A Comprehensive Strategic Analysis of the Environmental Scanning of Iranian Public Hospitals: A Prospective Approach

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Abstract

Objectives: This study was conducted to interpret the micro and macro environmental issues of public hospitals in order to equip hospital managers to plan and perform proactively and could deal more better with uncertain future.

Results: semi-structured in-depth interview and a researcher-made questionnaire were used to determine macro and micro level issues based on PESTLE (Political, Economic, Social, Technological, Legal and Environmental) and Douglas West framework in order to determine the effectiveness and feasibility of factors The key issues at micro level environment were related to prescription and overuse of pharmaceuticals, inequality in distribution of healthcare services and high demands for luxurious services. At macro level: changes in disease patterns, inappropriate hospital budgeting, economic sanctions, government corruption and centralization had a great impact on public hospitals in Iran. following the safety guidelines laid down by the government and better management of bed distribution in order to decrease waiting times at micro level and improve strategic policies in order to have quality-based payment system, enhance the efficiency and effectiveness of services and strategic purchasing are the most important ways at macro level. At this time, the considerable impact of economic sanctions on hospital financial resources should not be ignored.

Introduction

Nowadays, organizations’ environments are changing at an unprecedented rate (1). Lack of awareness of the environmental change, can result in severe consequences and complications (2). These extensive rapid changes of the modern world have a substantial effect on the health systems (3, 4). Healthcare systems are considered as the largest economic sectors in the world, and have a major role in social development and welfare.
Among this, hospitals play a key role in the fair promotion of healthcare and improvement of the fairness index in healthcare (5-7). At the same time, they are the most fundamental and expensive components of the health system, in as much as they account for 40% and 80% of total health sector expenses in developed and developing countries, respectively (8-11).

Environmental changes have resulted in political, economic, social, cultural, and technological changes for hospitals on a large scale. Population aging, health technological advances, information technology developments, and remote medical systems are among such changes affecting healthcare systems (12). To assure the sustainability and attainment of goals, health organizations need to rapidly adopt to and interact with external and internal environments to respond to such changes, otherwise, they may be doomed to failure (2, 13).

To this end, environmental scanning acts as a radar used for identifying environmental signals and an effective way for organizations to prevent uncertainty and develop compatible strategies (14). Environmental scanning is a strategic process, mostly used in complicated environments with high levels of uncertainty (15). The aim of environmental scanning is to predict and comprehend internal and external organizational events and relations in order to decrease uncertainty (16, 17). By using this method, organizations could obtain information on threats and opportunities that potentially affect performance or jeopardize the organizational sustainability or performance (13). Therefore, the organizations that perform effective environmental scanning activities have higher chances of thwarting threats and understanding opportunities and thus gain sustainable competitive advantages (14).

The organization environment consists of external and internal components. The external environment, including micro and macro environments is related to factors outside the
normal borders of the organization affecting management decisions (18). The macro environment includes factors with indirect long-term political, economic, social, cultural, technological, and legal impacts. While, the micro environment refers to factors that directly affect organizational functions and outcomes, such as customers, suppliers/resources, competition, and other stakeholders. (14, 18). Considering the significance and need to identify factors and environmental changes affecting organizational performance (1), this study scanned the environments of Iranian public hospitals to provide recommendations for enhancing the hospital management for achieving quality and at the same time, cost-efficient services.

Methods

Study design

This mixed-method study was conducted in 2017-18 in two phases:

**Phase 1: Analyzing environmental factors affecting Iranian public hospitals**

In this phase, we investigated the political, economic, social, technological, legal, and environmental factors influencing the macro situation of Iranian public hospitals based on PESTLE analysis; the micro environment of these hospitals such as customer, public, media, distributors, suppliers, stakeholders, and competitors were further analyzed using the framework proposed by Douglas West et al. (18)

**Figure 1**

For this purpose, semi-structured in-depth interviews were conducted among a panel of experts from diverse ranges of disciplines in healthcare to achieve a holistic and comprehensive understanding of the issues. Purposive snowball sampling was used for the selection of participants.

Participants were informed about the research purpose. The initial sample size was estimated to be 12 experts. Considering possible withdrawal, 16 experts were selected.
Individual interviews with 16 experts were saturated.

