Policy options to address the effectiveness of health service management graduates in solving Iranian health system challenges: a mixed scoping review and policy Delphi approach

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Summary

Background Iran's healthcare system is grappling with multifaceted challenges, including financial constraints, staffing shortages, infrastructural deficiencies, legal hurdles, and cross-sectoral coordination issues. The integration of health service management graduates into the healthcare workforce is vital to tackle these obstacles effectively. However, the lack of skilled managers can exacerbate problems, leading to inflated costs, and wasted resources. This study aims to propose policy options to improve the effectiveness of healthcare management graduates in exposure to the challenges of Iran's health system.

Methods The study used a mixed-methods design that combined a scoping review and interviews with academics specializing in healthcare management and hospital management, as well as key informants of the Ministry of Health and Medical Education (MoHME), the vice chancellor and deans of faculties of management and paramedicine (December 1, 2022 to February 30, 2023), and a policy Delphi technique (April 1, 2023 to Jun 30, 2023). In the scoping review, we searched PubMed, Web of Science Platform, MEDLINE, Scopus, Google Scholar/Academia, and ERIC for articles published from the inception of each database until August 10, 2022, with an update on October 6, 2022. The search terms included "health services," "healthcare organizations," "healthcare management," "health management education," "Iran," "challenges," "issues," "policy," "interventions," "policy options," "solutions," "policy-making," "effectiveness," "efficacy," and similar terms. We incorporated scholarly articles that presented instances or resolutions demonstrating the impact of health service management graduates in addressing the issues encountered by Iran's healthcare system. Non-English research papers, except Persian, were excluded due to translation resource limitations. Articles from peer-reviewed journals were included based on their publication type, while conference abstracts, book reviews, commentaries, and editorial pieces were considered for review. In the present study, the first step of the modified Delphi methodology involved conducting interviews and qualitative content analysis. Then, through two rounds of online surveys, the policy Delphi technique engaged experts and stakeholders in reviewing and prioritising policy options.

Findings In the scoping review, our initial search of the main databases retrieved 553 articles, with an additional 14 articles from gray literature and 5 studies from local databases, totaling 572 references. 426 studies remained after removing duplicates and reviewing them. We excluded 339 studies that did not align with our study's objectives, leaving us with 87 articles. We had access to the full text of 63 of these studies and ultimately selected 31 for review and thematic analysis. The study involved 21 participants, with a 100% response rate in the interview phase. In the Delphi phase, 64 experts were invited, with 41 participating in Round 1 (64% response rate) and 32 in Round 2 (78% response rate). The scoping review identified eleven policy options, followed by designing an interview guide and presenting nine more options based on expert insights from the interviews. We evaluated twenty policy options using a 5-point Likert scale and modified Delphi methodology to assess their effectiveness, feasibility, relevance, and acceptance cost. The study produced four policy options that were culturally and ethically appropriate, as well as compatible with the context and target population. These options were: 1) training and capacity building based on

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Iran's health system model; 2) development of the framework of Entrustable Professional Activities (EPAs) for healthcare management graduates; 3) determining the career pathways of healthcare management graduates and reviewing the job categories approved by the Ministry of Health and Medical Education (MoHME); and 4) providing effective collaboration between healthcare management graduates and professionals, policymakers, and stakeholders for integrated health system improvement.

Interpretation The study provides evidence-based recommendations for improving the education, training, and professional deployment of healthcare management graduates in Iran.

Research in context

Evidence before this study

Iran's healthcare system is facing challenges such as financial constraints and labor issues, and despite an increase in the number of healthcare management students and graduates, this issue persists. Therefore, as we investigate the root cause of this problem, we must also provide policy solutions to address it effectively. On July 14, 2022, we conducted a Google Scholar search using the terms "health services," "healthcare organisations," "healthcare management," "health management education," "Iran," "challenges," "issues," "policy," "interventions," "policy options," "solutions," "policy-making," "effectiveness," "efficacy," and similar terms. The findings suggest that we should first identify the obstacles that health management graduates face in Iran's health system, and then propose solutions to the senior policymakers for health education.

Added value of this study

The study identifies the competencies needed for health system managers and healthcare management graduates to secure jobs in Iran. It also highlights the shortcomings of the health service management curriculum and suggests policy interventions to enhance the effectiveness of graduates in

addressing Iran's health system challenges. After applying the political Delphi technique, experts identified four culturally and ethically appropriate policy options. The study discusses the pros and cons of each option, along with implementation considerations, to assist healthcare education administrators in selecting the most suitable option.

Implications of all the available evidence

This study suggests that future research should compare healthcare management education programs in different countries and regions to identify core competencies, curriculum commonalities, educational approaches, and technological advances. It can demonstrate best practices and innovative teaching methods. It is important to assess the performance of healthcare management graduates, including technical knowledge, leadership, ethical decision-making, and innovation ability, before entering the labor market and graduating. We can measure the impact of these graduates on the health system and society by improving the quality of patient care, enhancing the efficiency of healthcare delivery, and improving public health. We should design and implement the proposed policy options, and then evaluate their outcomes.

Introduction

Iran's health system is implementing various mechanisms to fulfill its responsibility of providing healthcare to communities.[1] Iran's health system aligns with the World Health Organization's framework, which outlines six essential building blocks for a robust health system.[2] The focus is on four critical functions: service delivery, health workforce, information, and financing. Service delivery ensures accessibility, efficiency, and meeting population needs. The health workforce is critical for providing quality healthcare services. Information systems are essential for decision-making and

policy formulation. Finance is a critical building block for health systems, encompassing policy development, resource allocation, risk protection, equity in financing, and resource use efficiency. The WHO framework aims to achieve Universal Health Coverage (UHC), where all individuals have access to health services without financial hardship. This sustainable, equitable, and effective system is more relevant to the current priorities or challenges in the Iranian health system.[3,4] On the other hand, global health systems are facing challenges due to population growth, aging populations, and increased disease burdens. As people live longer and

chronic diseases become more prevalent, health managers must adapt to changing healthcare needs and provide preventive, rehabilitative care, and long-term care. Globally there is a like Africa, Europe, the Pacific Islands, the Middle East, Asia, and the Caribbean are experiencing an increase in non-communicable and communicable disease patients.[5–12] However, each country faces unique complexities, such as Iran's health system, which faces financial, personnel, infrastructure, legal, and inter-sectoral issues.[13]

The involvement of health service management graduates is crucial for addressing challenges in healthcare institutions.[14] Effective management processes optimize hospital resources and staff, but the absence of competent managers can lead to issues such as treatment delays, disease progression, higher mortality rates, increased expenses, and squandered resources.[15] Managers must address patients' needs rationally while providing affordable access to quality diagnostic, treatment, and rehabilitation services. They also require the appropriate skills to carry out their responsibilities competently.[14–17] Figueroa et al.'s study reveals that health systems are complex and constantly changing, and the capacities needed by health managers to respond to current and emerging issues are critical. Therefore, ensuring health leaders and managers have the capabilities to respond to the current landscape is essential for addressing challenges within international healthcare sectors.[18]

Amidst these discourse, the Joint Commission on Accreditation of Healthcare Organizations emphasizes the importance of health services management graduates in developing mission and vision statements and accreditation programs for healthcare providers in the United States and Canada.[19] These graduates enhance efficiency, effectiveness, quality, quantity of services, and optimal resource utilization within the healthcare system. Their strategic contributions can lead to organizational success by achieving goals and curbing resource waste.[20] Employing educated managers specializing in health services management is essential for enhancing health system performance, especially in hospital management, to achieve maximum efficiency at minimal cost. Research shows that educated managers with specialized management skills are more effective in various managerial functions compared to those in other fields. Hospital managers with an educational background aligned with their organizational role also perform better.[21] Professionally educated health services managers outperform their non-professional counterparts.[22] A study by McKinsey Company and the London School of Economics and Political Sciences found a strong link between professional hospital management and improved clinical outcomes, patient satisfaction rates, and financial performance in 2009. Hospitals led by professional managers showed lower patient mortality rates and improved patient experience indicators.[23]

Despite these benefits, in some low- and middle-income countries, the use of healthcare managers as professionals in hospital management has not been as common as in developed countries. This is largely dependent on the countries' context and healthcare management standards.[24] Iran is also one of the countries that, in recent years, has been more inclined to employ physicians as hospital managers, administrators, or university chairmen without paying special attention to their management skills in meeting job requirements as a health system manager.[25] Studies show that the approach to management education in Iran's general medicine curriculum does not improve manager-clinician relationships or encourage clinicians to pursue managerial roles. The curriculum lacks exposure to management principles, health system functions, the economy, and financial management.[26–29] Despite the management duties outlined by Khosravan et al., management and leadership education remain underemphasized.[30] Additionally, these concepts are not mentioned in the Continuing Professional Development (CPD) of medical practitioners, indicating they lack the capabilities expected from a health system manager.[31]

Effective leadership and management competencies are essential for hospital managers to improve healthcare quality, which may be lacking when physicians without management skills are employed. Knowledge, skills, and socioeconomic factors influence the leadership effectiveness of hospital managers in Iran, which can be compromised when management roles are filled without considering these competencies. The continuation of this process can lead to unprofessional management of hospitals and institutions and affect their performance.[25] Today, more attention should be paid to education and training as well as the use of professional hospital managers because the future is full of challenges facing healthcare organizations in terms of competition for internal and external resources.[32] Establishment of a robust and responsive health system requires skilled policymakers dedicated to addressing the primary healthcare needs of the population.[33,34] This involves effective management, financial security, and equitable access to services. These components—policy, management, and economics—must work together cohesively with reliable scientific evidence to effectively serve society's health needs.[35] Healthcare management bridges health economics, policy, and public health research. It requires adequate educational facilities, post-graduation employment opportunities, and internships.[36] Planning for a dynamic organization requires placing graduates in suitable positions and equipping them with practical skills like communication, system thinking, strategic management, change planning, transformational leadership, and exceeding health expectations.[37,38]

On the other hand, in the current context, bachelor's, master's, and doctorate programs in healthcare

management are lacking feedback from their graduates. This affects the consideration of outcomes. Therefore, establishing a continuous interaction between the educational system and societal practices is crucial.[39] This study aims to assist policymakers in recognizing the challenges associated with the effectiveness of healthcare management graduates in addressing the challenges within Iran's health system and proposing solutions. We utilised the Policy Delphi approach to engage experts and stakeholders in reviewing and prioritizing policy options aimed at enhancing the effectiveness of these graduates amidst health system challenges in Iran.

Methods

The study explores policy options to improve the effectiveness of healthcare management graduates to address the challenges of Iran's health system. This is a mixed-methods study with an explanatory sequential design that combined a scoping review, an interview, and a policy Delphi technique. The RAND (Research ANd Development)/UCLA (University of California at Los Angeles) modified Delphi panel method is a formal group consensus process that systematically and quantitatively combines expert opinion and evidence by asking panelists to rate, discuss, and then re-rate items.[40] In brief, the steps include a literature review, the selection of panelists and semi-structured interviews with them, the generation of a rating form, a first-round rating form survey, an in-person meeting where panelists discuss areas of disagreement, final ratings and analysis of those ratings, and the development of a written summary of areas of agreement. In the 1980s, RAND adapted the method in partnership with UCLA for use in the medical setting (becoming the RAND/UCLA modified Delphi panel method). With this adaptation, researchers added the development of a summary of relevant literature to provide uniform context to experts and limited the number of repeated individual questionnaires to two (rather than an unlimited number).

