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Research Article

Policy-Making in Determining the Mission of Medical Sciences Universities during the COVID-19 Pandemic using Competitive Advantage and Scientific Strength

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Abstract
Background: The outbreak of 2019 novel coronavirus (2019-nCoV) caused a pandemic in most countries, and how to face the pandemic is a major issue that needs to be addressed worldwide.
Objectives: The current study aimed at determining the competitive advantage and scientific strength of medical sciences universities to face this pandemic
Methods: A mixed-methods was employed to conduct the current study from May to April 2020 in three steps: a) identifying the academic departments with the most exposure to this pandemic; b) designing the protocol to calculate the scientific strength and competitive advantage, c) allocating the mission to academic departments.
Result: The scientific strength and competitive advantage were calculated for clinical and non-clinical departments in all medical sciences universities. The obtained results indicated that some universities, for instance, Tehran, Shahid Beheshti, Iran, Isfahan, Mazandaran, Shiraz, Kerman, and Mashhad, had the most competitive advantage that would increase their responsibility to face this pandemic.
Conclusion: Policy-makers that clearly identify the mission and objectives of their institutions and define the relevant tasks may have better performance based on the capacities and abilities of the medical sciences universities.
Keywords: Coronavirus, COVID-19, Academic Departments, Scientific Strength, Competitive Advantage, Mission Differentiation

Background

In December 2019, a novel coronavirus was detected in patients with pneumonia, which was later named 2019-nCoV. Since the first human coronavirus was detected in the 1960s, 2019-nCoV is the 7th one known to infect humans (1). The new coronavirus, from a family that historically was not viewed as a global health concern, is the world's daily headline news. The 21st century marked its arrival with the emergence of three previously unknown coronaviruses: SARS-CoV (severe acute respiratory syndrome coronavirus) recognized in November 2002 (2, 3), MERS-CoV (Middle-East respiratory syndrome coronavirus) in June 2012 (4, 5), and 2019-nCoV in December 2019 (6).

Now the outbreak of the virus is a pandemic in more than 19,000,000 confirmed cases worldwide until August 2020(7). Until now, little is known about the infectiousness of 2019-nCoV. How to fight pandemics is always a major issue that needs to be addressed worldwide. In 2003, the SARS epidemic caused global economic losses of US$ 30 billion (8), which exceeded the military expenditures of any one of 221 countries in 2018 (9). At present, predicted funds required to fight a future global pandemic is not clear (10, 11). Making advanced preparations for a pandemic may bring significant short-term benefits, such as providing basic health services, encouraging research and development, strengthening interregional cooperation and emergency response systems and biosafety management, and promoting the balanced development of health and security of the world in general(12).

The outbreak of the coronavirus pandemic and the sudden development of the COVID-19 disease shocked all countries, and one of the essentials under such circumstances is to adopt rational, professional, and evidence-based strategic policies based on the structure of the own and other countries experiences. By learning from the effective measures employed and problems encountered in the prevention and control of this pandemic, the government is likely to set up an emergency decision-making organization when responding to future public health emergencies. Externally, the government needs to guide medical and scientific research and allocate medical care materials, and at the same time, comprehensive epidemic prevention should be implemented rapidly and efficiently. Scientific achievements, such as the development of vaccines, anti-bodies, and antiviral drugs, play a pivotal role in fighting epidemics and reducing mortality. Integrating scientific research resources, increasing research investment, strengthening direct cooperation between the international and domestic scientists, and accelerating clinical applications of scientific research results enhance the ability to prevent the spread of the epidemic or accelerate the elimination of the virus. The rapid response of the government to the epidemic benefits, in part, from the substantial improvement of the national scientific research ability and research equipment, as well as the efficient communication of research results(12).

In Iran, universities and higher education institutions (HEIs) play critical roles in achieving the goals of the health system. A diverse range of HEIs, with different missions, allows the system to increase HEI effectiveness and offer opportunities for experimenting with innovation. However, despite its prominence within the policy lexicon, pursuit of diversity (it is argued) is continually undermined by countervailing tendencies. (13-16).

