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# Developing A Model for Measuring the Performance of the Health System Based on the Balanced Scorecard (BSC) Method in Social Security Organization

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***Abstract:*** *Because there are two main concerns in health interventions: prevention and treatment, there is typically a demand for the latter, but there may be none for the former. As a result, one of the most important considerations in determining which services to prioritize is to ensure that public health and clinical activities are balanced and appropriate. However, the researcher was inspired to create a model for measuring the performance of the health system in the Social Security Organization because of the lack of a performance measurement pattern. Given these two issues, the researcher created a model for measuring the performance of the health system in the Social Security Organization. The current study is of the basic-applied kind, and its goal is to find out more about it. It was exploratory in nature, with a temporal component; cross-sectional in nature, with a technique that combined qualitative and quantitative methodologies. The statistical population of this research includes experts and health experts from around the nation, who were selected using non-random and judgmental procedures, and the sample size was determined using the theoretical saturation rule. Questionnaires, interviews, and documents were utilized to gather information. The content (judgmental) validity of the current study questionnaire was validated, and the questionnaire's reliability was confirmed using qualitative research methodologies such as methodological coherence, sample appropriateness, and simultaneous data collection and analysis. The Wellman model open coding table was used to examine the qualitative content of the study, while Chang's descriptive techniques and enhanced fuzzy hierarchical decision-making methods were utilized to assess the quantitative material. Internal processes (0.35), social responsibility (0.24), customer (0.11), health (after treatment) (0.09), health (after prevention and care) (0.07), growth and learning (0.069), and financial (0.069) are the seven perspectives required by the balanced scorecard model to measure the performance of the health system, according to the research findings (0.052). In addition, for these seven viewpoints, a total of 46 indicators were found and weighed. According to the above findings, using a health perspective in both treatment and prevention, care and social responsibility perspectives, as well as the perspectives presented by Kaplan and Norton, is essential for the establishment of a performance measurement system for the Social Security Organization's health system. It's also a good idea to pay close attention to the signs that carry greater weight*.

***Keywords:*** *Performance appraisal, Health system, Social security, balanced scorecard, AHP*.

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## Introduction

Due to challenges such as increased cost, safety, quality, and fairness, population aging, the rise of chronic illnesses, and rising public expectations, health systems are under intense pressure to improve their performance. In most nations, it has become a serious political issue (1).

Without a question, the primary purpose of any health-care system is to improve individual health and promote community health (2). The health system varies from other social institutions, such as education, and from most commodities and services markets in two ways; these disparities underscore the significance of fair accountability and financial objectives. One of these distinctions is that health treatment may be costly (3). Much of the time, the need for care is unforeseeable. People must consequently be protected so that they do not have to choose between financial ruin and health damage. In the middle, there are two more major objectives: fair accountability and funding (4).

Every company, particularly in complex and dynamic situations, need urgent review in order to be aware of the desirability and quality of its actions. On the other side, the absence of an assessment and control system in a system indicates that the organization is not interacting with its internal and external environments, which leads to the organization's aging and eventual mortality (5). Health organizations in each country are among the groups that have a fundamental requirement for performance evaluation (6).

Social security in several countries has progressed to the point where it may play a critical role in their social and economic growth by instilling trust. In Iran, the Social Security Organization is the biggest insurer and the major axis of private sector insurance. As a result, designing and implementing a performance assessment system is one of the criteria for bringing about a shift in the direction of desired services in the Social Security Organization. Because the Social Security Organization is one of the major economic institutions and the strongest, it is the most undeniable supporter and provider for other economic, social, and household institutions, providing a comprehensive and transparent evaluation system with two approaches of controlling and monitoring the organization's performance and evaluating the performance of the Social Security Organization can have different economic and social effects for countries, because the Social Security Organization is one of the major economic institutions and the strongest, which is the most undeniable supporter and provider for other economic, social and household institutions (7).

