



Does dispositional optimism affect entrepreneurial success? Evidence from Saudi Arabia

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Abstract

This study explores the effect of dispositional optimism bias on entrepreneurial success. By reviewing a mixture of previous studies from different disciplines: psychology, business and economics, we predict that this bias can positively affect entrepreneurial success. Based on a sample of 255 entrepreneurs in the Kingdom of Saudi Arabia and using the LOT-R psychometric test to measure the level of dispositional optimism among entrepreneurs, the effect of this variable on entrepreneurial success was tested, and the results show that this bias positively affects entrepreneurial success. Entrepreneurial success was also measured through three different proxies: the level of entrepreneurs' satisfaction with what has been achieved from their entrepreneurial projects, the variation in the number of employees, and sales growth and the results were stable. We also find that entrepreneurs' experience, age, and gender can influence entrepreneurial success. Finally, we should view entrepreneurial success not only as a function of traditional variables but also as a function of psychological biases.

Keywords Entrepreneurial success · Dispositional optimism · Saudi Arabia

Introduction

The literature has long argued that individuals are generally optimistic, as they tend to expect positive events in the future without evidence supporting these expectations (Scheier & Carver, 1992; Sharot, 2011). Dispositional optimism can primarily affect human decisions and activities (Scheier & Carver, 1992; Carver & Scheier, 1994, 2014; Crane & Crane, 2007; Carver et al., 2010; Perez et al., 2021).

According to the literature, dispositional optimism is positively associated with individual health (Carver et al., 2010). Maruta et al. (2000) showed that optimistic

Extended author information available on the last page of the article

individuals, who generally take proactive steps to protect their health, tend to experience a lower mortality risk and have a good emotional response to adversity. A positive effect of dispositional optimism was also reported by Conversano et al. (2010), who found that this personality trait can significantly affect mental and physical well-being. Dispositional optimism contributes to the promotion of a healthy lifestyle, adaptive behaviors and cognitive responses, creating greater flexibility, high problem-solving capacity, and an efficient elaboration of negative information. According to Zagorski (2013), dispositional optimism can be considered a stable personality trait characterized by a general positive expectation that influences motivated actions. This study showed that optimistic individuals have a better ability to face the problems and difficulties they encounter because they expect future positive results for all the actions they are currently taking to face such problems. Furthermore, the study argued that optimistic individuals display a cross-situational tendency to enhance efforts toward their goals instead of disengaging and taking withdrawal measures. More recently, Setia et al. (2021) confirmed the positive effect of dispositional optimism on mental health and the rationality of decision-making. According to this study, dispositional optimism can be an impenetrable barrier against developing mental disorders. It plays a central role in ridding individuals of pessimism, enabling optimism in individuals, enhancing the rationality of their choices and decisions, and controlling high-risk behaviors.

Dispositional optimism is a personality trait that has generated a great deal of research interest in relation to entrepreneurship and entrepreneurial behavior (Crane & Crane, 2007; Hmieleski & Baron, 2009). Unfortunately, despite the importance of this psychological bias, few studies have addressed its impact on entrepreneurial success (Ben Fatma and Ben Mohamed, 2019).

The few studies published on this topic are characterized by conflicting results about the effect of optimism on entrepreneurial success. Therefore, current studies are considered inadequate for understanding the connection between this bias and entrepreneurial success (Lindblom et al., 2020). Hence, there is a research gap in the literature on the effect of dispositional optimism on entrepreneurial success, and further study is needed to resolve the current controversy. In addition, the studies did not examine the impact of this bias on entrepreneurial success in prosperous contexts such as the Gulf countries and specifically Saudi Arabia. There is a need to conduct studies to identify the determinants of entrepreneurial success in various countries around the world due to the failure rates of new ventures, which has become a widespread phenomenon (Geroski et al., 2010; Elhem et al., 2021). This paper seeks to close the existing research gap on the extent to which entrepreneurial dispositional optimism bias can influence entrepreneurial success in Saudi Arabia.

