




Exploring Entrepreneurship in Pharmacy: Attitudes and Perceptions Among Saudi Pharmacists and Students

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Introduction: Entrepreneurship has recently become a focus in community development, innovation, and economic growth, including within pharmaceutical organizations. However, it remains a relatively new aspect of pharmacy education. For the effective incorporation of entrepreneurship in this field, a robust educational foundation is critical, one that emphasizes risk-taking, strategic planning, competitive spirit, and a sense of social responsibility. This study aims to evaluate Saudi pharmacists' attitudes towards entrepreneurship in their practice.

Methods: A cross-sectional survey design to assess the attitudes of pharmacists and pharmacy students in Saudi Arabia towards entrepreneurship. The study sample consisted of 302 individuals, selected through convenience sampling, all of whom were either licensed pharmacists or pharmacy students in Saudi Arabia. The survey was conducted electronically and disseminated online throughout the duration of January 2023, spanning a one-month period. The research sought to provide a deeper understanding of how entrepreneurship is perceived within the pharmacy field.

Results: The study involved 302 pharmacists in Saudi Arabia, with the majority being pharmacy students and Doctor of Pharmacy holders. Over 60% of the participants worked for the government sector. Results showed a strong interest in entrepreneurship, with nearly 80% expressing interest and believing in the entrepreneurial potential of pharmacists. However, there was a knowledge gap, as only 52% were familiar with entrepreneurship concepts, and most had not taken entrepreneurship courses. More than half of the participants reported insufficient institutional support for entrepreneurship. Remarkably, only 1% had started a pharmaceutical business.

Conclusion: In conclusion, this study emphasizes the interest in entrepreneurship among pharmacists, highlighting the need for raising familiarity and formal education in the field. Factors such as working in the government sector were associated with higher willingness to become entrepreneurs, while the lack of awareness and institutional support hindered the entrepreneurial mindset.

Keywords: entrepreneurship, pharmacy, Saudi Arabia, pharmacists, mindsets

Introduction

The modern world economy has shifted the labor market settings and imposed many challenges for public and private sector employees to generate new jobs.¹ Moreover, new technological advancements, sociodemographic changes, the fast pace of modern life, expansion of cities and populations worldwide necessitate new innovative measures to sustain the job market.² One is entrepreneurship, which allowed for establishing new models of labor market and wealth.³ In Saudi Arabia, the government is actively embraced entrepreneurship, with its commitment evident in its Vision 2030 initiatives.⁴ There has been tremendous governmental support for entrepreneurship, which is mainly seen by decision-makers as a catalyst for community development, innovation, and economic growth.⁵ Healthcare transformation and privatization in Saudi Arabia paved the way for entrepreneurs to be an integral part of the healthcare sector.⁶ Yet, there is a paucity of literature about entrepreneurship education, and its impact in Saudi Arabia in particular.⁷ Entrepreneurship have been described as new venture creation, firm startup, and job creation that contribute to economic growth and

development.⁸ In a broader sense, entrepreneurship can be described as the process of finding or developing new opportunities in unstable circumstances.⁹ Entrepreneurship is viewed as a process with (at least) three phases: (a) the prelaunch or opportunity identification phase, during which the entrepreneur seeks out viable and feasible business opportunities; (b) the launch or development and execution phase, during which the entrepreneur gathers the resources needed to launch a venture; and (c) the postlaunch phase, during which the entrepreneur manages the new venture to ensure its growth and sustainability.¹⁰ In the United States, entrepreneurship is included as a key component within pharmacy education, in accordance with the objectives set out by the Center for the Advancement of Pharmacy Education (CAPE).¹¹ Many pharmaceutical organizations and academic institutions appear to be working to create a climate that fosters the emergence and expansion of new businesses through social, economic, and cultural factors in the pharmacy profession.⁸ While the significance of entrepreneurship in pharmacy has been emphasized, no agreement on the role of entrepreneurship in pharmacy practice or education in Saudi Arabia. Hence, we aim to evaluate the attitude of pharmacists in Saudi Arabia towards entrepreneurship in pharmacy practice.

Method

Study Design

A cross-sectional survey design to assess the attitudes of pharmacists and pharmacy students in Saudi Arabia towards entrepreneurship. The survey was conducted electronically and disseminated online throughout the duration of January 2023, spanning a one-month period. The research was conducted in Saudi Arabia, targeting pharmacists and pharmacy students practicing in various healthcare settings across the country. We hypothesize that there is not a significant interest and willingness among pharmacists and pharmacy students to engage in entrepreneurship within the pharmaceutical sector. We also anticipate the presence of knowledge gaps and a lack of institutional support, which may delay entrepreneurial endeavors among our participants. For the purpose of our study, we assumed that the awareness of entrepreneurship concept was approximately 75%.^{12,13} To determine the appropriate sample size with assuming a desired precision level of 5%, a confidence interval of 95%, and a population size of approximately 30,840 pharmacists and 14,395 pharmacy students based on data from the Ministry of health and Saudi commission for health specialties, the calculated sample size for this study was determined to be 287 participants.^{14,15} Convenience sampling was employed to recruit participants. The inclusion criteria for participation in the study were being a licensed pharmacist or a pharmacy student in Saudi Arabia.

