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Beyond the Bottom Line: The Role of Personal Characteristics in Healthcare Entrepreneurship

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Abstract: This study fills a crucial gap by offering fresh insights into healthcare entrepreneurs' characteristics and decision-making, enriching the understanding of entrepreneurial behavior. Employing a mixed-methods approach, by combining qualitative and quantitative data, the researchers examined how factors such as age, gender, education, number of children, marital status, and house ownership influence business orientation. Utilizing both quantitative data, collected through surveys, and statistical analyses, conducted in EViews 12, data drawn from 113 Romanian medical start-ups revealed that marital status was a significant determinant, with single individuals exhibiting a profit-centric approach, while couples or married entrepreneurs prioritize patient well-being. Also, the lower the sense of ownership, the lower the number of co-founders there was in the start-up. The motivation of entrepreneurs involved in start-ups with more than two co-founders, is based on the motivation behind a problem that directly affected the entrepreneurs themselves. An unexpected result was found regarding the healthcare entrepreneurs that perceive failure more due to lack of funding than competition, especially in profit-focused ventures, shaping their decision-making. To shape managerial implications, the authors depicted the swim lane decision-making process diagram based on these insights.

Keywords: healthcare entrepreneurs; business orientation; entrepreneurial mindset; personal characteristics; managerial implications; entrepreneurship

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1. Introduction

This paper explores the intricate interplay between entrepreneurship, innovation, and sustainability through a holistic lens. Rather than analyzing these elements in isolation, it investigates their dynamic interdependence, recognizing the symbiotic relationship that binds them. Entrepreneurship, characterized by initiative and risk-taking, serves as the catalyst for innovation, driving the creation of novel ideas and solutions. Sustainability, on the other hand, instils purpose and long-term resilience in these efforts, ensuring they thrive both in the present and for future generations. Entrepreneurship, particularly within small- and medium-sized enterprises (SMEs), plays a vital role in economic growth. A special category within SMEs is start-ups, which are defined as newly emerged, fast-growing businesses that aim to address market needs by developing a viable business model around an innovative product, service, process, or platform (What are tech Start-ups, 2019). In the era of digitalization, healthcare start-ups have gained more attention (Sreenivasan & Suresh, 2022) because the role of technology has changed the rules by which businesses are conducted. The integration of artificial intelligence and technological innovations in healthcare, presents unique challenges and opportunities for entrepreneurs, making

entrepreneurial intention a critical factor in start-up sustainability (Mahajan et al., 2023; Mohamed et al., 2023; Soomro & Shah, 2023).

Researchers who developed the stages of growth theory for an entrepreneur (Samalopanan & Balasubramaniam, 2021; Sreenivasan & Suresh, 2022) pointed out that the entrepreneurial journey is a process that begins at a very young age, where several factors such as education, gender, early intentions, and dream framework provide the foundation for an entrepreneurial individual to embark on their journey; this is followed by an inflection point where the individual experiences an event or is influenced by a person that changes their life. In this context, the types of motivations in entrepreneurial intention are mentioned. A recent study (Martínez-Cañas et al., 2023) addressed the push versus pull motivations according to mediating effect of perceived risk and opportunity recognition; it showed that "the influence of pull factors on entrepreneurial intention is indirect and negative, increasing individuals' perceptions of risk in venture creation and undermining their opportunity recognition". The entrepreneurs identify opportunities and begin to accumulate the resources necessary to initiate the venture. Even for the women, the entrepreneurial motivations are based on economic expectations, representing push factors, but also pull factors such as psycho-social expectations. In this case, the reason to obtain psycho-social recognition is stronger than economic expectations (Avcı & Gümüş, 2022).

The planning and deliberation completed during this initial stage plays an important role in the success of an enterprise and its ability to overcome an impending crisis, as every entrepreneur faces a crisis that poses a significant challenge to the continuation of their business. Identifying the core strengths of the enterprise is essential for successful entrepreneurs and adherence to its guiding principles must be interwoven with their personal characteristics of integrity, perseverance, and adaptability. Also, the support of family, partners, or an advantageous location are other factors whose absence can lead to failure.

In healthcare, technology has opened new pathways for doctors to venture into entrepreneurship. Some healthcare professionals are developing software, devices, and innovative business models aimed at improving clinical outcomes and patient care. Others are motivated by frustrations with healthcare system inefficiencies or financial incentives (Muo, 2023; Soomro & Shah, 2023). However, many physician-entrepreneurs seek to balance entrepreneurial risk with the stability of their clinical roles.

The convergence of entrepreneurship, sustainability, and technological advancements, especially within the domain of healthcare innovation, highlights a critical aim: to not only meet market demands, but also to guarantee the enduring success and influence of start-ups. This imperative not only shapes the landscape of medical entrepreneurship, but also sets a motivating aim to drive impactful change in healthcare delivery and outcomes. Although there are common entrepreneurial traits, such as risk-taking, creativity, and strategic thinking, medical entrepreneurs are facing challenges, such as ethical and social responsibility considerations. On the other hand, they have many opportunities, some of them being technological innovations. Thereby, Romanian medical entrepreneurs present distinct approaches compared to their counterparts in other sectors. The regulatory environment and the competitive landscape for Romanian medical entrepreneurs are also shaped by different factors, compared to other countries. In this context, the research question is "What type of business do healthcare entrepreneurs choose to run based on their personal characteristics?". By examining personal attributes, such as, age, gender, education, the number of children, marital status, and house ownership, they explored the impact on entrepreneurial orientation. Drawing data from a sample of 125 Romanian medical start-ups, gathered through qualitative and quantitative research, this relationship is addressed.

The findings underscore marital status as a significant determinant, with single individuals exhibiting a profit-centric approach, while couples or married entrepreneurs prioritize patient well-being. Furthermore, a correlation emerges between the sense of ownership and the number of co-founders, suggesting that lower ownership perception aligns with fewer collaborators. In start-ups with multiple co-founders, entrepreneurial motivation often stems from a personal experience with a prevalent issue. This study's outcomes offer actionable insights for managerial decision-making, including the development of a decision model, and highlight communication gaps and responsibility distribution as key areas for managerial and academic consideration.

A considerable body of literature on the personal characteristics of start-up founders exists (McCarthy et al., 2023). The relationship between their personal attributes and the success of their business has been extensively explored. However, a better understanding of the less explored relationship between founders' personal characteristics and business orientation is needed. The contributions of this paper to the existing literature are to examine the business orientation of healthcare entrepreneurs by analyzing their personal characteristics, education, and motivation.

These results, correlated with previous research confirm the influence of personal characteristics of entrepreneurial founders of start-ups on entrepreneurial behavior in the health sector. However, unlike previous contributions, they allow us to analyze this influence, even within emerging entrepreneurial ecosystems, such as those in developing countries. This differentiated entrepreneurial approach emphasizes the need for enhanced policies and support systems to empower innovation in the Romanian healthcare system, while ensuring the health and well-being of the population. In conclusion, this study aims to understand how the personal characteristics of healthcare entrepreneurs influence their choice of business orientation, highlighting the interplay between individual traits, entrepreneurial intention, and the broader ecosystem to drive sustainable innovation in the healthcare sector.

2. Literature Review

An important aspect existing in specialized literature is the sustainable development of start-ups, especially in the context of Industry 4.0. Some studies have concluded that the growth of start-ups (Cotei & Farhat, 2017) is affected by the characteristics of an entrepreneur, introducing the notion of an entrepreneur life cycle (Hunter, 2005). Hence, entrepreneurial characteristics are addressed from the sustainable entrepreneurship point of view. In the sphere of entrepreneurship inquiry, the profound influence of personal characteristics of healthcare entrepreneurs draws attention. This segment presents a nuanced investigation into a spectrum of personal attributes, spanning from gender disparities and educational backgrounds to aspirational frameworks, familial dynamics, motivational catalysts, and property possession. Authors such as Mayer (2007) have pointed out that personality is an integrated system possessed by a person that is represented by a combination of actions and manifested behaviors, while Cervone and Little (2019) define personality as a particular characteristic possessed by a person that governs the way they feel, think, and behave. Recent studies on entrepreneurial intention (Górriz et al., 2020; Mayer, 2007; Samalopanan & Balasubramaniam, 2021) have led researchers to consider characteristics of entrepreneurs to explain the orientation towards a certain type of business for medical start-ups. Based on these aspects, the authors addressed the personal characteristics in the following sub-sections.