Saudi Arabia has the largest economy in the Middle East and is the richest country among the Arab-majority countries in the region (Dana et al., 2022). This country has already recognized the importance of entrepreneurship and allocated considerable resources to Vision 2030 for the purpose of enhancing the level of entrepreneurial activities and success (Ahmad et al., 2023). Saudi Arabia is a country that has witnessed the most radical transformation through Vision 2030 (Aloulou et al., 2023a; Aloulou & Alshaeel, 2023; Ahmad et al., 2023). The aim of the program is to lay

strong foundations for success by implementing unprecedented reforms that include the public sector and all economic and social aspects within the country.

According to the official website of Vision 2030, there appear to be three strategic goals: first, to create an ambitious nation by enhancing the effectiveness of governance and enabling social responsibility; second, to generate prosperity in the economy through the development and diversification of the economy and increased employment rates; and third, to form a vibrant society by promoting Islamic values and national identity and enabling a full and healthy life.

The program also includes explicit support for entrepreneurship and demonstrates a clear focus on entrepreneurial success, as acknowledged in its second pillar. As stated in the second pillar, the goal of Vision 2030 is to create a thriving economy in which everyone has the opportunity to succeed. By providing a supportive business environment for businesses of all sizes and investing in education to prepare for the jobs of the future, Saudi Arabia is creating an exciting and prosperous future for all. The program mainly aims to diversify sources of income; thus, entrepreneurship is supported because of its role in economic development (Basaffar et al., 2018). In fact, the sector of small and medium enterprises plays a pertinent role in gross domestic product growth in Saudi Arabia (Alharbi, 2023).

This study attempts to highlight the role of entrepreneurs' psychological biases in their success. Through this research, we contribute to the entrepreneurship literature in at least three ways. First, we empirically test the effect of dispositional optimism on entrepreneurial success in a less-explored context (as mentioned above). Second, we investigate the predictions of human capital theory about entrepreneurial success in the presence of dispositional optimism. Finally, we invite researchers to further elucidate the relationship between dispositional optimism and entrepreneurial success by cultivating a deep understanding of how this variable affects success. This study also has implications for policy-making to support entrepreneurs, as it shows the need to focus on the psychological aspects of entrepreneurs and to make appropriate decisions to support them appropriately.

The remainder of this paper is organized as follows: Sect. 2 discusses the potential impact of dispositional optimism and other well-known factors, mainly from human capital theory, on new venture success. In this section, we formulate our hypothesis. Section 3 describes our methodology and defines our variables, measurements, dataset, and research model. Section 4 presents and discusses our results and the policy and managerial implications of the study. Finally, Sect. 5 offers some concluding remarks and directions for future research.

Literature review and hypothesis development

Despite the importance of studying the determinants of entrepreneurial success, there is a scarcity of such studies in the context of Saudi Arabia. In fact, Saudi Arabia has a culture that differs from that of other contexts, and with the boom it has witnessed in the field of business, it is justified to focus on this culture (Aloulou et al., 2023a). According to the current literature related to this topic, the majority of studies have focused on identifying the factors that most influence success. In this regard,

Al-Tit et al. (2019) argue that there are three critical success factors for small- and medium-sized enterprises in the Saudi context: individual factors, management factors, and business support and capital availability. Al-Kwif et al. (2019) demonstrate that having adequate business knowledge can significantly help Saudi females make timely decisions to start new businesses and succeed. The impact of self-confidence on entrepreneurial success in Saudi Arabia is mentioned in a study by Ahmad (2011). He finds that the primary factors through which female entrepreneurs in Saudi Arabia achieve entrepreneurial success are a good level of education and a certain level of self-confidence. Similarly, Bassafar et al. (2018) analyze the factors affecting the success of women entrepreneurs and conclude that self-confidence and self-efficacy are considered significant factors in entrepreneurial success. Finally, more recently, Aloulou et al. (2023a) argue that it is crucial to have a proactive personality, social experience, social self-efficacy, and passion about starting a social business to succeed in the Saudi context. It is also noted that the majority of these studies are qualitative and discuss entrepreneurial success in general. For example, psychological aspects are touched upon some of these studies, but only implicitly. Therefore, we discuss the possible extent of the influence of one of the most important psychological biases, namely, dispositional optimism, in addition to other important factors that have been proven to influence success in the entrepreneurial success literature.

