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# Thematic analysis of the policies of Iran's health higher education

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## Abstract:

**BACKGROUND:** In 1985, the Iranian parliament approved the integration of Medical Education and Health Services and the establishment of the Ministry of Health and Medical Education, which has since been the policymaker of Health Higher Education in Iran. The policies are not based on a codified framework and many were abolished at some point. Some critical issues are not addressed and some activities overlap. The purpose of the present study was to identify the content themes of core policies in the Iranian Health Higher Education system and provide a detailed policy orientation taxonomy.

**MATERIALS AND METHODS:** This qualitative study was conducted in 2019 using the thematic content analysis of documents relevant to Higher Education and Health Higher Education, including upstream documents, and documents and enactments of the Deputy Minister of Education and its policy centers.

**RESULTS:** From 586 policy documents, six main themes or six core policy orientations in the Health Higher Education System were identified, including Development of Medical Education System Policies; Ensuring the Alignment of Operations with Policies; Policies Related to Medical Education Development; Value-orientation; Networking and Development of Medical Education System Interactions; and the Development of Research, Management, and Translation of Medical Education knowledge.

**CONCLUSION:** Developing a taxonomy of Health Higher Education policy orientations helps policymakers identify the neglected and overstressed areas. It can provide education policymakers with categorized and comprehensive information to quickly access accurate information, make informed decisions, avoid mistakes, and increase productivity.

## Keywords:

Education, medical education, policy analysis, policymaking, taxonomy

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## Introduction

Educational policies are among the most effective tools for the development and promotion of higher education. These policies are highly complicated and affected by various factors.<sup>[1]</sup> On the other hand, policymaking in Health Higher Education has an essential role in developing efficient human resources, providing quality health services, and finally, contributing to community health.<sup>[2]</sup> The policy environment of Health Higher Education in Iran has been affected by three major events over the past decades. The first and most important is the

integration of the Health Higher Education system with the service providing system.<sup>[3]</sup>

The Iranian parliament enacted the integration of Medical Education and Health Services law and established the Ministry of Health and Medical Education in 1985. The Ministry of Health has been the policymaker in higher education of the Health Sector. Education became one of the main missions of the Ministry of Health. This issue provided the unique structure of Health Higher Education in Iran.<sup>[4]</sup> After the integration, all the educational activities, including research and service programs of medical faculties, were supervised by the Ministry of Health,<sup>[3]</sup> and a significant

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part of its activities were devoted to training health-care human resources.<sup>[5]</sup> Since then, several policies have been formulated but no measure has been taken to design a taxonomy of policy themes in Health Higher Education. Formulating a set of educational policies that are implemented both explicitly and implicitly is an absolute necessity for developing policies. Moreover, the compilation of an evolution and innovation program had significant effects on Health Higher Education policies' environment and content.

This program started in 2015<sup>[5]</sup> and its fourth step is the transformation in Iran's Health Higher Education system, leading to the development of evolution and innovation programs in Medical Education.<sup>[6]</sup> Evolution and innovation packages were designed to implement the evolution and innovation programs.<sup>[7,8]</sup> These packages include 12 general policies and 68 strategies for the implementation of the policies.<sup>[9]</sup> It is necessary to design classifications for the Health Higher Education policy orientations to achieve the policy themes in the evolution and innovation packages with a futuristic view in decision-making to improve education quality.

The third essential and effective factor in Health Higher Education is the implementation of Spatial Planning approval.<sup>[10]</sup> The executive model of reform packages has been designed according to the Spatial Planning approval, and in this model, the capacities of the country's areas for spatial areas are used.<sup>[11]</sup> The main objective of Spatial Planning is to create a balance in the geographical distribution of activities, decentralization, and using the planning strategies for effective economic and social functions.<sup>[12]</sup> Therefore, determining the core policy orientation has an undeniable role in reforming and reviewing the current policies and coordination with the Spatial Planning criteria.

Policymaking is faced with multiple challenges in Iran, including weakness in the decision-making system, dispersion, multiplicity of decision-making centers, and lack of monitoring and evaluating the approved programs and policies.<sup>[13]</sup> Moreover, the rapid growth of science, changes in the health system and the needs of society, changes in the country's demographic context, and the emergence of new and advanced technologies have also doubled the challenges of the country's Medical Education.<sup>[14]</sup> Considering that, despite high levels of dynamism and complexity, the main part of the policymaking decisions is not evidence-based<sup>[15]</sup> but mainly based on case-by-case preferences, past experiences, and unsubstantiated evidence.<sup>[16]</sup>

Therefore, the Health Higher Education policy orientation classification must be extracted by analyzing the documents and approvals of policies in this field to

acquire an integrated source and minimize policymaking concepts' complexity.<sup>[17]</sup>

During the last four decades, a large number of policies have been made in Health Higher Education in Iran, in which several policy institutions have participated. Health Higher Education policies in Iran are not based on a codified and predetermined framework. Therefore, several policies have been abolished by new ones at the same time. Moreover, some fundamental issues of Health Higher Education are not addressed in any of these policies. On the other hand, the activities of various policy institutions in one field overlap in many cases. Policy orientations are often not explicitly reflected in the approved policy title but are implicit in the content of policy documents. The main policy themes or orientations can only be extracted through in-depth examinations of the content of policy documents, which is generally done using qualitative research.

