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Developing a Model for Identifying and Exploiting Entrepreneurial Opportunities in the Health Sector: A Qualitative Approach

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A B S T R A C T

Objective: This study aimed to develop a comprehensive model for identifying and exploiting entrepreneurial opportunities within the healthcare sector, emphasizing the roles of contextual, structural, and behavioral factors.

Methodology: A qualitative, process-oriented approach was employed using grounded theory methodology to explore the dynamics of healthcare entrepreneurship. Data were collected through semi-structured interviews with healthcare experts and academic professionals in Tehran, totaling 20 interviews (10 experts and 10 academics), with analysis achieved through open, axial, and selective coding. The resulting model encompasses causal, contextual, and intervening conditions along with actionable strategies and anticipated outcomes.

Findings: The proposed model highlights the critical role of contextual conditions, such as technological infrastructure, structural organizational support, and behavioral factors like public engagement, in enabling healthcare entrepreneurship. Key strategies identified include leveraging advancements in information technology, engineering, and medical sciences to foster innovation in healthcare. Findings underscore the importance of regulatory and economic considerations as intervening conditions that either facilitate or limit entrepreneurial opportunities. Organizational and social outcomes include improved healthcare access, cost reductions, and increased public satisfaction, while individual outcomes reflect enhanced patient care and engagement.

Conclusion: The study's model provides a comprehensive framework for understanding and facilitating healthcare entrepreneurship by integrating environmental, structural, and individual factors.

Keywords: *Identifying entrepreneurial opportunities, exploiting entrepreneurial opportunities, health sector, grounded theory*

1 Introduction

The healthcare industry is in a critical situation due to rising healthcare costs, an aging global population, and an increase in new and chronic diseases (Bhatia et al., 2021)Such conditions can hinder easy access to healthcare services for the general population, both globally and nationally, rendering individuals unproductive and more susceptible to chronic diseases. On the other hand, advancements in information and communication technology have significantly transformed current methods of delivering healthcare services (Nayak et al., 2022).

For instance, the Internet of Things (IoT) enables remote monitoring in healthcare, facilitating continuous and secure health status tracking for patients and allowing healthcare providers to deliver high-quality care at reasonable costs. Additionally, patient engagement with healthcare providers has significantly increased, enhancing satisfaction with provider efficiency and raising expectations due to the ease of interaction. This has also contributed to reducing patients' hospital stays and has had a notable impact on lowering healthcare costs and improving treatment outcomes (Bhatia et al., 2021).

Furthermore, with growing awareness of healthy lifestyle choices, the number of individuals relying on smart devices to monitor their health is steadily rising (Sheeba, 2021).

Opportunity is the most critical element of the entrepreneurial process, which fundamentally revolves around identifying, assessing, and exploiting opportunities (Abdi Jammaran et al., 2017). Opportunity recognition involves understanding the possibility of establishing a new business or specifically improving the current status of an existing business to create a viable capacity for profitability (Ardichvili et al., 2003). Entrepreneurial opportunity encompasses a collection of ideas, beliefs, and actions capable of creating future goods and services, even in the absence of current markets for them (Diepolder, 2024; Zehri et al., 2023). Ardichvili et al. (2003) also define entrepreneurial opportunity as the chance to recognize a market need and deliver higher value through a creative combination of resources (Ardichvili et al., 2003), while favorable conditions that generate a demand for new products, services, or businesses are also classified as entrepreneurial opportunities (Gholipour et al., 2009; Goss & Sadler-Smith, 2018).

Sarasvathy and colleagues (2003) categorize opportunity recognition as the process where if both supply and demand are evident, the opportunity lies in "recognizing" and coordinating these aspects. Such opportunities can be exploited either through existing businesses or by establishing new ones, with licensing and franchise arrangements serving as examples (Khoshmaram et al., 2017). Corbett (2007) defines opportunity recognition as the ability to identify a viable idea and translate it into a business that generates added value and revenue. According to Baron and Shane (2005), opportunity recognition is a process whereby individuals realize their potential to create something new that possesses economic value. Gundry and Kickul (2007) further suggest that opportunity recognition involves entrepreneurs searching for, acquiring, and refining new ideas that lead to business opportunities, which requires broad knowledge typically beyond what one individual possesses (Mah-Najafabadi et al., 2022).