Dispositional optimism and new venture success

The literature regarding the effect of dispositional optimism, especially in medicine and psychology, indicates that this form of optimism improves individuals' health conditions, as it reduces their exposure to excessive anxiety and depression and protects them from negative consequences (Setia et al., 2021). Despite the large number of studies on the impact of this bias on the physical and psychological health of an individual, there are only a limited number of studies on its effects on entrepreneurship. This indicates that there is a research gap that must be closed through the discussion of the impact of dispositional optimism on entrepreneurial success and other related fields of entrepreneurship.

The impact of dispositional optimism on a new venture's success is an important area of inquiry since entrepreneurship represents the primary source of employment and job growth (Crane & Crane, 2007). Recognition of the influence of this psychological bias on entrepreneurial success must be used to improve business success and reduce business failure, as many psychologists affirm that dispositional optimism can be taught and learned. It is necessary to understand how dispositional optimism affects entrepreneurial success to determine the nature of the support that entrepreneurs need.

As defined by Scheier and Carver (1992), dispositional optimism is a generalized positive expectancy of an individual to experience good outcomes. The same definition is adopted by Crane and Crane (2007), as they classify dispositional optimism as a personality trait that reflects the global expectation that good events will be plentiful in the future, while bad events will be scarce. Peterson (2000) concludes that despite the divergence of optimism measures, the robust conclusion is that disposi-

tional optimism is linked to desirable outcomes such as happiness, health, achievement, success, or perseverance.

Many studies show that entrepreneurial optimism is an important predictive factor of successful entrepreneurs (Lussier, 1995; Covey, 1999; Crane & Crane, 2007; Elhem et al., 2015, 2021; Lindblom et al., 2020). However, we can summarize the limited number of previous studies on the impact of optimism on entrepreneurial success by presenting two contradictory opinions. While the first group believes that entrepreneurial optimism can negatively affect the rationality of entrepreneurial decisions and may lead to failure, the second group believes that optimism is likely to lead to entrepreneurial success.

According to those belonging to the first group, who believe that optimism has a negative impact, this personality trait may affect the rationality of decision-making, which results in the making of suboptimal entrepreneurial decisions. This could result in entrepreneurial failure. In the following paragraphs, we review the most important studies that support this negative view of optimism on entrepreneurial success and entrepreneurship in general.

Hmieleski and Baron's (2009) study is considered one of the most prominent studies linking dispositional optimism with the performance of small firms in the USA. They demonstrate that there is a negative relationship between entrepreneurs' dispositional optimism and new venture performance as measured by revenue and employment growth. Frese and Gielnik (2014) argue that overoptimism can lead to excessive extension and false forecasts, which can cause entrepreneurial failure.

In a survey of the impact of dispositional optimism on small firms' technical efficiency, an LOT-R revised psychometric test is used by Elhem et al. (2015). The authors argue that this bias negatively affects the efficiency index of small firms in Tunisia, and they demonstrate that, under this bias, an entrepreneur can make suboptimal decisions, especially when small firms use inputs such as financial resources and raw materials. In a recent study, Amore et al. (2022) empirically test the effect of dispositional optimism on the innovation capacity of a group of entrepreneurs in Spain. Two important findings are uncovered. First, it is found that optimistic tendencies reduce individuals' ability to modify their expectations about special performance after feedback that reports a previous instance of failure. Second, it is found that excessive optimism leads to a contradiction between innovative ideas and creative outputs. This translates to much fewer innovative effects, which can negatively impact entrepreneurial success.

Those who adopt a positive view of dispositional optimism and its positive impact on entrepreneurial success in fact represent an extension of the results that have been proven in the medical and psychology literature about the positive impact of optimism (as discussed above). Essentially, optimism increases entrepreneurs' self-confidence, motivating them to invest more effort and focus on their projects to make such projects successful (Chiesi et al., 2013; Jibeen, 2014). Furthermore, Allport (1961) argues that personality traits such as dispositional optimism can largely shape entrepreneurial outcomes, including entrepreneurial success.