## Materials and Methods

This study is a qualitative study conducted in 2019 using thematic content analysis to achieve taxonomy of the Iranian Health Higher Education system's core policy orientation. This analysis method was chosen due to the large volume of the reviewed documents and the implicit nature of many policy themes. The fact that policies can often be clearly visible in policy documents can only be achieved using qualitative analysis methods.

Extracting policy orientations from documents was performed using the inductive approach (i.e., reaching the documents' content to policy themes). Documents included upstream documents and the documents and approvals of the Deputy Minister of Education of the Ministry of Health of Iran. The codes were extracted from the documents' texts, and the subthemes were extracted from the code categories. The basic concepts or main themes were also obtained from the classification and general concepts of the subthemes. The final themes are the Health Higher Education system's core policy orientation in Iran, and the secondary subthemes are the orientations of the policy taxonomy.

### Data collection and types of documents

After an exhaustive search identifying the Higher Education policymaking institutions inside and outside the Ministry of Health, all policy documents of these institutions from 1985 to 2019 were considered input for the textual content analysis process. Documents were made available through correspondence. Accordingly, three types of documents in the mentioned period were considered for inclusion in the study: (a) upstream documents related to Health Higher Education and Higher Education; (b) documents of the Deputy Minister

of Education; and (c) documents and approvals of policymaking centers under the auspices of the Deputy Minister of Education.

Upstream documents include: (1) Iran's 1404 Vision, (2) Comprehensive Scientific Map of the Country, (3) General Policies of the System for Scientific and Research Development of the Country in the Field of Higher Education and Research Centers, (4) The Fifth Five-Year Development Plan of the Islamic Republic of Iran, (5) Law of Organizations and the Duties of the Ministry of Health and Medical Education, (6) Law of the Sixth Five-Year Plan for Economic, Social, and Cultural Development of the Islamic Republic of Iran and Law of Permanent Provisions of the Country's Development Plans, (7) Final Document of the 20-Year Vision of the Islamic Republic of Iran, (8) Document of the Country's Strategic Transformation of Science and Technology, (9) Comprehensive Scientific Map of the Country's Health, and (10) Spatial Planning Document.

Documents of the Vice-Chancellor for Education include (1) Reform and Innovation Package of Medical Education Based on Higher Education in the Field of Health, (2) Four-Year Performance Report of the Vice-Chancellor for Education from 2013 to 2017, (3) Higher Education Plan in the Field of Health System Reform Plan, and (4) Geographical Expansion Strategy for Health Higher Education.

After collecting and studying all documents, the content related to Higher Education and Health Higher Education was extracted and analyzed as the study data.

### Open coding

At this phase, data analysis was started to create the codes for extracting and classifying policy content orientation. The text of the documents was broken down into smaller sections to access the initial codes. The meaning of these parts was relevant to educational policy and was selected by the researcher. These short phrases were named "initial codes." The codes had clear definitions, were relevant to the themes, and were focused on an aspect of the educational policies' content. The initial codes were entered into an Excel spreadsheet.

### Search for primary and secondary themes

Furthermore, after obtaining the initial codes, the analysis was performed on a larger scale, classifying the codes and searching for explicit and implicit concepts. The result was the generation of subthemes or attempted to be as specific, nonrepetitive, and general enough as possible and to include a set of ideas presented in the initial code and the relevant text. Due to the large number of primary subthemes, the abstraction and categorization

of themes continued at this stage and the secondary subthemes were obtained.

### Naming and defining the main themes

Finally, to obtain the main themes, the semantic proximity of the subthemes was used to abstract the most general concepts that included the subthemes. After a few rounds between the main themes and the secondary subthemes and considering the included classes of subthemes and aspects of each theme's data, the main themes were obtained. The main themes were then defined and reviewed. The main themes were thoroughly reviewed by examining the external concepts and understanding their hidden ideas to achieve the highest abstraction level.

## Results

A total of 586 documents and resolutions, including 10 upstream documents, 4 documents from the Deputy of Educational, and 572 documents and resolutions from the centers under the Deputy of Education, were studied. A total of 2332 policy codes were extracted. The number of codes extracted from each document is shown separately in Figure 1.