In Iran, on the first day of the coronavirus outbreak, all 66 schools and universities of medical sciences, as well as the Ministry of Health and Medical Education (MOHME), began to tackle the spread of the virus. The activities included educating the community, providing measures to prevent further outbreaks, taking care of the patients, etc. Some universities and scientific associations, such as Tehran(17), Baqiyatallah(18), Shahid Beheshti(19), Iran(20), Kerman (21),etc., began researching for treatment and control of 2019-nCoV. The activities, such as treatment and informing the public taking place in medical sciences universities, were often performed in parallel at all institutions, some of which resulted in a high cost and waste of time. Due to the necessity and importance of time to control 2019-nCoV and treat the patients, it seems that the universities should approach this disease based on their capabilities, which saves time and cost and improves the quality of providing services. Therefore, the academic departments involved in the control and treatment of 2019-nCoV and their scientific and competitiveness strength should be determined to allocate them appropriate missions to treat the patients and control the virus. The national division of labor plays a critical role in pandemics. Studies are conducted so far on practical researches in different countries for the better management of diseases, but no one is conducted on the advantages of medical sciences universities to determine and prioritize the universities and departments that should act as a core to fight the pandemics, such as the experience of China and other countries by using applied research in the control of the coronavirus, the SARS (22-24). The findings can help the policy-makers of MOHME to plan appropriately for the allocation of missions in the field of research and to get a top rank at national and international levels.

Objectives: Therefore, the current study aimed at seeking answers to the following questions:

–Which departments in the medical sciences universities should contribute to the centers of research for the control and treatment of Coronavirus disease?

–How much are the scientific strength and competitive advantage of the departments of medical sciences universities?

–What mission should each department of medical sciences universities be assigned?

Method

A mixed-method design (25), incorporating both qualitative (focus group discussion) and quantitative (scientometric) techniques, was employed in the current study (26). In this regard, the study was conducted in three steps: a) identifying the clinical and non-clinical academic departments that face the pandemic; b) designing the protocol to calculate the scientific and competitive strength of the departments, c) allocating the mission to universities of medical sciences to deal with 2019-nCoV.

These three steps were performed as follows:

a) Identifying the most important academic departments that should be involved in dealing with 2019-nCoV.

In order to choose the departments, five expert participants in clinical and basic sciences were interviewed to determine the groups involved in fighting with the outbreak of 2019-nCoV; after collection, the data were analyzed through the Braun and Clarke content analysis(27). Therefore, the list of departments that should be involved in the COVID-19 control and management was identified and finalized. The results obtained from the interviews were divided into two clinical and non-clinical clusters (Table 1).

It should be noted that clinical academic departments are the disciplines that their faculty members work in hospitals and medical centers and deal with patients, and non-clinical departments are the ones that their faculty members work in non-hospital centers, such as schools or research ones. The departments were categorized into five groups of management & control, social education & prevention, diagnosis, treatment, and information management.

b) Designing the protocol to calculate the scientific and competitive strength of departments; this part of the study

was done in two stages:

b-1) Determining the formula for the calculation of scientific strength and competitive advantage of departments.

This stage was conducted in Iran within the context of postgraduate training programs of the academic clinical and non-clinical departments trained by the faculty members in 66 schools and universities of medical sciences. In this regard, the explored and identified viewpoints of the participants were utilized in a focus group discussion (FGD) by the faculty members of medical sciences universities, and research data of the faculty members were analyzed using a scientometric system of MOHME.

FGD was conducted to develop a protocol in order to determine the scientific strength and competitive advantage of departments. The literature review showed that the focus group method is used as an explanatory or exploratory data collection technique.. In this study, the participants were selected using purposive sampling. In this technique, participants are selected on the premise of a purpose in the mind of the researcher and the sample is then selected to encompass the interested participants as well as excluding those who do not suit the purpose (25, 28).

At the beginning of the meeting, the research objectives and general information about the research and the meeting time were explained. In addition, it was fully described the meeting audio recording and that everyone had to contribute, and it was assured that the information remained confidential and anonymous. During the meeting, one of the researchers conducted discussions maintaining neutrality, without judging.

