

Identifying the influencing factors on entrepreneurship of health sciences graduates: (A Mixed Study)


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Article Info	ABSTRACT
Article type: Original article	Introduction: Entrepreneurship is a teachable, improvable, and cultivable domain. One of the goals of educational organizations striving for excellence and educational productivity should be to train entrepreneurial individuals. Research on entrepreneurship among students and graduates of medical sciences is important due to the need to better address the growing health needs of the community. Therefore, the present study was conducted to identify the factors influencing entrepreneurship among graduates of Ilam University of Medical Sciences.
Article History: Received: Jan. 02, 2025 Revised: Feb. 05, 2025 Accepted: Mar. 01, 2025 Published Online: Jun. 30, 2025	Materials & Methods: This research employed a mixed-methods approach (qualitative-quantitative). The statistical population consisted of two groups: faculty members and graduates of Ilam University of Medical Sciences. In the qualitative section, 12 faculty members were purposefully selected, while 114 graduates participated in the quantitative section with informed consent. The research tool in the qualitative section was a semi-structured interview, and in the quantitative section, a researcher-made questionnaire was used. Data in the qualitative section were analyzed using grounded theory, while descriptive statistics and t-tests were applied to the quantitative data using SPSS version 24.
 Correspondence to: Jamil Sadeghifar Department of Health Management and Economics, School of Public Health, Ilam University of Medical Sciences, Ilam, Iran Email: Jamil.sadeghifar@gmail.com	Results: The qualitative findings indicated the effect of 44 factors categorized into three main axes: entrepreneurial spirit, contextual factors, and educational factors as influential elements on the entrepreneurship of Ilam University of Medical Sciences graduates. Additionally, the quantitative statistical findings revealed that educational factors (4.26), contextual factors (3.98), and entrepreneurial spirit (3.97) had the most significant impact on graduates' entrepreneurship. Conclusion: Based on the results, factors such as experience, learning, strong will, sense of belonging to the country, hard work, and tolerance for ambiguity can play a significant role in fostering and developing entrepreneurship. These elements can be intentionally and qualitatively taught and reinforced through formal curricula or hidden curricula during university education processes. Keywords: Entrepreneurship, educational productivity, graduates, Ilam University of Medical Sciences

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Introduction

Entrepreneurship is considered a vital element for emergence in the knowledge-based global market and for achieving economic growth, creativity, and innovation[2]. It should be regarded as a key competency that all individuals, especially students of higher education institutions, must acquire to foster innovation and facilitate business creation[3]. The study of development processes worldwide indicates that higher education systems have always been a fundamental factor in the evolution and socio-economic and cultural development of societies[6]. One of the societal needs is for higher education to instill entrepreneurship as a trait and characteristic in graduates to cultivate more entrepreneurs who can innovate solutions to social and economic challenges and create jobs that impact economic growth[7]. Addressing the issue of entrepreneurship and training graduates with the necessary skills to start suitable businesses is one of the primary responsibilities of universities[8]. The necessity of transforming universities from "independent universities" to "entrepreneurial universities" has led to the emergence of the concept of "third-generation universities." The goal of these universities is to strengthen entrepreneurs and connect education with society and industry[9]. The experiences of various countries regarding entrepreneurship have shown that it is possible to train entrepreneurial individuals through education[10].

In reviewing the research background, there is a significant interest among researchers in studying entrepreneurship[13] and Extensive studies have examined the relationship between various variables, including unemployment rates [14-16], education [17, 18], the number of jobs and the creation of new businesses with the level of entrepreneurship[19]. Other research has also investigated the impact of the gender of entrepreneurs[20], the organization of periodic meetings in entrepreneurship[21], and the policies established for the development of entrepreneurship education in universities[22]. In the study by Ahmadkhani et al. on identifying the

barriers to entrepreneurship among higher education students in Iran, the main obstacles to student entrepreneurship include: individuals barriers, educational barriers, financial barriers, and supportive barriers such as those related to the government, laws, and social attitudes[23]. In a similar study, the components identified as the most significant environmental barriers to entrepreneurship among young Iranian graduates include a lack of training and entrepreneurial skills, insufficient financial resources, the absence of positive social and cultural attitudes towards entrepreneurship, limited access to knowledge and technology, weak government support policies and programs, and the closed nature of markets along with regulations and laws[24].