After the analysis process, 104 primary subthemes, 22 secondary subthemes (subcategories of core policies orientation), and 6 main themes (policies orientation) were extracted, including "Development of Medical Education System Policies," "Ensuring the Alignment of Operations with Policies in the Medical Education System or Government Consolidation," "Policies Related to Medical Education Development," "Value-orientation in Medical Education," "Networking and Development of Medical Education System Interactions," and "the Development of Research, Management, and Translation of Medical Education Science."

Table 1 shows all the extracted data in detail.

### An example of the analysis process

The initial code with the title of "Development of indicators to evaluate the performance of the responsible areas" was obtained from a small part of the text of the upstream document "the Country's Health Comprehensive Scientific Map," which is shown in Figure 2.

By studying the initial code entitled "Development of indicators to evaluate the performance of responsible areas" along with similar codes from other documents such as "Development and implementation of a national system for evaluating educational units" from the strategy document of geographical expansion of Health Higher Education and "Development of educational accreditation standards and indicators" from the

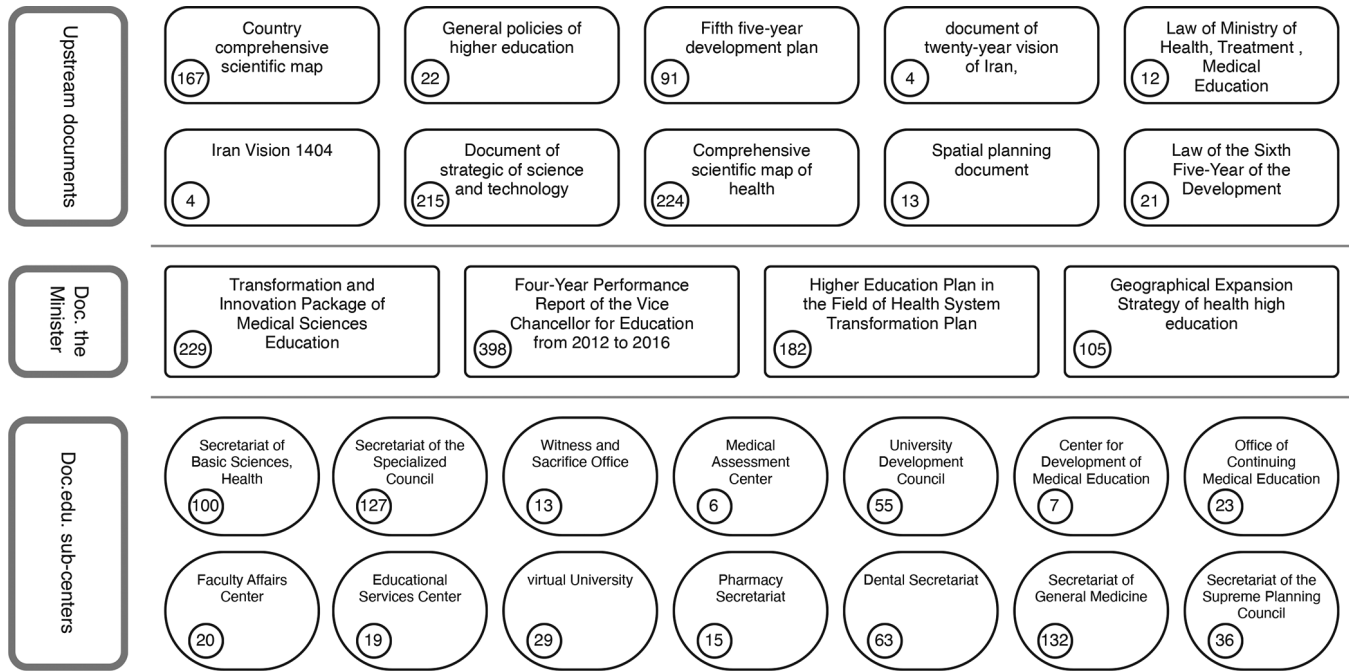


Figure 1: Types of documents and the number of primary codes obtained from each

Same as the Comprehensive Scientific Map of the country, the Comprehensive Scientific Map of Health is also one of the most strategic development programs in science and technology, which indicates a long-term horizon for the Islamic Republic of Iran to play a strategic role regionally and internationally. Having a Comprehensive Scientific Map of the country should be necessary to achieve the Islamic Republic of Iran's 20-year vision plan. However, designing operational plans is of essential importance for the implementation of the map in the field of health, **development and identification of indicators for monitoring the progress of the plan and evaluating the performance of the departments responsible for implementing the components of the map and are addressed in this section.** In other words, the Comprehensive Scientific Map of the country should, on the one hand, contain the Islamic Republic of Iran's 1404 Science and Technology Vision and, on the other hand, provide an operational mechanism with the participation of all beneficiaries in the implementation process; these two qualities are interdependent.