As a result, the development of a defined system for performance evaluation in many areas is critical. The balanced scorecard model is one of the relevant methods for assessing the performance of organizations that is suited to the strategic structure and macro objectives of the enterprise. The usage of the Balanced Scorecard (BSC) model in an insurance organization for coordination was investigated by Davoodi et al. (8) in a paper titled "Evaluating the performance of an insurance firm using the Balanced Scorecard (BSC) and the best-worst method (BWM)." And he proposed linking the company's vision, mission, and strategy to organizational performance by connecting different layers of business perspectives, and then implementing a framework for unifying the BSC model and the worst-case scenario (BWM) for the first time in the insurance field to evaluate the company's performance in two evaluation periods. Be. They felt that by combining the BSC and BWM models, managers and decision-makers would be able to better assess and comprehend the company's competitiveness, and hence make more efficient and compelling decisions. In a study titled "Sustainable Balanced Scorecard Architecture and Environmental Performance Results: A Systematic Review," Jasem et al. (9) found that two architectures dominate the SBSC literature: one is the four dimensions of the Kaplan and Norton Balanced Scorecard model, and the other is the sustainability as an independent dimension under the title of the balanced scorecard's fifth dimension. They developed a conceptual model that links SBSC as a choice tool to environmental performance outcomes in the following section of the study. SBSC expertise was also shown to be a mediator (mediator variable) in the aforementioned connections in this research. Furthermore, the presence of experts is expected to influence the link between SBSC design and environmental performance results, according to specialized competence theory.

Victor and Farooq developed a balanced scorecard method to managing health-care performance in their research. Following its introduction, this approach has accelerated the rise in demand for hospitalization among those in financial distress, as well as efforts to improve health-care delivery networks. Financial indicators (return on assets, average daily collection, and working capital ratio), customer perspective (patient satisfaction, lost jobs - number of visits not attended, and percentage of

patients leaving the medical consultation (LAMA)), internal processes (billing and delivery time, emergency patients within 15 minutes of patient arrival, and waiting time), and learning and growth (empowerment (decision making and participation), According to Gush and Singh (11) in a research, the Balanced Scorecard (BSC) is a strong idea for monitoring performance, but it has flaws in terms of BSC quality that system dynamics solve using Dynamic Balanced Scorecard (DBS). They argued that how to use the dynamic balanced scorecard in the healthcare sector, including its relationship to corporate social responsibility as a strategy in India's modified regulatory regime, especially after the passage of the Companies Act in 2013, and Section 135 and Plan VII, especially in the 2020 epidemic (Covid 19), has challenged us not only to seek change in the stock market but also to strengthen the core of organizations, in this article.

Fatemi et al. (12) used a balanced scorecard model to present a model for evaluating the performance of Shahid Labbafinejad Hospital's outsourcing services, and then used the fuzzy AHP approach to weight the indicators, resulting in the weight of the main criteria in terms of internal processes (0.37), financial dimension (0.293), customer dimension (0.229), and growth and learning dimension (0.108). In a research aiming at merging Kaizen management models with the Balanced Scorecard (BSC), Yahyaei et al. (13) found that the BSC model should be utilized to enhance the Kaizen model in order to meet the objectives of development and learning. Integration dimension is also used to accomplish the objectives of internal processes; the dimension is removed to reach the goals of the financial viewpoint, and the improvement dimension is used to achieve the goals of the customers' perspective.

Given the content provided, as well as the large number of users of social security services, and the fact that the key indicators of social security performance have yet to be identified, it is possible to assert that the organization's goals will be impossible to achieve, because without determining the key indicators, the organization's goals will be impossible to achieve. It is impossible to locate the current vacuum and, as a result, take efforts to attain the objectives. The health sector is one of the most sensitive areas of the social security system, with performance assessment playing a larger role.

As a result, extensive study is required to meet the aims of social security, the ultimate purpose of which is to secure society's well-being and health. As a result, the current research was carried out with the goal of developing a model to assess the performance of the Social Security Organization's health system using the balanced scorecard model and the AHP approach.