Some authors have conducted studies in which they have attempted to investigate the personality traits of individuals that encourage and motivate entrepreneurship, to discover and group which attributes contributed to the intention to become an entrepreneur, as well

as to the success of an entrepreneur. Increasing attention has been paid by researchers to attributes believed to contribute to the formation of entrepreneurs through learning patterns, which are personal, social, supportive, and organizational (Hongdiyanto, 2017; Hongdiyanto & Laturette, 2018).

The previous literature agrees that there is no combination of these factors or formulae that can be applied that guarantees that an entrepreneurial venture will not fail. Rofail et al. (2012) found that success and failure in business are natural and can happen. Also, failing in business is seen as resilience and a sustainable development in case of success. Gartner and Vesper (1994), in their research, stated that start-ups have a high rate of failure. Additionally, some authors have shown that half of start-ups fail before reaching the business age of 6 years; also, 75% of entrepreneurs went bankrupt (Åstebro et al., 2014; Mayer, 2007; Samalopanan & Balasubramaniam, 2021), highlighting that this issue cannot be addressed through one universal approach. Based on reflection from their personal experience, entrepreneurs need to integrate trial and error into the process of running a business as learning material (Hongdiyanto & Laturette, 2018). Although the recent literature talks about the existing four attributes, scholars agree that research in this area still needs further development from a theoretical perspective of more factors that contribute to the entrepreneurial intention.

2.1. Age

Earlier research on entrepreneurship (Botham & Graves, 2009) found out that around a certain age, known as the 'peak age', the opportunity of becoming an entrepreneur is the greatest. The 'peak age' ranges between 30 and 40 years old. On the other hand, an innovation-driven company, such as a high-tech company, relies heavily on creativity and the optimal age drops dramatically to under 30 years old. For this reason, there are voices (Hongdiyanto & Laturette, 2018) that suggest the best age of becoming an entrepreneur in a technological-based company is in the range of 20–30 years old, due to the courage and inclination to take risks and face challenges one possesses at that certain point in life.

A common finding which exists in the literature on entrepreneurship refers to the fact that people over 50 years old are less willing to undertake business, even though they are more experienced and have more means to do so. It was shown that this behavior is adopted because they are not willing to invest time in activities characterized by high uncertainty. Pauceanu et al.'s (2019) research shows that entrepreneurial intention appears stronger at the age of 20–25 years old. Hatak et al. (2015), in the same vein, argue that there is an inverse relationship between age and entrepreneurial intention, demonstrating that older people prefer to maximize their social and emotional gains and minimize the social and emotional risks.

Strydom et al. (2020) did not find a statistically significant difference in entrepreneurial intention between different age groups, although the 26–35 years old age group of the survey does exhibit a higher intention to start a business than the other age groups. However, in the same study, the age group over 45 years old showed the lowest entrepreneurial intention, lending support to earlier findings in much of the literature.

2.2. Gender

Prior studies found that gender differences play an important role in engaging in entrepreneurship, showing that men have a higher probability of proving entrepreneurial intention than women, (Molino et al., 2018) demonstrating higher levels of self-efficacy and an internal focus of control. Some authors have consistently pointed out that men show stronger entrepreneurial intentions than women, partly since the business culture is predominantly male (Gill & Ganesh, 2007) and partly due to traditional values, such

as men being responsible for running the family businesses or supporting their families (Verheul et al., 2012). Robledo et al. (2019) highlight similar results, stating that men have a greater preference for entrepreneurial behavior than women; Kolvereid (1996), using the theory of planned behavior, concluded that gender indirectly influences self-employment intentions through its effect on attitude, subjective norm, and perceived behavioral control. One aspect, highlighted by Hatos et al. (2022), is that women decide to avoid entrepreneurship due to the lack of control and lack of self-efficacy (BarNir et al., 2011; Langowitz & Minniti, 2007; Maes et al., 2014; Wilson et al., 2007). In addition, when planning to start a business, men and women are motivated by different values and factors. According to Kirk and Belovics (2006), men are motivated by wealth creation, while women choose entrepreneurship to balance work and family. Also, it was found that women have recognized that their families did not support them initially in starting their businesses (Samalopanan & Balasubramaniam, 2021). Nowiński et al. (2019) provide an important insight into a gender comparison, indicating that although women generally have lower levels of entrepreneurial intentions, they benefit more than men from entrepreneurial education.

Although most research has shown that the gender gap has an impact on entrepreneurship, there are also studies that did not find gender differences in the relationship between self-efficacy and entrepreneurial intention (Díaz-García & Jiménez-Moreno, 2010; Murugesan & Jayavelu, 2017).

Hossain et al. (2024) explain that differences in experience and cognitive processing may cause women to perceive small and scalable business opportunities as less attractive and less likely to succeed than men, because their rationalization processes, combined with perceptions of social norms, make those activities less attractive. In other words, their meaning-making processes may lead them to conclude that they are less capable or less likely to succeed in this type of entrepreneurial endeavor, which causes them to diminish their entrepreneurial intentions.

In terms of gender, female founders had a lower start-up survival rate than male founders. Women also have greater difficulties accessing capital than men. Start-ups run by female founders also appear to be more vulnerable due to low human resources and engagement (Aryadita et al., 2023a).

2.3. Education

Special attention has been given by scholars to entrepreneurship education programs (Paray & Kumar, 2020). Some studies confirm that there is a direct and robust relationship between participants of extensive entrepreneurship education programs and entrepreneurial intentions, showing that there is a higher entrepreneurial intention to start a business among the participating students, rather than non-participating students of the entrepreneurship education program (Ajike et al., 2015; Heuer & Kolvereid, 2014).

An entrepreneurship program is perceived as a type of training that helps participants develop entrepreneurial attributes to successfully launch new businesses (Kennedy, 2013). Authors like Heinonen (2007) consider that the goals of entrepreneurship education fall into three categories: learning to have knowledge about entrepreneurship, learning to act or behave as an entrepreneur, and learning to become an entrepreneur. There is a growing number of studies measuring the impact of entrepreneurship education programs, attempting to capture entrepreneurial attitudes and intentions before and after an entrepreneurial course, training, or program (Pittaway & Cope, 2007). In most cases, results found that entrepreneurial education has a positive influence on respondents' entrepreneurial intentions (Liñán et al., 2011; Pruett et al., 2009; Wang et al., 2023), aligning with the findings of Solomon et al. (2008) which provide strong evidence supporting the relationship between general education levels

and entrepreneurial success. However, there are empirical studies that provide evidence on the contrary, arguing that entrepreneurial education reduces entrepreneurial intention while increasing risk (Fretschner & Weber, 2013; Oosterbeek et al., 2010).

Universities, being considered a source of stimulating innovation and entrepreneurship, can play a significant role in positively manipulating students' entrepreneurial intentions and efforts by enabling them to develop a new venture. The studies claim that the university context can influence the creativity of the students because the creative temperament of them represents a capacity for creative thinking that triggers a creative process that results in a creative product; this is why it is expected that creative individuals are more inclined towards entrepreneurship (Anjum et al., 2020).

Other authors have highlighted the vital role played by entrepreneurship education in fostering entrepreneurship among students (Iacobucci & Micozzi, 2012), showing that those students who participated in entrepreneurship programs or courses were more likely to be self-employed after graduation than those who did not. According to DeJeu (2023), entrepreneurship education, especially in science and technology, is significant for improving students' innovation skills. In conclusion, the absence of entrepreneurial education is associated with a low level of students' entrepreneurial intentions (Gieure et al., 2019).

Diversity is critical to start-up success (Aryadita et al., 2023a) and team diversity is linked to educational background (West & Borrill, 2021). A diverse team of founders can work more effectively because the skills possessed by team members can complement one another, increasing start-up performance (Muñoz-Bullon et al., 2015). The combination of a diverse team that has worked together before will be more beneficial, as the team is more likely to pursue an exploratory strategy to change the founders' ideas and grow faster (Aryadita et al., 2023a).

A recent model showed that policy makers can "prioritize improving education, fostering entrepreneurial experience, building self-efficacy, promoting exposure to role models and networks, and providing endorsements and recognition for young entrepreneurs" (Choi & McLain, 2024). This fact might combat the tendency among young entrepreneurs to open a significant number of businesses, most of which do not last long. The above statements do not exclude the fact that there are still new entrepreneurs after passing the 'peak age'; however, their number is relatively small.