The questions were formed according to the framework proposed by West et al. Four 90-minute panel meetings were held to finalize interview analyses. The participant consent was obtained to record and take notes of all interviews and panel meetings. Recorded files transcribed, and shared with the participants for verification and possible feedback. Data analysis was performed using the deductive method, including familiarization, identifying a thematic framework, indexing, charting, and mapping and interpretation (19). MAXQDA-11 was used for data analysis. The final expert panel meeting was held and corrections were made in accordance to their views to reach an agreement on the extracted factors and their relevance to research purposes.

**Phase 2: Determining the impact and uncertainty of environmental factors affecting Iranian hospitals**

At this stage, a researcher-made questionnaire based on first stage was used to determine the level of impact and uncertainty. The 5-point Likert scale was used for this purpose. The numbers (1-5) indicated the amount of influences that each factor had on hospital performance and (+/-) denoted opportunity and threat respectively. First, the experts were asked (via phone) for the permission to contact them to complete the questionnaires, which were then sent electronically. 32 experts were involved in this stage. Average views of the participants on every question were determined to analyze.

**Results**

**Micro environment**

The key effective factors of the micro environment were categorized as consumers (socio-demographic characteristics, income, education, and health literacy of consumers, inclinations to use luxurious services, demands for receiving high-quality services and demanding modern technologies), distributors (unfair bed, staff and pharmaceutical
distribution), **stakeholders (internal** “clinical and nonclinical staff, faculty member, medical and nonmedical students, patients, carers and family members” **and External** “insurance organizations, ministry of health and medical education, physicians, professional organization and nursing professional organization” ) and **competitors** (home care and nursing care services and also the smart intervention). Furthermore, the impacts of these factors on public hospitals were identified along with their types and strengths. Table 1 indicates further details.

**Table 1.**

**Macro environment**

Based on PESTLE framework, macro factors were explored and the effectiveness and certainty of the factors were also analyzed. Macro factors were classified as political, economic, social, technological, legal, and environmental dimensions (Table 2).

**Table 2.**

**Discussion**

Findings indicated that the micro environment factors of public hospitals affected quality of services as well as the expenditures. Due to the space constraints, only the most important results (regarding the weights and influences that each factor had on hospital performance) are discussed in the following.

One of the main important impact of micro level factors that is the consequence of the most one was lengthy waiting time as indicated in table 1. The results of a meta-analysis by Fazel Hashemi et al (2017) indicated that this indicator was higher in the emergency departments of Iranian hospitals than the national and international standards. Since a waiting list indicates the inefficiency of processes and influences the effectiveness and customer satisfaction. (20-23) Another important aspect at this level is Unfair bed, human and pharmaceutical resources distribution in general hospitals that reduces
responsiveness and patient satisfaction. In this regard, Improvement in distribution of resources between the level of health care (prevention, education, research and treatment) and manage the efficiency of resources based on referral system can be helpful. (7)

The macro environment factors affect hospitals in two ways: First, factors with direct influence, such as higher fertility rates, hospital services tariffs, changes in the patterns of diseases, and hospital budgeting. Second, factors with indirect affect, such as stakeholders, distributors, economic sanctions, government corruption, centralization and high bank interest rates. As health and illness are considered social phenomena (24) moving toward more aging population as the senile will make up 20% of the Iranian population by 2050 (25). This indicates changing the disease patterns (26) relying on updated technologies to enhance the self-efficacy/self-control and increasing the community-based services, and involving patients and their carer, in decision making about their health and the services (27).

Other interconnected social determinants of health are related to unhealthy lifestyle behaviors, poverty, outskirts/assembly residential, drug abuse/addiction, lack of physical activities, which can result in more chronic illnesses and threatening public hospitals and their care provision to individuals. (28).

From the economic point of view, public investments in the health system had not increased in proportion to the increased health costs (29-31). One of the main issues that hospitals are confronted is the payment system (fee for services), which is designed to encourage service providers to offer more services (32). Regarding the mega trend of change from volume-based to value-based paradigm (28) One of the innovative method of value-based system is strategic service purchase or service package (32, 33). Implementation of the Health Transformation Plan (HTP) is also a good strategy to
decrease the Out-of-Pocket (OOP) payments for inpatient services and eradicated informal payments to physician. Furthermore, delegation of some costly parts of hospitals to private partners based on the "public-private-partnership" models can be a beneficial solution for enhancing the harmony between Iranian health policies and change of paradigm from volume to value (33).