Increasing demand for university admission, and consequently a rise in the number of graduates, the mission of universities has shifted from training specialized personnel to engaging in research and entrepreneurial activities[25] and in the present age, entrepreneurship education in universities is on the rise in both developed and developing countries[26]. Countries have prioritized the cultivation and training of entrepreneurs in their social and economic development programs[27]. Significant efforts should be made in three important areas: creating motivation for entrepreneurship at the university and regional levels; expanding financial resources and more effectively linking entrepreneurs with suppliers; and establishing and maintaining connections between universities and businesses. [28].

In recent years, within the Ministry of Health, and Medical Education, with the introduction of excellence and productivity programs in medical education, the important topic of entrepreneurship has been addressed through a national working group corresponding to ten regional areas as well as at universities and medical faculties across the country; Consequently, addressing the issue of entrepreneurship among students, faculty members,

and graduates of medical sciences has been pursued with greater seriousness. Therefore, the present study was conducted with the aim of examining the factors influencing entrepreneurship among graduates of Ilam University of Medical Sciences in the year 1401.

Materials and methods

This research is a mixed-methods study (qualitative-quantitative) in terms of data nature. Regarding the research objective, it is applied. The statistical population of the study consists of two parts: qualitative and quantitative, including professors and unemployed graduates of Ilam University of Medical Sciences. In the qualitative section, 12 professors from Ilam University of Medical Sciences were selected based on data saturation through purposive and snowball sampling methods and included in the study. In the quantitative section, 114 unemployed graduates from previous years were selected through convenience sampling and included in the study. These graduates were divided into two groups: those whose service period had ended and were awaiting employment tests, and those who had not yet entered the service. The research instruments included interviews and questionnaires. In the qualitative section, data were collected using semi-structured interviews and analyzed through grounded theory coding methods. In the quantitative section, a researcher-made questionnaire based on the findings

from the qualitative section was utilized in the form of a five-point Likert scale. The initial version of the questionnaire contained 58 items, which was ultimately reduced to 44 items after a content validity review. The content validity of the research questionnaire was evaluated and approved by 8 specialists and experts familiar with the field of entrepreneurship. To confirm the reliability of the questionnaire, the Cronbach's alpha coefficient for the questionnaire was determined to be 0.853. For analyzing the quantitative data, mean tests and t-tests were conducted using SPSS software, version 24.

Findings

In this section, 44 qualitative sub-codes were collected through interviews and were categorized based on the content of the data. The coding resulted in 8 main themes. By examining, comparing, and identifying commonalities among the classified codes/themes, the findings were systematically organized into 3 general categories in the form of the main components of the research, and their relationships with other components were clarified. Finally, utilizing the results from the previous stage and considering the components that emerged from the data, along with a clearer understanding of the concepts and components, the conceptual model of the research was presented (Figure 1).