Ethics

This study was approved by the Ethics Committee of the National Agency for Strategic Research in Medical Education (NASR) (No. IR.NASRME.REC.1402.088). First, we explained in detail to the interviewees the study objectives. Following that, since the research presents no risk of harm to interviewees, we obtained verbal consent from the participants as approved by the ethics committee. However, consent was audio recorded, and we ensured interviewees' privacy, confidentiality, and anonymity in any information they provided. After that, interviewees made a voluntary decision about participating in the research and were given the right to opt out of the interview as and when they wished.

Scoping review

Due to the scale and nature of the data, a scoping review was conducted, following the protocol of Arksey and O'Malley,[41] with further clarification and recommendations from Levac et al.[42] The scoping review was conducted in accordance with the PRISMA-ScR extension and established frameworks for scoping reviews (Fig. 1). The review included the following five key phases: (1) identifying the research question; (2) identifying relevant studies; (3) study selection; (4) charting the data; and (5) collating, summarizing, and reporting the results. The optional 'consultation exercise' of the framework was not conducted. The study will provide evidence-based recommendations for improving the education, training, and professional deployment of healthcare management graduates in Iran.

Search strategy and selection criteria

This study aimed to investigate the following research questions:

1. What policy interventions have been used to improve the effectiveness of health service management graduates to address the challenges of the health system?
2. What policy interventions should be implemented to improve health service management graduates' effectiveness in addressing the challenges of the health system?

Other questions:

3. What are the shortcomings of the healthcare management curriculum developed according to experts' perspectives?
4. What competencies are expected from a manager in the country's health system?
5. When developing and revising the healthcare management curriculum, which aspects should be given particular attention to meet these qualifications?
6. Which subjects should have more weight in the curriculum's content?
7. Do graduates in these fields receive training that aligns with the needs of the labor market?
8. To enable healthcare graduates to enter the job market, what skills and competencies are necessary for employment?

A systematic process, known as the scoping review, was used to review the literature, using a filter to identify relevant studies. Following Wohlin's guidelines,[43] a snowball method was conducted for further relevant studies. A comprehensive collection of literature was compiled via electronic databases and reference lists. Due to time and language constraints, only papers in English and Persian were considered. Three methods
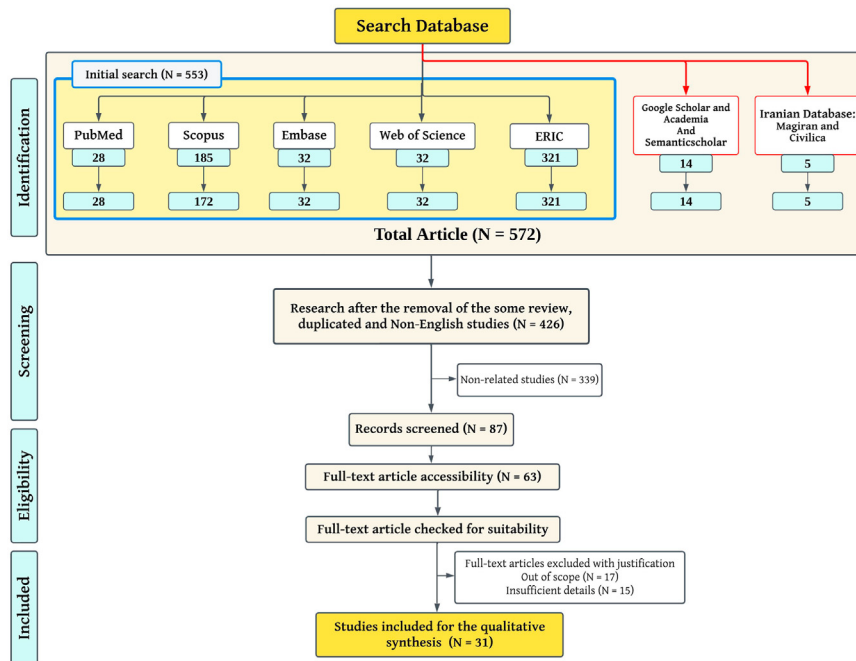
Fig. 1: An overview of the manuscript selection process according to PRISMA.

were used to identify relevant data sources, with a subject librarian working to optimize searches and ensure comprehensive coverage of search terms.

We searched PubMed, Web of Science Platform, MEDLINE, Scopus, Google Scholar/Academia, and ERIC for articles published from the inception of each database until August 10, 2022, with an update on October 6, 2022.

We incorporated scholarly articles that presented instances or resolutions demonstrating the impact of health service management graduates in addressing the issues encountered by Iran's healthcare system. Non-English research papers, except Persian, were excluded due to translation resource limitations. Articles from peer-reviewed journals were included based on their publication type, while conference abstracts, book reviews, commentaries, and editorial pieces were considered for review. The search query entered into the database was as follows:

("Health Services" OR "healthcare organization" OR "health service management" OR "Health Services Administration" OR "healthcare management" OR "healthcare administration" OR "health management education" OR "Delivery of Health Care" OR "Delivery of Health organization" OR "Delivery of Health administration") AND ("Iran" OR "Iranian" OR "Islamic Republic of Iran" OR Persia OR IRN OR "East Asia" OR "Middle East") AND ("challenges" OR "problems" OR "difficulties" OR issues) AND (policy OR "policy interventions" OR

"policy options" OR "solutions" OR "policy-making" OR "Decision making") AND ("effectiveness" OR "efficacy" OR "competencies" OR performance OR impact).

The data were organised using Endnote X9 software. The authors used Endnote's built-in features to eliminate duplicate titles from multiple sources. The team met to discuss decisions, challenges, or uncertainties related to study inclusion and exclusion, and the search strategy was refined as needed. The team comprises a diverse group of experts, including a Ph.D. in medical education, and faculty member, a Ph.D. in Health Care Management (HCM) and the presidency of the University of Medical Sciences, an occupational health specialist and health system manager, and an independent researcher specializing in basic sciences.

The search for gray literature was limited to academic Persian-language studies due to the lack of indexing in our main databases. Time constraints also restricted the researchers' ability to conduct an extensive study, focusing on university dissertations, government documents, and organizational papers.

The study utilized Wohlin's snowball system to identify new publications for inclusion in a database. This was achieved by searching for selected services and applying the eligibility criteria. A single-layer forward snowball search and a backward chain search were applied to all articles to detect related ones. Relevant articles were retrieved, and their reference lists were checked for other eligible entries.

The study involved two steps to review records with common publication formats. Results were downloaded from online databases, duplicated, and uploaded to an online review manager. Two authors (A.K. and S.T.M.H.) independently reviewed titles, abstracts, summaries, and synopses, blind to the selection of other authors. Two independent reviewers assessed half of the full texts for suitability. 10% of all complete texts were double-checked, and if a poor match (<80%) was found, additional double-checks were performed. The authors discussed any discrepancies identified during the screening process. If agreement was not reached, a third independent reviewer (H.E.) was consulted, and the whole team's opinion was sought if necessary.

Data collection and assessment

During this stage, pertinent information was extracted and sorted into categories. Two reviewers employed a pre-established form to identify variables, while team members individually gathered data from each study. Data extraction included specific details about the author (s), and years, key findings related to the questions of the scoping review (competencies of HRM, solution/intervention to acquire the expected competencies from HRM graduates, challenges of HRM curriculum, cause and effect of HRM curriculum failure). Consistency in the extraction of data was ensured through continual communication between the reviewers. Any absent or insufficient data were addressed with the authors of the studies.

The literature review was conducted using descriptive statistics. In this section, we focused on presenting descriptive statistical results in writing (narrative form), graphs, and tables. Thematic content analysis was used to identify themes in the extracted data, which were then presented in schemas. Initial codes were identified in each article, grouped into potential themes, and analyzed to create thematic maps. The process entailed two reviewers coding the data and regularly discussing the results, with lead authors involved when consensus was required. This process helped identify bottlenecks and infer policy options, providing a comprehensive overview of the literature reviewed.

Following the guidelines for conducting scoping reviews,[41] we did not assess the methodological quality or risk of bias of the included articles.

Finally, to categorize the evidence-based solutions and present policy options, seven specialists consisting of one director of an educational and medical center, two hospital managers, two faculty members of the health policy department, and two Ph.D. students in health management services were also consulted by face-to-face interviews.

Interview and Delphi process

The first step of the current Modified Delphi study was the interview. The interview guide was drafted based on the comprehensive review of suggested options in the literature or policies implemented in countries where the educational system was successful in training graduates who could address the challenges of the health system. The interview guide was drafted based on this comprehensive review. Additionally, the guide was validated through pilot interviews with academic members specialized in healthcare management and health policy. It is notable that the interview protocol, along with the encompassing questions, was disseminated to five esteemed professors specializing in health system management as well as policymakers in medical science education. Their insightful feedback on the refinement of thematic axes, the overarching questions, and the interview protocol itself was duly considered and integrated into the study design (Appendix p1). In the present study, the first step of the modified Delphi methodology involved conducting interviews and qualitative content analysis.

Interview

This study involved 21 semi-structured interviews with academics specialized in healthcare management and hospital management, as well as key informants of the Ministry of Health and Medical Education (MoHME), the vice chancellor, and deans of faculties of management and paramedicine. This faculty encompasses disciplines such as laboratory science, radiology, and medical physics. Furthermore, it may also incorporate the fields of health service management, health economics, and health information in certain medical science universities. Maximum variation sampling (including age, gender, management experience in the health system, and specialty type) was used (Table 1).

The data collection process involved in-depth, semi-structured interviews with the participants to elucidate their rich and nuanced lived experiences. A series of carefully crafted, open-ended exploratory questions (Appendix p1) were posed during each interview session, which ranged from 50 to 80 min in duration, with an average length of 70 min per session. At the start of each interview, the researchers obtained informed consent from the participants to record the session for the purpose of transcription. Using high-quality audio recording equipment, the researcher meticulously transcribed the interviews verbatim, capturing every word and detail, within 24 h of each session. The virtual interviews were also recorded with the explicit permission of the participants, either through a dedicated voice recorder or the Skyroom video conferencing software. Throughout the interviews, the researchers employed various investigative techniques and active listening strategies, such as allowing for thoughtful silences, repetition of key points, and providing feedback, to encourage the participants to share comprehensive and relevant information about each case.

Demographic characteristics	Frequency (%)
Sex	
Female	4 (19)
Male	17 (81)
Marital status	
Married	16 (76)
Single	5 (24)
Managerial experience (years)	
0–5	4 (19)
5–10	7 (34)
10–15	4 (19)
15–20	3 (14)
20–25	3 (14)
Being a faculty member	
Yes	13 (62)
No	8 (38)
Managerial position	
Hospital head	2 (10)
Vice-chancellor of faculties of management, paramedicine, and health information of universities of medical sciences.	2 (10)
Deans of faculties of management, paramedicine, and health information of universities of medical sciences.	3 (12)
Ministry of Health and Medical Education	6 (29)
Vice-chancellor of Development, Management and Resources of the University of Medical Sciences	4 (19)
Member of the Program and Budget Organization of the country	2 (10)
Post graduated in HealthCare Management	2 (10)

Table 1: **Demographic characteristics of the interviewees.**

All the collected data was stored and analyzed anonymously to ensure the confidentiality of the participants.