## Analysis method:

In general, the current research is an applied study since its findings and outcomes are widely used in the actual world. It is a descriptive-exploratory study in terms of technique since it intervenes to answer research questions without interfering with the system under investigation. As a result, in general, the essential facts and information are gathered first by analyzing the issue's theoretical underpinnings and literature, followed by interviews with specialists and expert panel sessions. A questionnaire will be used to collect data in the other part of the study, and the documented data from the Social Security Organization will be used to analyze and weight the indicators. Finally, to analyze the health system of different provinces, the documented data from the Social Security Organization will be used.

A society is a collection of individuals who share a feature that sets them apart from other groups. Several distinct groupings of the statistical population were employed in this investigation, as follows.

Experts and health experts with more than 3 years of experience in evaluating the performance of this field, managers and experts of organizations such as social security with more than 5 years of experience, and researchers and university professors who have been involved in evaluating health performance are among the statistical population of this research in both qualitative and quantitative sections.

17 experts were employed to conduct the interviews in this research, and 20 experts' opinions were used to complete the pairwise comparison questionnaire.

It's worth noting that the criteria for picking experts was a non-random way of assessment in the sense that experts who were more knowledgeable about the issue and contributed more to their thoughts and experiences were chosen. The theoretical saturation rule approach was used to determine the statistical sample size. In other words, data was collected until the results were saturated.

A pairwise comparison questionnaire, on the other hand, was utilized to gather the needed data for prioritizing and weighting the Social Security Organization's performance assessment criteria in line

with the hierarchical analytic technique. The judgment of ten experts is sufficient to verify the results from the pairwise comparison questionnaire. In this respect, the questionnaire created in this stage was explained to 20 statistical specialists, then presented and the required data was gathered. Simple deliberate sampling is used as the sample approach.

According to the study's statistical sample, 45 percent of participants are women and 55 percent are males. Last but not least, 35% of persons hold a master's degree, and 65% have a PhD or above. Furthermore, 10 percent of these professionals are under 30 years old, 35 percent are between 31 and 45 years old, and 55 percent are beyond 45 years old.

As a result, BSC was utilized to create performance evaluation indicators, and AHP was used to weight performance evaluation indicators using experts' views and surveys in this study.

## Findings

Several expert interviews were undertaken in order to determine the performance assessment methodology for the Social Security Organization's health system. Seven perspectives and 46 indicators were found after three phases of interviews with 17 interview participants. Following the identification of the indicators, a questionnaire was created and sent to the experts. ExpertChoice software was used to collect data from the questionnaire. Table 1 shows the weight of the model dimensions (1).

***Table 1. Weight and landscape perspective of the model***

| Priority | Coefficient | Perspectives |
|---|---|---|
| 7 | 0.0521412 | Financial |
| 3 | 0.1127439 | Client |
| 1 | 0.3565274 | Internal processes |
| 6 | 0.0699189 | Growth & learning |
| 2 | 0.2437835 | Social responsibility |
| 4 | 0.0902356 | Health (after treatment) |
| 5 | 0.0746495 | (Health (after prevention and care |

It can be observed that the most significant dimensions are related to internal processes and social responsibilities. The weight of the indicators is indicated in Table (2).