After the focus group meeting, the recorded audio was transcribed by one of the researchers. A qualitative content analysis was performed according to the study by Braun and Clarke, and the results were obtained (29, 30). Validity, transferability, reliability, and verifiability criteria were considered in the study. For validity, Each member of the research team reviewed and refined their themes to ensure they were coherent and representative of the whole data set. in all the stages of the study. In addition, the data collection and analysis processes were performed shortly after the FGD. Regarding the transferability criterion, it was attempted to provide a comprehensive description of the study. Regarding reliability, data analysis was performed by two researchers, and the results were reviewed by the third party, as an external observer in order to ensure the criterion of verification. Each statement was classified in a matrix, and the themes summarizing various statements were searched. The consistency of the matrix was checked by the researchers by coding the transcripts again while looking for blanks or inconsistencies that did not fit in the themes and establishing whether the themes were exclusive. Contradictory statements were also explicitly searched, and the consensus was reached through discussion. No theoretical framework was used during the coding procedure(29).

b-2) Implementation of the protocol proposed in the first stage

In this regard, the research data related to faculty members of clinical and non-clinical departments from the scientometric system of MOHME, including demographic characteristics, school and university names, H index, the total number of citations, ranking at the national level in the fields, and specialized field names, were extracted (31). At this stage, the accuracy of the data was examined. Each member of the research team worked independently to research data, They then discussed their individual findings online and at face-to-face meetings to agree upondata obtained from scientometric system . After analyzing the scientometric data of all schools and universities, the results were extracted based on the scientific strength and the competitive advantage indices. The scientometric data were analyzed using Microsoft Excel 2019 and Tableau software version 2018.3. Descriptive statistics (frequencies and percentages) were analyzed.

c) Proposing the mission to medical sciences universities to deal with 2019-nCoV.

The findings of the two previous stages, including the competitive advantage of clinical and non-clinical departments, as well as missions, were suggested to the medical sciences universities in the form of management and control, community-based education and prevention, diagnosis, treatment, and management information(4).

Results

The current study aimed at determining the scientific strength and competitive advantage of departments of medical sciences universities to deal with the 2019-nCOV pandemic.

The current study, using the focus group method, was conducted by five faculty members of Shahid Beheshti and Kerman universities of medical sciences and MOHME. Participants in the study were two professors, two associate professors, and one assistant professor with the mean age of 53.1 years; data were collected from May to April 2020.

The results of focus group analysis were presented as four indicators, two computational formulas and two executive strategies, to determine the competitive advantage and scientific potential of clinical and non-clinical departments of medical schools and universities. Indicators included H_2, T10C, T10C/N, and T10CU/N, and the scientific strength calculation formula called scientific strength and competitiveness advantage indices are explained below. Finally, executive solutions were obtained to follow the path of calculations.

Indicators of the department authority in knowledge production:

H Index: One of the recent strong indices

[2]Hirsch suggested the index-h as a simple useful method to describe the scientific output of researches (32). Research assessment of academic institutions (universities, departments, and independent research institutes) is one

of the most important points in scientometric studies. The number of articles published and the number of citations received usually constitute the starting point of this assessment. Brown et al., Propose a Hirsch-type index for Journals, equivalent to h, if the journal h published the paper, each having at least a citation of h. Two cases that arise out of mind are the first-order index, h1, and the second-order index is h2. In h2, the indicator is the largest number of individuals (N), which all have an H index larger or equal to N(33).

$T_{10}C$: Total university team citations

In order to calculate this index, the individuals in the group are sorted by H index from large to small. The index is calculated by the sum of the top 10 citations of the group.

$T_{10}C/N$: Ratio of citations of university team to national team To calculate this index, the sum of citations of the top 10 academic staff in the university is divided by the sum of citations of the top 10 academic staff in the national level.

$T_{10}CU/N$: University contribution from the national team citations

$$Scientific\ Strength\ Index = \frac{\mathrm{T10C}}{\mathrm{T10N}} \times h2$$

$$Competitiveness\ Advantage\ Index = \frac{\mathrm{SSI}\ UMS}{\mathrm{SSI}Rival}$$

To calculate this index, the total number of citations of the academic staff of the top 10 universities at the national level is divided by the sum of the top 10 citations of the academic staff at the national level.

UMS: university of medical sciences

SSI Rival: the highest SSI (first rank) in each field divided by others and the second rank divided by the first rank.