In the context of technology advancements, opportunities in healthcare, such as COVID-19 patient care, smart hospitals, and extensive data storage, illustrate the role of IoT in transforming healthcare services (Nayak et al., 2022). For instance, IoT-enabled devices allow remote monitoring, ensuring continuous tracking of patients' health status, and enabling healthcare providers to deliver quality care efficiently. The application of data analytics enhances care by facilitating detailed health history analysis, reducing patient wait times, and supporting emergency and routine medical services (Garov & Awasthi, 2022). Further, IoT applications in healthcare can range from alerts for disease progression, suitable medical prescriptions, monitoring glucose levels, aiding remote areas, asthma or heart attack detection, medication reminders, to improving medical emergency response through proximity analysis (Asgharinezhad et al., 2024; Rao & Elias-Medina, 2024).

Numerous studies focus on individual factors in recognizing and developing entrepreneurial opportunities across various fields, but limited research explores this in the healthcare sector. Existing studies often highlight personal traits contributing to opportunity identification, such as social networks, experience, motivation, and knowledge (Dianati et al., 2018; Khoshmaram et al., 2017). Lim and Xavier (2015) demonstrate that previous knowledge, entrepreneurial alertness, and social networks are crucial for identifying opportunities and enhancing business performance in technology sectors (Lim & Xavier, 2015). Meanwhile, Wang et al. (2013) introduce a model for opportunity recognition focused on R&D personnel (Wang et al., 2013), and Bhagavatula et al. (2010) examine how social and human capital impact opportunity recognition and

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resource mobilization in India's textile industry (Bhagavatula et al., 2010).

Overall, with technological advancements and their integration with artificial intelligence, a substantial digital transformation is underway in the healthcare sector. Various studies are also being conducted in this field, adding new dimensions to such systems. Therefore, identifying and utilizing innovative methods of healthcare service delivery that create entrepreneurial opportunities in the health sector has increasing national significance. Thus, given the urgency of the topic, the primary question of this study is how entrepreneurial opportunities in the healthcare sector can be identified and exploited.

2 Methods and Materials

The orientation of this research is applied, as it aims to identify and exploit entrepreneurial opportunities in the healthcare sector. Additionally, regarding the data collection strategy, this is a qualitative study utilizing grounded theory to identify and exploit entrepreneurial opportunities in healthcare. This approach provides a general method for comparative analysis, allowing for the systematic development of theory based on data (Tarozzi, 2020). Data from sources are transformed into codes, similar codes are grouped into categories, and finally, categories are formed into a theory. The selected population consists of experts and academic faculty in Tehran's healthcare sector, with purposeful sampling used to select panel members for semi-structured interviews. The research process continued until data saturation was reached after 20 samples, including interviews with 10 experts and 10 academic professors.

3 Findings and Results

According to Strauss and Corbin (1998), coding is a systematic and iterative process for uncovering categories, properties, and dimensions of the data. Based on this, the theoretical model of the present research was developed. Data collection was based on face-to-face interviews, each lasting between 30 to 45 minutes. Detailed data analysis, questioning, and comparative analysis are key methods in the grounded theory approach. Throughout the data analysis process, the researcher moved continuously and purposefully between open and axial coding to accurately identify and categorize concepts and categories.

First, codes derived from the conducted interviews were coded. Then, initial codes related to the current and future conditions, strategies, and constraints of the healthcare sector were extracted. Finally, common codes emphasized by interviewees were identified as the final codes.

In axial coding, the researcher explored events and occurrences that either supported or contradicted the questions regarding the categories, typically identifying a relationship within the data. In this stage, 352 final extracted codes were categorized into 155 concepts and 16 categories. Tables 1 to 6 illustrate the concepts and categories related to the main model. In this model, causal conditions refer to events and occurrences leading to the emergence or development of the primary phenomenon: the recognition and development of entrepreneurial opportunities in the healthcare sector. As indicated in Table 1, these causal conditions can be divided into three sub-categories: contextual (environmental) factors, structural (organizational) factors, and behavioral (content-related) factors.