***Table 2. The coefficient of importance and priority of the indicators of every landscape***

| Priority | Importance coefficient | Indices | Perspectives |
|---|---|---|---|
| 3 | 0.1878499 | Supervision of financial and transaction contracts | **Financial** |
| 2 | 0.2760174 | Planning and controlling the amount paid by patients and the cost of treatment and medicine | |
| 4 | 0.1278456 | Communicating the internal financial rules of the hospital to the staff | |
| 1 | 0.4082871 | Assessing the requirement for financial resources in different sectors and communicating the request | |
| 3 | 0.1261378 | Corporate Communications | **Client** |
| 4 | 0.1195878 | Accountability of managers and officials | |
| 5 | 0.1116241 | Clients guidance | |
| 4 | 0.1195878 | Clients' access to wards and hospital facilities | |
| 1 | 0.1457266 | Providing the necessary facilities for patients and clients | |
| 2 | 0.1381601 | Communication with the principles of professional ethics with patients | |
| 4 | 0.1195878 | Informing and observing the charter of patient rights | |
| 4 | 0.1195878 | Ensuring the correct and timely guidance of service recipients | |
| 5 | 0.916233 | Developing, communicating and monitor key hospital policies and missions | **Internal processes** |
| 1 | 0.2816223 | Formation of hospital executive teams and decision making | |
| 7 | 0.0557996 | Employing hospital manpower based on specific job descriptions | |
| 4 | 0.1028787 | Assessment, maintenance and security of hospital infrastructure | |
| 3 | 0.1630544 | Planning the procurement and distribution of resources | |
| 6 | 0.0715421 | Needs assessment and qualification of human resources | |
| 2 | 0.2351018 | Evaluating and modify processes | |
| 2 | 0.2065498 | Supervising hospital activities and processes | **Growth and learning** |
| 3 | 0.1598623 | Hospital readiness in times of crisis | |
| 1 | 0.2215467 | Manpower participation in hospital planning | |

| Priority | Importance coefficient | Indices | Perspectives |
|---|---|---|---|
| 4 | 0.1038564 | Motivational and educational programs to improve the quality performance of employees | |
| 7 | 0.0715426 | Provide effective explanations and training to the patient and family | |
| 8 | 0.0652494 | Installation of user guides for medical and user equipment in Persian on the device | |
| 6 | 0.0812328 | Basic documentation of patient information | |
| 5 | 0.1017325 | Assessment and analysis of service recipient | |
| 6 | 0.0521412 | Preparing and distribution of quality and principled food | Social responsibility |
| 3 | 0.1648851 | Observing justice in obtaining care and medical services | |
| 1 | 0.3565274 | Obtaining hospital services in emergency cases regardless of funding | |
| 4 | 0.1127439 | Adhering to the standard in all cases | |
| 2 | 0.2437835 | Patient information security | |
| 5 | 0.0699189 | Observance of sharia, legal norms and principles of medical profession | |
| 5 | 0.0921412 | Measuring hospital clinical performance | Health perspective (after treatment( |
| 2 | 0.2437835 | Assessing and modify the therapeutic performance of the hospital | |
| 6 | 0.0699189 | Continuous planning and presentation of nursing and treatment measures for patients | |
| 1 | 0.2865274 | Designing and implementation of care and treatment measures based on evaluations | |
| 3 | 0.1748851 | Continuous review of treatment, care and diagnostic programs | |
| 4 | 0.1327439 | Obtaining clinical care with an evidence-based approach | |
| 1 | 0.2516243 | Implementing prevention and monitoring programs | Health perspective (dimension of prevention and health( |
| 6 | 0.0815426 | Controlling and corrective action in prevention and health programs | |
| 5 | 0.1016222 | Cleaning and disinfection of all parts | |
| 4 | 0.1028792 | Waste Management | |
| 3 | 0.163533 | Sterilization management | |
| 7 | 0.0657994 | Occupational health and employee health | |
| 2 | 0.2351243 | Infection prevention and control | |

According to the above, the research model is designed in 7 branches and 46 sub-branches, which are shown in Figure (1).