The results obtained from the calculations performed in the four categories are segmented in the current study; only the exclusive advantage and competitive advantage are reported:

- Competitive power over 5 is considered as an exclusive advantage of the medical sciences university.
- Competitive power from >0.3 to 5 is defined as a competitive advantage of the medical sciences university.
- Competitiveness 0.1-0.3 is considered as the mild competitive advantage of the medical sciences university.
- Competitiveness less than 0.1 is considered as a lack of competitive advantage of the medical sciences university.

After the calculations, using the indices and formulas obtained in the form of the protocol, the competitive advantage of the clinical specialty was obtained for

Table 1. List of Clinical and Non-clinical Departments Obtained From the Panel of Experts

Department Name	Clinical	Non- clinical
Clinical pharmacy	*	
Community health		*
Community medicine	*	
Emergency medicine	*	
Environmental health engineering		*
Epidemiology		*
Health education and promotion		*
Health in disaster and emergencies		*
Health information management		*
Infectious diseases	*	
Internal medicine	*	
Laboratory sciences		*
Medical genetics		*
Medical immunology		*
Medical informatics		*
Medical intensive care	*	
Medical microbiology		*
Medical virology		*
Nutrition science		*
Obstetrics and gynecology	*	
Pathology	*	
Pediatric infectious diseases	*	
Pediatric pulmonology	*	
Pediatrics	*	
Public health		*
Pulmonology	*	
Radiology	*	

Table 2. Competitive Advantage and Scientific Strength of Non-clinical Departments in Medical Sciences Universities

Department Name	University Name	T10C	T10C/N	UH_2	SSI	CAI	Type of CAI
Epidemiology	Tehran	65589	0.67	14	9.48	5.47	Exclusive advantage
Community medicine	Iran	25760	0.76	5	3.80	2.95	Competitive advantage
	Tehran	6236	0.18	7	1.29	0.33	Competitive advantage
Medical informatics	Mashhad	1692	0.42	3	1.26	1.78	Competitive advantage
	Urmia	947	0.23	3	0.70	0.55	Competitive advantage
	Kerman	758	0.18	3	0.56	0.44	Competitive advantage
Medical immunology	Tehran	26850	0.77	12	9.27	4.18	Competitive advantage
Pathology	Shiraz	9390	0.57	10	0.03	1.19	Competitive advantage
	Tehran	7851	0.47	10	0.04	0.83	Competitive advantage
	Isfahan	5275	0.32	8	0.04	0.70	Competitive advantage
	Iran	4102	0.24	7	0.03	0.62	Competitive advantage
	Shahid Beheshti	3939	0.23	7	0.03	0.59	Competitive advantage
	Mashhad	2249	0.13	6	0.02	0.39	Competitive advantage
	Kerman	1492	0.09	4	0.02	0.39	Competitive advantage
	Shahed	978	0.05	3	0.01	0.34	Competitive advantage
	Blood transfusion	914	0.05	3	0.01	0.32	Competitive advantag
	Yasuj	285	0.017	1	0.01	0.30	Competitive advantage
Health education and promotion	Shahid Beheshti	1514	0.26	5	1.33	0.39	Competitive advantage
	Kerman, Shah	1351	0.23	5	1.19	0.35	Competitive advantage
Medical genetics	Tehran	14436	0.77	12	9.30	3.93	Competitive advantage
Nutrition science	Tabriz	91	0.72	1	0.72	4.13	Competitive advantage
	Tehran	21106	0.60	12	7.29	1.96	Competitive advantage
	Shahid Beheshti	12882	0.37	10	3.70	0.50	Competitive advantage
Environmental health engineering	Tehran	19685	0.91	9	8.27	5.06	Exclusive advantage
Medical microbiology	Tehran	13165	0.78	11	8.62	3.12	Competitive advantage
	Shahid Beheshti	5800	0.34	8	2.76	0.32	Competitive advantage
	Pastor Institute	5762	0.34	8	2.74	0.31	Competitive advantage
Medical virology	Tehran	2966	0.41	7	2.89	1.37	Competitive advantage
	Pastor Institute	2152	0.29	7	2.09	0.72	Competitive advantage
	Shiraz	2034	0.28	6	1.70	0.58	Competitive advantage
	Iran	2304	0.32	4	1.28	0.44	Competitive advantage
	Shahid Beheshti	1506	0.20	5	1.04	0.36	Competitive advantage
Community health	Ilam	118	0.39	1	0.39	1.22	Competitive advantage
	Mashhad	96	0.31	1	0.31	0.81	Competitive advantage
	Shahr-e-Kord	56	0.18	1	0.18	0.47	Competitive advantage
Public health	Tehran	1765	0.55	3	1.67	6.84	Exclusive advantage
Laboratory sciences	Tabriz	539	0.45	1	0.45	1.97	Competitive advantage
	Mazandaran	273	0.23	1	0.23	0.50	Competitive advantage
	Golestan	166	0.13	1	0.13	0.30	Competitive advantage
Health information management	Iran	938	0.49	4	1.99	1.88	Competitive advantage
	Tehran	497	0.26	4	1.05	0.52	Competitive advantage
Health in disaster and emergencies	Shahid Beheshti	312	0.55		1.11	4.87	Competitive advantage