Contextual (Environmental) Factors: These are drivers at the societal (supra-organizational) level that can influence the model for identifying and exploiting entrepreneurial opportunities in the healthcare sector.

Structural (Organizational) Factors: These are drivers at the organizational (intra-organizational) level that can impact the model for identifying and exploiting entrepreneurial opportunities in healthcare.

Behavioral (Content-Related) Factors: These are drivers at the individual level that can influence the model for identifying and exploiting entrepreneurial opportunities in healthcare.

Table 1

Concepts and Categories Related to Causal Conditions

Sub-Category	Concepts
Contextual (Environmental) Factors	1. Optimal allocation of budget for healthcare research and innovation 2. Educational system's role in health entrepreneurship 3. Media support for healthcare entrepreneurship 4. Economic, social, and demographic conditions 5. Development level of IT and communication infrastructure 6. National entrepreneurial culture

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	7. Governmental positive attitude towards entrepreneurship 8. Alignment of educational programs with market needs 9. Enhancement of librarians' status in health system 10. Availability of multiple healthcare centers 11. Strengthening IT and communication infrastructures 12. Expansion of satellite and wireless technologies 13. Availability of IT experts in healthcare 14. Efficient data exchange capabilities 15. Improvement of healthcare service quality through health information investment 16. Integrated patient data systems in healthcare ministry 17. Increase in public health literacy 18. Easy access to unified data across national databases 19. International network connectivity 20. Development of health content production centers aligned with regional customs 21. Private sector involvement in e-health services 22. Inter-organizational collaboration to monitor opportunities 23. Access to health statistics and service records 24. Empowerment of communities
Structural (Organizational) Factors	1. Patient experience sharing 2. Facilitation of internal growth centers/incubators 3. International growth center collaboration 4. Support from health technology development management 5. Effective patient relations 6. Creation of detailed patient data banks 7. Real-time updating of patient databases 8. Job creation in healthcare 9. Incentives for healthcare professionals 10. Improving the economic status of healthcare staff 11. Experience and knowledge sharing among healthcare experts 12. Transition to modern, interactive organizations 13. Localization of healthcare software tools 14. Evidence-based decision-making facilitation 15. Use of patient data in healthcare research 16. Encouraging technical experts to explore new healthcare technology 17. Specialized training in IT for healthcare professionals 18. Synergy among medical, technical, financial, and management experts
Behavioral (Content-Related) Factors	1. Public inclination for health decision-making participation 2. Patient-physician continuous engagement 3. Ease of technology use without specialized skills 4. Demographic traits (age, gender, marital status) 5. Educational level and field of study 6. Psychological traits (creativity, competitiveness, honesty, etc.) 7. Risk tolerance 8. Personal values and ethics (e.g., altruism, work dedication)

The phenomenon refers to the main idea, event, or activity under study, around which a series of actions is developed. According to Table 2, the core phenomenon can be divided into two sub-categories:

Identifying Potential Opportunities in Healthcare: This involves recognizing opportunities that can be exploited based on the needs, demands, and capacities available nationwide.

Exploiting Existing Opportunities in Healthcare: This refers to opportunities that currently exist in the country and are available for production, commercialization, and utilization.

Table 2

Concepts and Categories Related to the Core Phenomenon

Sub-Category	Concepts
Identifying Potential Opportunities	1. Needs assessment for demanded healthcare services 2. Identifying service gaps in healthcare 3. Recognizing unmet and hidden health needs 4. Demand generated by IT advancements 5. Demand generated by engineering and medical science advancements 6. Estimating demand volume for new healthcare products/services
Exploiting Existing Opportunities	1. Attracting required investment for healthcare innovations 2. Implementation and commercialization of demanded healthcare products 3. Marketing and selling innovative healthcare products/services 4. Branding and market-building for new healthcare products 5. Analyzing trends in healthcare products and services market

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Additionally, the context represents a specific set of characteristics related to the phenomenon, generally referring to the location of related events and occurrences. According to Table 3, the existing context in healthcare can be divided into two sub-categories:

General Environment (All Sectors): This includes a range of general events in the macro-environment of the country, which, beyond healthcare, can also facilitate the identification and exploitation of entrepreneurial opportunities in other sectors.