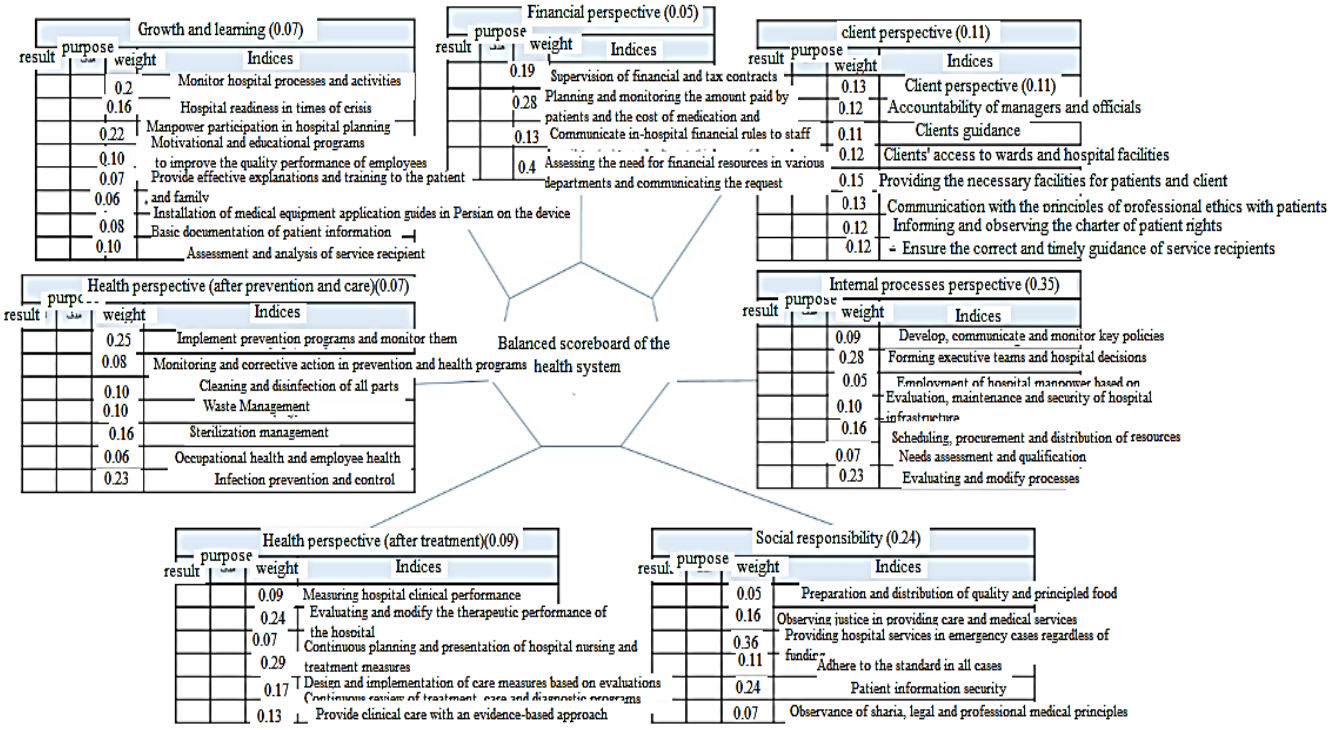


***Figure 1. Balanced scoring card model of the health system of the Social Security Organization***

## Discussion

The goal of this research was to develop a model for assessing the health-care system's performance using a balanced scorecard. In this context, the AHP technique found 7 dimensions and 46 indicators that were weighted. Internal processes are the most significant dimension among the indicated dimensions. This is significant because the right process structure in different elements of the social security health system is not adequately implemented; as a result, process modification and assessment is the most essential indication in this dimension. Another significant factor is social duties, with the provision of emergency services regardless of cost being the most critical metric.

The client is the third important component, and the indicators for this dimension have almost equal weights. These indicators are largely connected to following ethical norms with patients and companions, providing information and direction for these individuals, and other concerns.

In the therapy department, the health dimension is the second most important dimension. The indicators of creating and executing suitable treatment measures, as well as assessing and enhancing the hospital's therapeutic performance, are critical in this dimension. From the standpoint of preventive and care, the health dimension is likewise the next priority, and the most important indications of this dimension are the well-implemented infection prevention and control programs.

Growth, learning, and financial factors were also identified as the least important characteristics. This is also presented in the same manner since money difficulties should be the last priority in health issues. The problem of effective cost assessment and monitoring of adequate performance costs is important in this area. In terms of development and learning, the problem of human resources engagement in organizational choices and planning are important indicators that should be addressed with basic methods.

As a result, the most important aspects for assessing the performance of the health system in the Societal Security Organization are the dimensions of internal processes and social obligations, according to the suggested model.