Questionnaires and Data Collection

The survey instrument was administered electronically, utilizing an online platform. Participants were provided with a link to access the survey. The questionnaire was designed and validated based on a comprehensive review of the literature and input from experts in the fields of entrepreneurship and pharmacy.^{8,16} Our survey instrument's validation process was comprehensive and multifaceted. Pilot testing and face validity tests were conducted to improve clarity and context. Analysis of reliability confirmed internal consistency. This rigorous validation process ensures that our survey accurately captures the attitudes and perceptions of Saudi pharmacists regarding entrepreneurship, resulting in accurate and reliable data for our research. In the pilot phase of our study, 10 pharmacists were initially surveyed, providing essential feedback that led to significant improvements in the survey's design and content, enhancing its ability to accurately capture pharmacists' views on entrepreneurship. Post-pilot, the survey's internal consistency was rigorously assessed, yielding a Cronbach's Alpha of 0.87. This strong internal consistency assures that the survey effectively measures the targeted entrepreneurship concepts in pharmacy. The involvement of these pharmacists in the pilot phase offered valuable insights, deepening our understanding of entrepreneurial perspectives in the pharmacy sector. The survey was available in both English and Arabic to accommodate participants' language preferences. The final survey instrument consisted of 30 questions covering various domains related to the study objectives. The questionnaire assessed demographic information, entrepreneurship practices, motivation to engage in entrepreneurship, factors influencing entrepreneurship, barriers to entrepreneurship, and the potential impact of entrepreneurship on health and outcomes. Also, we have evaluated willingness to become an entrepreneur, a self-assessment tool consisting of eight statements. Participants rated their agreement with each statement on a scale from 0 (Strongly Disagree) to 5 (Strongly Agree),

measuring their understanding of entrepreneurial requirements in pharmacy, readiness to take calculated risks, innovative thinking, and inclination towards starting their own business.

Statistical Analysis

Descriptive statistics were employed to analyze the data obtained from the survey. Frequencies and percentages were calculated for categorical variables, while means and standard deviations were computed for continuous variables. The results were presented using tables and graphs to facilitate data interpretation. Statistical software, such as SPSS or Excel, was used for data analysis. Using chi-square testing, categorical data were examined. *T*-tests were used to compare continuous variables whose distributions near normality. When the normality assumptions were not fulfilled, nonparametric Mann–Whitney *U*-test was used. The criterion for statistical significance was $p < 0.05$.

Result

A total of 302 Saudi pharmacists participated in the study, half of them were female (57.6%), from the western region (58.6%) and most of them were either pharmacy students (38.1%) or Pharm.D degree holders (34.1%). In Table 1 which showed the majority of the participants were young and under the age of 34 years old. Two thirds of the participants worked for the governmental sector and 32.5% of them worked in hospital settings. Table 2 illustrates the Attitudes and Awareness of Entrepreneurship within Saudi Arabia. Most of them (79.4%) showed interest in entrepreneurship and almost all of them (88.4%) believed that pharmacist can be an entrepreneur. Nevertheless, almost half of them were not familiar with the entrepreneurship terms and concepts nor had any courses or institutional support in entrepreneurship,

Table 1 Characteristics of Participants (N=302)

| Characteristics | | N | % |
|--|----------------------------------|-----|-------|
| Age (years) | 18 to 24 | 146 | 48.3% |
| | 25 to 34 | 124 | 41.1% |
| | 45 to 54 | 28 | 9.3% |
| | 55 to 64 | 2 | 0.7% |
| | 65 or over | 2 | 0.7% |
| Gender | Female | 174 | 57.6% |
| | Male | 128 | 42.4% |
| The highest level of academic degree attained by the participant | BS Pharm | 25 | 8.3% |
| | Master's degree | 21 | 7.0% |
| | MBA | 5 | 1.7% |
| | Pharmacy student (undergraduate) | 115 | 38.1% |
| | PharmD | 103 | 34.1% |
| | PhD | 21 | 7.0% |
| | Residency | 12 | 4.0% |
| Area of practice | Academia | 47 | 15.6% |
| | Community pharmacy | 52 | 17.2% |
| | Hospital pharmacy | 98 | 32.5% |
| | Pharmacy student (undergraduate) | 105 | 34.8% |

(Continued)

Table 1 (Continued).