departments with a competitive advantage and scientific strength in medical sciences universities. It should be noted that clinical academic departments are the disciplines that their faculty members operate in hospitals and clinical centers and deal with patients, and departments of basic sciences are the disciplines that their faculty members operate in non-clinical departments (Basic Sciences). (Table 2, 3).

Discussion

The current study results showed that some of the medical sciences universities had the scientific strength and competitive advantage in clinical and non-clinical settings based on the disciplines selected to deal with COVID-19. However, this set of departments may be different in other countries and diseases (34). In Iran, all of the departments are of importance in dealing with the outbreak of coronavirus, but in the current study, the priority was with those determined by the panel of experts and scientific associations. In this regard, the experience of using the radiology department to fight with the outbreak of COVID-19 in USA, set of policies and procedures directly applicable to imaging departments designed *(a)* to achieve sufficient capacity for continued operation during a health care emergency of unprecedented proportions, *(b)* to support the care of patients with COVID- 19, and *(c)* to maintain radiologic diagnostic and interventional support for the entirety of the hospital and health system. Because of varying infection control policies (both nationally and regionally), steps for radiology preparedness for COVID-19 will vary between institutions and clinics. The Radiology Editorial Board assembled a team of radiologists active in coordination, development, and implementation of radiology preparedness policies for COVID-19 (35).

Some major universities, such as Tehran (in 19 disciplines), Shahid Beheshti(in 16 disciplines), Iran (in nine disciplines), Isfahan (in four disciplines), Mazandaran (in four disciplines), Shiraz (in three disciplines), Mashhad (in three disciplines) and Kerman (in two disciplines), had the most competitive advantage that would increase their responsibility to deal with this pandemic. Some

Table 3. Competitive Advantage and Scientific Strength of Clinical Academic Departments in Medical Sciences Universities

Department Name	University Name	T10C	T10C/N	UH_2	SSI	CAI	Type of CAI
Infectious diseases	Shahid Beheshti	8071	0.59	7	4.18	2.13	Competitive advantage
	Iran	5288	0.39	5	1.95	0.46	Competitive advantage
	Tehran	2875	0.21	6	1.27	0.30	Competitive advantage
Pediatric infectious diseases	Shahid Beheshti	4254	0.65	5	3.27	8.98	Exclusive advantage
Internal medicine	Tehran	4650	0.73	6	4.43	5.54	Exclusive advantage
Pulmonology	Shahid Beheshti	6516	0.48	5	2.44	3.44	Competitive advantage
Clinical pharmacy	Tehran	7781	0.71	9	6.45	3.12	Competitive advantage
	Shahid Beheshti	3200	0.29	7	2.06	0.31	Competitive advantage
Pediatric pulmonology	Shahid Beheshti	258	0.42	3	1.27	5.77	Exclusive advantage
Obstetrics and gynecology	Tehran	4650	0.60	9	5.40	1.73	Competitive advantage
	Shahid Beheshti	3453	0.44	7	3.12	0.57	Competitive advantage
	Iran	2999	0.38	6	2.32	0.42	Competitive advantage
Emergency medicine	Shahid Beheshti	1752	0.76	5	3.80	1.44	Competitive advantage
	Iran	1011	0.43	6	2.63	0.69	Competitive advantage
	Tehran	995	0.43	4	1.72	0.45	Competitive advantage
Pediatrics	Tehran	11811	0.39	5	1.96	2.46	Competitive advantage
	Isfahan	12000	0.39	2	0.79	0.40	Competitive advantage
Medical intensive care	Mazandaran	181	0.20	2	0.40	2.39	Competitive advantage
	Shahid Beheshti	151	0.16	1	0.16	0.41	Competitive advantage
	Isfahan	75	0.08	2	0.16	0.41	Competitive advantage
	Shiraz	149	0.16	1	0.16	0.41	Competitive advantage
	Guilan	133	0.14	1	0.14	0.36	Competitive advantage
	Tehran	28	0.62	1	0.62	2.80	Competitive advantage
	Isfahan	10	0.22	1	0.22	0.35	Competitive advantage
Radiology	Tehran	3177	0.76	7	5.33	3.39	Competitive advantage