Task Environment (Healthcare Sector): This includes specific characteristics within the healthcare work environment, established by organizational factors, that can serve as a platform exclusively within healthcare for identifying and exploiting entrepreneurial opportunities.

Table 3

Concepts and Categories Related to Context

Sub-Category	Concepts
General Environment (All Sectors)	1. Access restrictions on certain informational resources 2. Economic sanctions 3. Rapid technological advancements 4. Digital divide 5. Socioeconomic and generational gaps 6. Cultural challenges with technology adoption 7. Lack of effective support for healthcare IT hardware 8. Limited communication technology in remote areas 9. Insufficient data coverage infrastructure 10. Time-consuming hardware provisioning 11. Healthcare workforce migration to other countries
Task Environment (Healthcare Sector)	1. Employment of unrelatedly trained personnel 2. Personal biases in healthcare entrepreneurship development 3. Misinformation spread for economic gain 4. Insufficient workforce experience 5. Shortage of IT personnel in healthcare services 6. Challenges in content validation and quality control 7. Licensing obstacles for healthcare growth centers 8. Unclear ownership in healthcare technology adoption 9. Lack of reliable patient privacy protection 10. Reluctance of doctors and patients to accept new tech 11. No comprehensive health entrepreneurship policies 12. Shortage of entrepreneurial skills in healthcare 13. Legal and regulatory challenges in health entrepreneurship 14. Limited participation in healthcare entrepreneurship training

Intervening conditions refer to general conditions, such as time, space, and culture, that act as facilitators or constraints for strategies. According to Table 4, intervening conditions in the domain of entrepreneurial governance can be divided into four sub-categories: (1) executive and technical barriers, (2) political and legal barriers, (3) economic barriers, and (4) cultural and social barriers.

Table 4

Concepts and Categories Related to Intervening Conditions

Sub-Category	Concepts
Executive and Technical Barriers	1. Reliance on outdated and imported technologies in healthcare 2. Inadequate communication due to lack of proximity and ineffective verbal communication between physicians and patients 3. Strict requirements for discipline, control, and transparency among healthcare staff 4. High workload and full-time engagement of healthcare personnel 5. Commercial perspective of physicians in providing healthcare services 6. Conservative decision-making approaches in healthcare 7. Lack of efficient health information systems 8. Exclusivity of medical information controlled by the government 9. Limited access to essential laboratory facilities 10. Current organizational structure in hospitals 11. Shortage of skilled professionals

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	12. Low motivation and lack of engagement among healthcare personnel 13. Job burnout 14. Lack of effective training programs 15. Physicians' reluctance to participate in organizational meetings 16. Limited time available for healthcare experts to attend collaborative sessions 17. Inefficiency of internal organizational systems
Political and Legal Barriers	18. Infringement of physicians' rights due to unclear health entrepreneurship regulations 19. Excessive revision of technology policies due to political shifts 20. Negative perception of health policymakers towards modern communication technologies
Economic Barriers	21. High investment risks and inadequate budget allocation for healthcare 22. High costs of equipment for physicians 23. Medical sanctions
Cultural and Social Barriers	24. Health risks associated with advanced technologies, such as radio waves and increased anxiety 25. Resistance to restructuring traditional health systems 26. Public health literacy level 27. Limited awareness of modern treatment information 28. Lack of trust and collaboration among healthcare professionals

The strategies outlined in the proposed model refer to a set of measures adopted to manage, operate, or respond to the phenomenon under investigation. According to Table 5, these strategies can be categorized as follows:

Strategies Based on Information Technology Development: According to this strategy, the process of identifying and exploiting entrepreneurial opportunities in healthcare is achievable through the development of information technology.

Strategies Based on Engineering and Medical Science Development: According to this strategy, the process of identifying and exploiting entrepreneurial opportunities in healthcare is achievable through the advancement of engineering and medical sciences.