2.4. Dream Framework, Number of Children, and Marital Status

Some scholars (Samalopanan & Balasubramaniam, 2021) have observed, in their research, that most entrepreneurs had a dream framework—a vision of what their organization should look like once they built it. According to Ozaralli and Rivenburgh (2016), for a small part of the dreaming entrepreneurs, their intentions emerged during their childhood as having a positive influence in the establishment of a start-up. They provide evidence that only a very small proportion of entrepreneurs did not have a dream framework in mind.

Previous studies have demonstrated that entrepreneurs with a family background in self-employment are more likely to start their own businesses (Palmer et al., 2021; Fairlie, 2005; Dyer & Handler, 1994). Carr and Sequeira (2007) explain that these experiences often play a crucial role in fostering the dream to become business owners.

Regarding the family orientation, especially the number of children, authors such as Naldi et al. (2021) have pointed out that households with more children are associated with a lower likelihood of doing business entrepreneurial activities. Additionally, mothers of young children are less inclined to turn to entrepreneurship as a backup plan to manage work and childcare demands. Moreover, female entrepreneurs with more children are more likely to have lower levels of well-being (Love et al., 2024).

Despite some efforts to examine the link between personal traits and entrepreneurial intention, the connection between marital status and entrepreneurial intention remains unexplored. Further theoretical development and empirical validation of the proposed ideas are needed in this area of research.

2.5. Motivation

Increasing attention has been given by scholars to the motivation to become an entrepreneur. According to Gilad and Levine's (1986) theory, this motivation has two different sources. On the one hand, a person's desire to become an entrepreneur is driven by dissatisfaction with their current employment conditions, such as low pay, long and inflexible working hours, or even the difficulty of getting a job. On the other hand, a person's choice to be an entrepreneur is due to the desire to earn a high income, own property, and be free—being able to determine the purpose of life itself. Praag and Cramer (2001) reinforce the previous statements, showing that the choice of becoming entrepreneurs is made when the profit potential is higher than the wages earned from working for others.

Each person has a different personality which carries its own characteristics, making it very difficult to list certain factors as determinants of entrepreneurial intention (Kerr et al., 2017). Following this train of thought, starting from individual reasons that lead entrepreneurs to undertake activities, Block and Wagner (2017) identified necessity entrepreneurs, who are predisposed to engage in entrepreneurship due to external factors, such as job dissatisfaction or unemployment, and opportunity entrepreneurs, who voluntarily decide to create a business as they identify a potential entrepreneurial opportunity. Iorio et al. (2017) classify entrepreneurial motives into intrinsic or extrinsic motivations. Intrinsic motivations are those that naturally satisfy the individual, referring to behaviors that are driven by internal rewards and originate from within a person, such as the desire for independence and the desire to learn new skills. The term extrinsic motivation refers to behaviors that are driven by external rewards originating from external environmental factors, such as the pursuit of monetary or non-monetary rewards (e.g., promotion or reputation enhancement). Other researchers have found that the desire for independence, monetary motivation, the desire for challenge, or the need for achievement are the most common pull factors for entrepreneurship (Antonioli et al., 2016), while job dissatisfaction, lack of employer support, and work–life balance issues are the most common determinants for starting a business, named push factors (Kirkwood, 2009).

Analyzing academic entrepreneurship, Hossinger et al. (2023) classify the motivations which are influencing entrepreneurship patterns among academic staff into the following three dimensions: transfer motivations (closely related to the personal desire of academics to practically apply the results of their research, to use their knowledge, or to achieve self-actualization), economic motivations (consisting of the desire for higher income or financial need), and lifestyle motivations (related to work–life balance).

The influence of other approaches covered in the above-described theoretical framework were also highlighted in recent research. Caliendo et al. (2023) identified three categories of entrepreneurs. First, those who are motivated by professional ambition and who will focus on earning a higher income or remaining as an entrepreneur, for whom innovation activities or business expansion are of secondary relevance. In the second category, people motivated by necessity, e.g., the lack of a regular job, are less likely to put effort into running their business and are more likely to give up their business if offered a job with a regular salary, which reduces the likelihood of their business surviving. These individuals are unlikely to engage in innovative businesses but rather use a replication strategy, maintaining small businesses without ambitions to expand or to hire others into the business. The third category, entrepreneurs driven by opportunity motivations, such as

turning knowledge into new ideas, have, as their main objective, the realization of their own business idea. Their opportunity motives positively influence the firm's performance measures, such as innovating or expanding the business into new areas or regions. Rewards such as higher incomes are of secondary relevance for people motivated by the entrepreneurial task itself (Caliendo et al., 2023).

2.6. House Ownership

Another interesting aspect explored in the literature is the connection between homeownership and entrepreneurial intent. Researchers have employed questions like "Do you own your own house?" (Maharana & Chaudhury, 2022) with the aim of investigating entrepreneurship through the lens of housing investment, the final goal being to decipher entrepreneurial intentions.

According to research conducted by Huang et al. (2023), owning a house does not significantly affect the intention to engage in entrepreneurship. Their findings indicate that only full ownership of a house shows a positive and significant impact, suggesting that householders with full ownership are more inclined to start new business ventures. This result may be attributed to the higher market value of houses under full ownership, compared to other forms of property rights, resulting in a greater positive wealth and collateral effect on the likelihood of entrepreneurial activity. Except for full ownership, the others form of ownership have little impact on the probability of engaging in entrepreneurial activities (Huang et al., 2023). Additionally, Zhao et al. (2021) reinforce this idea by showing that full homeownership may enable entrepreneurs to start new ventures more quickly, because such financial capital can be used as collateral to secure larger amounts for invested capital.

Examining the influence of housing loans on business entrepreneurship, a study by Huang et al. (2023) revealed a significant negative impact. Specifically, householders with housing loans and a higher loan share are less inclined to start a new business because entrepreneurial enthusiasm diminishes under the pressure of housing debt. The greater the housing debt a household carries, the stronger the pressure to repay, leading to tighter liquidity constraints and deeper risk aversion, thus decreasing the likelihood of engaging in entrepreneurial activity. Likewise, the entrepreneurial intent is negatively affected by low-value or inherited houses. The same study showed that both purchasing houses below market price, and acquiring houses through inheritance, reduce the intention to engage in entrepreneurship. The negative impact of low-price houses may be due to their lower market value, resulting in a diminished wealth effect. Additionally, low-price houses lack collateral value as they cannot be used as such. The suppressive effect of inherited or gifted houses could be attributed to reduced financial pressure. Householders that own houses without paying for them typically have lower motivation to start a new business. These variables were prioritized for their alignment with the study's objectives of exploring personal characteristics that shape entrepreneurial behavior. By explicitly linking these factors to the theoretical framework, this study provides a robust foundation for understanding. Thus, the hypotheses for this study were formulated as follows:

Hypothesis 1a. *Single healthcare entrepreneurs are more likely to prioritize profit-oriented ventures compared to those who are married or in a couple.*

Hypothesis 1b. *Married and partnered healthcare entrepreneurs exhibit a dual orientation, balancing patient-centered care and profit-focused business strategies.*

Hypothesis 1c. *Divorced healthcare entrepreneurs demonstrate a stronger focus on patient-centered business models, often driven by empathetic or personal healthcare experiences.*

H2. *Entrepreneurs with full homeownership are more likely to engage in collaborative ventures with larger co-founding teams, while those without full ownership exhibit a preference for independent operations. Homeownership, therefore, positively correlates with the size and nature of entrepreneurial teams.*

H3. *Entrepreneurs leading profit-oriented ventures are more likely to perceive funding insufficiency as a critical risk compared to those in patient-centered or collaborative business models. This highlights the significant role of financial resource availability in shaping entrepreneurial risk perceptions and decision-making.*

3. Materials and Methods

The methodology involved a mixed-methods approach, combining qualitative and quantitative data to investigate the impact of factors such as age, gender, education, number of children, marital status, and house ownership on the entrepreneurial focus of medical start-ups. The mixed-methods approach employed in this study, integrating qualitative interviews with quantitative surveys, directly supports the study's aim and research question by enabling a thorough exploration of how personal characteristics influence entrepreneurial orientation. This approach bridges the gap between individual experiences and broader statistical patterns, providing both depth and measurable insights into entrepreneurial motivations, perceived risks, and collaboration dynamics. Also, this comprehensive approach provides insights into how these personal attributes influence the entrepreneurial ethos, strategic decisions, and ultimately the success and sustainability of healthcare ventures.