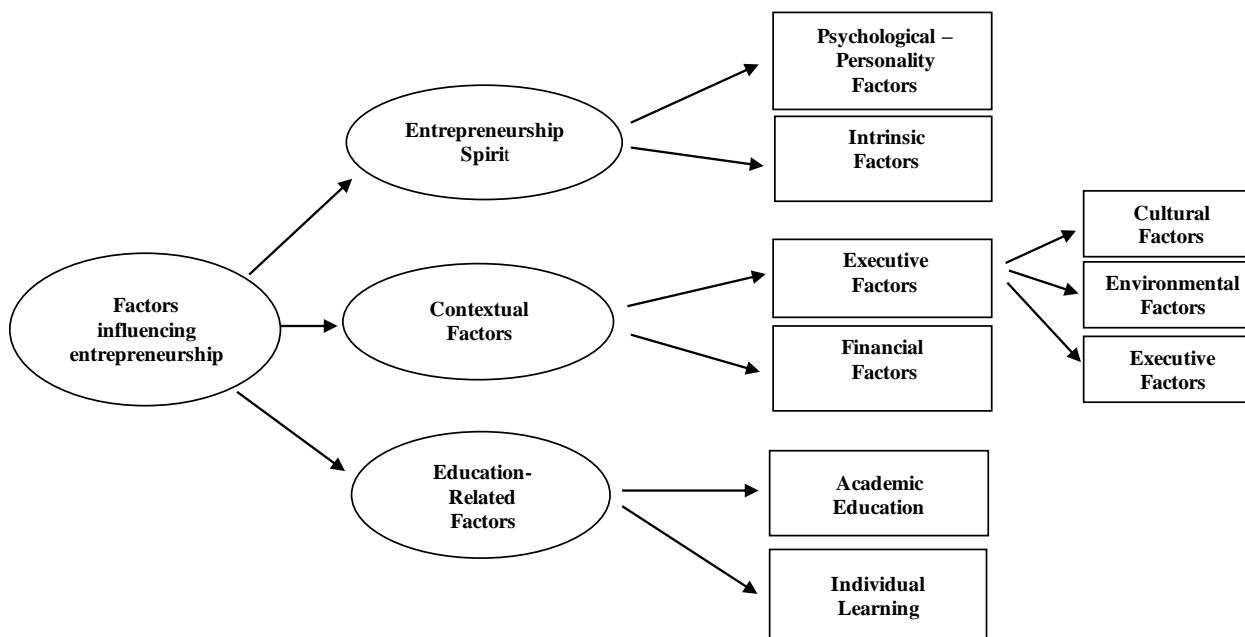


Figure 1. Conceptual model developed for the research (Factors influencing entrepreneurship)

In the quantitative section, the total number of selected samples was 114 individuals; among the total sample studied, 64.03% were female graduates,

with the highest frequency concerning education being non-working graduates with a bachelor's degree, accounting for 67.54%.

Table 1. Demographic characteristics of the sample participating in the research.

Variable		Frequency	Percentage
Gender	Male	41	35.96
	Female	73	64.03
Education	Associate Degree	21	18.42
	Bachelor's Degree	77	67.54
	Master's Degree	16	14.03

Before assessing the proposed model of the research, to ensure and confirm the effect of each identified factor from the perspective of graduates of Ilam University of Medical Sciences, the impact of each identified factor was examined and evaluated using the mean statistic. The results of the mean test

indicated that 44 identified factors, with mean values higher than the test value from the perspective of graduates of Ilam University of Medical Sciences, could be considered as effective factors on the entrepreneurship of these graduates.

Table 2. Identified factors/indices affecting the entrepreneurship of graduates from Ilam University of Medical Sciences.

Factor	Row	Index/Criteria	Mean	Mean Deviation	Standard Deviation
Personality factors	۱	Hard Work	4.40	0/08	0/62
	۲	Responsibility	4.24	0/07	0/54