Table 5

Concepts and Categories Related to Strategies and Actions

Sub-Category	Concepts
Strategies Based on Information Technology Development	1. Using virtual and augmented reality in healthcare 2. Implementing surgical robots in healthcare 3. Utilizing the Internet of Things (IoT) in healthcare 4. Employing big data in the health sector 5. Applying artificial intelligence in healthcare 6. Storing and sharing information using optical and cloud-based solutions 7. Using shortwave and advanced satellite technology
Strategies Based on Engineering and Medical Science Development	8. Using 3D printing in healthcare 9. Applying genetic engineering, biochemistry, biotechnology, and nanotechnology in healthcare 10. Designing and using wearable devices in healthcare 11. Designing, building, and utilizing prosthetics in healthcare 12. Using photovoltaic (solar) cells in healthcare 13. Developing new composites, polymers, and advanced ceramics for healthcare 14. Molecular design in healthcare

Lastly, outcomes represent the outputs or results of actions and reactions. In Table 6, the anticipated outcomes identified by the researcher are categorized into three sections:

Individual Outcomes: These represent the personal achievements associated with the model for identifying and exploiting entrepreneurial opportunities in healthcare.

Organizational Outcomes: These represent the organizational achievements associated with the model for identifying and exploiting entrepreneurial opportunities in healthcare.

Social Outcomes: These represent the societal-level achievements (at the community level) associated with the model for identifying and exploiting entrepreneurial opportunities in healthcare.

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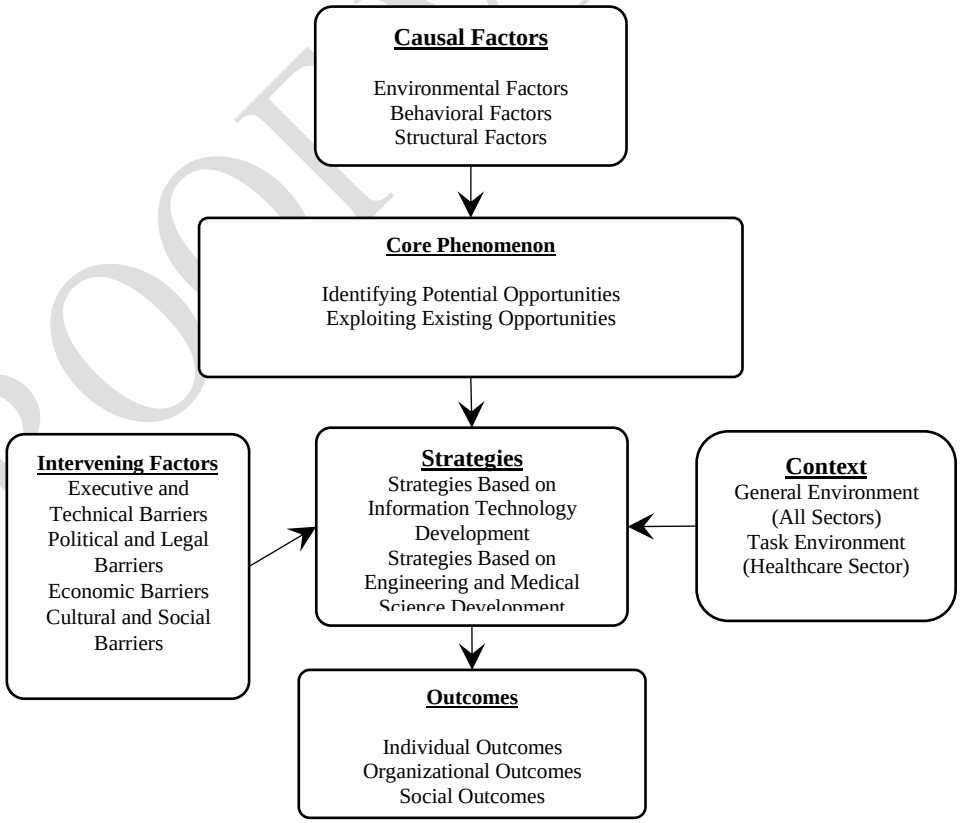
Table 6