3.1. Research Design

To ensure methodological rigor and an effective transition between qualitative and quantitative outcomes, this study employed a mixed-methods design that integrated insights from both approaches. The qualitative findings were instrumental in shaping the design of the quantitative survey, ensuring a cohesive exploration of the factors (Akkaya et al., 2024; Alhassan, 2024; Guetterman & Manojlovich, 2024) influencing the entrepreneurial direction of healthcare entrepreneurs in Romania. The qualitative component of this study involved semi-structured interviews with 12 healthcare entrepreneurs, focusing on their motivations, challenges, and decision-making processes within medical start-ups. Key-points identified during the phase of qualitative research were as follows:

(1) The entrepreneurial motivation, where participants highlighted personal experiences, such as challenges in accessing quality healthcare, was a significant driver for their entrepreneurial ventures.
(2) Perceived risks related to funding insufficiency emerged as a predominant concern, influencing participants' strategic planning and operational decisions.
(3) Collaboration dynamics presented several participants who noted the role of marital status and homeownership in shaping team formation and the selection of co-founders.

Starting from addressing the research gap by the point of view of qualitative perspective, the authors were allowed to identify the characteristics of entrepreneurs that influence their orientation towards a certain type of business and the connections between entrepreneurs' characteristics.

Furthermore, based on the semi-structured discussions' outcomes, quantitative research was derived. These insights informed the development of the survey used in the quantitative stage. For example, questions about entrepreneurial motivation were framed to capture whether respondents were influenced by personal challenges or broader market

needs. Similarly, items on perceived risks addressed both funding concerns and competitive pressures, while collaboration dynamics were explored through questions about team size and decision-making structures. Figure 1 illustrates the entire process accordingly.

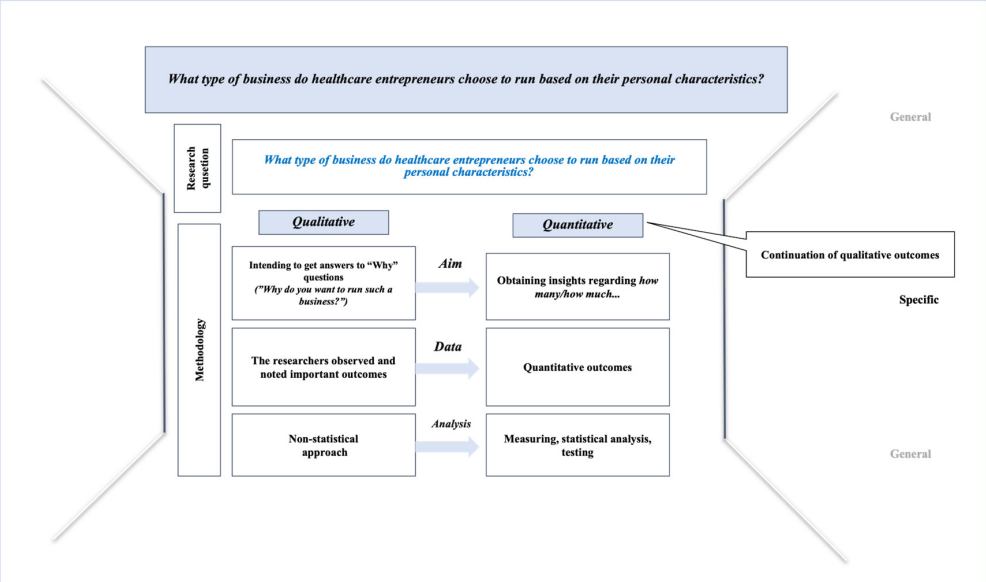

Figure 1. Research design. Conceptualized by the authors.

In the first stage, the research methodology employed Romanian medical start-up entrepreneurs who were individually interviewed, for 90 min each, applying the method of semi-structured in-depth interviews. The investigative tool for qualitative analysis was an interview guide, applied with the purposes of leading the discussions and collecting data in an organized manner. Given the nature of semi-structured dialogue, the participants had the opportunity to offer details and to address several defining aspects about their businesses, which allowed the researchers to obtain more relevance out of the outcomes. The discussions debuted with several identification questions, including the size of the company, number of employees, total investments, turnover, and details about some characteristics of the people behind the business (marital status, number of children, education, etc.). Afterwards, more specific details about their perceptions on their motivations were discussed. All relevant aspects generated by qualitative research were collected and organized to be transposed as variables in the questionnaire for further usage. Based on these, the authors formulated the hypotheses.

To gather data on the endogenous variable, the authors employed a nominal scale with single-choice options. Participants were asked to select the primary client for the product. The answer choices were selected to elucidate the underlying motives of entrepreneurs. For instance, options such as "individual with healthcare concerns" and "patient (with confirmed health problem/diagnosis)" were included to discern businesses focused on addressing the health needs of patients rather than maximizing profits. Conversely, if the primary client for the product was identified as a healthcare professional or institution, it was assumed that the entrepreneurs' focus leaned more towards profit generation, administrative tasks, and overall business concerns.

Based on the theory presented in the literature review section, the authors wrote a regression equation that places the type of the business (ToB) as the endogenous variable for each personal characteristic. In the process of specifying the model, the authors chose to use simple linear regression equations.

Regarding the healthcare entrepreneurs' personal characteristics, in the first row, age (hereinafter A), was represented as an explanatory factor for orientation towards a certain type of business, namely $ToB_i = f(A_i)$. Secondly, gender (G) was another characteristic that has drawn the attention of the researchers in relation to the orientation towards a certain type of business ($ToB_i = f(G_i)$. Another relevant factor was education, represented by first education (FE) and second education (SE) with afferent equations: $ToB_i = f(FE_i)$ and $ToB_i = f(SE_i)$. Also, the number of children (C) was analyzed as an explanatory variable, $ToB_i = f(C_i)$, as well as marital status (MS), $ToB_i = f(MS_i)$, and motivation (M), ($ToB_i = f(M_i)$. Finally, the house ownership variable (HO) was considered, where $ToB_i = f(HO_i)$.

3.2. Sample Selection

The sample consisted of 125 Romanian medical start-ups, with 12 entrepreneurs employed in in-depth interviews, and 113 participants contributing to the quantitative study. Careful consideration was given to selecting individuals with diverse personal attributes, such as age, gender, education, number of children, marital status, and homeownership. The researchers intentionally ensured a varied representation of backgrounds and experiences among participants. For qualitative research, 12 healthcare entrepreneurs were interviewed, while the quantitative study involved 101 eligible respondents out of a total of 113. Participants were approached directly and voluntarily, meeting the criterion of being active medical start-up entrepreneurs. This approach aimed to capture a broad range of entrepreneurial perspectives within the healthcare sector, providing a rich dataset for analysis. Thus, the sample encompassed healthcare entrepreneurs running medical start-ups, spanning ages 21 to 70, both male and female, with varied marital and parental statuses, regardless of educational background or homeownership. This study employed a non-random sampling method, utilizing both in-depth interviews and surveys to gather raw data.

3.2.1. Data Collection

The initial phase of this study employed a mixed-methods approach, beginning with the qualitative study before proceeding to the quantitative analysis. Semi-structured interviews were conducted to gain qualitative insights into individual motivations and experiences, facilitating a comprehensive exploration of personal backgrounds and motivations. Building upon the qualitative findings, a survey was then developed to systematically collect measurable data for the study. This approach allowed for a holistic understanding of the subject matter by integrating qualitative insights with quantitative data collection. The survey was designed to capture demographic information and key entrepreneurial characteristics. In this sense, the questions were formulated and distributed to gather quantitative data on personal attributes and entrepreneurial orientations. This dual approach facilitated the extended understanding of the entrepreneurial personal characteristics' impact on running a certain type of medical business. The semi-structured interviews took place in November 2023, and data collection for the quantitative research purpose occurred between January and March 2024. By using the survey-based method to collect the data, the researchers applied a personal approach to interact with the healthcare entrepreneurs, presenting them with the aims of the study, and allocating them a time of several days to send back the answers to the questionnaire.

3.2.2. Context Setting

Over the last 30 years, the changes in the Romanian healthcare system have been profound, both in terms of medical infrastructure, doctors, and healthcare staff, and in terms of patients' mentality and conditions.