The data were analyzed using the deductive approach and the directed content analysis method. The data analysis process commenced after the initial interview. In the first step, the interviews were started with general, open-ended questions.[44] The participants were asked about effective policies and interventions to improve health service management graduates' effectiveness in exposure to health system challenges in Iran, and the researchers completed a list of presumed effective policy options based on their answers. Following each one, the interviews were immediately transcribed. Then, the text of the meetings was reviewed to gain a general understanding. Following that, the manual coding process involved two independent researchers (S.T.M.H. & H.E) closely examining the transcribed text and systematically extracting meaningful units of data, enabling a rich and nuanced analysis of the participants' experiences. Two researchers abstracted each meaning unit and named it a code. The codes were categorized based on similarities and how to merge them. Twenty-one interview texts were examined and confirmed by two researchers (A.K & M.M). For the analysis, we did not use the software. Instead, we created a questionnaire to evaluate the various policy options with stakeholders.

Trustworthiness was the primary focus of this research study. Guba and Lincoln's criteria were utilized to achieve credibility, dependability, transferability, and conformability.[45] Participants were tested on dependability and codes to determine the information's accuracy. To ensure authenticity, the interpretations and report sections were shared with participants for verification (member checking). Moreover, external auditors familiar with qualitative research verified the findings. Verification involved examining parts of the interview text, as well as relevant codes generated by two observers conducting qualitative research. Maintaining verbatim transcription is intended to make findings transferable, allowing other researchers to follow our methods in their investigations by presenting a clear process. The interpretation of research findings extended beyond mere reporting, as we contextualized results to emphasize broader implications, facilitating knowledge transfer across various contexts and settings.

Modified Delphi

The study employed a modified Delphi methodology, which involved multiple rounds of data collection. Formulation of policy options and development of initial interventions was conducted by a comprehensive review study along with targeted interviews with subject matter experts. This approach simplifies the Delphi process and thus accelerates the achievement of definitive results. To initiate the preliminary phase of the Delphi process, a structured questionnaire encapsulating policy options and proposed preliminary interventions was meticulously crafted. Subsequently, this instrument underwent a rigorous evaluation by a panel of scholars with expertise in healthcare management and health policy. This critical appraisal aimed to ascertain and endorse the questionnaire's face and content validity, ensuring its robustness and relevance for the subsequent stages of the Delphi study. Participants in the initial two rounds were selected through purposive sampling to represent diverse perspectives, including policymakers, organizational leaders who would implement potential policies, and academics with relevant expertise. While there is no definitive consensus on an appropriate sample size for Delphi studies, the existing literature recommends a purposive approach to sampling various stakeholders.[46,47] The specific characteristics of the participants in two online rounds are detailed in the Table 2. In the study, 64 experts were selected based on inclusion criteria and invited to participate in the expert panels via telephone call. Of those invited, 41 agreed to contribute to the research.

Panelists rated policy options using a 5-point Likert scale for four criteria (effectiveness, feasibility,

Demographic characteristics of the Delphi panel	Round 1	Round 2
Sex		
Female	5 (12.20%)	5 (15.63%)
Male	36 (87.80%)	27 (84.37%)
Marital status		
Married	38 (92.68%)	30 (93.75%)
Single	3 (7.32%)	2 (6.25%)
Managerial experience (years)		
0–5	5 (12.20%)	4 (12.50%)
5–10	8 (19.51%)	8 (25%)
10–15	11 (26.83%)	9 (28.12%)
15–20	9 (21/95%)	5 (15.63%)
20–25	8 (19.51%)	6 (18.75%)
Being a faculty member		
Yes	23 (56.09%)	21 (65.62%)
No	18 (43.91%)	11 (34.38%)
Managerial position		
Hospital head	4 (9.75%)	3 (9.37%)
Vice-chancellor of faculties of management, paramedicine, and health information of universities of medical sciences	10 (24.39%)	7 (21.88%)
Deans of faculties of management, paramedicine, and health information of universities of medical sciences	11 (26.83%)	7 (21.88%)
The managers of the Ministry of Health and Medical Education	2 (4.87%)	2 (6.25%)
Vice-chancellor of Development, Management, and Resources of the University of Medical Sciences	9 (21.95%)	8 (25%)
Member of the Program and Budget Organization of the country	4 (9.75%)	2 (6.25%)
Member of the board of examiners, evaluation, and planning of the field of healthcare management, Health economics, Health policy of the Ministry of Health and Medical Education (MoHME)	3 (7.33%)	3 (9.37%)

Table 2: **Demographic characteristics of the Delphi panel.**

relevance, and acceptance cost) (see Appendix p2). Participants were sent a detailed protocol description and online questionnaires via email. They were asked to add their options, recommend others, or suggest more. Emails were sent in April 1, 2023, and participants had a maximum of one month to respond. Reminders were sent at one-week intervals to those who didn't respond.

Once all the questionnaires have been received, we will compile the rankings for each policy option and any additional responses. Using predetermined consensus thresholds (see Appendix p2), we will decide which policy options will be brought forward to the consensus meeting for review. Policy options that meet the inclusion or non-consensus thresholds will progress to phase II for review. Policy options that meet the exclusion consensus threshold will not be brought forward for review.

On May 7, 2023, the consensus meeting took place. An experienced and independent meeting facilitator with extensive prior involvement in strategic planning initiatives facilitated the meeting. The consensus panel members had the opportunity to collectively discuss eligible candidate policy options and areas of disagreement during this meeting. We followed a semi-structured agenda with flexible time parameters to accommodate discussion and questions. We recorded the consensus meeting and informed all consensus panel members beforehand. Following the meeting and analysis of the panelists' comments, we added additional options to the questionnaire based on their recommendations.

The median score for each option was reflected in the online questionnaire for Round 2. During the second round, the panellists re-evaluated and re-prioritised the policy options. The panellists received weekly reminders and had a maximum of one month to respond. The present study completed the political Delphi process after two months. Nearly all options reached consensus, prompting an analysis of Round 2 responses to prioritise options and establish consensus levels (Fig. 2). The study analyzed responses from Rounds 1 and 2, using Excel to determine policy options' priorities. We used the highest median score and the lowest dispersion to prioritize the options. Low acceptance scores or other constructs prevented us from prioritizing some effective options.

Role of funding source

Results
This study reviewed the literature on the effectiveness of healthcare management graduates in addressing the challenges of Iran's health system, extracting policy options, and developing an interview guide. The data analysis for the scoping review and the interview phases
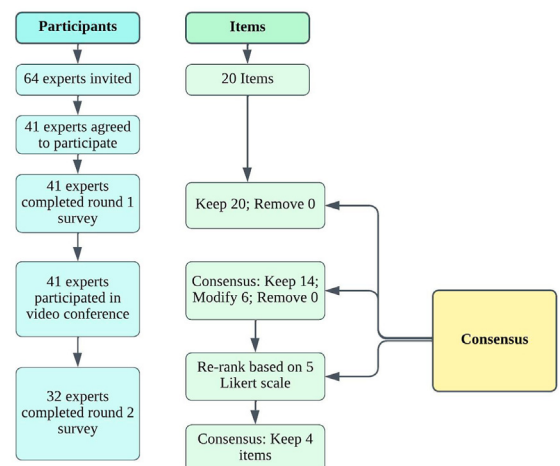

Fig. 2: Delphi panel flowchart for participants and items.

of the study were done independently but related to each other, and the data combination was done in the interpretation and discussion stages.

Scoping review results

Our initial search of the main databases retrieved 553 articles, with an additional 14 articles from gray literature and 5 studies from local databases, totaling 572 references. After removing duplicates and reviewing studies, 426 studies remained. Of these, 339 were not aligned with the objectives of our study and were excluded, leaving 87 articles. We had access to the full text of 63 of these studies and ultimately selected 31 for review and thematic analysis. Fig. 1 displays the flow diagram of the study selection process.

According to the scoping review, the healthcare management graduate must have 60 sub-competencies and 5 competencies. These are: 1-cultural intelligence (8 items), 2-leadership (13 items), 3-logical analysis and thinking (9 items), 4-communication and working group in trans-organizational dimensions (17 items), and 5-entrepreneurship and commercialization (13 items) (Appendix p3).

Drawing upon the synthesis of the findings of the studies, we identified eleven policy options (items 2, 4, 6, 8, 9, 14, 15, 16, 17, 18, and 20) that are presented in Table 3.

Also, we identified and categorized the challenges of the healthcare management curriculum into four domains: 1) policymaking, 2) objective setting, 3) design and development, and 4) implementation. We found a total of 55 challenges across these domains, which we illustrated in a fishbone diagram (Fig. 3). A fishbone diagram, as the name suggests, mimics a fish skeleton. The diagram places the underlying problem as the fish's head (facing right) and extends the causes to the left as the skeleton's bones. The ribs branch off the back, signifying major causes, while sub-branches branch off these causes, indicating root causes. These causes are similar to the bones in the fish skeleton.[48] The categorization of challenges within the healthcare management curriculum was delineated into four distinct domains, following a comprehensive analysis of data derived from the scoping review. Subsequently, for each identified domain, evidence-based interventions were proposed (Table 4). To come up with evidence-based solutions, a thorough method was used that combined the findings of the scoping review and review study to make sure they fit with the current social and economic situation, the existing health system structures, and the Iranian Ministry of Health's educational guidelines. This strategy was meticulously designed to address the challenges encountered within the healthcare management curriculum.

Interview results

The research team developed an interview guide (Appendix p1) based on the data extracted from the

|	Policy Option	Total score	Effectiveness	Relevance	Feasibility	Acceptable cost
1	Training and capacity building Based on the Iranian Health System model	4.75	5	5	4	5
2	Development of the framework of EPAs for the graduates of healthcare management	4.5	5	5	4	4
3	Determining the Career pathways of health service management graduates and reviewing the job categories approved by the MoHME	4	5	5	3	3
4	Providing effective collaboration (networking) between Health service management graduates with professionals, policy-makers, and stakeholders for integrated health system improvement	4.25	4	4	4	5
5	Integration of field training in the form of internship in the student's educational program	3.75	4	4	4	3
6	Attention to the hidden curriculum and the formation of the student's identity as a manager	3.5	3	3	4	4
7	Curriculum design based on the requirements of the spiral curriculum	3.25	3	3	4	3
8	Attention to integrated interdisciplinary and multidisciplinary approaches of healthcare management curricula in curriculum design	3.25	4	4	2	3
9	Elaboration of the employment model for the graduates of healthcare management	3.25	3	3	3	4
10	Removal of the quota of tuition-paying students in the admission of specialized doctorate students in these fields	3	3	3	4	2
11	Allocating the majority of the admission quota for doctoral students in the fields of health policy, health economics, and future studies to university faculty members in the form of the faculty development program	3.25	3	3	3	4
12	Eliminating the bachelor's course in the field of health care management and not admitting students for up to 5 years in this field	3	3	2	3	4
13	Limitation on the number of students admissions in the master's degree and doctorate in the field of health care management	2.87	3	2	3	3.5
14	Establishing a uniform responsibility for the stewardship of the healthcare management field in the universities of medical sciences	2.63	2	3	2.5	3
15	Compilation of the job opportunities document for graduates of the field of health care management and information through the sites affiliated with the MoHME	3	3	3	4	3
16	Setting up career clubs in universities to increase students' employment skills	3	2	2	4	4
17	Forming a career information bank for graduates of this field in the MoHME	3	3	3	3	3
18	The presence of managers from different levels of health system management (meso-micro-macro) in the compilation of curriculum content	4	4	5	4	3
19	The participation of employers in the health system in the development, implementation, and revision of the curriculum	3.5	4	4	3	3
20	Identifying elites from Ph.D. graduates of healthcare management for recruitment as a faculty member	3.25	3	3	4	3

Table 3: Detailed scores of policy options in Round 2 of Delphi each criterion.