Table 4. Proposed Mission of Fighting With the Coronavirus for the Departments

Mission Category	Department Name	University Name	Type of CA
Management & control	Epidemiology	Tehran	Exclusive advantage
	Community medicine	Iran	Competitive advantage
		Tehran	Competitive advantage
	Health in disaster and emergencies	Shahid Beheshti	Competitive advantage
Social education & prevention	Health education and promotion	Shahid Beheshti	Competitive advantage
		Kerman, Shah	Competitive advantage
	Environmental health engineering	Tehran	Exclusive advantage
	Community health	Ilam	Competitive advantage
		Mashhad	Competitive advantage
		Shahr-e-Kord	Competitive advantage
	Public health	Tehran	Exclusive advantage
Diagnosis	Medical immunology	Tehran	Competitive advantage
	Medical genetics	Tehran	Competitive advantage
	Medical microbiology	Tehran	Competitive advantage
		Shahid Beheshti	Competitive advantage
		Pastor institute	Competitive advantage
	Medical virology	Tehran	Competitive advantage
		Pastor Institute	Competitive advantage
		Shiraz	Competitive advantage
		Iran	Competitive advantage
		Shahid Beheshti	Competitive advantage
	Radiology	Tehran	Competitive advantage
	Laboratory sciences	Tabriz	Competitive advantage
		Mazandaran	Competitive advantage
		Golestan	Competitive advantage
	Pathology	Shiraz	Competitive advantage
		Tehran	Competitive advantage
		Isfahan	Competitive advantage
		Iran	Competitive advantage
		Shahid Beheshti	Competitive advantage
		Mashhad	Competitive advantage
		Kerman	Competitive advantage
		Shahed	Competitive advantage
		Blood transfusion	Competitive advantage
Treatment	Infectious diseases	Shahid Beheshti	Competitive advantage
		Iran	Competitive advantage
		Tehran	Competitive advantage
	Pediatric infectious diseases	Shahid Beheshti	Exclusive advantage
	Internal medicine pulmonology	Tehran	Exclusive advantage
		Shahid Beheshti	Competitive advantage
	Clinical pharmacy	Tehran	Competitive advantage
		Shahid Beheshti	Competitive advantage
	Pediatric pulmonology	Shahid Beheshti	Exclusive advantage
	Obstetrics and gynecology	Tehran	Competitive advantage
		Shahid Beheshti	Competitive advantage
		Iran	Competitive advantage
	Emergency medicine	Shahid Beheshti	Competitive advantage
		Iran	Competitive advantage
		Tehran	Competitive advantage
	Pediatrics	Tehran	Competitive advantage
		Isfahan	Competitive advantage
	Medical intensive care	Mazandaran	Competitive advantage
		Shahid Beheshti	Competitive advantage
		Isfahan	Competitive advantage
		Shiraz	Competitive advantage
		Guilan	Competitive advantage
		Tehran	Competitive advantage
		Isfahan	Competitive advantage
	Infectious diseases	Shahid Beheshti	Competitive advantage
		Iran	Competitive advantage
	Nutrition science	Tabriz	Competitive advantage
		Tehran	Competitive advantage
		Shahid Beheshti	Competitive advantage
Information management	Health information management	Iran	Competitive advantage
		Tehran	Competitive advantage
	Medical informatics	Mashhad	Competitive advantage
		Urmia	Competitive advantage
		Kerman	Competitive advantage

universities were not involved at all since they were not on any lists. They can work under the supervision of the departments of major universities. Of course, with the formation of a committee in the departments of the major universities, other universities and schools interested in conducting research or executive activities can be invited.