	۳	Risk-taking	4.08	0/08	0/63
	۴	Internal Control	3.96	0/08	0/62
	۵	Innovation	3.63	0/07	0/55
	۶	Flexibility	3.80	0/05	0/44
	۷	Tolerance for Ambiguity	4.26	0/05	0/44
	۸	Need for Independence	4.07	0/08	0/67
	۹	Need for Advancement	4.14	0/07	0/54
	۱۰	Achievement Motivation	4.01	0/08	0/66
	۱۱	Self-confidence	3.77	0/06	0/50
	۱۲	Creativity	4.12	0/06	0/50
	۱۳	Dreaming	3.94	0/09	0/69
	۱۴	Mental Health	3.94	0/07	0/54
	۱۵	Pragmatism	3.70	0/07	0/53
	۱۶	Challenge-seeking	3.98	0/08	0/66
	۱۷	Receptiveness to Criticism	4.01	0/08	0/64
	۱۸	Determination	4.19	0/09	0/69
	۱۹	Strong Will	4.40	0/09	0/72
	۲۰	Motivation for Continuing Education	3.96	0/07	0/59
	۲۱	Ethical Conduct	3.77	0/07	0/56
	۲۲	Sense of Belonging to Country and Patriotism	4.40	0/09	0/75
Intrinsic Factors	23	Intelligence	3.73	0/09	0/69
	24	Talent	3.92	0/08	0/65
	25	Inner Tendencies	4.05	0/07	0/58
Cultural Factors	26	Social Culture and Work Culture	4.08	0/08	0/63
	27	Cultural Development	3.63	0/07	0/55
Environmental Factors	28	Environmental and Psychological Needs Assessment	3.77	0/07	0/56
	29	Ability to Operate in the Market	3.96	0/09	0/70
	30	Success	3.87	0/09	0/70
Executive Factors	31	Administrative Bureaucracy	3.73	0/06	0/51
	32	Government Commitment	3.82	0/08	0/63
	33	Suitable Infrastructure for Entrepreneurship	3.98	0/09	0/69
Financial Factors	34	Financial Power	4.07	0/07	0/59
	35	Facilities	4.14	0/06	0/51
Academic Education	36	Type of Field of Study	4.36	0/06	0/48
	37	Offering Entrepreneurship Education Units	4.24	0/08	0/66
	38	Alignment of Education with Job Needs	4.03	0/08	0/65
	39	Creativity Training by Specialized and Creative Individuals	4.08	0/06	0/50
	40	Offering Practical Courses	3.98	0/08	0/64

	41	Consistency Between Practical and Theoretical Courses	3.91	0/09	0/68
	42	Offering Work Shifts in All Course Units	4.31	0/07	0/60
Individual Learning	43	Learning	4.42	0/08	0/65
	44	Experience	4.38	0/08	0/64

After confirming the impact of each identified factor on entrepreneurship according to the graduates of Ilam University of Medical Sciences, a t-test was used to examine the effects of the identified factors on entrepreneurship at a significance level ($\alpha = 0.05$). The results of the test at a significance level ($\text{sig} < 0.05$) indicated that the test is significant, and entrepreneurial spirit, with two components: personality and inherent factors, contextual factors

with two components: structural factors (cultural, environmental, operational), and financial factors; educational factors with two components: academic training and personal learning, are statistically significant. The identified factors with mean values greater than the test quantity ($\mu > 3$) were confirmed as effective factors on the entrepreneurship of graduates from Ilam University of Medical Sciences.

Table 3. t-Test for the impact of Identified Factors.

Variable/ Component	Mean	Standard Deviation	t- Statistic	Significance
1- Entrepreneurship Spirit	3/97	0/32	22/83	0/00
1-1 Personality factors	4/03	0/23	33/65	0/00
2-1 Intrinsic Factors	3/90	0/47	14/42	0/00
2- Contextual	3/98	0/31	23/90	0/00
1-2 Structural	3/85	0/28	22/87	0/00
1-1-2 Cultural	3/85	0/41	15/45	0/00
2-1-2 Environmental	3/87	0/40	16/35	0/00
3-1-2 Executive	3/84	0/42	15/13	0/00
2-2 Financial	4/10	0/47	17/40	0/00
3- Education	4/26	0/48	19/74	0/00
1-3 Academic Education	4/13	0/44	19/45	0/00
2-3 Individual Learning	4/40	0/62	17/01	0/00

Discussion

The present study aimed to identify the factors influencing entrepreneurship among graduates of Ilam University of Medical Sciences using a mixed qualitative-quantitative approach. The results indicated that—there are three categories of factors related to entrepreneurial spirit, education-related factors, and contextual factors associated with the development of entrepreneurship among the university graduates. . Based on the study's findings, educational factors such as academic training and individual learning have the greatest impact on the

development of entrepreneurship among graduates. In fact, from the perspective of the participants in the research, the university can play a significant role in enhancing the entrepreneurial skills of students and subsequently graduates. A study in China indicates that students across various institutions and fields of study exhibit different levels of engagement in entrepreneurship education. Furthermore, the higher the level of entrepreneurship education among students, the stronger their self-efficacy in entrepreneurial decision-making and their inclination toward entrepreneurship[30]. Another study also suggests that entrepreneurship education positively

