as presented in Tables 1-6, respectively.

Discussion and Conclusion

We classified the findings of 16 studies into 6 main groups, including the roles and mission of future hospitals, care provision, funding, staff and patients, technology and information of future hospitals, and challenges and barriers of current hospitals.

The findings of the present study on the roles and mission of future hospitals indicated that the construction of hospitals would be different in the future, and hospitals would be built with newer standards and different from current hospitals.^[13,14] According to the type of standards in future hospitals, they would be designed in a way that the population covered by them would be certain, and services would be provided and supervised more professionally by state centers and lower levels of the

Box 1: PubMed search strategy

((("new hospital"[Tiab]) OR "health promoting hospitals"[Tiab]) OR "hospital type"[Tiab]) OR "friendly hospital"[Tiab]) OR "People Centered Hospital"[Tiab]) OR "Practical Frame"[Tiab]) OR "responsive hospital"[Tiab]) OR "Accountable Hospital"[Tiab]) OR "integrative hospital"[Tiab]) OR "electronic hospital"[Tiab]) OR "modern hospital"[Tiab]) OR "green hospital"[Tiab]) OR "Learning Hospital"[Tiab]) OR "future hospital"[Tiab]) AND "hospital"[Tiab]

Table 2: The way of providing care at future hospitals

Separation of drug distribution and prescription system in service provision institutions^[13]
 Integration of hospital laboratories with regional networks and creation of unions^[21]
 Improving and developing the referral system and prioritizing prevention over treatment^[5,13]
 Developing strategies to improve outpatient care^[22]
 Creating and increasing innovative methods for improving and treating patients^[14]
 Changing the paradigm from volume to value in providing health services^[19,23]
 The centrality of safety and effective care at hospitals^[15]
 Beyond-place medical care and telemedicine^[15,16]
 Making outpatient services more prominent^[15]
 Development of indices, protocols, and clinical guidelines to increase the effectiveness and quality of services^[13,14,24]
 Providing therapeutic and diagnostic care at home and outside the hospital^[16,25,26]

Table 3: Funding at future hospitals

The public financial contribution to their health^[5,13]
 High economic risk^[17,23]
 Emphasis on the cost of benefits of providing services^[16,21]
 Changes in the payment system of hospitals^[26]
 Reducing the hospital costs^[24,26]
 Changing the way of funding^[15,16,21]
 Developing the insurance refunds^[13]

Table 4: Management of staff and patients at future hospitals

Involving the patients and increasing interactions between service providers and recipients^[14,26]
 Identifying susceptible individuals and providing preventive care^[14,15]
 Managing the employee's talents and competencies^[14,18]
 Capable manpower engineering^[14,15,23]

Table 5: Technology and information at future hospitals

Creating big data and turning it into health knowledge^[14,16,22]
 Replacing humans with artificial intelligence and robotics^[26]
 Providing care by new technology and equipment^[16,26]
 Changing the form of care delivery using a variety of technologies^[15,23,26]
 Identifying the patients' needs using equipment and technology^[14]

health system structure.^[13-15] By defining the population covered by hospitals, it seems that the responsibility for health and services will be borne by those hospitals and they will focus on the health orientation.