Concepts and Categories Related to Outcomes

Sub-Category	Concepts
Individual Outcomes	1. Reduction in patient expenses (treatment costs) 2. Reduction or elimination of patient waiting times 3. Improvement in patient treatment processes 4. Fewer visits to treatment centers 5. Prevention of specific and chronic diseases 6. Prevention of disease complications 7. Increased patient satisfaction level
Organizational Outcomes	8. Reduced medical errors 9. Access to services without time and location restrictions, especially in remote areas 10. Increased capacity for healthcare services 11. Creation of new infrastructures for healthcare equity 12. Talent acquisition and retention in healthcare 13. Improved quality of work life for healthcare staff 14. Enhanced efficiency and productivity in healthcare 15. Increased revenue and creation of new financial resources in healthcare 16. Integrated oversight and improved human and physical resource management 17. Resolution of service balance issues 18. Improved decision-making for physicians and provision of optimal treatment methods 19. Increased medical knowledge 20. Reduction in prescription errors and improved legibility of electronic prescriptions 21. Improved diagnostic accuracy using advanced technology
Social Outcomes	22. Combatting “brain drain” 23. Increased life expectancy in society 24. Enhanced quality of life in society 25. Provision of healthcare services to low-income individuals in underdeveloped areas

Figure 1

Final Paradigm Model



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In the final stage, the core category is systematically connected to other categories, with categories requiring further refinement being revisited. The coding stages are conducted interactively, moving back and forth. Thus, these stages are not entirely separate but occur through an interactive process between open, axial, and selective coding. The results of data analysis at this stage led to a theoretical model encompassing causal conditions, contextual conditions, intervening conditions, strategies and actions, and outcomes. Above, the model for identifying and exploiting entrepreneurial opportunities in healthcare is presented.

4 Discussion and Conclusion

This study presented a comprehensive model for identifying and exploiting entrepreneurial opportunities in the healthcare sector, integrating contextual, structural, and behavioral factors to reveal how each can facilitate or hinder entrepreneurial progress. The model outlined key strategies based on advancements in information technology, engineering, and medical sciences to enhance healthcare entrepreneurship. The findings highlighted the importance of both contextual conditions, such as the level of technological infrastructure, and intervening conditions, such as social and regulatory barriers, which align well with similar frameworks in entrepreneurship and innovation research.

The study's results, which emphasize the role of information technology and engineering in identifying opportunities in healthcare, are supported by prior findings (Garov & Awasthi, 2022; Nayak et al., 2022). Both studies confirm the transformative effect of advanced technology in healthcare delivery, noting that technologies such as IoT and big data can enable remote patient monitoring, data-driven decision-making, and real-time information sharing. Such innovations are not only practical for patient management but also reduce costs and improve efficiency in healthcare delivery (Garov & Awasthi, 2022).

The findings also identified structural and organizational factors, such as the creation of data-sharing platforms and the establishment of patient-centric healthcare models, which are essential for promoting entrepreneurship in healthcare. An emphasis on contextual factors such as economic and cultural conditions also surfaced as an integral part of the model. These findings echo prior findings (Dudek et al., 2021; Mechanick et al., 2020) that the cultural acceptance of new technologies is critical for fostering entrepreneurship in traditional sectors. Additionally, economic challenges, including the high costs of technology and resource constraints, were identified as significant barriers.

Furthermore, the role of behavioral or content-related factors, including public involvement in healthcare decision-making, personal values, and risk tolerance, was underscored. These behavioral traits are particularly important in the healthcare sector, where trust and empathy play an essential role in patient-provider relationships. This study also explored the limitations posed by regulatory barriers, high investment risks, and economic sanctions, which emerged as significant intervening conditions affecting entrepreneurial activity in healthcare.

In summary, this study's findings align with previous research and confirm that entrepreneurial opportunities in healthcare are best realized through a holistic approach. The model proposed integrates causal conditions, strategies, actions, and outcomes that reflect the unique interplay of environmental, structural, and individual factors in the healthcare sector. By understanding these dynamics, policymakers and healthcare stakeholders can develop targeted strategies to support and facilitate healthcare entrepreneurship.