The emergence of the private healthcare system was a turning point in the evolution of the healthcare sector in Romania. At first, there were specialized private practices, the first private clinics and laboratories for performing and processing medical tests; then, family doctors, medical investigation centers, and private hospitals appeared. An important moment in the development of the medical sector was the emergence of private hospitals. Investment in recent years (more than EUR 3.8 billion in private healthcare infrastructure since 2010 alone) has helped improve the quality and efficiency of healthcare by providing modern infrastructure and equipment, while reducing inequalities in access to healthcare. The private healthcare system has developed strongly. Today, Romanian patients can find conditions in Romania at least similar to those in medical centers abroad.

The challenge in the coming years is to continuously progress and adapt to new technologies, in order to always have the necessary resources to respond to the growing and changing expectations of patients. Increasing emphasis will be placed on technology, digitization, over-specialization of doctors, and infrastructure development, so that the healthcare system can meet the challenges of the future.

3.2.3. Data Analysis

Quantitative data collected from the surveys underwent initial processing and refinement using Excel to ensure accuracy and consistency. Subsequently, EViews 12 was employed to identify correlations and patterns among the various personal attributes, and to estimate the regression coefficients. The combined results from these analyses provided a comprehensive view of how personal attributes influence entrepreneurial orientation of healthcare entrepreneurs. The data analysis for quantitative research was performed using descriptive statistics and tests, that led the researchers to the findings of the study. After the research question was clearly defined, the multivariate linear regression equation was written. The researchers cleaned the data (Table 1), checked it for missing values, and performed analyses for linearity, errors autocorrelation, normality of residuals, homoscedasticity, and multicollinearity. By using the least squares estimation method, they estimated the parameters of the models and evaluated the model fit by checking the goodness of the fit indicators, R^2 and $\overline{R}^2$. Finally, an econometric model was created and globally tested for significance, including the variables with a strong influence on the entrepreneurial intention. Based on the outcomes, presented in detail in the next section, an econometric model with high managerial implications was introduced as learning material, aiming to offer a better understanding of the outcomes that led the authors to illustrate a swim lane decision-making process diagram.

Table 1. The description of all variables used in this study, their operational definitions, and their coding methodology.

Variable	Description	Coding/Measurement
Type of the business	Categorized into four types: Profit-oriented; Healthcare professional collaborations; Patient-centered; Individual-focused ventures.	Measured using four dichotomous variables (1 = Yes, 0 = No for each category).
Marital status	Participant's marital status.	Coded as 1 = Single, 2 = Married, 3 = In Couple, 4 = Divorced.
House ownership	Whether the participant owns a home.	Coded as 1 = Yes, 0 = No.
Age	Participant's age.	Measured as a continuous variable in years.
Perceived risk	The extent to which participants perceive risk in their entrepreneurial ventures.	Measured using a 5-point Likert scale (1 = Very low, 5 = Very high).
Co-founders	The number of co-founders in the participant's venture.	Measured as a continuous variable.
Motivation	Participant's primary motivation for starting a business.	Coded into categories based on qualitative data: 1 = Personal challenge, 2 = Market need.

Source: author conceptualization.

3.2.4. Reliability and Validity

To ensure reliability and validity, several measures were implemented throughout this study. The survey instrument was pre-tested to ensure clarity and accuracy, while inter-coder reliability checks were conducted during the qualitative analysis to maintain consistency. Statistical methods were applied to validate the quantitative results, and multiple researchers participated in the qualitative analysis to reduce bias. These measures enhanced the study's credibility and ensured the findings were robust.

3.2.5. Ethical Consideration and Limitations

Ethical considerations were central to this study's methodology. Informed consent was obtained from all participants prior to data collection, and confidentiality was maintained throughout the research process. Personal data were anonymized to protect participants' identities, and all information was stored securely to prevent unauthorized access. Ethical approval was obtained from an appropriate review board, ensuring the study complied with established ethical guidelines for research involving human subjects. While the study aimed to provide comprehensive insights into the factors influencing healthcare entrepreneurs, several limitations were acknowledged. The sample size does not fully capture the entire spectrum of medical start-ups in Romania. Additionally, the mixed-methods approach, while comprehensive, could introduce complexity in interpreting results. Potential biases in the qualitative analysis and the self-report nature of the survey were also noted as limitations that could impact the generalizability of the findings.

4. Results

By intending to identify what type of business type healthcare entrepreneurs run, based on their personal characteristics, the authors discovered that the only relevant characteristic of entrepreneurs which influences their orientation towards a certain type of business, is not house ownership, but marital status (Figure 2).

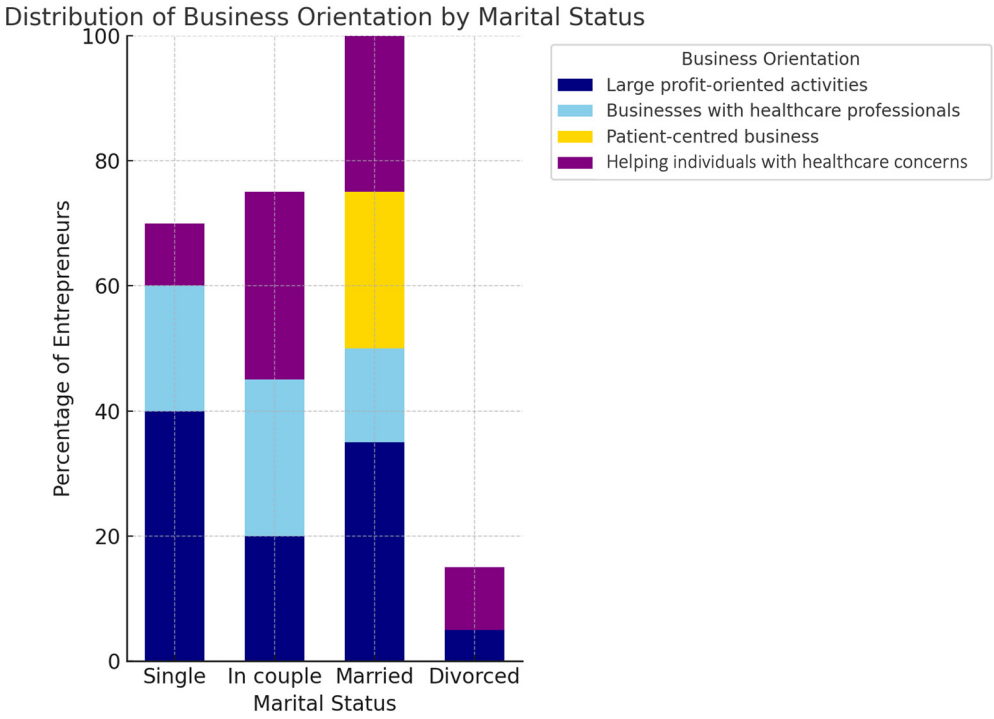

Figure 2. The distribution of entrepreneurs oriented towards a certain type of business, according to their marital status.

This figure illustrates the distribution of healthcare entrepreneurs' business orientations according to their marital status. Business orientation is categorized into three main types: profit-focused, patient-centered, and hybrid (targeting both patients and healthcare professionals). The analysis reveals significant variations across marital status groups such as single entrepreneurs, married entrepreneurs, and divorced entrepreneurs.

The assessment for independence of errors was analyzed using a Durbin–Watson test; it shows the absence of errors' dependency in the cases of age and marital status. Moreover, for marital status, the condition index and the variance inflation factor show the absence of multicollinearity, which means that the results do not reduce the interpretability of the model. Also, for this variable, the model is globally significant for $\alpha = 5\%$ ($F = 6.563$, $df = 10$, $Sig. = 0.028$. According to the findings, the single entrepreneurs are more profit-oriented because they want large businesses and relations with professionals and institutions, while divorced status is associated with a business oriented towards helping individuals with healthcare concerns. Couples prefer both helping individuals and creating main products for healthcare professionals. Otherwise, married entrepreneurs are distributed across all types of businesses. However, the house owner characteristic is critical for the study because a relationship between this variable and the number of co-founders was, surprisingly, found. By applying an χ^2 test, Phi and Cramer's V indicators show that these two variables are associated (Approx. sig. = 0.007). The results show that the lower the sense of ownership, the lower the number of co-founders is. Based on these results, a research question showed up: if the large number of co-founders shows the increased sense of ownership, then what type of business are they running? The descriptive analysis shows that the motivation of entrepreneurs involved in start-ups with more than two co-founders is based on the motivation of a challenge or a problem that directly affected the entrepreneur. Therefore, the participants who completely showcased this motivation are the ones that place individuals with healthcare concerns as their main client for their product. The ones who are neutral or did not face personal health issues present with the orientation towards businesses with healthcare professionals or institutions.