Figure 2: A small part of the text of the upstream document "Comprehensive Scientific Map of the country;" the initial code has been extracted from the highlighted parts

approvals of the University Development Council, the initial subtheme of "Evaluation and accreditation of hospitals and educational institutions" was obtained.

Moreover, by categorizing and reviewing the concepts of the primary subtheme "Evaluation and accreditation of hospitals and educational institutions" along with the primary subthemes of "Evaluation of educational processes and services," "Evaluation and accreditation of educational programs," "Institutional accreditation," and "Program Accreditation," a secondary subtheme was extracted entitled "Ranking and Accreditation in the Medical Education System."

Finally, the secondary subtheme "ranking and accreditation in the medical education system" with

the secondary subthemes of "development of rules in the medical education system," "development of standards in the medical education system," "monitoring, control, and evaluation in the system of medical education" by considering the content of the codes and its subthemes, the main theme or the core policy orientation titled "ensuring the alignment of operations with policies in the system of medical education or government consolidation" was obtained. Figure 3 shows the main themes (core policy orientations) and the secondary subthemes (core policy orientations subcategories).

### Health higher education policy orientations *Policy development of medical education system*

Policy development and advancement have two fundamental pillars; one is evidence-based policymaking, one of the accepted principles of policymaking today. Moreover, it is an approach for policy decisions that ensure decision-making using the best available scientific evidence. Evidence-based policymaking is essential to achieving long-term key goals.<sup>[18]</sup> The other pillar of policy development is the evaluation and monitoring of policies, which, if implemented correctly, could lead to the continuous optimization of policies with a critical eye.<sup>[19]</sup>

Evaluating the policies helps policymakers identify problems, and indicating problems is an essential step in the reform and review of policies.<sup>[20]</sup>

*Ensuring the alignment of operations with policies in the medical education system (government consolidation)* Educational policies might be interpreted and



**Table 1: Themes and primary and secondary subthemes**

<b>First Subthemes</b>	<b>Second Subthemes</b>	<b>Final themes</b>
Policymaking in educational fields	Evidence-based policymaking	Developing policies of the medical education system
Participation of beneficiaries in policymaking	Evaluating and monitoring of medical education policies	
Decision-making based on evidence and research		
Coordinating education policies with other areas		
Evaluating and monitoring policies		
Using scientific evidence in education		
Institutional accreditation	Developing rules in the medical education system	Ensuring the alignment of operations with policies in the medical education system (realization of sovereignty)
Program accreditation	Developing standards in the medical education system	
Evaluating the educational processes and services	Monitoring, supervising, and evaluating the medical education system	
Developing laws and educational regulations	Ranking and accreditation in the medical education system	
Scientific, educational, and research accreditation		
Supervising and evaluating the medical education system		
Compiling and revising the regulations		
Accrediting and evaluating the training courses and skills		
Standardizing the education		
Evaluating and accrediting the principles of professional ethics		
International standardization and accreditation		
Standardizing of universities and educational hospitals		
Standardizing and increasing the effectiveness of tests		
Educational ranking system		
Ranking according to international ranking systems		
Supervising education		
Organizing statistics and scientific information on education		
Compiling approvals and educational regulations		
Supervising the planning and promotion of examinations		
Developing a scientific and educational assessment of students and graduates		
Assessing of students' skills		
Standardizing the student assessment system		
Supervising and decentralizing the educational processes		
Institutional development	Developing institutions and infrastructures for medical education	
Developing space, equipment, and other educational facilities		
Developing the infrastructure of information technology for communication in education	Developing courses and sections	
Faculty development	Human resource development and management	
Student development		
Personnel development		
Approving of new fields and degrees		
Setting up new fields and educational levels		
Developing Scientific Research Centers		
Interdisciplinary development		
Developing education in postgraduate education		
Developing scientific associations		
Developing scientific poles or centers of excellence		
Developing virtual education		
Developing clinical education		
Developing the content, texts, and educational resources		
Developing human resources training		
Improving the student-faculty pyramid		
Developing knowledge		
Knowledge management in education		
Producing wealth and generating income from education		

Contd...