A review of the entrepreneurial literature over a twenty-five-year period by Crane and Crane (2007) reports a positive correlation between dispositional optimism bias and entrepreneurial success. Similarly, Baluku et al. (2018) find that optimism is

a fundamental component of psychological capital and is considered a significant predictor of success. In a recent study, Lindblom et al. (2020) empirically demonstrate that dispositional optimism is associated with entrepreneurial success. They also report that life satisfaction mediates the relationship between this bias and entrepreneurial success.

We note the existence of other studies that do not directly examine the effect of dispositional optimism on entrepreneurial success but rather prove its impact on performance and on the efficiency of foreign market entry mode choice. For example, Chen et al. (2013) argue that dispositional optimism is associated with new venture performance. Using a sample of 227 small- and medium-sized enterprises in Ghana, Adomako et al. (2021) explore the impact of optimism on the choice of foreign market entry mode. They find that this psychological bias is positively correlated with the preference for equity market entry. This study also reports that optimism levels significantly influence SMEs' choice of foreign market participation, which contributes to their success.

The current psychology literature indicates that optimism has a positive effect on the skills of entrepreneurs, hence increasing the likelihood of their success. Segerstrom et al. (2017) indicate that optimistic people address potential problems and their feelings about them, set and achieve objectives, overcome threats, and increase their well-being. Papworth et al. (2019) conclude that dispositional optimism can be considered a positive trait that can help people address problems, set and achieve their goals, and achieve success.

In summary, given the number of studies that prove the positive impact of dispositional optimism on decision-making in general and on increasing the efficiency of individuals performing various jobs, we assume that the impact of this bias on entrepreneurial success will be positive. Crane and Crane (2007) deny the possibility of dispositional optimism having a negative impact on entrepreneurial success, and Bengtsson and Ekeblom (2014) agree. In light of what has been discussed in this regard, we formulate our first hypothesis as follows:

H₁: Dispositional optimism positively affects entrepreneurial success.

Human capital theory and entrepreneurial success

In this study, we rely on the theory of human capital. Many studies over the decades have proven that human capital is one of the critical factors affecting entrepreneurial success. This theory was first developed by Becker (1964) and Mincer (1958) to explain the desire of employees to receive returns from their investment in education, knowledge, and experience. This theory was subsequently adopted in the context of entrepreneurship and applied to several topics, most notably in studies conducted on success that focused on and highlighted the role of human capital in entrepreneurial success (Moog, 2002; Davidsson & Honig, 2003; Rauch et al., 2005; Unger et al., 2011).

We distinguish between several factors that refer to human capital, including formal education, employment experience, training, new venture experience, owner

experience, skills, knowledge, and parents' background (Unger et al., 2011). Regardless of what they are named, these factors positively impact entrepreneurial success (Unger et al., 2011; Elhem et al., 2021).

Human capital theory emphasizes the importance of entrepreneurs' resources, such as knowledge and education, and their ability to perform tasks efficiently. This approach is similar to resource-based theory (Oyedele et al., 2014; Essel et al., 2019).

One important study on the impact of human capital on entrepreneurial success is by Cassar (2006). The author finds that human capital might not motivate people to enter the entrepreneurship experience; however, once people enter this adventure, it helps them to succeed at an extreme level. This is mainly because entrepreneurs seek a return on their investment in education, training, and development (Cassar, 2006).

The most documented factors from human capital theory that can explain entrepreneurial success are education and experience (Dimov & Shepherd, 2005; Essel et al., 2019). In fact, Brown et al. (2021) argue that human capital, such as education and experience, can be considered a critical factor that can affect small business success.

Regarding education and its impact on entrepreneurial success, the majority of related studies have concluded that the level of education possessed by an entrepreneur is a crucial factor in the success of an entrepreneurial venture (Shane, 2000; Huarng et al., 2012; Kolstad & Wiig, 2015; Huang, 2016; Piva and Rossi, 2018; Essel et al., 2019; Elhem et al., 2021; Abrar et al., 2021).

In a study on the impact of entrepreneurs' education on entrepreneurial success, Kolstad and Wiig (2015) survey Malawi entrepreneurs. They show that each additional year of primary education increases the profitability of SMEs. An increase in skills explains the positive relationship between education and profitability and the achievement of entrepreneurial success.