This study has certain limitations. First, the data were primarily collected through interviews with healthcare professionals in Tehran, which limits the generalizability of the findings to other regions with different healthcare infrastructures. Additionally, the model's reliance on qualitative data restricts its applicability, as quantitative validation of the model would offer a more robust foundation for evaluating its effectiveness in diverse healthcare settings. Another limitation is that the study focused predominantly on experts' perspectives within the healthcare sector and did not account for the views of patients or other stakeholders, which could provide additional insights into the factors influencing healthcare entrepreneurship.

Future research should address the limitations identified by incorporating quantitative analysis to test and validate the model. Expanding the study to include different regions with varied healthcare infrastructures would offer valuable insights into the broader applicability of the model. Additionally, researchers could explore the role of patients, as their input could illuminate new avenues for innovation and entrepreneurship in healthcare. Further studies may also examine the interplay between behavioral factors, such as patient engagement, and structural elements, like data-

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sharing platforms, to explore how these factors collectively influence healthcare entrepreneurship.

Healthcare policymakers and administrators should consider implementing strategies outlined in the model, especially in promoting technological and engineering advancements, which are vital for fostering entrepreneurial opportunities in healthcare. Emphasizing information technology and patient-centered models could lead to improved health outcomes, especially in underserved areas. Policymakers should prioritize regulatory reforms that encourage entrepreneurship, such as easing restrictions on health data sharing and supporting private-sector investment in healthcare technology. Additionally, ongoing training and resources for healthcare professionals will be critical to ensuring they are equipped to leverage emerging technologies and maintain high standards of care in innovative healthcare settings.

Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

In this research, ethical standards including obtaining informed consent, ensuring privacy and confidentiality were observed.

References

Abdi Jammaran, A., Hosseini, E., Moghaddam, A., & Ghasemloo, M. (2017). Individual Factors Affecting the Identification of Entrepreneurial Opportunities. *Shbank Journal*, *3*(2), 105-115. https://www.sid.ir/paper/514958/fa

Ardichvili, A., Cardozo, R., & Ray, S. (2003). A theory of entrepreneurial opportunity identification and development. *Journal of Business Venturing*, *18*(1), 105-123. https://doi.org/10.1016/S0883-9026(01)00068-4

Asgharinezhad, S., Rezghi Shirsavar, H., & Khanzadi, K. (2024). Identifying the Dimensions and Components of Internet of Things (IoT) Development in Schools Based on Futurology [Research Article]. *Iranian Journal of Educational Sociology*, *7*(2), 98-105. https://doi.org/10.61838/kman.ijes.7.2.12

Bhagavatula, S., Elfring, T., Van Tilburg, A., & Van De Bunt, G. G. (2010). How social and human capital influence opportunity recognition and resource mobilization in India's handloom industry. *Journal of Business Venturing*, *25*(3), 245-260. https://doi.org/10.1016/j.jbusvent.2008.10.006

Bhatia, D., Bagyaraj, S., Karthick, S. A., Mishra, A., & Malviya, A. (2021). Role of the Internet of Things and deep learning for the growth of healthcare technology. *Trends in Deep Learning Methodologies*, 113-127. https://doi.org/10.1016/B978-0-12-822226-3.00005-2

Dianati, M., Karimi, A., & Akbari, M. (2018). The Effect of Entrepreneurial Self-Efficacy on Opportunities for Recognition: Considering the Entrepreneurial Role of Entrepreneurial Knowledge-Based Companies Based in Science and Technology Parks in Tehran. *Journal of Entrepreneurship Development*, *11*(1), 61-81. https://www.sid.ir/fa/journal/ViewPaper.aspx?id=467717

Diepolder, C. S. (2024). Exploring the Impact of Sustainable Entrepreneurial Role Models on Students' Opportunity Recognition for Sustainable Development in Sustainable Entrepreneurship Education. *Sustainability*, *16*(4), 1484. https://doi.org/10.3390/su16041484

Dudek, K. A., Dion-Albert, L., Kaufmann, F. N., Tuck, E., Lebel, M., & Menard, C. (2021). Neurobiology of resilience in depression: immune and vascular insights from human and animal studies. *European Journal of Neuroscience*, *53*(1), 183-221. https://doi.org/10.1111/ejn.14547