| Characteristics | | N | % |
|---------------------|---|-----|-------|
| Type of institution | Government sector | 187 | 61.9% |
| | Private sector | 115 | 38.1% |
| Work region | Central Region (Riyadh, Qasim) | 68 | 22.5% |
| | Eastern Region (Dammam, Khafaji, Al Ahsa) | 32 | 10.6% |
| | Northern Region (Tabuk, Al Jowf, Hail, Northern Border) | 6 | 2.0% |
| | Southern Region (Asir, Najran, Baha, Jizan), | 19 | 6.3% |
| | Western Region (Mecca, Medina, Jeddah) | 177 | 58.6% |

Table 2 Attitudes and Awareness of Entrepreneurship in Saudi Arabia

| | | Count | N % |
|--|---------------|-------|-------|
| Are you interested in entrepreneurship ? | I do not know | 33 | 10.9% |
| | No | 29 | 9.6% |
| | Yes | 240 | 79.5% |
| Do you think the pharmacist can become an entrepreneur ? | I do not know | 21 | 7.0% |
| | No | 14 | 4.6% |
| | Yes | 267 | 88.4% |
| Are you familiar with entrepreneurship terms and concepts ? | I do not know | 32 | 10.6% |
| | No | 113 | 37.4% |
| | Yes | 157 | 52.0% |
| Have you ever taken courses in entrepreneurship ? | No | 191 | 63.2% |
| | Yes | 111 | 36.8% |
| If there is an opportunity to get a program that supports entrepreneurs, will you join it or study it as another specialty ? (Like master's degree ... etc.) | No | 53 | 17.5% |
| | Yes | 249 | 82.5% |
| Does your institution support entrepreneurs ? | No | 158 | 52.3% |
| | Yes | 144 | 47.7% |
| Have you ever started a pharmaceutical business ? | No | 275 | 91.1% |
| | Yes | 27 | 8.9% |
| Do you think entrepreneurship education can broaden your career prospects and choices ? | I do not know | 44 | 14.6% |
| | No | 22 | 7.3% |
| | Yes | 236 | 78.1% |

and almost 80% of them wanted to join any program for entrepreneurs and believed that entrepreneurship education can broaden their career prospects and choices. Interestingly, only 1% took serious steps in entrepreneurial journey. [Table 3](#) illustrates the viewpoints of participants regarding entrepreneurial characteristics. The following entrepreneurial

Table 3 Participants' Opinions Regarding the Characteristics of an Entrepreneur

| The Characteristics of an Entrepreneur | N | % |
|--|-----|-------|
| Sense of adventure and risk | 189 | 62.6% |
| Outstanding ability in project management | 201 | 66.6% |
| The spirit of leadership | 205 | 67.9% |
| The ability to open new markets or sources of resources | 194 | 64.2% |
| Imaginary and innovative | 159 | 52.6% |
| Entrepreneurs gain valuable insights from their mistakes and observations. | 161 | 53.3% |
| Others | 6 | 2.0% |

characteristics was perceived important for entrepreneurs to have such as risk taking (62%), project management (66.6%), leadership (67.9%), the ability to open new markets or sources of resources (64.2%), imaginary and innovative (52.6%), and entrepreneurs gain valuable insights from their mistakes and observations (53.3%). Table 4 provides insights into the essential traits an entrepreneur should possess, the challenges hindering entrepreneurship, and factors contributing to enhancing awareness of pharmacy entrepreneurship in Saudi Arabia. Most of the participants had the willingness to become an entrepreneur with an average of 32 ± 2 out of 40. The scores presented in the statement reflect the participants' willingness to become entrepreneurs in Box 1. In our study, the analysis revealed no significant

Table 4 The Characteristics an Entrepreneur

| The Characteristics an Entrepreneur Should Acquire | No | % |
|---|-----|-------|
| Communications skills | 204 | 67.5% |
| Teamwork and leadership skills | 215 | 71.2% |
| Business management skills | 240 | 79.5% |
| Analytical and problem-solving skills | 192 | 63.6% |
| Critical thinking skills | 182 | 60.3% |
| Financial skills | 190 | 62.9% |
| Customer service skills | 142 | 47.0% |
| Others | 1 | 0.3% |
| Barrier of being an entrepreneur | No | % |
| Culture | 150 | 49.7% |
| Financial management | 210 | 69.5% |
| Poor knowledge of entrepreneurship | 232 | 76.8% |
| Unsupportive family | 91 | 30.1% |
| Factors that could improve the awareness of pharmacy entrepreneurship in Saudi Arabia | No | % |
| Social media | 204 | 67.5% |
| Online courses | 206 | 68.2% |
| Add Entrepreneurship education as a topic into existing subjects in higher education | 210 | 69.5% |
| To be educated as a stand-alone course in higher education | 169 | 56.0% |

Box 1 Willingness to Become an Entrepreneur

1. I understand the pharmacy entrepreneurship requirements.
2. I understand how to assess and take calculated risks in a pharmacy business environment.
3. I have new ideas I wish to be applied in the pharmaceutical field.
4. I can implement innovative new pharmacy business solutions to enhance the patient experience and strengthen the business.
5. I understand that starting and running a business involves facing many problems and having to tackle them when they arise.
6. When necessary, I am willing to take on financial and professional risks.
7. I would be more successful financially if I ran my own business.
8. I, as a pharmacist, can see myself starting and running a business in the future.