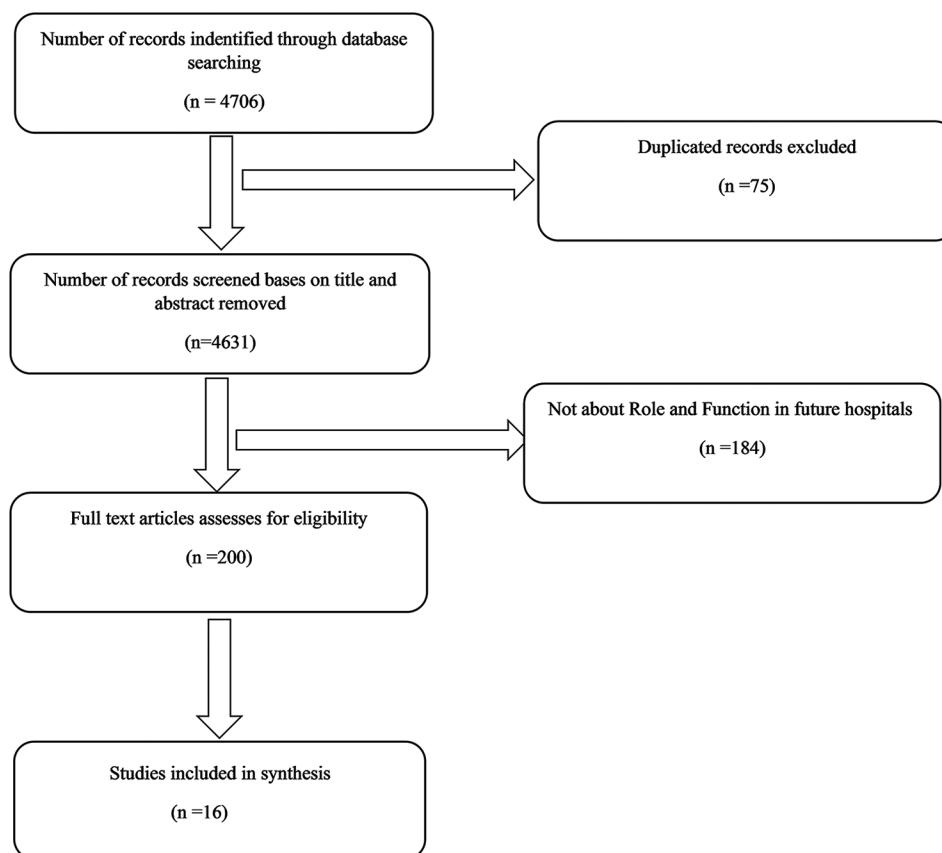


Figure 1: Study selection process

Table 6: Challenges and obstacles

Nonidentification of the stakeholder’s perspective ^[13,18]
The inefficiency of hospital financial system ^[13-15]
Nonspecialist human resources and inaccurate training ^[13]
Lack of population and patient participation ^[6,13,14,21]
Lack of evaluation of program progress ^[13]
High health costs ^[15,23,26]
Inadequate payments ^[24,26]
Patient-centralization of hospitals ^[15,17]
Value of services provided based on the volume of services ^[19,23]
Inadequate guidelines and protocols ^[13,24]

The patients’ lengths of stay will be shorter, and insurance reimbursement will increase in a more organized way at future hospitals.^[13,16] The status of patients’ reimbursement and stay at the current hospitals has a long process and this has caused the hospitals not to have the necessary efficiency. It is predicted that future hospitals would be more involved in research fields, and their scope of activities will be expanded, and clinics and offices providing clinical and surgical services will operate more independently.^[6,13,14,17-19] Furthermore, the evaluation system of future hospitals will be different from now, and evaluations will be performed by private organizations, and the hospital environment will be more competitive, causing hospitals to take important

steps toward the quality and effectiveness of health services.^[13,14,19,20]

Given that today’s hospitals are less focused on environmental issues and green space, green hospitals will be used to increase patient satisfaction, make a difference in the hospital environment, and minimize the harmful effects of the environment.^[20] The policies of future hospitals will focus on outsourcing a part of hospital services for efficiency to minimize hospital costs.^[21] Moreover, future hospitals will periodically review and improve medical education.^[13] They also try to focus on education and awareness of the public and patients, have the necessary training for them, and involve people in health issues as much as possible.^[17,18]

Given the way of providing care in future hospitals, the review of studies indicates that the form and provision of care will be different in future hospitals and they will have innovative treatment methods using technologies. The beyond-place and medical care, including telemedicine, will play a more prominent role.^[14-16] Furthermore, health care including diagnostic and treatment services will be provided at home.^[16,25,26] The importance of service volume will change to the value created by services.^[19,23] Safety and effectiveness,^[15] health-centralization,^[5,6,15,17]

and prevention^[5,13] will be the focus of hospitals. Clinical standards and guidelines will play a more effective role and importance in providing health services and efforts will be made to develop up-to-date guidelines and standards proportional to the type of services and technologies to increase the effectiveness and quality of health services.^[13,14,24]

Findings of the review of articles on the funding of future hospitals indicate that patients will play a role in the funding of hospitals as much as possible.^[5,13] To reduce hospital costs, the payment and funding systems of hospitals will change, and hospital payments will change from the service volume to the value. In other words, payment to service providers will be based on the quality and results of services, not the number of admitted clients.^[15,16,21,26] Some studies have also mentioned that the cost of benefits of hospital services will be measured according to the economic risk of hospitals, and the monetary value of services will be obtained.^[16,17,21,23]

Given the dimensions of technology, staff, and patients, the findings of the present study indicate that interactions between health-care providers and patients will increase in the future, and patients will have more choice in choosing the type of services, and patients will be involved in providing services.^[14,15,26] Future hospitals also identify people susceptible to disease and receive preventive care, and the care will be provided using new technologies and forms.^[14,16,26] With the increasing advancement of technology, the masses of medical and health data and information will be provided in a very complex way and will become health knowledge.^[14,16,22] Future hospitals will also make efforts to utilize the employees' abilities should, and use skillful manpower in specialized posts, and replace humans with artificial intelligence and robotics in other simpler cases.^[14,15,18,23,26]

Given the findings of studies, the obstacles and challenges of current hospitals are as follows: the lack of identification of stakeholders,^[13,18] the inefficiency of the financial system of hospitals,^[13-15] nonspecialist human resources and inadequate training,^[13] lack of the public and patients' cooperation,^[6,13,14,21] lack of evaluation of program progress,^[13] high health costs,^[15,23,26] inadequate payments,^[24,26] patient-centralization of hospitals,^[15,17] the value of services provided based on the service volume,^[19,23] and inappropriate guides and instructions.^[13,24]

Due to the necessity of this issue, it is necessary to pay special attention to the rate of technological changes, and advances and changes in roles and performance of hospitals at the macro level of policies, and the authorities should seek to turn the threats arising from

changes in roles and performance of future hospitals into opportunities. Therefore, this issue needs to define new structures in the health system of each country.

Limitations of the present study were as follows

Noninclusion of unpublished studies, reports, and books, and results of conferences in the study.

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Conflicts of interest

There are no conflicts of interest.

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