**Table 1: Contd...**

<b>First Subthemes</b>	<b>Second Subthemes</b>	<b>Final themes</b>
Developing a continuous education of the medical community		- Policies related to the development of medical education
Improving the quality of management and academic leadership		
Developing entrepreneurship in higher health education		
Developing statistics and scientific information on education		
Targeting and promoting education		
Organizing and supervising research institutes		
Interaction of education with industry		
Developing and improving the quality of the scientific system		
Accessing new sciences and technologies		
Nurturing exceptional talents and elite students		
Interaction between university and industries		
Localism in education	Improving social responsibility in the medical education system	Value-orientation in Medical Education
Prioritizing in education	Improving financial/institutional accountability in medical education	
Third-Generation Universities	Improving accountability to the international scientific community of medical education	
Ownership, financing, and allocation	Ensuring equality and justice in medical education system	
Developing ethical codes	Improving the quality and efficacy in medical education system	
Developing professional codes	Improving efficiency and improving the effectiveness in medical education system	
Developing scientific authority in the medical education system	Improving transparency in the medical education system	
Duty-orientation in the medical education system	Ensuring academic freedom in medical education system	
Distinguishing the missions in the medical education system		
Developing the quality in management and academic leadership		
Developing the quality of curricula		
Achieving professional ethics in education		
Educational needs assessment		
Workforce needs assessment		
Scientific needs assessment		
Needs assessment based on land management		
Research needs assessment		
Technical and financial needs assessment		
Equality in education		
Developing the educational structures of universities and their relations		
Private education with tuition		
Commercialization of science		
Privatization of education		
Educational accountability		
Internationalizing higher education	National networking	Networking and developing medical education system interactions
Developing the communication between universities	International networking	
Attracting foreign students		
Determining the criteria for international educational cooperation		
Joint university courses and projects with other countries		
Using the scientific capacities of other countries		
Establishing national education networks		

*Contd...*

Table 1: Contd...

First Subthemes	Second Subthemes	Final themes
Scientific foresight in education	Developing the research and innovation system in medical education	Developing of research, management, and translation of medical education students
Independence of universities	Areas with priority for research in medical education	
Reforming the research system		
Developing the intellectual property system		
Developing research rules		
Supporting researchers and scholars		
Monitoring and evaluating research activities		
Reinforcing research budget		
Application of research results		
Theorizing in education		
Central research in education		
Creativity and educational innovations		

implemented in different ways in the transition from different levels of implementation, from headquarters to the level of management of educational institutions.<sup>[21]</sup> Therefore, the authorities involved in educational institutions may have different interpretations of the text of the announced policies following the cultural, social, political context, and other factors and interpret them according to their own possibilities and limitations.<sup>[22]</sup> The announced policies do not always have the policymakers' desired outcomes, and their results and consequences are not easily predicted. Therefore, all policymakers have arrangements to monitor the announced policies. These methods also indicate how administrative policies will be evaluated.<sup>[23]</sup> Monitoring and evaluating policy and its strategic application in the policy cycle can improve policy objectives and strategic planning and support the link between policy interventions and their results. It also strengthens accountability, provides the legitimacy needed to use public funds and resources, and increases the productivity and effectiveness of policies.<sup>[24]</sup>

#### *Policies related to the development of medical education*

The new approaches to development consider people the axis of development and consider it essential to train skilled human resources and specialists in sustainable development.<sup>[25]</sup> The medical education suggested in sustainable development trains creative, participatory, and critical-thinking people who are capable of understanding and solving problems.<sup>[26]</sup> With this new perspective, the international community needs to develop and reform new educational policies as it is not possible to train people using old educational methods and tools. This change must take place both in the content of education and in the field of educational methods.<sup>[27]</sup> We need policies based on the "A model of education for sustainable development" to produce human resources with the above conditions. Furthermore, human resource development is not possible without its essentials and should correspond to the development of infrastructure and the foundations of education, such as educational fields and levels.<sup>[28]</sup>

#### *Value-orientation in medical education*

These policies include all of what we know as values. Kogan places values at the center of understanding educational policies and regards policies as executive statements and authoritative allocation of values. Policymaking is, in fact, a way to accredit the values.<sup>[29]</sup> We implement values in the form of goals through policymaking.<sup>[30]</sup>

On the other hand, if we consider policies unquestionable, and regardless of their value origins, we could not correctly analyze the reasons for their formulation. Therefore, value-orientation in higher education can include several cases as follows: financial and institutional response, social, moral, and professional response,<sup>[31]</sup> responding to the international scientific community, promoting equity and justice, promoting performance and efficiency, promoting quality and effectiveness, and ensuring academic freedom policies in the education system.<sup>[32]</sup>

#### *Networking and development of medical education system interactions*

Networking in education establishes a mutually beneficial relationship with others for sharing their experiences and also entering the international competitions and gain global ranking.<sup>[33]</sup> In this mutual relationship, sciences and scientific experiences are interchanged, and the potentials of educational institutes and universities are recognized.<sup>[34]</sup> Moreover, it promotes participation in the international education market and attracting international students and professors. Networking policies in education can be at national and international levels.<sup>[35]</sup>

#### *Development of research, management, and knowledge translation in medical education*

Research is considered a fundamental element and one of the best indicators of development and quality in promoting the national power of every country in its cycle of globalization. On the one hand, the sustainable improvement and advancement of every society