In successful industrialized countries, research is one of the key elements for development and self-sufficiency. According to the missions and functions of universities in this context, they have deep and fundamental roles in the matter; therefore, considering research activities of major universities to identify the universities and researchers with the highest scientific productivity is one of the most important policies required in this area (36). Research assessment from different aspects can provide useful information in terms of quantity and quality, as well as a view to stakeholders in this dimension and a basis for decision-making to allocate resources to universities(37). Therefore, the study of the research status of universities, quantitatively and qualitatively, is important for the university itself, and the university can plan its distance from other universities with an understanding of its strengths and weaknesses, and design an appropriate pattern to achieve the desired position. In addition, it assists Health policy-makers in understanding the capabilities of universities, preferred allocation of resources, and optimal scientific management(36).

It is an important strategy to offer the institutions the programs in which they have a competitive advantage to succeed in a highly competitive globalized market in higher education since higher education institutions always have a competitive ecosystem in achieving high academic standards and excellence and gain international reputation (37). Focusing on delivering niche programs that institutions have a competitive advantage in is a critical strategy for succeeding in the competitive higher education systems. Therefore, to achieve a sustainable competitive advantage, resources and capabilities should be integrated into higher education institutions (38). Different types of competitive advantages cause differentiation (38, 39). Higher education institutes have challenges for achieving competitive advantages at both national and international levels. For example, changing government policy, continuous student growth, stakeholder demand for quality, change in leadership, new organizational strategy, and financial sustainability are some of the intrinsic factors in challenging universities (38).

The current study suggested any intervention policy necessary to redress the power balance and make administrators accountable to all stakeholders. Hence, consideration of the following items is suggested:

1. Decentralizing the administrative power: Tenure-track should have a voice in university governance. Decision-making should be transferred from the MOHME to the universities of medical sciences with a competitive advantage, a distributed and democratic process. Departments should be expected to participate in MOHME governance and be given the time and resources for this purpose.
2. Balancing the decision-making bodies: Departments should be composed of individuals from diverse universities. Ensuring decision-making bodies would reduce the chance that the decisions are made to the benefit of a small but potential group to the detriment of the university community. Inclusive representation would promote equity within the university community and ensure that the decisions are made to the benefit of the community as a whole.
3. Establishing accountability mechanisms: There should be a more transparent feedback mechanism for stakeholder's satisfaction to be incorporated into the evaluation of academic administrators' performance.
4. Adopting management systems that logically and fairly support each mission of dealing with coronavirus. A transparent mechanism should be created for supporting research and service in a way that allows each area to flourish for the benefit of all stakeholders.

Of course, this process of mission allocation may have some advantages and disadvantages. Among the advantages are the sharing of the national division of labor and more power of MOHME in fighting with the outbreaks of 2019-nCOV, using the potential and capacity of different academic departments to advance the objectives, preventing parallel activities, and speeding up prevention, diagnosis, and treatment. Among its disadvantages, the lack of coordination among university departments is noteworthy. Some of the reasons for that include the geographic distance between universities, the lack of willingness to work with some faculty members, and the lack of infrastructures required in some universities for better participation.

Conclusion

Policy-makers that clearly identify the missions and objectives of their institutions and define the more relevant tasks may have better performance based on the capacities and abilities of the medical sciences universities. Finally, at the national level, there is a need for obtaining better data on medical sciences education to identify effective practices and programs. These data collection efforts are vital to informing policy-makers and higher education leaders about the cumulative impact of mission differentiation on the stratification of students and academic programs.

Limitations

The current study had some limitations. First, due to the widespread outbreak of 2019-nCOV worldwide, the need for authentic research was one of the main limitations of the current study. The research team overcame this problem through continuous collaboration. Second, the MOHME scientometric system was the only valid reference in Iran to provide data related to the research activities of the medical university faculty members. The extraction of data from this system was accompanied by problems solved by holding regular meetings of the research team members and cross-checking the data several times for a series of problems.

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