Implementation of the healthcare management curriculum

1- Non-simultaneity of learning management knowledge and doing work in the real field (distance between theory and practice)
2- Lack of structured assessment of students' skills based on Workplace-Based Assessment
3- Failure to design an evaluation portfolio to check the achievement of expected qualifications for graduation
4- Failure to develop a training model based on EPAs (Entrustable Professional Activities)
5- Failure to formulate the framework of capabilities and expected levels of each capability for graduation
6- Incompatibility of available resources for program implementation with implementation requirements provided in the approved curriculum.
7- Incompatibility of the designed curriculum with the implemented curriculum
8- Lack of interdisciplinary view and convergence of sciences to the field of health care management
9- Training students only in scientific and academic aspects of management and not in psychological and attitudinal areas
10- Absence of physical, technical facilities and executive services suitable with the curriculum designed for its accurate implementation

Policymaking in the healthcare management curriculum

1- Current educational programs focus on teaching management concepts instead of teaching managerial behavior
2- Not paying attention to the manager identity formation in the design and implementation of educational programs
1-2- Predominance of ivory tower culture instead of being an entrepreneur in health care management curriculum
2-2- Lack of attention to the development of the culture of self-determination and the dominance of the culture of looking for work instead of being an entrepreneur in the curriculum
2-3- The resistance of university human resources to the paradigm shifts from the second-generation university to the third-generation university
3- Not having indicators other than having scientific knowledge for hiring trainers and professors for health care management training courses
1-3- Absence of programs with an empowerment approach to train management coaches and mentors
4- Absence of a specific plan to create a clear and established communication network between universities and manufacturing, industrial, medical, and health centers
5- Lack of attention to the convergence of sciences and disciplines forming the infrastructure of health care management for the implementation of curriculum in universities
6- Inadequacy of the curriculum with the educational needs of market workers and new trends in health care management in the health system
7- Creation of new fields of health economics, health policy, and future research without determining the exact boundaries between fields for obtaining career ranks.
8- Unfair and incorrect distribution of human resources in job placement based on job categories approved by the Ministry of Health, Treatment and Medical Education
9- Failure to review the organizational charts of educational and research-therapeutic institutions to recruit and retain healthcare management graduates.
10- Not paying attention to the potential talents of students such as intelligence in the student admission process

Fig. 3: Fishbone analysis diagram: cause and effect relationships of healthcare management curriculum failure.
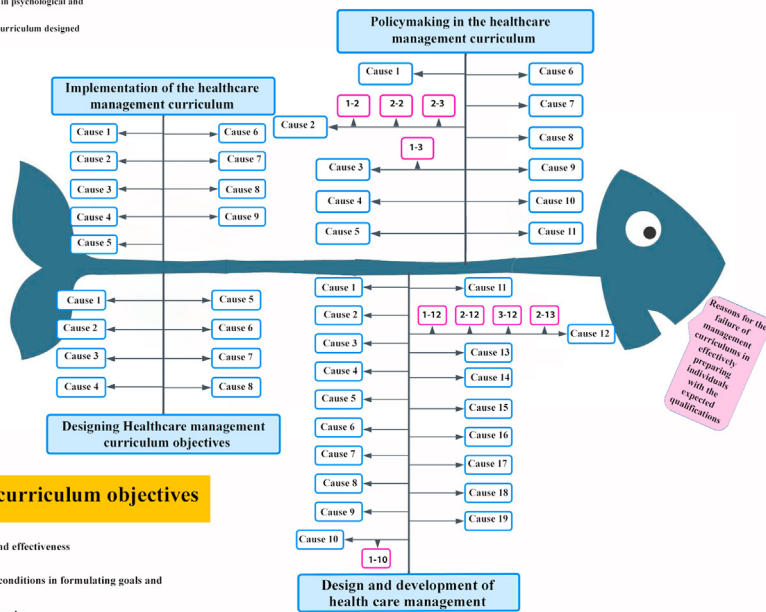
Designing Healthcare management curriculum objectives

1- Emphasis on the quantity of the program instead of its quality and effectiveness
2- The course goals are result-oriented instead of process-oriented
3- Non-participation of all stakeholders and working environment conditions in formulating goals and curriculum content
4- Uncertainty of evaluation criteria for the achievement of the set goals
5- Incompatibility of curriculum goals with the realities of the work environment
6- Limiting the goals to the knowledge and sometimes attitudinal levels of Bloom's pyramid in curriculum design
7- lack of focus on health care management curriculum goals on empiricism
8- Excessive focus on educational goals on the student's memory

Design and development of health care management curriculum

1- Neglecting the field of entrepreneurship research, management, policy-making, and health economics in the curriculum
2- Teacher-centered and theoretical curriculum content instead of learner-centered and practice-based learning
3- Failure to pay attention to the expected competencies of a manager in the health system in curriculum design
4- Lack of attention to the concept of professionalism in the curriculum
5- Lack of design of a native educational model for training to be a manager in Iran's health system
6- Failure to choose appropriate educational design models with an art-oriented approach in the curriculum (with a theoretical lens: being a manager is an art)
7- Failure to pay attention to the issue that management is a category that is highly context-based.
8- Not paying attention to the spiral curriculum in curriculum design
9- Using traditional methods in teaching and evaluating students
1-10- Failure to design evaluation situations such as OSCE based on scenarios to solve the challenges of a health system manager
11- Lack of attention to the ways of improving students' managerial intelligence
12- Lack of national and transnational needs assessment of educational program
12-1- Failure to develop health care management curriculum based on regional needs
12-2- Not paying attention to the territorial purpose in the design of educational programs
12-3- Failure to pay attention to the developments in the world in the design and implementation of management training courses
12-4 Lack of feedback to improve and develop management training programs
13- Not paying attention to hidden curriculum elements in the educational program
14- Failure to plan events to visit health system businesses and communicate with the community
15- Not using heroes and prominent management figures in education
16- Lack of attention to the formation of students' identity as a manager/politician/health economist/future researcher
17- Absence of vertical and horizontal integration in curricula
18- Failure to pay attention to the different learning styles of students in the design of the educational program
19- Failure to pay attention to the experiential learning model in curriculum design

scoping review. All 21 participants who were invited to the study participated in the interview (the response rate was 100%). Following the guide's validation, the research team interviewed 21 stakeholders in the field. We used the results of the comprehensive review to complete the policy options and validate them through ongoing interviews.

The insights obtained from the expert interviews were utilized to formulate nine policy options. These additions supplemented the existing options derived from the results of the scoping review (listed as 1, 3, 5, 7, 10, 11, and 12 in Table 3). Upon completion of this phase, twenty policy options were identified for evaluation based on four criteria: effectiveness, feasibility, relevance, and acceptance cost, using a 5-point Likert scale.

Based on a thematic content analysis framework, and a directed content analysis approach, the codes that were generated in the scoping review were renamed and changed, some themes were merged, and new themes were formed by combining the new codes. In general, a health system manager must have 5 competencies (theme) and 49 sub-competencies (sub-theme), which are: 1- human management competency (5 sub-competencies), 2- personal management competency (21 sub-competencies), 3- business management competency (13 sub-competencies), 4- relationship competency (7 sub-competencies), and 5- conceptual

Dimension	Challenges of health service management curriculum	Decision		Basis for decision		Evidence-based solution
		Included[a]	Excluded[b]	Review[c]	Expert opinion[d]	
Policymaking in the field of health service management education	The dominance of the culture of job seeker versus entrepreneur in the curriculum	✔		✔	✔	✔ Familiarizing students with job opportunities through educational groups
	Inadequacy of the delivered curriculum with the needs of the labor market and new management trends	✔		✔		✔ Setting up job clubs and groups in universities to increase job search skills
	Lack of attention to the convergence of sciences and different scientific disciplines that form the basics of the field of health service management for curriculum planning	✔		✔		✔ Attention to interdisciplinary and multidisciplinary education in student education
	Lack of attention to the potential talents of students in the student admission system, such as management intelligence	✔		✔		✔ Forming a job information bank in the system of the MoHME
	Unfair and incorrect distribution of human resources in job placement in the Ministry of Health and Medical Education's (MoHME) job classification document	✔		✔	✔	✔ Constantly obtaining the opinions of experts regarding the curriculum
	Failure to revise the institutional charts of educational and research institutions to attract and retain graduates of the field of health service management		✔	✔		✔ Identifying elites and thinkers in this field to attract faculty
	Predominance of the ivory tower culture instead of being an entrepreneur in the curriculum of the health service management		✔	✔		✔ Participation of employers in compiling, implementing, and revising the curriculum
	Current educational programs focus on teaching management concepts instead of teaching managerial behavior		✔		✔	✔ The presence of managers of different levels of the health system (meso-micro-macro) in the compilation of curriculum content
	Lack of indicators for hiring competent instructors for this field		✔		✔	✔ Establishing the supervision of the field unit in different universities in such a way that, for example, it is under the management and information faculty in all universities.
	The absence of programs with an empowerment approach to train management coaches and mentors	✔		✔		✔ Compilation of the employment model for graduates of post-graduate courses in this field
	The absence of the same administration of this field in all universities of medical sciences in the country	✔			✔	✔ Accurately defining the future job status of graduates and consulting with the country's employment administrative department to revise the job categories approved by the Ministry of Health.
	Inadequacy of the number of student admission capacity in the field with job needs at the national level	✔		✔	✔	✔ Serious attention to integrated approaches and the interdisciplinary category of management curricula in curriculum design.
						✔ - Limiting the number of students admitted to master's and doctoral degrees
						✔ - Removal of the quota of tuition-paying students in the admission of doctoral students in this field
						✔ - Limiting the fields that can participate in the doctoral course in health care management.
						✔ - Elimination of the bachelor's course in health care management and not accepting students for up to 5 years
						✔ - Admission of doctoral students in the field of health services management once every two years
Designing objectives of the educational program	The goals and educational topics of the program have been compiled without the participation of all stakeholders	✔		✔	✔	✔ Evaluating the field program in the nearer time frames according to the continuous change of the education paradigm and the changing characteristics of the indicators of the country's health system.
	The goals of the training program are outcome-oriented instead of process-oriented	✔		✔	✔	✔ Using a medical education specialist with work experience in the management field to revise the curriculum
	The measurement and judgment criteria regarding the degree of achievement of the set goals are not clear	✔		✔	✔	✔ Development of curriculum goals with the participation of all stakeholders
						✔ Setting goals & and objectives based on the process of becoming a manager in the MoHME

(Table 4 continues on next page)

competency (3 sub-competencies). The general competencies of a health system manager are depicted in the form of a tree diagram (Fig. 4).