Recalling the A variable, it was discovered as an exogeneous variable for the number of co-founders together with the HO, both explaining the number of co-founders (NoC). By performing the econometric analysis in EViews software, the econometric model has been determined: $NoC_i = \beta_0 + \beta_1 HO_i + \beta_2 A + \varepsilon$. By estimating the equation, the following results were obtained: $\hat{NoC}_i = 3.62460568 + 1.07518402 HO_i - 0.0665615 A_i$. According to the coefficient significance, $\beta_0 = 3.62460568$, the intercept shows a theoretical value of $\hat{NoC}$ in the situation where the slope coefficients, $\beta_1 = \beta_2 = 0$. The value of β_1 indicates the average difference in the endogenous variable between renting and ownership, when A is constant. The coefficient is positive and significant ($p\text{-}value = 0.027 < 0.05(\alpha = 5\%)$), which means that it highlights that the $\hat{NoC}$ is higher for full ownership. The second slope coefficient, β_2, shows how much $\hat{NoC}$ will change when A is increased in one year, with the condition HO to be maintained constant. Considering its significance ($p\text{-}value = 0.026 < 0.05(\alpha = 5\%)$), the value and the negative sign show that the number of co-founders of a start-up will decrease once the age of the entrepreneurs increases. The model presents a good fit ($R^2 = 0.90$), which means that the variability in the number of co-founders around its mean is explained in the proportion of 90% by the house ownership and age variables. Also, the global significance is underlined by the value of $Sig.F = 0.00052926$(significant for 1%, 5%, and 10%). The D statistics show the absence of error dependency, and VIF and condition index ensure the absence of multicollinearity. Therefore, all the findings fit the purpose of discussing the intended aim of the study.

During personal discussions with all healthcare entrepreneurs, an unexpected result was obtained. By trying to analyze the A variable to understand their orientation, the

authors found out that *A* is, to some extent, in relation with the so-called "greatest" risk perceived. This fact inspired the authors to extend the area of analysis and include the risk as a possible factor influencing the options of healthcare entrepreneurs. Descriptive statistics showed that the perception of failure is generated by insufficient funds or investments for all age categories. Moreover, most entrepreneurs perceive failure, consequently, related to the lack of investments and funds, not underestimating risk related to competitors. Considering this unexpected outcome, the researchers tried to find value in it for this topic. In this regard, they used cross tabulation in SPSS for the lack of funding/investment and the number of co-founders. They found that this type of risk is perceived by the entrepreneurs that are working already with co-founders to a greater extent than the entrepreneurs that are leading the start-ups alone. Finally, the personal goal of hiring the right people to delegate responsibilities was found more among those entrepreneurs who perceive failure because of lack of funds. Also, the perception of the same risk is the most common for the entrepreneurs who run businesses with the main product for healthcare professionals and healthcare institutions, so, the companies oriented for profits.

To find more value amongst these insights, the authors pictured Figures 3–7 to represent the swim lane decision-making process based on these elements.

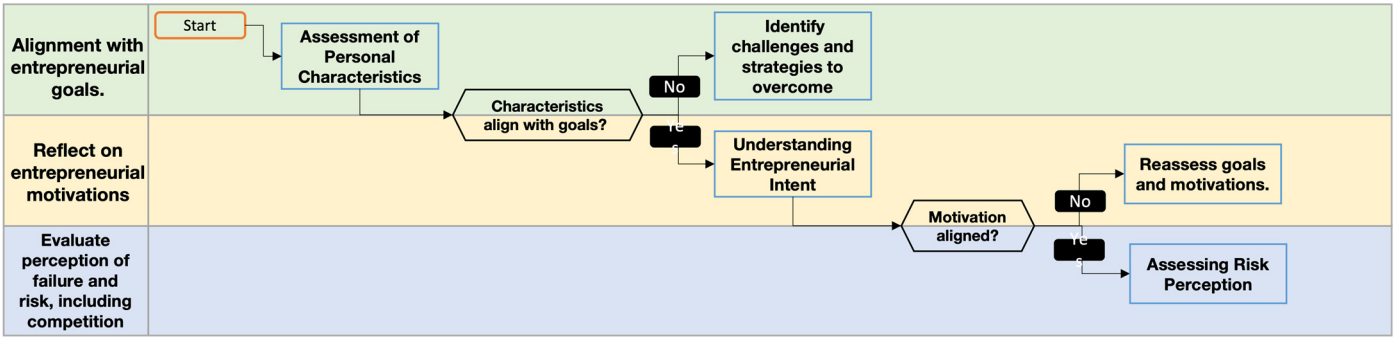

Figure 3. Decision-making process—part 1. Source: conceptualized by authors.

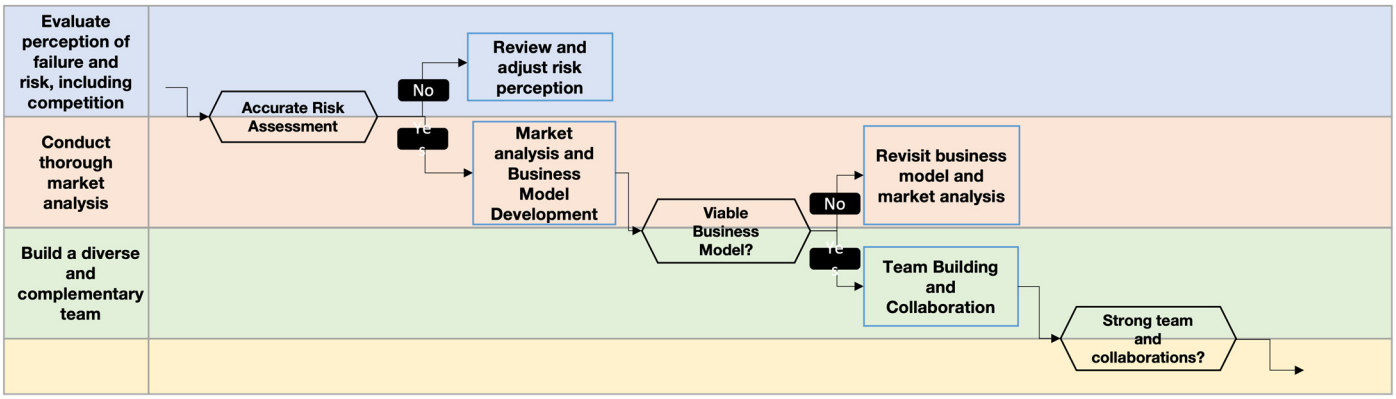

Figure 4. Decision-making process—part 2. Source: conceptualized by authors.

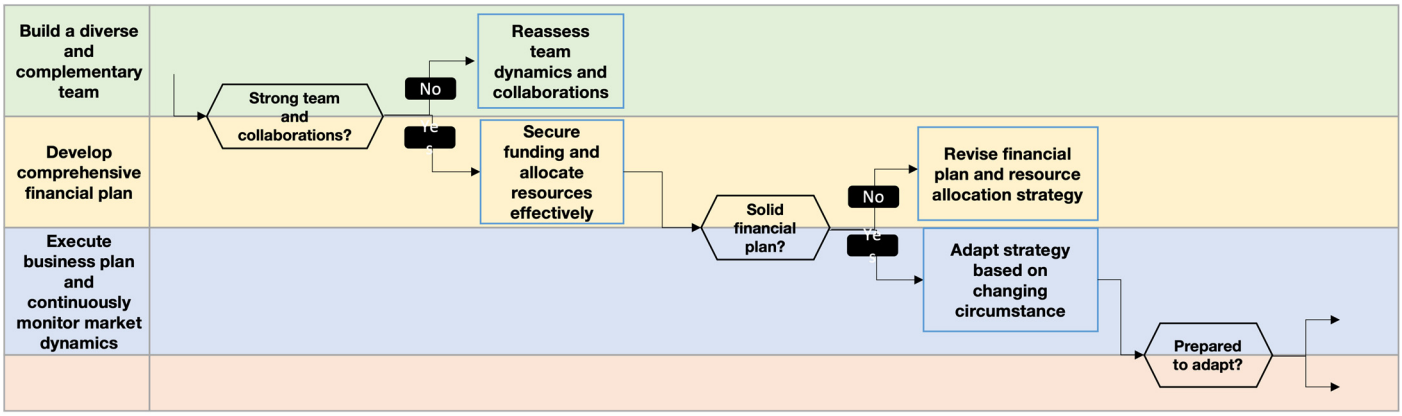

Figure 5. Decision-making process—part 3. Source: conceptualized by authors.