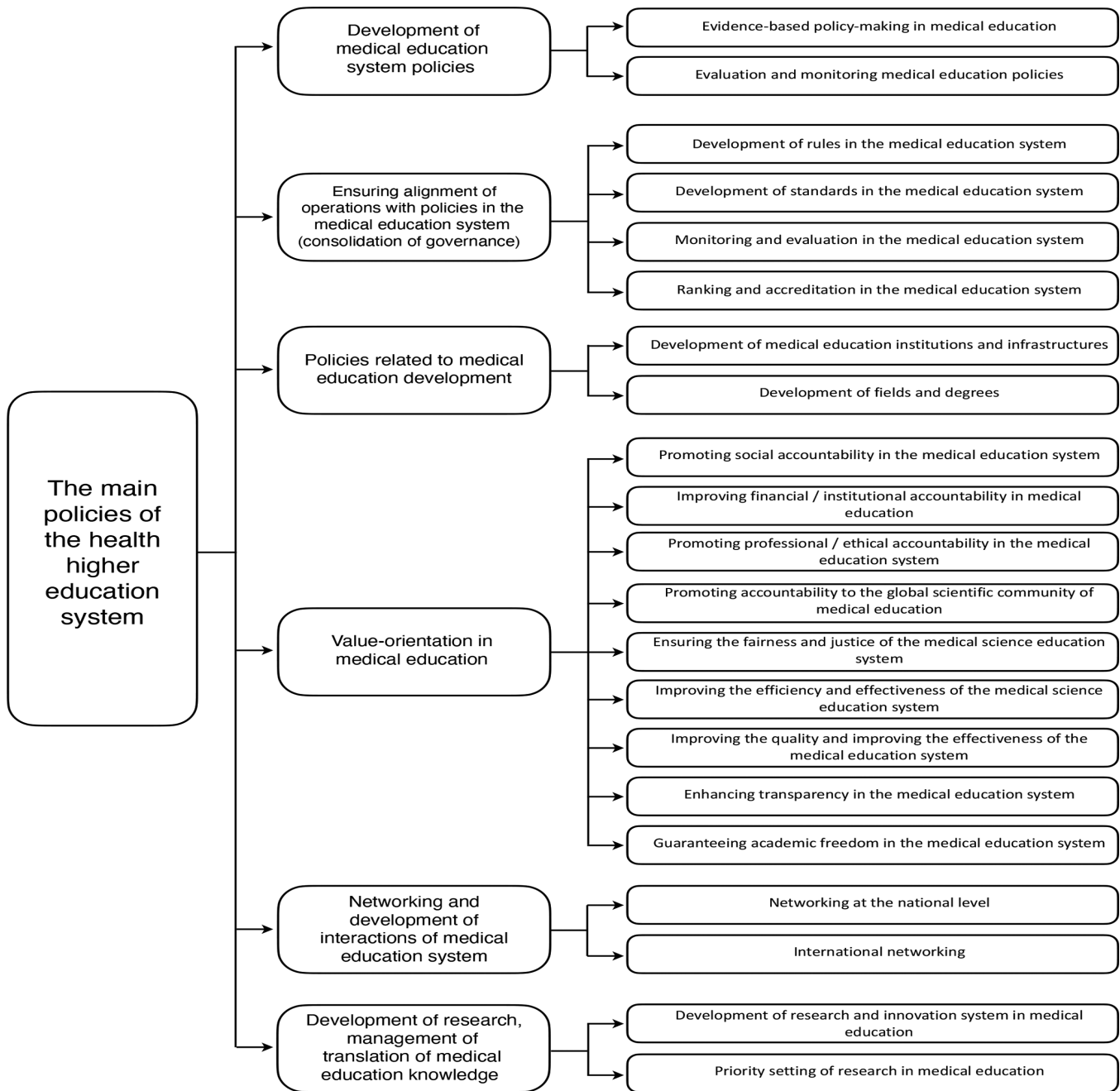


Figure 3: Taxonomy of the Health Higher Education core policy orientation

are dependent on the cultivation, preservation, and maintenance of scientific, research, and technological assets.<sup>[36]</sup> Researchers and technologists can pave the way for scientific and technological development and ultimately lead to global sustainability. Thus, identifying, communicating, and supporting this issue has a special priority over other issues.<sup>[37]</sup> The research development includes the development of the research and innovation system and the prior fields in research

### Discussion

This study's results were extracted from the review and

analysis of 586 relevant higher education and Health Higher Education documents using the thematic analysis method. The results include six final themes or main policy orientations, including: "Development of Medical Education System Policies," "Ensuring the Alignment of Operations with Policies in the Medical Education System or Government Consolidation," "Policies Related to Medical Education Development," "Value-orientation in Medical Education," "Networking and Development of Medical Education System Interactions," and "the Development of Research, Management, and Translation of Medical Education knowledge."