Notes: The following statements on a scale from 0 to 5, where 0 means "Strongly Disagree" and 5 means "Strongly Agree".

differences between the responses of pharmacy students and practicing pharmacists in terms of willingness to become an entrepreneur. Participant age group 65 or over, male pharmacists, and PhD holders had significantly the highest willingness to become an entrepreneur, (p -value<0.001), (p -value=0.011) and (p -value=0.018), respectively. It is found that the willingness to become an entrepreneur score is significantly higher in the government sector than private sector (p -value=0.001).

Discussion

Our study aimed to explore attitudes and perceptions towards entrepreneurship among pharmacists in Saudi Arabia. We found a marked interest in entrepreneurship within the pharmacy sector. Despite this interest, a lack of institutional support, knowledge, and training in entrepreneurship concepts was evident. Most participants had not ventured into pharmaceutical business due to these gaps. To our knowledge, there is a lack of literature about entrepreneurship in Saudi Arabia.⁷ Yet, our research findings align with previous global studies that have emphasized the need for an educational framework to cultivate pharmacist entrepreneurs.¹⁷ The integration of business skills and knowledge into pharmacy school curriculum is becoming more prevalent as healthcare undergoes a transformation through innovation and entrepreneurship.¹⁸ Entrepreneurship, as an educational objective, is incorporated into the pharmacy curriculum in the United States, aligning with the CAPE outcomes.¹¹ Pharmacy schools in the United States have taken the initiative to offer fundamental courses that supports the inclusion of entrepreneurship and innovation topics in pharmacy education.¹⁸ This development serves as a valuable resource for pharmacy schools and educators who advocates for the expansion of these subjects within the pharmacy curriculum. According to the survey results, a notable portion of pharmacists have not engaged in formal entrepreneurship courses and lacks familiarity with related concepts. This aligns with patterns observed in other countries.^{19,20} These individuals expressed the belief that entrepreneurship should be incorporated into the curriculum. Equipping pharmacy students with the necessary entrepreneurial skills and knowledge can empower them to start their own businesses or pursue self-employment upon completing their Pharm.D. program. This study's findings have significant implications for educational institutions and policymakers in Saudi Arabia. The observed interest in entrepreneurship among pharmacists suggests a need for curriculum reforms and policy initiatives to support entrepreneurial endeavors. By integrating entrepreneurship into pharmacy education, graduates can be better prepared for the evolving landscape of healthcare and pharmaceuticals. While our study reveals an eagerness for entrepreneurship and identifies necessary traits for success, it falls short in exploring the practical challenges faced by pharmacists in entrepreneurial ventures. Our study's strength lies in its comprehensive sample from across Saudi Arabia, providing a broad perspective on entrepreneurship. However, further research is needed to delve into specific barriers and facilitators of entrepreneurship in pharmacy, as well as to develop strategies to nurture entrepreneurial initiatives within the industry.

Conclusion

This study uncovers a strong interest in entrepreneurship among pharmacists, alongside notable challenges such as knowledge gaps and insufficient institutional support. Addressing these issues could foster a culture of innovation and

entrepreneurship in the pharmacy sector, enabling pharmacists to play a pivotal role in advancing the pharmaceutical sector.

Data Sharing Statement

The corresponding author is willing to provide the data supporting the study's findings upon a reasonable request.

Ethical Considerations

Ethical approval for the study was obtained from the Institutional Review Board of Umm Al Qura University (HAPO-020K-012-2023-1384). Participants were informed about the purpose of the study, and their voluntary participation was emphasized. Our study ensured that all participants gave their written, informed consent before participating. Confidentiality and anonymity of participants' responses were ensured throughout the data collection process. Our study rigorously adheres to the ethical principles established by the Declaration of Helsinki, ensuring compliance with its standards throughout the research process.

Author Contributions

Each of the authors played a substantial role in this research, including contributions to the conception, study design, data acquisition, analysis, and interpretation. Additionally, they were involved in drafting, revising, and critically reviewing the article. Furthermore, all authors provided final approval for the manuscript's publication, selected the journal for submission, and committed to being accountable for all aspects of this research.

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Disclosure

The authors declare no conflicts of interest that could potentially influence the research findings.

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