Modified Delphi panel results
Forty-one out of 64 (64%) experts participated in the first survey, 41 (100%) in the video conference, and 32 (78%) in the second survey. No edits were made after the initial survey; these results were used as a starting point for discussion during the video conference (Fig. 2). The researchers introduced 20 policy options and asked the stakeholders to rank them using four criteria on a five-level Likert scale. We invited sixty-four stakeholders to rate policy options in two rounds. The participants included experts from universities as well as members of state, non-profit, and international

Dimension	Challenges of health service management curriculum	Decision		Basis for decision		Evidence-based solution
		Included[a]	Excluded[b]	Review[c]	Expert opinion[d]	
(Continued from previous page)						
Planning and development of educational program	Neglecting the fields of entrepreneurship research, management, policy-making, and health economics in the relevant educational programs	✔		✔		✔ Using the local educational model that fits the social, economic, and health structures of Iran's health system ✔ Pay attention to the formation of managerial identity in students ✔ Pay attention to localization and cultural elements in curriculum design ✔ Inviting successful business owners to give lectures in front of students ✔ Orienting theses towards practical and field research with a view to the labor market ✔ Supporting research works centered on the university and the labor market ✔ Providing a platform for students to network with the community of entrepreneurs ✔ Enhancing teamwork spirit and the existence of group activities in classrooms ✔ Attention to the spiral curriculum in the curriculum ✔ Examining similar and successful approaches and courses in the educational systems of other countries with the ability to adapt to the country's healthcare system ✔ Holding national festivals to select and introduce the top managers of the MoHME
	Lack of national and transnational needs assessment of educational program	✔		✔		
	Failure to develop courses and curriculum based on regional needs	✔		✔		
	Failure to pay attention to territorial planning policy in the design of educational programs	✔		✔		
	Lack of feedback to improve and develop health services management training programs	✔		✔		
	Not paying attention to hidden curriculum elements in the educational program	✔		✔		
	Absence of visiting the setting of the healthcare subsystem, communication with society and the health industry as internship courses	✔		✔	✔	
	Failure to use heroes and prominent management figures in education	✔		✔	✔	
	Not paying attention to the formation of student's identity as a manager/politician/health economist/future researcher	✔		✔	✔	
	Lack of vertical and horizontal integration in curricula	✔		✔	✔	
Implementation and deployment of the educational program	Lack of simultaneity of learning management knowledge and doing work in the real field (distance between theory and practice)	✔		✔	✔	✔ Applying the analytical framework in Outcome-based assessment ✔ The need to have a systematic view in the design of the evaluation program to cover different fields of competence ✔ Designing an internship and management internship program integrated with the theoretical part of the curriculum ✔ Redesign of assessment tools based on real performance (Mini-CEX, Long case, etc.) in simulated managerial situations ✔ The necessity of students' presence in the workplace to stimulate the mind and receive scientific challenges ✔ Using technology and making classrooms smarter to simulate different educational situations ✔ Using interactive teaching methods based on problem solving ✔ Implementation of internships in these fields based on the Dreyfus and Dreyfus competency acquisition model ✔ Determining the qualifications/competencies of the graduates of these fields and revising the curricula based on the competency model and the framework of the expected capabilities. ✔ Compilation of the framework of abilities expected from the graduates of this field
	Lack of structured assessment of skills based on Workplace-Based Assessment	✔		✔	✔	
	Failure to develop a training model based on EPAs (Entrustable Professional Activities) qualification for the field	✔		✔	✔	
	Failure to develop a framework of capabilities and expected levels of each capability for graduation	✔		✔	✔	

[a]Interventions included in the final road map. [b]Interventions proposed during the review of evidence or Delphi that were not included after two rounds of broad opinion polls and were excluded from the final road map. [c]Interventions listed from the review of the literature or those among practices of benchmark institutions. [d]Interventions proposed during Delphi.

Table 4: **Challenges in the field of healthcare management curriculum and evidence-based solutions to acquire the expected competencies and qualifications.**

organizations. Forty-one experts participated in Round 1 (64% response rate), and 32 experts took part in Round 2 (78% response rate).

No edits were made after the initial survey (round 1); these results were used as a starting point for discussion during the video conference (Fig. 2). The original 20 items were again ranked after the video conference; 14 items achieved consensus and inclusion in the final list. Six items did not achieve consensus, underwent modifications based on expert feedback, and were revised into six new items that were included in the final survey round (round 2). We then, based on the total scoring of the items at the end of round 2, chose four policy options that were culturally and ethically appropriate, fit our situation, and
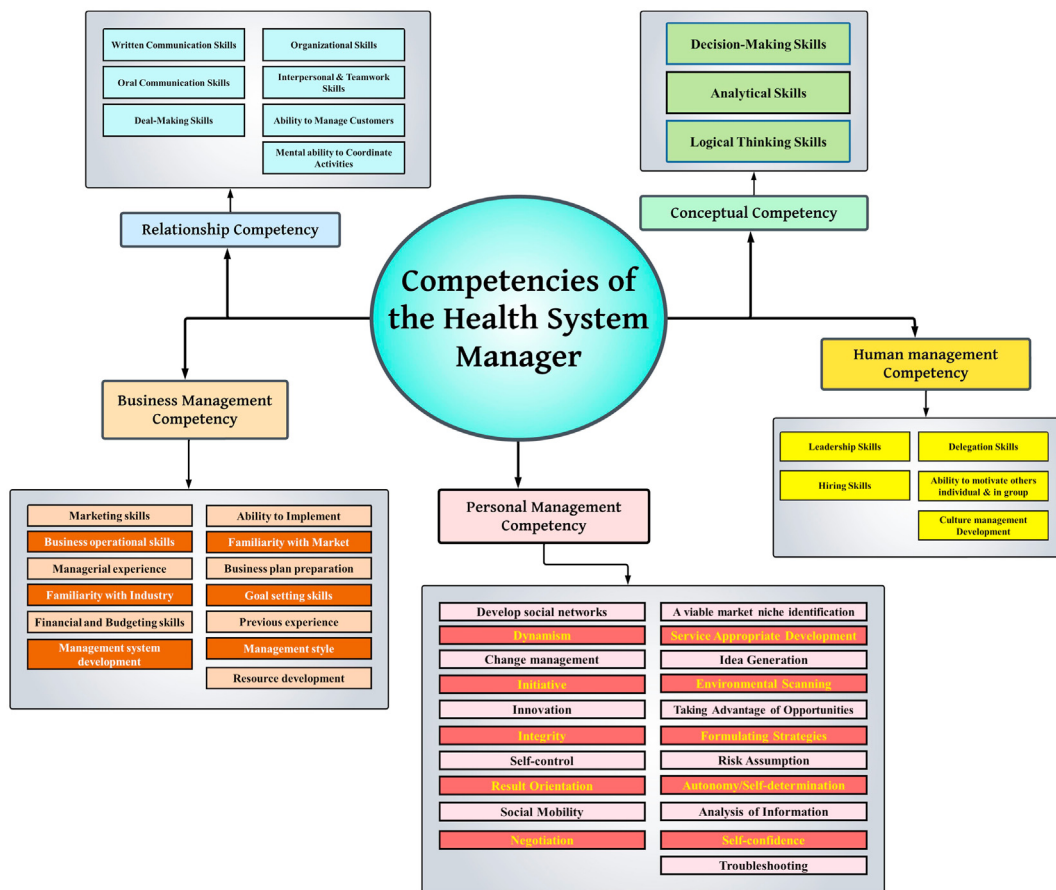
Fig. 4: Tree diagram: extracted core competencies and sub-competencies of healthcare management graduates after the Delphi technique.

worked for our target group (Table 3). The advantages, disadvantages, and implementation considerations of each option were provided in Table 5 based on the results of the video conferences of the Modified Delphi study.

To design and develop the native model for training in healthcare management, the researcher initially examined, assessed, and synthesized existing studies on educational models and curricula specific to this field. This process resulted in the initial healthcare management training model based on Omally and Arski's method. Subsequently, to further develop the core concept of native healthcare management education, directed content analysis was applied. To this end, key figures in health system management were interviewed in a semi-structured format. The final model was validated using the Delphi technique (Fig. 5).

The final EPA framework for a health system manager in Iran was made up of seven areas, as shown in Fig. 6. The seven areas include system-based practice, interpersonal and communication skills, personal development, practice-based learning and improvement, knowledge skills, professionalism, ethics, medical laws, and health promotion and prevention. The data came

from a scoping review, interviews with experts, and a modified Delphi.

And at the end of this part, the researcher first describes each of the selected policy options and provides explanations regarding the implementation considerations of each. Using the results of thematic content analysis of the interviews and available evidence and literature, the advantages, disadvantages, and implementation considerations of each policy will be discussed (Table 5).

Policy option 1: training and capacity building using Iran's health system model
Based on our findings, we suggest that the chosen educational model should consist of three main approaches: internal, external, and operational. The internal approach refers to the technical and educational infrastructures that support the development of health system management competencies. The external approach involves the factors that influence the hidden curriculum of management and the identity formation of students as managers, such as listening to the experiences of senior managers and engaging in political

Policy option	1	2	3	4
	Training and capacity building based on Iran's Health System Model	Development of the framework of EPAs for the graduates of healthcare management	Determining the career pathways of healthcare management graduates and reviewing the job categories approved by the MoHME	Providing effective collaboration between healthcare management graduates with professionals, policy-makers, and stakeholders for integrated health system improvement
Advantages	• Student acquires the necessary skills to play the role of a manager in Iran's health system. • The students' identity as a manager is formed and developed through listening to the stories of top managers and conducting policy dialogue with managers. • At its heart, this model pays attention to the management values governing the country's health system and local management culture in the design of the educational program.	• Legal and ethical considerations in decisions, respecting stakeholder culture. • Use of information technology for effective service provision. • Understanding of service delivery systems at micro and macro levels. • Effective communication with patients, colleagues, and stakeholders. • Ability to assess situations, and identify risk factors, and prognosis. • Ability to make managerial decisions based on scientific evidence. • Ability to estimate the consequences of decisions and choose suitable options in uncertain conditions.	• Accurately defining the labor market functions for students • Reducing unemployment rates • Increasing graduates' response to service fields • Coordinating the educational and economic systems • Standardizing job roles and duties • Updating job descriptions to reflect the changing demands of the health system • Providing an accurate representation of graduates' skills and expertise to increase their employability	• Improve patient outcomes and safety by leveraging the knowledge and skills of different disciplines and sectors. • Enhance the workplace environment and reduce burnout by fostering teamwork, communication, respect, and innovation among healthcare workers. • Increase efficiency and reduce costs by streamlining workflows, coordinating care, and avoiding duplication of services. • Promote learning and professional development by sharing best practices, feedback, and resources among healthcare workers. • Facilitate the implementation of evidence-based policies and interventions by engaging diverse stakeholders and addressing complex health challenges.
Disadvantages	• Risk of health system isolation increases without international knowledge. • Potential reduction in the health system's flexibility and responsiveness to emerging health threats. • Reduction in incentives for health system managers to study abroad affects career progress and satisfaction. • Creating a gap between the standards and expectations of the international community and local realities that can affect the quality and validity of education and health services from a global perspective.	• This framework may not adequately capture the ever-evolving nature of the health system management field. • The existence of a fixed framework may inadvertently limit the scope of learning and itself hinder the improvement of graduates' ability to stay in the rapidly changing labor market. • It can lead to a standardized approach to education and limit individual creativity, diversity, and unique perspectives among graduates. • It can lead to a focus on achieving prescribed competencies and neglecting the development of creativity. • The pressure to conform to the expectations outlined in this framework can be overwhelming. Because it may limit their exploration of different interests and tastes and their ability to pursue alternative paths that may be more consistent with their individual strengths and aspirations. • It strengthens the homogeneity among graduates.	• Accurate future employment status definition requires extensive data collection and analysis. • Future job status may change due to innovations, regulations, or new demands. • The consultation process with the administrative deputy for employment is complex and lengthy. • Potential delays or conflicts in reform implementation may not fully reflect graduates' needs or employers' expectations. • Uninvolved revision of occupational categories may limit career options, reduce competitiveness, or create a mismatch between skills and qualifications and job requirements.	• Competition between partners for resources, recognition, or influence • Lack of information and experience on how to collaborate across different sectors, disciplines, or organizations • Lack of resources, especially at the decision-making stage, to support collaborative activities, such as communication, coordination, evaluation, or training • Resistance to change from staff, managers, or leaders who may perceive collaboration as a threat to their autonomy, authority, or identity • Cultural mismatch between organizations with different values, norms, or practices that may create conflicts or misunderstandings

(Table 5 continues on next page)

dialogue (management is also an art). The operational approach encompasses three kinds of learning activities: formal, informal (extracurricular), and management/policy/future research and knowledge translation. At the heart of this model, we emphasize the importance of considering the management values and culture of the country's health system when designing the educational program (Fig. 5).