The results, which include themes and main policy orientation, are extracted from general issues derived from secondary subthemes. These secondary subthemes are derived from the classification and summarization of primary subthemes. The primary subthemes are the code classification results, and the codes are obtained from policy document texts. Therefore, the mentioned themes are the main orientation of health education policies that each has subcategories of policy orientation or subthemes. This taxonomy also indicates the relationship between the orientation of main policies and their subcategories; thus, policy documents have been analyzed in this study. Higher education has been considered a developmental tool in the previous decades and has attracted attention to its quality and subsequently to educational policymaking.<sup>[38]</sup>

Musick believes that “political science” should be used to equip policymakers, improve policies’ outcomes, and decision-makers’ actions in the educational system. Analyzing the policies is the main tool of political science for developing, formulating, and assessing policies. Policy analysis is considered as a method to evaluate the effectiveness of policies. Hence, policy analysis is a missing link that can lead to a better understanding of the policy process and provide relevant knowledge and evidence. The review of literature represents that medical education lacks the appropriate “tool” for policy analysis.

Policy analysis is generally related to either the content of policies or processes that are modified, developed, and implemented by those policies. Policy analysis, however, has become increasingly more involved with the process over time, although it was initially a way to evaluate macro-level systems. This field became a scientific discipline over time, primarily concerned with policy process analysis and subsequently seeking to provide a proposed framework for analysis.<sup>[38]</sup>

For the first time, Carol Weiss demonstrates that educational policy analysis is a distinct discipline. According to Weiss, most of the concepts used to analyze policies and discourse are “borrowed” from the social sciences and applies to other fields (for example, education). Social sciences’ concepts shape this tacit knowledge and enable policymakers to manipulate and use it.<sup>[39]</sup> Weiss expressed that policy analysis results from the interaction between the four essential elements, or “the four I’s:” Institution, information, ideology, and interests. Policy decisions are a combination of the logical processing of information, different ideologies, and the interests of oneself and others influenced by policies. Weiss’s approach to the policy content and understanding of underlying factors influencing the development of policies is useful but generally does not provide a framework for policy analysis.<sup>[40]</sup>

Short defined a research-based approach to policy analysis in education. He describes the outline of ten research methods in curriculum studies and their application in educational assessment. Short’s approach has been useful in better understanding the various aspects of policy analysis and how they relate to medical education,<sup>[41]</sup> but this approach lacks a framework for policy analysis.

On the other hand, Humes investigates the critical questions used by educational decision-makers to understand policy analysis aspects. Examples of questions are: (1) what processes trigger the formation of new educational policies? (2) How do ideological, political, economic, and cultural issues affect these processes? His questions are also in the context of the educational policymaking process and do not address the content of the policies.<sup>[42]</sup>

Moreover, Reid advocated a structured approach to educational policy analysis that is proportional to the curriculum matters. He stated that five issues should be considered in formulating educational program policies, as follows: “teachers,” “learners,” the “educational milieu (or environment),” “subject matter,” and “curriculum-making.”<sup>[43]</sup>

Musick’s study covers the content of policies and provides no recommendation about the policymaking process. He states that an accurate methodological approach to policy analysis is missing, which could be used in the field of medical education literature. In summary, there is a need for a “tool” that decision-makers can use to analyze policy. He proposes Richard LaBrecque’s 12-factor framework to assist policy analysis in medical education to have a systematic approach to policy analysis in medical education. These 12 factors include Conceptual, Normative, Theoretical, Empirical, Economical, Political, Ideological, Cultural, Historical, Assumptive, Legal, and Logical.<sup>[38]</sup>

The mentioned elements and factors do not have equal values; however, using a structured approach to analyzing the policies is an important factor.

According to Musick, the decision-makers of a medical school at both macro (organizations) or micro (units or departments) levels could constitute the levels in his proposed framework and might wish to use this framework as a part of the policy formulation process.

However, in the present study, the documents and the content of the policies are analyzed; therefore, the formulated taxonomy is at the level of policymakers of health higher education in Iran and could be used as a model for developing, modifying, and evaluating the policies.