Garov, A. K., & Awasthi, A. K. (2022). Case Study-Based Big Data and IoT in Healthcare. In *Machine Learning, Deep Learning, Big Data, and Internet of Things for Healthcare* (pp. 13-35). Chapman and Hall/CRC. https://doi.org/10.1201/9781003227595-2

Gholipour, R., Aghajani, H., & Karimi, M. (2009). Investigating Factors Influencing on Entrepreneurial Opportunity Recognition in the Field of Information Technology. *Information Technology Studies*, *1*(3), 123-158. https://jead.gau.ac.ir/article_3500.html

Goss, D., & Sadler-Smith, E. (2018). Opportunity creation: Entrepreneurial agency, interaction, and affect. *Strategic Entrepreneurship Journal*, *12*(2), 219-239. https://doi.org/10.1002/sej.1273

Khoshmaram, M., Zarafshani, K., & Mirkzadeh, A. (2017). Designing and Explaining a Model for Identifying Entrepreneurial Opportunities in Agriculture in Kermanshah Province: Application of NVivo Software. *Journal of Rural*

Research, *8*(3), 391-402. https://www.sid.ir/fa/journal/ViewPaper.aspx?id=317341

Lim, W. L., & Xavier, S. R. (2015). Opportunity Recognition Framework: Exploring the Technology Entrepreneurs. *American Journal of Economics*, *5*(2), 105-111. http://article.sapub.org/10.5923.c.economics.201501.10.html

Mah-Najafabadi, A., Ghasemi, A. H., Papi, A., & Zare-Farashbandi, F. (2022). Identifying the Opportunities and Challenges of Establishing an Information Therapy Center. *Journal of Health Administration*, *25*(2), 116-133. https://www.sid.ir/fileserver/je/114220220207.pdf

Mechanick, J. I., Apovian, C., Brethauer, S., Timothy Garvey, W., Joffe, A. M., Kim, J., Kushner, R. F., Lindquist, R., Pessah-Pollack, R., Seger, J., Urman, R. D., Adams, S., Cleek, J. B., Correa, R., Figaro, M. K., Flanders, K., Grams, J., Hurley, D. L., Kothari, S., . . . Still, C. D. (2020). Clinical Practice Guidelines for the Perioperative Nutrition, Metabolic, and Nonsurgical Support of Patients Undergoing Bariatric Procedures – 2019 Update: Cosponsored by American Association of Clinical Endocrinologists/American College of Endocrinology, The Obesity Society, American Society for Metabolic and Bariatric Surgery, Obesity Medicine Association, and American Society of Anesthesiologists. *Obesity*, *28*(4), O1-O58. https://doi.org/10.1002/oby.22719

Nayak, S., Mantri, S., Nayak, M., & Rai, A. (2022). Introduction to e-monitoring for healthcare. In *Machine Learning, Deep Learning, Big Data, and Internet of Things for Healthcare* (pp. 1-11). Chapman and Hall/CRC. https://doi.org/10.1201/9781003227595-1

Rao, A. R., & Elias-Medina, A. (2024). Designing an internet of things laboratory to improve student understanding of secure IoT systems. *Internet of Things and Cyber-Physical Systems*, *4*, 154-166. https://doi.org/10.1016/j.iotcps.2023.10.002

Sheeba, P. S. (2021). An overview of IoT in health sectors. In *Emerging Technologies for Healthcare: Internet of Things and Deep Learning Models* (pp. 1-24). https://doi.org/10.1002/9781119792345.ch1

Wang, Y., Ellinger, A. D., & JimWu, Y. (2013). Entrepreneurial opportunity recognition: an empirical study of R&D personnel. *Management Decision*, *51*(2), 248-266. https://doi.org/10.1108/00251741311301803

Zehri, A. W., Bhatti, M. K., & Baloch, M. S. (2023). Career Decisions and Opportunity Recognition as the Predictors of Entrepreneurial Intention. *Research Journal for Societal Issues*, *5*(1), 138-149. https://doi.org/10.56976/rjsi.v5i1.72