We recommend designing the formal curriculum component based on the five-stage model of skill acquisition and the spiral model of learning. The five-stage model, developed by Dreyfus and Dreyfus (1980), describes how individuals progress from novice to expert in learning a new skill.[49] The spiral model, proposed by Brunauer (1960), suggests that learners revisit the same topics at different levels of complexity and depth

Policy option	1	2	3	4
	Training and capacity building based on Iran's Health System Model	Development of the framework of EPAs for the graduates of healthcare management	Determining the career pathways of healthcare management graduates and reviewing the job categories approved by the MoHME	Providing effective collaboration between healthcare management graduates with professionals, policy-makers, and stakeholders for integrated health system improvement
(Continued from previous page)				
Implementation consideration	• The indigenous educational model should be designed and implemented based on three internal, external, and operational approaches. • In the operational approach, three types of formal learning activities, informal learning (extracurricular activities), and management/policy/future research center and knowledge translation should be foreseen. • The internal approach should include technical and educational infrastructure to develop the necessary skills for a manager in Iran's health system. • In the external approach, the elements involved in the implementation of the hidden management curriculum and the formation of students' identity as manager should be considered, such as listening to the stories of top managers and conducting political dialogue (management is not only a science but also an art). • In the design and development of the educational model, attention should be paid to the management values and culture governing the country's health system. (Fig. 4)	• To compile the document of expected competencies, three stages of "determining the model of competencies", "identifying educational needs" and "identifying and implementing programs" should be done. • Reviewing literature: Examine documents, articles, competence frameworks from international institutions, and shared responsibilities among health professionals. • Determining areas of each EPA: Conduct consensus-oriented group discussions with stakeholders to prepare a preliminary list of potential areas. • Define competencies in each EPA: Investigate competence areas and determine sub-competencies during group discussion. • Approval of the EPAs framework: The document of capabilities should be approved by the specialized board of healthcare management in MoHME and communicated to universities of medical sciences. • The study's framework, derived from a scoping review and Delphi technique, comprises five dimensions (Fig. 5).	• The Administrative and Employment Affairs Organization, after consulting the Ministry of Health and Medical Education, should determine the duties and responsibilities of healthcare management graduates' jobs. • The Ministry of Health must comply with these conditions in their appointments. • Job descriptions should be revised, and executive regulations for job classification should be prepared and communicated. • An executive committee for the appointment of managers should supervise and monitor the implementation of these regulations.	• Clear motivation and purpose for the collaboration, aligned with the needs and expectations of the partners and the population. • Strong relationships and cultures of trust, respect, and communication among the partners. • Adequate resources and capabilities to support the collaboration, such as funding, staff, skills, and technology. • Effective governance and leadership that provide direction, accountability, and coordination for the collaboration. • Supportive external factors, such as legal, regulatory, and policy frameworks enable and incentivize the collaboration. • Identifying potential partners and their roles. • Establishing a common vision, mission, and objectives. • Develop a collaboration plan outlining activities, responsibilities, resources, and timelines. • Monitoring and evaluating collaboration progress. • Communicating results and lessons learned, seeking feedback and improvement opportunities.

Table 5: The advantages, disadvantages, and implementation considerations of each option.

throughout the curriculum.[50] This curriculum aims to enhance the students' management skills and competencies by providing them with opportunities to apply theoretical knowledge to practical situations. The courses are designed to follow the spiral model of learning, which means that the students revisit the same topics at different levels of complexity and depth throughout the curriculum. The courses also align with the five-stage model of skill acquisition, which means that the learning path is designed to transform the student from a beginner manager to a skilled manager at the time of graduation.

Doshmangir's investigation was focused on assessing strategies employed to bolster researchers' and knowledge-producing entities' expertise and capabilities in generating and translating evidence into policy-making processes. It examined interventions aimed at strengthening evidence-informed policymaking that targeted individuals as well as institutions within Iran's healthcare system. Locally tailored educational programs that focused on aspects related to the healthcare system,

policymaking procedures, policy analysis, and management of research cycles emerged as crucial for building capacities. Health system planners, authorities, and community involvement were identified as influential factors facilitating the implementation of both individual-focused interventions and institutional-level changes.[51] The related quotes in Appendix p4 express the participant's opinions in this regard.

Policy option 2: development of a framework for EPAs for healthcare management graduates

Outcome-Based Curriculum (OBC) is an educational approach that focuses on the final product rather than the curriculum and content of the program. It has been emphasized in medical education texts since the 1960s.[52] In OBC, the planning is based on the essential competencies that the student must achieve by the end of the course. Competence is defined by the Oxford Dictionary as the knowledge and ability to perform certain tasks successfully.[53] However, different researchers have given various definitions of this term. A
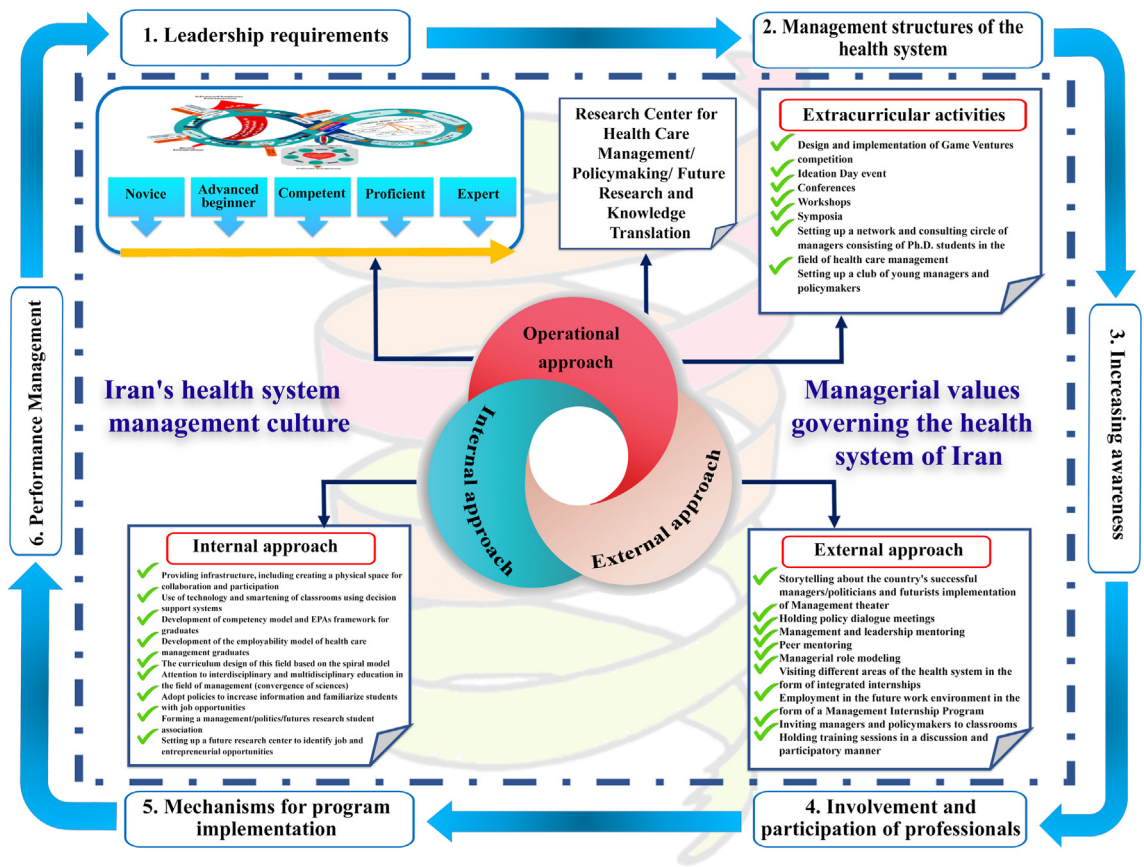
Fig. 5: Native model of health care management education.

common definition of competence is the function that the student should be able to perform at a mastery level, as specified in the program.[52] In other words, competence is the ability to perform a set of tasks or roles effectively or adequately, which learners should acquire after completing the training course.[54]

The EPA framework outlines the competencies expected of graduates across various fields and degrees. Various universities and organizations have developed different frameworks for general medicine and specialized courses.[55] For this field, it is important to have a clear and consistent framework of capabilities. The researchers have created an initial framework based on the integration and synthesis of previous studies and expert interviews. Fig. 6 illustrates the framework.

The following are the seven competencies that based on our results, healthcare management PhD students should develop by the end of their course:

- Professional commitment is a core aspect of healthcare education. Students should be loyal to ethical principles and fulfill their professional responsibilities to the health system at different levels.

They should also have the desire and ability to achieve professional excellence, altruism, justice, honesty, and accountability. Moreover, they should be able to identify, analyze, and decide on ethical issues in management while respecting the culture and beliefs of the stakeholders.

- Practice-based learning and improvement is a crucial component of professional development for students. To perform their professional duties, students should apply scientific evidence and use various research and evaluation methods. They should also be able to use information technology to provide effective services to the beneficiaries. Furthermore, they should be able to discover opportunities for improvement, identify and correct errors, and reflect on their own practices.

- System-based practice is a critical component of effective service delivery. Students should gain a deep understanding of service delivery systems at both micro and macro levels. They should use their knowledge to efficiently use available resources and provide effective services at the individual and community levels. They should also acquire the knowledge, skills, and attitude to work in teams.
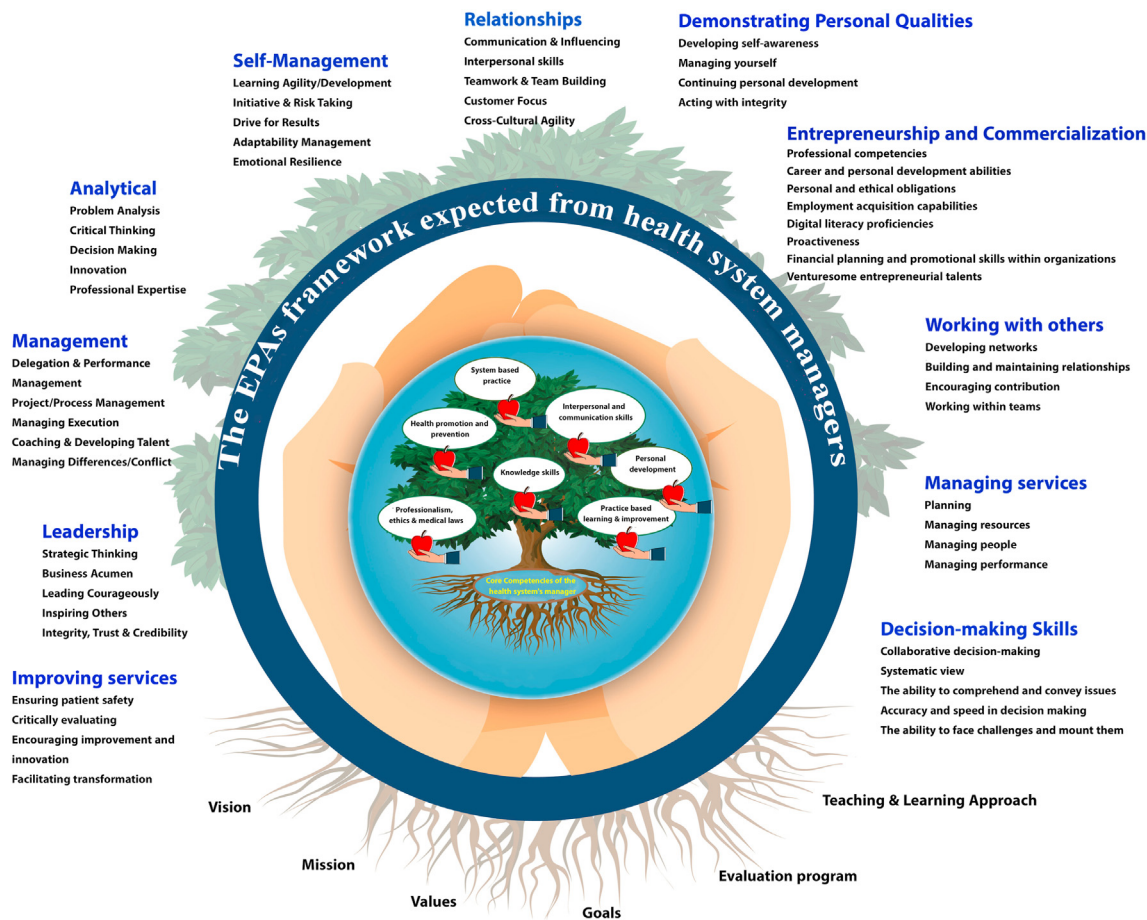
Fig. 6: The framework of EPAs expected from managers of Iran's health system.