## Conclusion

In different countries, models for assessing and monitoring the effectiveness of the health system take various shapes and techniques. In the United States, for example, an association is charged with reviewing hospital and health-care system performance, and organizations that do not have the association's approval are not permitted to continue. Other nations, too, have selected a structure that is specific to their circumstances. Singapore has established a customized model to assess the efficiency of its health system, based on the Malcolm Baldrige Excellence Model. The centers and structure of the health system in the United Kingdom are evaluated as part of the NHS system's structure. However, it is important to consider the following factors about the global health system's trajectory.

Three generations of health-care reform occurred throughout the twentieth century. The changes were implemented not just to address the targeted health problems, but also to improve efficiency, fairness, and satisfy the expectations of the people with whom these institutions interacted. In middle-income nations, the first phase of these reforms saw the development of national health care systems and the extension of social security systems, which happened in affluent countries during the 1940s and 1950s and in poorer countries afterwards. The expansion of primary health care was seen as a strategy to reach universal coverage that could be bought by people in the second wave of reforms. This strategy was based on lessons learned from disease control initiatives in nations like South Africa, the Islamic Republic of Iran, and the former Yugoslavia during the 1940s.

The supply-side reforms of the first and second generations were mostly supply-side. Demand concerns are a defining feature of the third wave of changes presently occurring in several nations. "The third generation of changes is an effort to establish a system in which money is sought after the patient rather than supporting service providers (sometimes based on imaginary requirements)."

Many contemporary third-generation reform plans are based on ideas like reacting more to people's requests, making more serious attempts to guarantee that disadvantaged people have access to services, and stressing money (including public sector subsidies rather than pure services). Third-generation reforms reflect, in part, the global political and economic developments that began in the late 1980s with China's, Central Europe's, and the former Soviet Union's transition from a communist to a market

economy. And today, the government's irresponsible meddling in the economy has lost all trust, resulting in widespread government exclusion, more competition at home and abroad, lower government control and monitoring, and a greater reliance on market processes in general.

These big developments have not been kind to health-care systems. As a consequence, there has been a significant growth in the use of relatively modest insurance systems, such as privately paid insurance. In a number of Asian nations, reforms and adjustments have occurred, resulting in the deployment of the comprehensive health insurance system to varied degrees in South Korea, Malaysia, Singapore, and Taiwan. Argentina, Chile, Colombia, and Mexico have all implemented reforms to increase or integrate insurance coverage in order to reduce risk. A mix of insurance and health care has replaced most of the state system in former communist nations, with people paying directly from their wallets. There have been less changes in the way health care is funded in wealthy countries that have had complete coverage in the past. Changes affect who decides how resources are utilized, what agreements have been formed by the accumulation and administration of assets, and how payments to providers are made from the funds' location.

In this research, indicators for assessing and evaluating the health system in social security organizations were identified based on health system models in many nations throughout the globe with various cultures and styles. These variables were divided into seven categories: financial, customer, internal processes, development and learning, social responsibilities, health in the treatment and preventative dimensions, and health dimension, and the final model was presented. In order to examine Dwyedi et al., the outcomes of this study are in accordance with Fatemi et al. (12), Victor and Farooq (10) in terms of defining health perspectives and also in terms of social duties (8).

## Suggestions

Internal processes and societal obligations have a significant weight of relevance, according to the conclusions of this research. It is vital to pay particular attention to the establishment of executive teams and hospital decision-making in order to strengthen the internal processes of the health system. Also, take the essential steps in assessing and adjusting procedures, as well as planning logistics and resource allocation. In addition, the company should emphasize a few issues in order to preserve its social duty in the health system: 1- delivering emergency hospital services at no cost, 2- patient information security, 3- fairness in providing care and treatment services, and 4- adhering to the standard in all circumstances Measures should be done according to each indication in the other dimensions, since the model has prioritized the indicators independently.

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Conflict of Interest:

In this research, the authors had no conflict of interest.

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