Downsizing was identified as one of the main factors in political dimension. This intervention can improve the performance of public hospitals by reducing bureaucratic costs, service delivery duration, increasing efficiency and enhancing skills. (34) This review also highlighted that with healthcare technological advances like home care, remote medicine, remote training, and electronic medical record and smart hospitals, technology had great impacts on the performance of hospitals. Therefore, it is recommended that with rapid changes in technology, directors of public hospitals pay attention to such changes and consider localizing technology and applying the Health Technology Assessments (HTA) to enhance the appropriate usage of health technologies based on the needs of patients and general population. Selecting the appropriate budgeting system for hospitals (contraction-expansion) was identified as the main factors in legal dimension due to increased economic and health burden of non-communicable diseases and newly-emerged diseases caused by environmental changes.

Conclusion

The evidence recommended some key reforms in Iranian hospitals and the healthcare system as a whole to improve the quality and at the same time efficiency of services. First, it is required to revise the current referral system into a more sustainable one. This can result in more cost-efficiency of services as well as result in more equitable healthcare system, as the budget can be used differently for those who need it more (e.g. remote/rural areas). Secondly, small public hospitals may not survive considering the
current threats, however small hospitals can be integrated to provide a more holistic system. This can result in chain hospitals meantime we should consider the blind spots of large hospitals such as bureaucratic system and financial abuse in regards to advertising and investing on pharmaceutical and medical instruments in large scale. Third, there can be more focus on using the modern technology, particularly for chronic illnesses. However, this needs to happen using appropriate technology assessment process to prevent over usage of technologies and financial burden. Fourth, shifting the hospitals and health care system into more community-based services and considering the health more holistically.

Limitations

The results of this research are a cross-sectional view of the changing health system in Iran and as the “Environmental scanning” is a dynamic method it should be updated every 3-4 years to match the ever-changing situation.

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Abbreviations

PESTLE: Political, Economic, Social, Technological, Legal and Environmental

Douglas West et al. framework: examines key aspects of marketing strategies such as customer, public, media, distributors, suppliers, stakeholders, and competitors combined with the presentation of a synthesis of recent thinking on the subject.

MAXQDA: Is a software program designed for computer-assisted qualitative and mixed
methods data, text and multimedia analysis in academic, scientific, and business institutions

**HTA**: Health Technology Assessments

**Declarations**

*Authors' contributions*

PB designed the study and its overall methodology; KP finalized the data synthesis and the article itself. and searched all the databases, retrieved the sources and prepared the initial draft of the article. PS contributed to data analysis and edited the article. AS improving the structure, conclusion and English edition of the paper. The study was supervised by NH. All authors read and approved the final manuscript.

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*Availability of data and material*

Data is available in an endnote library.

*Ethics approval and consent to participate*

This study is approved by Shiraz University of Medical Sciences ethics committee with the ID number of IR.SUMS.REC.1396.S274.

*Consent for publication*

There was no difficulty in publishing the results. All the included databases and materials are available for public use.

*Competing interests*

Authors declare that there is no conflict of interest.
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Tables