- Communication skills are a crucial component of an HCM graduate's competence. HCM graduates should be able to communicate effectively with patients, their companions, colleagues, bosses, and other stakeholders. They should also demonstrate their competence in communicating verbally, in writing, electronically, or by telephone.
- Health promotion and prevention are fundamental aspects of effective healthcare management. An HCM graduate should have the ability to assess the situation, determine risk factors, identify causes and prognostic factors, and collaborate with or lead a group of service providers to improve the health of the individual and the population. They should also be able to select and apply appropriate health promotion strategies at primary, secondary, and tertiary prevention levels.
- Successful HCM graduates should exhibit a steadfast commitment to continuous personal and professional growth. An HCM graduate should recognize the importance of personal growth, including improving self-care, mental, psychological, social, economic, and occupational abilities, and non-specialized and medical knowledge that are effective in personal and professional life. They should also have self-knowledge, psychology, change management, leadership, and informatics skills.
- HCM graduates are expected to demonstrate strong decision-making, reasoning, and problem-solving skills. When confronted with a problem, HCM graduates should be able to identify the problem and its dimensions, collect and evaluate relevant information from the best available sources, identify and evaluate different solutions, estimate the probability of the consequences of each solution, and choose the most suitable option according to the conditions of uncertainty. They should also be able to integrate this capability with information from other areas, such as the values and priorities of the service recipients and society, and the cost-effectiveness of possible solutions.

The review of undergraduate and graduate programs in healthcare management and health administration

verifies the customized approach used to create the teaching and training curriculum without a universally accepted competency framework.[56,57] Recent research suggests significant variation in the overall emphasis and content criteria among formal and informal educational programs in Iranian health service management, as well as a lack of consensus on management development approaches.[1,58]

Managers must demonstrate a combination of knowledge, skills, and attitudes to effectively carry out their responsibilities.[59] The importance of developing leadership and management competencies in hospitals is consistently emphasized, but efforts have been inadequate without clear direction.[60,61] This challenge is particularly prevalent in under-resourced and less developed countries like Iran.[60,62,63] Various proposed frameworks in international literature have identified essential leadership and management competencies for health service managers. These guidelines can serve as valuable tools for training healthcare managers across different countries and contexts.[64,65] Managerial professional development can be pursued through formal education at universities, in-service training, mentorship programs, study groups, offsite intensive training sessions, seminars, or conferences.[66] To further facilitate managerial development within the healthcare sector, there are calls to establish competency-based education and training for health services managers.[67]

The suggested framework, along with a specific evaluation process, can be used to support and oversee health service managers' abilities. It can also guide the creation of job descriptions, recruitment processes, and the identification of competency gaps for training purposes.[68,69] This model may serve as a standard for educating and empowering healthcare managers. In the short term, focusing on competency-based education is crucial to developing health service managers and workforce development. The establishment and enhancement of the management competency framework can not only improve the relevance of current informal and formal training for healthcare managers but also contribute to improving efficiency in health service delivery. Looking ahead, this framework reflects on the competence requirements across the health service management workforce while offering guidance to develop organization-wide strategies aimed at enhancing overall workforce competence in preparation for future challenges within healthcare systems. The related quotes in Appendix p5 express the participants' opinions regarding the importance of acquiring hospital-based skills.

Policy option 3: determining the career pathways of healthcare management graduates and reviewing the job categories approved by the Ministry of Health and Medical Education (MoHME)

The healthcare sector is one of the fastest-growing and most dynamic sectors in Iran and the region, requiring qualified and competent managers to lead and improve the quality and efficiency of healthcare services. However, there is a lack of clarity and consistency in the career pathways and job categories for healthcare management graduates, which may affect their employability and career development. Therefore, this policy option proposes to determine the career pathways of healthcare management graduates and review the job categories approved by the MoHME according to the International Standard Classification of Occupations (ISCO). This policy option will help to:

- Identify the current and future demand for healthcare management professionals in Iran and the region.
- Assess the skills and qualifications of healthcare management graduates and compare them with international standards and best practices.
- Evaluate the alignment and adequacy of the Ministry of Human Resources and Emiratization's (MOHRE) profession list with the ISCO for healthcare management occupations.
- Explore the opportunities and challenges for healthcare management graduates in the United Arab Emirates (UAE) labor market and provide recommendations to enhance their employability and career prospects.

The UAE, with its strategic location near Iran, presents a wealth of opportunities for healthcare management graduates. This is largely due to the alignment of the UAE's MOHRE profession list with the International Standard Classification of Occupations (ISCO) for healthcare management occupations. Such conformity ensures that the qualifications and skills of healthcare management professionals are recognized and valued across borders, facilitating international mobility and employment. Moreover, the indicators of the Ministry of Health of Iran, which reflect the country's healthcare standards and needs, further complement this alignment, suggesting that healthcare professionals can find their skills in demand not just within the region but on a global scale. The synergy between the UAE's employment framework and Iran's health indicators creates a unique proposition for healthcare management graduates to work internationally and contribute to the global healthcare landscape. Additionally, this alignment opens avenues for the export of labor force, as professionals can leverage their qualifications and experience to meet the diverse needs of healthcare systems worldwide. The UAE's robust healthcare infrastructure, combined with its commitment to aligning with international standards, positions it as an attractive destination for healthcare professionals seeking to advance their careers in a dynamic and globally connected environment.[70]

Appendix p6–7 contains the related quotes that express the participants' opinions regarding the career pathways of healthcare management graduates.

Policy Option 4: Providing effective collaboration between healthcare management graduates with professionals, policymakers, and stakeholders for integrated health system improvement

Interprofessional collaborative Practice (ICP) is the practice of approaching patient care from a team-based perspective, with a team of multiple health workers from different professional backgrounds. It can improve patient outcomes, workplace efficiency, and health system performance. Here are a few recommendations and implications for healthcare management graduates, educators, and employers on how to enhance and support ICP for integrated health system improvement:

As future leaders and innovators in healthcare, graduates should seek opportunities to learn from and work with other disciplines and to respect the value and expertise of each member of the team. They should also develop the skills and competencies required for effective ICP, such as communication, teamwork, problem-solving, and ethical decision-making.

Educators play a key role in preparing graduates for ICP by designing and delivering interprofessional education (IPE) programs that foster collaborative learning and practice. IPE is defined as "when students from two or more professions learn about, from, and with each other to enable effective collaboration and improve health outcomes." Educators should also model and promote ICP in their practice and research.

Employers can create a culture and environment that supports ICP by providing appropriate funding, policies, governance structures, and infrastructure. They should also facilitate and reward ICP initiatives and projects and encourage continuous learning and improvement among their staff. Employers should also collaborate with health professional associations and other stakeholders to advocate for ICP at the system level.

By following these recommendations, healthcare management graduates, educators, and employers can contribute to enhancing and supporting ICP for integrated health system improvement. ICP can lead to better health outcomes for individuals and populations, as well as greater satisfaction and well-being for health professionals. The related quotes in Appendix p8 express the participant's opinions regarding ICP.

Discussion

The purpose of this study was to propose policy options to improve the effectiveness of healthcare management graduates in addressing the challenges of Iran's health system. The study used a mixed-methods exploratory sequential design that combined a scoping review and a policy Delphi technique. The main findings, interpretations, implications, limitations, and recommendations of the study are discussed below.

The scoping review identified the challenges and competencies of healthcare management education, as well as the evidence-based solutions from the literature and other countries' experiences. The challenges were categorized into four domains: policymaking, objective setting, design and development, and implementation. The competencies were extracted from 60 sub-competencies and grouped into five categories: leadership and management, communication and teamwork, critical thinking and problem-solving, ethics and professionalism, and research and innovation. The solutions were derived from 20 policy options that were culturally and ethically appropriate, as well as compatible with the context and the target population.

The study highlights the importance of practical skills in healthcare management education, such as communication, experience, and decision-making abilities, and emphasizes the role of training programs in strategic planning, change management, and leadership within healthcare organizations, highlighting the challenges and competencies in this field. In line with the findings of the present study, some studies have identified the key competencies and challenges in healthcare management education Jankelová's recent study highlights significant improvements in management and communication skills among healthcare managers achieved through advanced management education programs. The study concludes that healthcare managers need hands-on skill-building, effective training programs, and specialized educational opportunities to succeed in this challenging industry. The competency-based approach to healthcare management focuses on professional skills, knowledge of the health system, understanding patients' needs, business administration, communication, and leadership. It emphasizes technical expertise, conceptual understanding, interpersonal abilities, and personal growth for competence.[71] A 2014 study by Balkanska identified teamwork, discipline, planning, and organizing as key skills for effective managerial capabilities. This suggests the need for modular training programs and a reevaluation of academic curricula in healthcare management education. Balkanska's research also highlights the need for improvement in motivation, conflict resolution, communication, and leadership. The international business environment demands strong leadership, an entrepreneurial mindset, and effective healthcare management techniques.[72]

Through two rounds of online surveys, the policy Delphi technique engaged experts and stakeholders in reviewing and prioritizing policy options. The experts and stakeholders included academics, practitioners, policymakers, and representatives of professional associations and employers. We evaluated the policy options based on their effectiveness, feasibility, relevance, and acceptance cost. The results indicated that the most preferred policy options were: 1) training and capacity building based on Iran's health system model; 2) developing the framework of EPAs for healthcare

management graduates; 3) determining the career pathways of healthcare management graduates and reviewing the job categories approved by the MoHME; and 4) providing effective collaboration between healthcare management graduates and professionals, policymakers, and stakeholders for integrated health system improvement. Fig. 7 shows the entire implementation process of the current study, as well as the findings from each step.