During their entrepreneurial experience, entrepreneurs must make a range of different decisions, and they should be equipped with the necessary skills and desire to succeed. All of these goals can be achieved only through education. Regardless of their capabilities, without education, entrepreneurs may not achieve success (Maxwell, 2008).

On the other hand, the positive impact of entrepreneurs' education appears through its effect on the success of equity crowdfunding and, thus, entrepreneurial success. Based on the quantitative data of 284 entrepreneurs, Piva and Rossi-Lamastra (2018) show that education reduces the degree of ambiguity surrounding the financing process and contributes to the success of financing entrepreneurial firms through equity crowdfunding.

There is a consensus on the impact of education on entrepreneurial success, regardless of the gender of the entrepreneur. By analyzing data related to 80 female entrepreneurs in India, the effect of education and its importance on the success of female entrepreneurs is demonstrated, as education increases their ability to deal with problems and decisions related to their ventures and improves their entrepreneurial skills, which leads to an increase in their chances of success (Abrar et al., 2021). Education is also explained to have a positive impact on women's entrepreneurship as it addresses the problems they may encounter and the motivation they need in the entrepreneurial experience (Huarng et al., 2012). On the other hand, through a study conducted on the determinants of entrepreneurship success in Tunisia, Elhem et al.

(2021) find that education is one of the most critical determinants of entrepreneurial success.

The literature on the impact of education on entrepreneurship indicates that education significantly impacts entrepreneurial decisions and activities and directly impacts the effectiveness of entrepreneurial ventures (Raposo & Paço, 2011). A study on the impact of education on the perceptions of Spanish university students of entrepreneurship concludes that education contributes to increasing the confidence of these students in their ability to become entrepreneurs (Fernández-Pérez et al., 2019).

Dickson et al. (2008) review the appropriate literature from research published in high-impact journals from 1995 to 2006, tracing the relationship between education and entrepreneurial success. The study concludes that there is a strong relationship between entrepreneurs' education level and different success measures. Ahmad (2011) finds that education may help Saudi female entrepreneurs succeed in business.

In light of the evidence mentioned in previous studies, education clearly contributes to entrepreneurial success. We can formulate the hypothesis that links the education of the entrepreneur and his or her success as follows:

H₂: The educational level of entrepreneurs positively influences entrepreneurial success.

A wave of studies indicates that education positively reduces irrational decision-making in investment and financing decisions (Malmendier & Tate, 2005; Ben Mohamed et al., 2014; Elhem et al., 2015).

The education rate is very high in some developing countries, especially in the Kingdom of Saudi Arabia. Therefore, the impact of education on entrepreneurial success may not be apparent if we know that the schooling rate in the labor force may reach up to 96%. Consequently, we believe that it is necessary to consider the level of education and the nature of the education received by an entrepreneur.

In this regard, several studies converge to reach the same conclusion, which states that education in the fields of finance, accounting, and business administration has an impact on the ability of entrepreneurs to make appropriate investment and financing decisions and enables them to manage their projects better than those who did not receive this type of education. In a recent study on this topic through a review of 67 published studies, Anshika and Singla (2022) find that financial education, in particular, positively impacts entrepreneurial success by increasing the efficiency of decision-making.

H₃: The financial education of an entrepreneur can positively influence entrepreneurial success.

By examining the literature on entrepreneurial success, we find that the experience of entrepreneurs plays a crucial role in their success. Despite the different circumstances surrounding entrepreneurship, this result appears to have been nearly attained in several countries. One of the justifications that causes us to assume that the experience of entrepreneurs has a positive impact on their success is that this finding has been proven in numerous studies. Many studies have shown that the experience of entre-

preneurs has a positive effect on their success, increasing the likelihood that they will succeed in managing their entrepreneurial projects (Audia et al., 2000; Cope, 2005; Staniewski, 2016).

Using a sample of 294 entrepreneurial companies in Poland, Staniewski (2016) used the successful entrepreneurship scale to show that entrepreneurs with managerial experience obtain higher mean scores on the general indicator of entrepreneurial success. Undergoing several experiences in the field of business gives them the necessary experience to face all the urgent obstacles in their new projects and increases their efficiency (Cope, 2005).