| Dimensions       | Factors                                | Impact of Factors                                               |
|------------------|----------------------------------------|-----------------------------------------------------------------|
| Customer         | More inclination towards using luxurious | Increased costs, higher quality services, overuse of com...      |
| public and media | health services | expensive technologies |
|------------------|-----------------|------------------------|
| More demand for high quality health services | Higher costs, human resources, expensive equipment |
| Increase in average income | Increase in hospital income |
| Increase in purchasing power | Increase in hospital income |
| Education level and health literacy improvement | Decrease in hospitalization period and increase of bed turnover |
| Organic and green products attitude | Decrease in diseases and demand for health services which will lead to quality improvement in public hospitals |
| Environment protection and green energy use attitude | Increase in hospital expenses for healthy waste disposal of latest technologies with green energy |
| Increase in people’s share in health services payments | Increase in hospital specific income |
| Distributors | Unfair bed distribution | Longer patient wait times leading to disorder and lower services |
| | Unfair specialized human resources distribution | Longer patient wait times and non-responsiveness |
| Suppliers | Increase in prescription of drugs out of Iranian official list of drugs | Inability to supply drugs and lower quality of services |
| | Increase in the number of prescriptions containing antibiotics | Patients’ resistance to treatment and higher doses of drugs leading to medicine supply issues |
| | Increase in the number of prescriptions containing injections | Patients’ resistance to treatment and higher doses of drugs leading to medicine supply issues, Increase in design costs and equipping hospitals with clean rooms |
| | Increase in the number of self-medications cases in patients | Increase in the number of patients with no appointment to longer patient wait times |
| Stakeholders | Delayed payment to hospitals by insurance companies | Hospitals being indebted and therefore unable to supply and consumer products or purchasing low quality products which will lead to patient dissatisfaction. In addition, delay in personnel reimbursement can result in lack of satisfaction and motivation to provide high quality care. |
| | Full-time status of clinical faculty members (non-permissibility of simultaneous work in both public and private sectors) | Shorter patient wait times and more responsiveness |
| | Freedom of speech in media, multiplicity of political parties, civil rights, meetings or campaigns to support or ban health policies (social - political) | Compromised reputation of public hospitals due to myriad economic and political issues |
| Competitors | More inclination towards receiving home | Shorter wait times and improved quality of services and |
| Aspects                         | Factors                                                                 | Influence                             |
|--------------------------------|--------------------------------------------------------------------------|---------------------------------------|
| **Political**                  | Regional competitions                                                   |                                       |
|                                | Policy makers’ neglect of the health sector                              |                                       |
|                                | Centralization in the dominant attitude                                  |                                       |
|                                | Government budget-cutting structure                                     |                                       |
|                                | Implementation of the Family Physician Program                           |                                       |
|                                | Periodic changes of politicians leading to change of plans of directors (political instability) |                                       |
|                                | Lack of appropriate philosophy and viewpoint about health and its various dimensions among political parties and formations |                                       |
|                                | Government downsizing based on various laws, including the 44th principle (privatization development) |                                       |
|                                | Government financial corruption                                           |                                       |
|                                | Unreasonable tariffs determined for hospitals products and services      |                                       |
|                                | Political sanctions                                                      |                                       |
| **Economic**                   | Improved payment system structure (strategic services purchase by insurance companies based on quality and price) |                                       |

Table 2. Environmental Impact and Certainty (Macro Environment- PESTLE Analysis)
| **Improved tariff structures** |  |
| Improved drugs and consumption products purchase control structure |  |
| Higher inflation in the health sector |  |
| Higher expenses (drugs and treatment) |  |
| Higher inflation |  |
| Higher bank interest rates |  |
| Improved financing structure |  |
| Currency rate fluctuations and multiplicity of currency rates |  |
| Supportive role of government financial policies |  |
| Providing access to capital/loans to develop hospitals’ activities by the government |  |
|  |  |
| **Social and cultural** |  |
| Higher population growth |  |
| Higher fertility rates |  |
| Change of diseases load towards chronic illnesses |  |
| Lower physical activity |  |
| Higher life expectancy |  |
| Higher poverty |  |
| Appropriate population distribution (young human resources to total population ratio) |  |
| Appropriate family size and structure |  |
| Higher rates of social harms and anomalies, including divorce, crimes, and violence. |  |
|  |  |
| **Technology** |  |
| Improved health information technology (home care, remote medical services, remote training, electronic medical record) |  |
|  |  |
| **Legal** |  |
| Lack of legal clarity for hospitals activities development |  |
| Tax and employment laws ratified by the government |  |
| Inappropriate budgeting system for hospitals (general budget, linear budget, ownership of the remaining budget resulting from frugality) |  |
| Deficiency in health technologies evaluation (import permits for high-end technologies and expensive drugs) |  |
| Poor supportive laws for attracting domestic and international investors in manufacture, equipment, and renovation of hospitals (including bank laws, facilities, loans, letters of guarantee) |  |
| The requirement for hospitals to observe scientific and local guidelines approved by the Ministry of Health and insurance companies |  |
|  |  |
| **Environmental** |  |
| Higher risks and diseases resulting from environment pollution |  |
| Higher air pollution in cities in which the hospitals are located |  |
| The possibility of unexpected events in the city where the hospitals are located |  |
Greater possibility of man-made disasters in the city where the hospitals are located

Population Positive attitude toward green energy

Population Positive attitude toward green and organic products

Figures

![Organization Environment Analysis Framework](image)

**Figure 1**

Organization Environment Analysis Framework (West et al., 2015)