According to the first policy option, training and capacity building should be based on Iran's health system model. Katie Pak et al. highlight the necessity of a curriculum that is well-aligned with the evolving demands of the health industry.[73] Fitzpatrick emphasizes the need for a revised healthcare management curriculum, highlighting the growing complexity of modern healthcare delivery systems.[74] The studies suggest the need for revising healthcare management curricula, strengthening connections with clinicians and health managers, and expanding continuing professional education to meet industry demands. Lina Daouk-Öyry advocates for healthcare executives to prioritize competencies and performance, emphasizing evidence-based management education. A dynamic curriculum, continuous engagement with graduates, and a strong emphasis on evidence-based competencies are crucial for effective healthcare leadership.[75]

Healthcare management graduates' education can be improved through academic methods like training and capacity-building. Workplace expertise and resilience
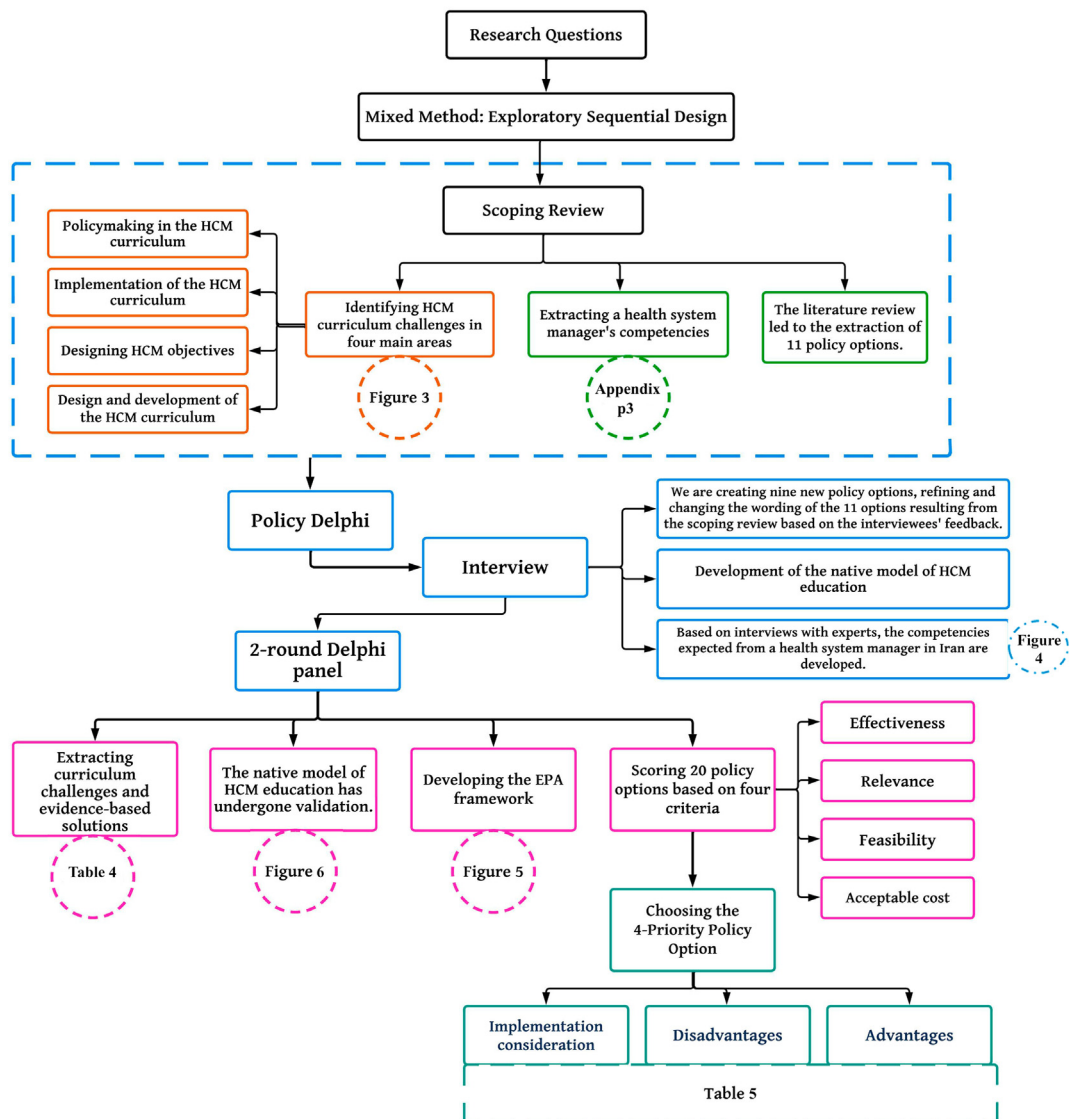

Fig. 7: The comprehensive process of implementing the study and the detailed findings at each stage.

are crucial for healthcare sector change agents. In China, inadequate formal and informal management training for hospital managers is highlighted. Comprehensive, tailored approaches are needed to address competency requirements. Aligning educational programs with organizational values and advocating for specialized post-graduate programs for healthcare leaders are also suggested.[76] Education should align with an organization's objectives and plans, emphasizing the identification and communication of company values and goals to both managers and employees. This alignment process should begin early and persist throughout an employee's career. Trainees can derive greater value from integrating organizational strategy into training, as they observe its immediate relevance to the organization. Graber's research on healthcare management and education explores top educational programs for future healthcare leaders, including specialized Master of Science (MS) in Organizational Leadership and MS in Health Care Management with entrepreneurship emphasis.[77] The study presents a unique framework for healthcare management training that integrates cultural principles and value systems from educational institutions and national health infrastructure. It emphasizes the importance of ongoing training and capacity building within graduate programs to adapt to evolving industry needs.

In line with the second policy option, the development of a framework for EPAs in healthcare management education is crucial, as it can provide a clear structure for the assessment and progression of students' professional activities. Datta emphasizes the importance of EPAs in medical education, specifically highlighting the need for a portfolio framework to document them.[78] Cate[79] and Lau[80] further support this, providing examples of EPA-based curricula in medical and nursing education, respectively. These studies collectively emphasize the importance of a framework for EPAs in healthcare management education, but they do not delve into its practical implications for skill development or patient outcomes. In their respective works, Yang,[81] Fortin,[82] Khodayari-Zarnaq,[36] Robbins,[83] and Calhoun[64] have significantly contributed to understanding the specific competencies required by graduates pursuing careers in healthcare management. Their research has illuminated key domains such as leadership, communication proficiency, business acumen, and technology application, underscoring how these competencies contribute to clinical practice effectiveness through real-world examples. The intricacies highlighted offer insights into the challenges involved that go beyond what current literature addresses. These studies collectively emphasize the importance of the EPA framework in influencing the expertise and understanding of graduates majoring in healthcare management.

The development of EPAs for healthcare management graduates is a growing area of interest, aiming to improve patient safety by synchronizing performance and expectations.[84] These EPAs outline activities suitable for early health professionals, bridging the gap between competencies and learning objectives.[85] In 2000, the Department of Health Management and Policy at Saint Louis University School of Public Health developed a competency-based curriculum for its Master of Health Administration program, which proved effective in facilitating mastery of healthcare management competencies.[86]

Several studies have explored the career paths and employment status of healthcare management graduates in line with the third policy option. They discovered that the skills, expertise, and support from academic institutions influence the professional prospects of graduates.[87] Delavari identified essential managerial competencies required by these graduates, emphasizing the need for training that aligns with market demands.[88] Wang highlighted the career paths of graduates, with many employed in top-tier hospitals.[89]

Studies emphasize the importance of fostering collaboration among healthcare management graduates, professionals, policymakers, and stakeholders for integrated health system improvement, which aligns with the fourth policy option of providing effective collaboration. Naamati-Schneider emphasizes the importance of collaborative learning in healthcare management education for future leaders and health system effectiveness.[90] Kauff calls for the integration of interprofessional education into health-related study programs, despite challenges like limited space, resistance from professionals, and scheduling conflicts.[91] Despite these obstacles, promising strategies such as interprofessional curricular units and community-based rehabilitation models can help students develop critical competencies and attitudes for successful interprofessional collaboration in healthcare management. The importance of ICP in healthcare management graduates' education and training is well established, as highlighted by Zechariah's 2019 research and Gilbert's 2023 findings. These studies highlight the role of ICP in improving patient care and the positive attitudes of healthcare professionals towards this collaborative approach.[92,93] Thus, integrating ICP into healthcare management graduates' education is crucial.

The study provides a systematic analysis of challenges, competencies, and solutions for improving the effectiveness of healthcare management graduates in Iran. It offers practical and policy-relevant recommendations for enhancing education, training, and professional deployment. The chosen educational model should consist of three main approaches: internal, external, and operational. The internal approach aligns the curriculum with the needs and expectations of the health system and stakeholders, while the external approach adopts best practices from international literature and experiences. The operational approach

implements the curriculum with appropriate methods, tools, and resources. Various models, such as business management models, functional areas, tasks, roles, total quality management, and reengineering, provide training for healthcare management graduates.[94] A comprehensive model should align with an organization's values, strategies, and goals, focusing on leadership development. Individual and organizational aspects, such as talent discovery, substitution, and support, are crucial.[95] Cultural sensitivity and traditional health practices are also important.[96] National manpower training models are essential in healthcare management.[18] Sokolova emphasizes the relevance of crises to professional education, taking into account changing healthcare sector scenarios.[97] Montenegro has implemented a multidisciplinary approach to healthcare management education, incorporating both technical knowledge and soft skills.[98]

The study acknowledges some limitations that may affect the generalizability and validity of the findings. First, the study focused on healthcare management graduates and did not include other health-related disciplines that may have different or complementary perspectives on the health system's challenges and solutions. Second, the study relied on the opinions and judgments of experts and stakeholders, potentially influenced by their personal or professional biases and preferences. Third, the study did not assess the actual impact or outcomes of the proposed policy options, which may require further empirical evaluation and monitoring. Fourth, this study was limited to documents published in English or Persian. Therefore, we did not review other languages or unpublished works. Although there is potential for improvement through reforming the curriculum and approach to learning within this discipline, addressing challenges in the health system involves a much broader and more complex range of human resources.

We proposed four potential policy options to enhance the effectiveness of healthcare management graduates in addressing the challenges of the Iranian health system. These options are interrelated and can be considered prerequisites for each other. The policy options provide the main routes for increasing healthcare management graduates' competencies, while also highlighting the benefits and potential challenges of each option. This study proposes a local educational model for Iran's health system management, focusing on internal, external, and operational approaches. It aims to develop technical, political, and practical competencies in students. The model incorporates the five-stage skill acquisition model and the spiral model of learning to guide curriculum design. The goal is to produce skilled managers capable of improving Iran's health system's performance.

Based on an outcome-based curriculum approach, the study presents a framework of EPAs for healthcare management PhD program graduates. The framework identifies seven core competencies in the professional, analytical, managerial, and leadership domains of healthcare management. It aims to provide a consistent standard for assessing graduates' performance and readiness for the job market. The healthcare sector in Iran faces numerous challenges and opportunities, requiring effective management. Healthcare management graduates can improve healthcare services by pursuing various career pathways and job categories. To achieve this, they need support from the Ministry of Health (MoHME) and collaboration with other health professionals, policymakers, and stakeholders. This collaboration can contribute to people's and society's health and well-being, ensuring the quality and performance of healthcare services.

The study provides several directions for future research and practice. First, the study recommends conducting a comparative analysis of the healthcare management education programs in different countries, regions, or contexts to identify the similarities and differences, strengths and weaknesses, and opportunities and threats. Second, the study recommends developing and validating a set of indicators and measures to assess healthcare management graduates' performance and impact on the health system and society. Third, the study recommends designing and implementing pilot projects or experiments to test and refine the proposed policy options, as well as monitor and evaluate their feasibility, acceptability, effectiveness, and sustainability.

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