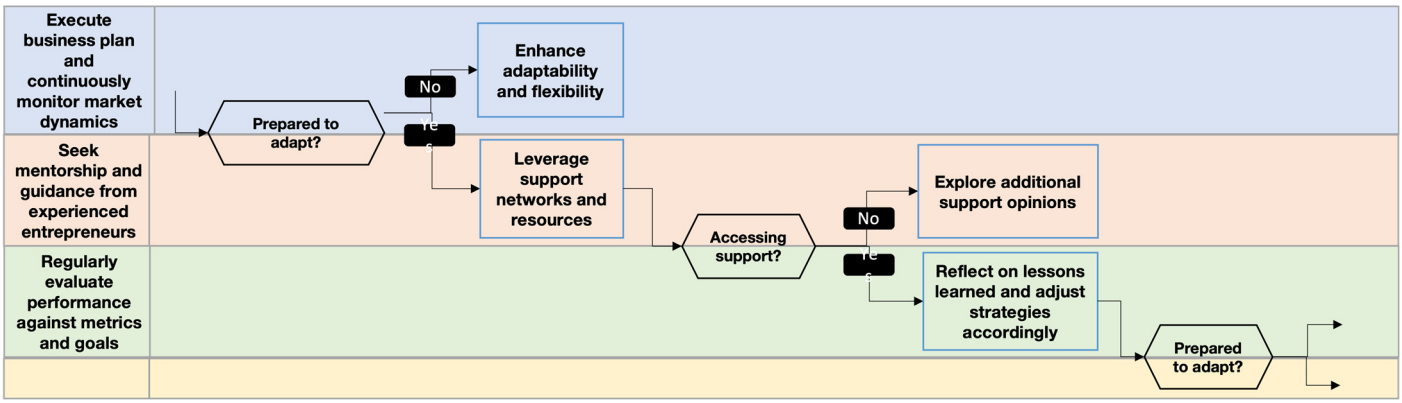

Figure 6. Decision-making process—part 4. Source: conceptualized by authors.

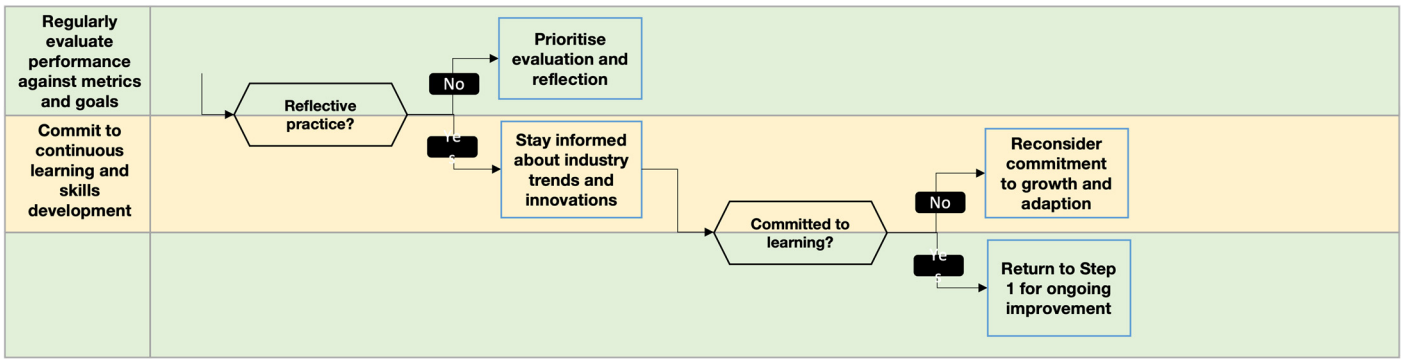

Figure 7. Decision-making process—part 5. Source: conceptualized by authors.

5. Discussion

The scientific contribution that this study brings to the light of specialized literature gravitates around the growth theory for entrepreneurs. In the same manner as how Hunter (2005) addressed the factors that influenced the course of entrepreneurial development, the authors intended to enrich the current state of knowledge with fresh perspectives on characteristics of healthcare entrepreneurs. In this sense, the current study provides valuable insights by elucidating the entrepreneurial behavior within the healthcare sector. By analyzing a diverse range of factors, including age, gender, education, family dynamics, motivation, and property ownership, the authors have uncovered nuanced patterns that shed light on entrepreneurial decision-making within the healthcare sector.

Specifically in this section, the researchers present the cohesive narrative flow to explicitly link the hypotheses to the findings, as presented in Figure 8.

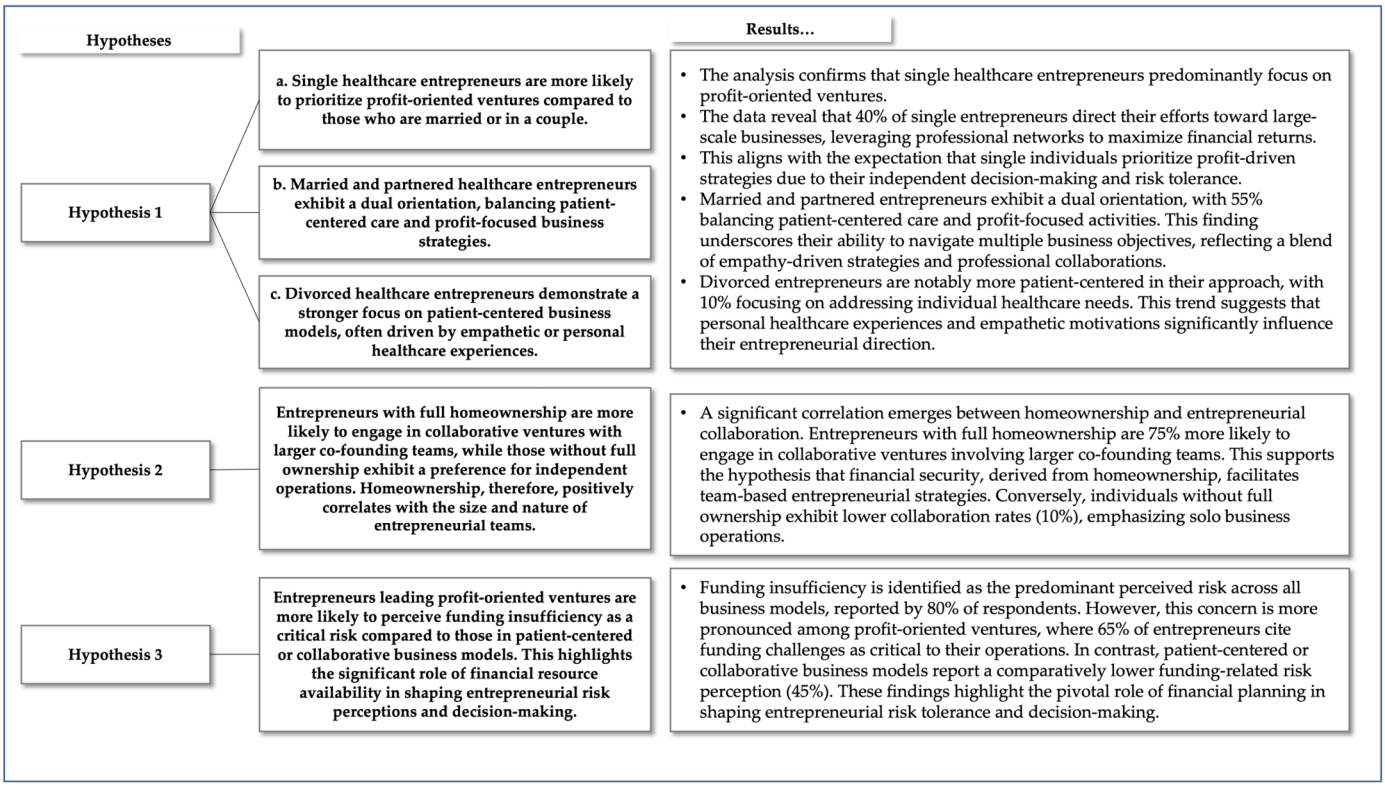

Figure 8. Narrative flow linking the hypotheses to results. Source: conceptualized by authors.