However, Micheal Kennedy has published several articles about the various System Dynamics (SD) models on educational policy issues in 1999–2011. He argued that higher education faces a number of legislative modifications, and changes in government policies are among the most effective factors of intervention and modification. Furthermore, universities have complex, dynamic, and nonlinear systems. Therefore, it is difficult to interpret, analyze, and determine the effect of various interventions and strategies for their management. However, the SD methods have partially resolved the problem and proposed methods to compute domains of the problem to evaluate the impact of different interventions on the system and its outputs.<sup>[44]</sup>

First, six essential education issues, such as planning, resources, budgets, human resource management, and education quality, were studied.<sup>[45]</sup> In the subsequent studies, extended taxonomy was performed in eight significant higher education fields and five hierarchical levels, including national, regional/state, university/institution, and faculty/group levels. Therefore, Kennedy offers a comprehensive classification of SD models in higher education. The purpose of the formulation is to facilitate and organize the appropriate application of SD techniques in educational policy. One of the Kennedy's objectives is exploring the new levels of higher education and differentiating the policy-related aspects of SD methods from educational methods and techniques.<sup>[46]</sup>

Besides, Kennedy believes that the SD is a suitable modeling method for education management. Therefore, decision-makers using SD techniques could evaluate the results of different decisions and policies and execute more efficient policies by avoiding the predicament of wrong decisions.<sup>[45]</sup> On the other hand, Kennedy and Claire (1999) discuss factors that need to be incorporated into a system. The SD was designed to assist in the analysis of policies.<sup>[46]</sup> Kennedy considers a static and linear vision as the source of problems of current methods in changes, modifications, and interventions. He proposes a dynamic, systematic, and generalized approach for successful decision-making.<sup>[47]</sup> Indeed, some managerial issues are complex and could not be resolved using simple insight and management assumptions. Therefore, SD theory is a method for modeling and analyzing a system's factors and finding suitable solutions.<sup>[48]</sup>

The present study also provides a comprehensive and holistic view of educational policies for policymakers so that, by considering educational policymaking as a complex system and showing the relationship of the fundamental policy orientations as the main themes and policy classifications as subthemes, they investigate

critical factors of each policy and evaluate their effects by changes and interventions. These studies' similarity is in the holistic approach to policies and evaluation as a complex and nonlinear system. The difference between the two studies is the correlation obtained in the policies. The relationship obtained in the SD is a causal relationship or an expression of causes and denotes a semantic relationship in taxonomy.

In a study by Abdullah H. Bin Sawad *et al.*, 20 taxonomies in higher education were formulated. They stated that the formulation of higher education is a significant concern. Therefore, by analyzing and examining policymaking processes, they demonstrated the decision-making involvement in higher education in six stages but have mentioned no themes in the context of policies in higher education.<sup>[49]</sup>

In a study conducted by Wisker and Masik (2017) on creating a positive environment for widening participation in higher education in South African universities, a taxonomy was developed which includes aims and strategies. They identified six initial broad categories regarding different forms of social justice practices. The value-oriented curriculum is one of the topics of this taxonomy which is similar to the final value theme in the present study and shows the importance of considering values in higher education. The researchers also emphasized that creating a positive environment for widening social participation in higher education is a multi-layered political process that requires the coordination of the policies with actions. The alignment of policies with operations for the appropriate implementation of policies is one of the final themes of the present study.<sup>[50]</sup>

One of the taxonomies developed in medical education created by Magzoub and Schmidt is community-based education (CBE). A CBE program is an instructional program for clinical training in the community outside the environment of academic hospitals. This study identified three main categories and 6 subcategories. This taxonomy aims at providing a classification to describe all of the CBE programs which may help develop a more systematic approach to study and therefore encourage CBE. Such a classification can help provide instructions to carry out CBE programs. Moreover, exchanging the experiences to the people involved in this type of education is of significant importance. In fact, the goals of developing and using this taxonomy are relatively similar to the present study, however, this study is on a higher, broader level and is more comprehensive.<sup>[51]</sup>

No similar study on the context analysis and the orientation of core policies in higher education could be found; in fact, the advantage of the present study

is in providing a framework for the content of policies and a formulated taxonomy for comparison, evaluation, modification, and formulation of policies in Health Higher Education.

One of the limitations of the study was the difficulty accessing policy documents. Another limitation of the study was the large volume of documents to be analyzed, as well as a large number of codes and subthemes that made it difficult to access the final themes or policy orientations

## Conclusion

Medical education policymakers often find out that they operate in a “policy vacuum” situation due to the lack of information. In addition, considering the complexity of policymaking in the educational system, and specifically in the Health Higher Education, policymakers require integrated, abstract, and updated information. Formulation of a taxonomy of Health Higher Education policy orientations addresses policymakers’ knowledge for comprehensive, updated, and concise information. Developing the taxonomy of Health Higher Education policies by providing a general view of contemporary policy orientations of the country helps policymakers and policymaking institutions in this field identify the neglected areas on the one hand and on the other hand irrationally and unreasonably overstressed areas. This taxonomy could be employed to determine the future plans of policy bodies. This taxonomy also provides a reasonable basis for comparative policy studies at the regional and international levels. Therefore, by formulating a taxonomy of policy orientations, it is possible to carefully review educational policies and provide practical solutions for reforming, formulating, or modifying policies in this field. Furthermore, the present study could be the basis for further studies in determining Health Higher Education policy criteria.

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## Conflicts of interest

There are no conflicts of interest.

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