In Italy, based on a sample of 191 small- and medium-sized electronic firms in two different periods—2005 and 2016—it is found that the previous experience of entrepreneurs enhanced the impact of entrepreneurial and market orientation on firms' performance growth (Presutti & Odorici, 2019). Using data from different countries, Guerrero and Peña-Legazkue (2013) find that individuals' entrepreneurial experiences positively impact corporate venturing.

Using a sample of 380 entrepreneurs from 22 different industries in the United States of America, Mattingly et al. (2016) prove that the experience of entrepreneurs increases their ability to estimate costs and financial returns for their projects, increasing the likelihood of their success. The same result was reached in Belgium through a study conducted on a group of entrepreneurs using a questionnaire. Hsu (2007) states that the experience of entrepreneurs, especially their experience in the field of finance, has a positive impact on the financing and evaluation process, increasing the chances of success for these projects. Entrepreneurial experience can be considered a critical contributor to one's performance (Hahn et al., 2022).

Hopp and Sondergger (2015) define experience as the set of previous activities undertaken by the entrepreneur and experience with the labor force in addition to formal education. Their study, which was conducted on a sample of entrepreneurs in Spain for five years, shows that experience plays an important role in entrepreneurship success in Spain.

Cumming et al.'s (2016) study confirms that the experience of entrepreneurs in a specific professional field or working in companies in the same area of projects that they established has a significant impact on the success of the entrepreneurial experience. This clear positive impact of previous studies on experience on entrepreneurial success does not only exist because entrepreneurs with experience are more qualified to manage their projects and make swift rational decisions. In fact, experience can also reduce the impact of psychological factors such as excessive optimism and thus improve the ability of entrepreneurs to make more mature and sober decisions (Fraser & Greene, 2006).

Based on this review of previous studies, we can formulate the following hypothesis regarding the impact of entrepreneurs' experience on entrepreneurial success:

H₄: Experience positively influences entrepreneurial success.

Control variables

Since entrepreneurial phenomena such as entrepreneurial success are complex and affected by a wide range of variables that may not necessarily be included in the research model, it is very important to establish control variables (Maula & Stam, 2020). These variables can solve several problems, such as omitting variable bias and ruling out alternative explanations; hence, they should be included in the research model (Antonakis et al., 2010).

Many studies show that the sociodemographic characteristics of an entrepreneur can play a crucial role in entrepreneurial success (Kolvereid, 1996; Littunen & Virtanen, 2006; Zhao et al., 2021; Shaw & Sørensen, 2022). Two variables that have been identified as impacting entrepreneurial success are age and gender.

Based on the analysis of sales of companies from Denmark, a study by Shaw and Sørensen (2022) reports that age is a critical factor affecting the increase in company sales, as young entrepreneurs can double their sales between the first year and the second year of launching their projects. This positive effect of age can also be explained by the nature of small projects, where productivity is linked to the productivity of the owner. However, as young people age, their productivity will increase.

In the same vein, some studies have shown that young entrepreneurs are the most successful (Azoulay et al., 2020). Young people are characterized by being cognitively sharper and less affected by family obligations, which makes them less distracted, pushing them toward more innovation and success (Planck, 1949; Jones, 2010; Azoulay et al., 2020).

In contrast to these conclusions regarding the effect of age on entrepreneurial success, there is another argument that younger entrepreneurs may have problems generating sufficient capital to launch their projects, and they will face difficulties in obtaining the necessary financing, especially from banks (Stiglitz & Weiss, 1981; Evans & Jovanovic, 1989).

Several studies have attempted to provide an accurate explanation of how age affects entrepreneurial success and economic decision-making in general. A study by Barker and Mueller (2002) indicates that younger CEOs are more likely than older CEOs to adopt innovative strategies.

We can explain this result by referring to a study by Chen et al. (2010), who identify three main reasons for the superiority of younger managers over older ones. The first reason is derived from Taylor's (1975) study, which finds that younger entrepreneurs have greater capabilities than older entrepreneurs for learning and adapting their business decisions. The second reason is that younger entrepreneurs have received their education more recently. Thus, younger entrepreneurs will be more familiar with technological knowledge. This will contribute to their business success because they are better innovators than older entrepreneurs (Bantel & Jackson, 1989). The third reason is related to risk perception. Younger entrepreneurs are better innovators because they can undertake risky projects, which can increase the probability of business success (Barker & Mueller, 2002).