One of the key findings of this study pertains to the influence of marital status on business orientation. The analysis revealed distinct preferences among single, divorced, and married entrepreneurs. This result unveils marital status as the most relevant variable to define the orientation towards a certain type of business, refuting the hypothesis linked to gender as an influential factor for a specific type of business. This outcome completes the theory about the entrepreneurial journey from the point of view of the moment in which the person with whom the entrepreneur lives, influences behavior and entrepreneurial intentions. This study highlights the profit orientation of single individuals, and patient well-being orientation of couples or married entrepreneurs. Single individuals exhibited a strong inclination towards profit-oriented ventures, reflecting their desire for large-scale businesses and professional partnerships. In contrast, divorced entrepreneurs displayed a heightened focus on addressing healthcare concerns for individuals, perhaps driven by personal experiences or empathetic motivations. Married entrepreneurs, on the other hand, demonstrated a more diverse orientation, with preferences spanning businesses targeting both individuals and healthcare professionals. These findings underscore the importance of considering marital status as a determinant of entrepreneurial behavior within the healthcare industry.

Also, in the category of personal factors that the theory of entrepreneurial intention could consider, the sense of ownership is also counted. Strongly related with the number of co-founders and age, it can represent key-factors for business success. In this context, the managerial implications are various. Moreover, this study highlights the impact of property ownership on entrepreneurial decisions. While previous research has explored the relationship between homeownership and entrepreneurial activity, our findings provide additional insights specific to the healthcare sector. The authors observed that full

homeownership positively influenced entrepreneurial activity, suggesting that individuals with greater property ownership may feel more financially secure and, therefore, are more willing to undertake entrepreneurial ventures. However, the presence of housing loans exerted a negative impact on entrepreneurial intent, indicating that housing debt may act as a barrier to entrepreneurship by imposing financial constraints and risk aversion. Furthermore, the type of property ownership, whether acquired through inheritance or purchased below market price, also influenced entrepreneurial decisions, with implications for wealth accumulation and risk-taking behavior.

For instance, the age characteristic is a very important and influential factor in the literature (Petráková & Fialová, 2020); this study has strengthened its role in the entrepreneurial process. With high relevance in business orientation, it can be more relevant when it is considered as a determinant for the number of co-founders. As an explanatory factor, the age of the entrepreneurs can represent a real competitive advantage when young individuals choose to create teams and run businesses together. Regardless of the years an entrepreneur has, the perceived failure generated by risks can destabilize the mindset of entrepreneurs, especially when the risk is associated with the goal they have proposed. Surprisingly, gender, education, and motivation have not been discovered as defining factors for businesses, as the literature presents in some studies. Contrary to the mainstream view, and in line with the authors' findings, it was shown that there is no gender inequality related to entrepreneurship. At the same time, age is not a differentiator when it comes to risks, an aspect unintentionally identified as an influential factor. While Cacciotti (2016) studied the factors that led to the failure of a venture, including lack of funding, team management issues, lack of sufficient business knowledge, and technology delay, the analysis captured the characteristics that influence the orientation towards a certain type of business and the failure in relation to the perceived risks and goals to achieve. The unexpected finding that personal perceptions of failure are closely linked to the availability of funding and investments underscores the significance of the financial considerations in entrepreneurial ventures. Entrepreneurs who perceive a lack of funds as the greatest risk are more likely to prioritize hiring the right people and delegate responsibilities, reflecting their strategic approach to mitigating financial challenges. Additionally, the analysis revealed that entrepreneurs working with co-founders are more attuned to funding risks, suggesting that collaborative ventures may offer greater resilience in the face of financial constraints. These results support previous research confirming that entrepreneurs perceive failure to access to financial support as a major barrier.

Overall, the findings of this study contribute to a deeper understanding of the complex interplay between personal characteristics and business orientation among healthcare entrepreneurs. By elucidating the diverse motivations, preferences, and risk perceptions driving entrepreneurial behavior, this research informs policy initiatives and supports mechanisms aimed at enhancing entrepreneurship within the healthcare sector. Moving forward, interventions that address the specific needs and aspirations of healthcare entrepreneurs can empower individuals to pursue innovative ventures that drive positive change in healthcare delivery and outcomes. Also, the outcomes suggest that personal attributes, such as marital status, education, and homeownership, significantly shape entrepreneurial decision-making processes. These attributes were operationalized through survey questions and regression models, where variables such as age, gender, education level, and homeownership status were coded and analyzed to identify their influence on the type of business orientation chosen by healthcare entrepreneurs. These insights can guide policy makers, educators, and healthcare professionals in fostering an environment that supports sustainable and impactful healthcare entrepreneurship.

6. Conclusions

The scientific contribution of this study lies in its comprehensive examination of the factors influencing entrepreneurial behavior within the healthcare sector. By offering valuable insights into the existing literature on entrepreneurial development and decision-making, this research adds a significant dimension to the existing literature. The findings have important implications for policy makers and support organizations aiming to cultivate entrepreneurship within the healthcare domain. Additionally, the outcomes empower entrepreneurs to embark on innovative ventures that catalyze positive transformations in healthcare delivery and outcomes.

The relationship between business orientation and economic growth is crucial for understanding how economies prosper. A strong business orientation promotes innovation and competitiveness, enabling companies to adapt to market changes and consumer demands. This adaptability does not only lead to increased productivity but also encourages investment and job creation, which are essential components of economic expansion. Moreover, businesses play a vital role in driving technological advances and improving overall efficiency within various sectors. As companies grow and succeed, they contribute to the wider economy through higher tax revenues and improved living standards for individuals and communities. Ultimately, a vibrant business environment acts as a catalyst for sustainable economic growth, benefiting society as a whole.

From a theoretical perspective, this study provides a compelling rationale for further exploration of the factors influencing orientation in the healthcare sector. The academic community stands to benefit greatly from the insights, as they offer valuable guidance for the development of policies and strategies that better prepare young entrepreneurs for the challenges of starting and running a start-up in the medical field. Furthermore, understanding the challenges inherent in healthcare entrepreneurship can inform efforts to provide ongoing support and mentorship to young entrepreneurs. By empowering a culture of continuous learning and providing resources for networking, risk management, and conflict resolution, the academic environment can play a pivotal role in equipping young entrepreneurs with the skills and knowledge needed to navigate the complexities of business management and secure financing for their ventures.

The managerial implications are equally significant. Institutions can address financing barriers through the implementation of specialized programs that equip entrepreneurs with the tools and knowledge needed to combat such challenges. The decision-making model, depicted in Figures 3–7, synthesizes the key findings of the study, and offers a structured framework for understanding how personal characteristics influence entrepreneurial decisions within the healthcare sector. The model comprises five main components: age, gender, education, motivation, and property ownership, each of which plays a distinct role in shaping entrepreneurial behavior. This could help both trainers and managers to keep an eye on their actions and reactions in the moment of making decisions, considering personal characteristics, business orientation, and the attitude towards failure. This visual representation could represent a guideline for them to optimize and develop sustainable businesses.

Despite its contribution, the study acknowledges several limitations that warrant attention in future research. One key limitation is the methodological approach, where reliance on semi-structured interviews introduces the possibility of response bias and the absence of data triangulation. To address this, future studies could incorporate additional qualitative techniques, such as peer debriefing or investigator triangulation, to enhance the robustness of findings. Additionally, the sample size may not be fully representative of the broader population, highlighting the need for a more extensive data collection to ensure generalizability. Future research should also explore a broader range of factors

influencing entrepreneurial motivation to develop a more comprehensive understanding of this phenomenon.

To overcome these limitations, future research can employ a combination of quantitative and qualitative methods to analyze each attribute and explore the correlation between personal characteristics and entrepreneurial intention in greater depth. Additionally, interdisciplinary research involving authors and scientists from various fields can provide a more holistic understanding of entrepreneurship development. Collaborative efforts between academia and industry can also facilitate knowledge transfer and partnership, enabling the exploration of complex and contentious issues in entrepreneurship.

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