impacts entrepreneurial self-efficacy, entrepreneurial attitude, and entrepreneurial mindset[31]. In research by Motta et al., it is emphasized that the importance of discussing effective entrepreneurship education, motivating students for entrepreneurship, and assisting them in developing entrepreneurial skills and competencies has significantly increased[32]. Educational theorists argue that entrepreneurial learning is the essence and core of professional students' entrepreneurship, and student entrepreneurial behavior rooted in entrepreneurial learning promotes innovation and the development of entrepreneurship education in colleges and universities[33]. Research results from a student population at a university in South Africa indicate that the respondents strongly acknowledge the usefulness of entrepreneurship education for economic development[34], which aligns with the findings of this study regarding the impact of education and learning on entrepreneurship. Results from Jihui Shi et al.'s study among students in a developing country indicate that interpersonal communication and problem-solving skills have a substantial impact on entrepreneurial achievements and learning ability, with the current quality of entrepreneurship education in colleges and universities being evaluated as weak, having relatively little effect on students' entrepreneurship[35].

Findings from the study by Al-Qadasi et al. in the population of Yemeni students show that personality traits correlate positively with entrepreneurial self-efficacy and entrepreneurial intention[36]. Findings from Farrell et al.'s study in a middle-income country suggest that perseverance, flexibility, and innovation are critical personality traits influencing academic entrepreneurship[37]. The study by Kritikos shows that possessing specific personality traits increases the likelihood of entrepreneurship and starting a personal business[38].

In the study by Shahzad et al. titled "Factors Influencing entrepreneurial intentions of startups" in

Pakistan, various factors such as self-efficacy, institutional support, family support, peer influence, as well as variables like gender and education were found to have a positive and significant impact on entrepreneurial intentions[39]. This finding is consistent with the results of the present study.

One of the three main factors affecting graduates' entrepreneurship in the present study is the financial aspect. In a study aimed at identifying the factors affecting the entrepreneurial intentions of Somali graduate students, the results showed that financial factors have a strong positive correlation with entrepreneurship, while personal factors have a weak positive correlation with entrepreneurship. Additionally in a similar study, the results indicated[40] that financial development has a significant positive impact on entrepreneurship in Africa[41], which aligns with the findings on the present study. Méndez-Picazo and colleagues concluded in their study that both economic and socio-cultural factors have a positive relationship with entrepreneurship, but the socio-cultural factor demonstrates a greater impact compared to the economic factor[42].

The limitations of the study include the difficulty in accessing unemployed graduates, the not-so-cooperative attitude of this group towards the researcher, and the lack of a standardized tool for examining the factors influencing entrepreneurship among university graduates.

Conclusion

Research on entrepreneurship among students and graduates of medical sciences is important to better address the growing health needs of society. Therefore, the present study was conducted with the aim of identifying the influencing factors on entrepreneurship of graduates from Ilam University of Medical Sciences.

The results of this study indicated that the most significant factor affecting the improvement of entrepreneurial spirit among graduates is education

and learning, followed by financial factors and personality traits which also have considerable effects.

Given these results, it is necessary for medical universities across the country to prioritize the development and strengthening of student's entrepreneurial skills and spirit. The planning and targeted implementation of curricula, training workshops, and skill enhancement packages to increase general/specialized entrepreneurial skills among students and even graduates will be beneficial in this regard. Additionally, given the existence of numerous training units in most fields of medical sciences, planning for establishing a connection between training courses and entrepreneurial objectives can be a significant step forward.

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Ethics approval

Ethical approval for this study was obtained from University of Medical Sciences, with an ethical identification number IR.MEDILAM.REC.1396.60.

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Conflict of interest

The authors report no conflict of interest in this study.

Authors' contributions

Data gathering, analyses and interpretation and drafting of the paper were done by MD, JS and FB. HR and FB reviewed the literature. All authors read, revised, and approved the final manuscript.

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