More recently, a study among small Tunisian firms using the cognitive mapping technique documents that age is a critical factor in new venture success (Elhem et al., 2021). However, the effect of age on entrepreneurial success has been discussed

in general, which means that it has not been decided whether this effect is positive or negative. The study did not examine the impact of a particular age group on success.

H₅: The age of an entrepreneur is negatively correlated with entrepreneurial success.

The entrepreneurship literature documents that gender is not neutral and that this factor can affect entrepreneurial success. Naidu et al. (2017) argue that the barriers faced by women entrepreneurs differ from those faced by male entrepreneurs. They conclude that gender inequality can be considered a significant barrier to women's success in the new venture. Women entrepreneurs face more substantial obstacles in raising venture funding from business angels, venture capitalists, and financial institutions than their male peers (Prokop & Wang, 2022).

According to Pistilli et al. (2022), female entrepreneurs are less likely to attract external funding, especially if they have suffered from failed entrepreneurial experiences. This approach will certainly reduce their chances of success.

The literature on this issue indicates that men may outperform women in terms of entrepreneurship. In a study conducted by Abrar et al. (2021), which addresses the determinants of the success of women's entrepreneurship in India by analyzing a sample of 80 female entrepreneurs, the authors concluded that the entrepreneurial success of women requires their dependence and cooperation with men, as they alone may not be able to continue the entrepreneurial experience.

In the Saudi context, through a qualitative study, Ahmad (2011) indicated that women entrepreneurs face difficulties in starting their businesses. The same conclusion is reached by Al-Kwafi et al. (2019), who argue that women entrepreneurs face greater obstacles to achieving success than their male counterparts.

We can predict that the success of small- and medium-sized companies founded by men is superior to that of companies launched by female entrepreneurs (Mazzarol et al., 1999). We can explain several reasons for this superiority in the entrepreneurial success of men over women, including the social status of women, their responsibilities toward their children, and the difficulty of obtaining funding (Essel et al., 2019).

H₆: Male entrepreneurs are more likely to succeed than are female entrepreneurs.

Research model, definition of variables, and measurement

Since this study uses the hypothetico-deductive approach, we must accurately identify and define the main variables and determine methods for measuring them before collecting the data (Dana & Dana, 2005). To explore the potential effect of entrepreneurial dispositional optimism on entrepreneurial success, we relied on OLS regression. We construct a linear regression model to examine the impact of entrepreneurial dispositional optimism bias on entrepreneurial success. The model can be specified as follows:

$$ESucc_i = \beta_0 + \beta_1 DISPO_i + \beta_2 EDUL_i + \beta_3 FEDU_i + \beta_4 EXP_i + \beta_5 Age_i + \beta_6 Gen_i + \epsilon_i$$

In this formulation, $ESucc_i$ is the dependent variable of entrepreneurial success. $DISPO_i$ denotes the level of entrepreneurial dispositional optimism. The education level of an entrepreneur is denoted by $EDUL_i$. The variable $FEDU_i$ is oriented to capture whether an entrepreneur has a financial education. The entrepreneurial experience is denoted by EXP_i . We use two control variables, Age_i and Gen_i , which represent the age of the entrepreneur and his or her gender, respectively.

Dispositional optimism measure

The challenge in behavioral entrepreneurship is how to quantify entrepreneurial psychological biases. For this purpose, we use a psychometric test to construct a robust measure of entrepreneurial dispositional optimism bias. In fact, we use a revised life orientation test (LOT-R) (developed by Scheier et al., 1994). Such a psychometric test can help obtain a robust measure of entrepreneurial dispositional optimism bias (Liang & Dunn, 2010; Elhem et al., 2015; Brown, 2017). This methodology is required when measuring variables, as we must ensure that the measure actually measures the phenomenon or variable that is to be measured (Borsboom et al., 2004).

The original version of this psychological test consists of ten items. Three positive items measure optimism, three negative items measure pessimism, and four non-scored items are considered filler statements.

Following Scheier et al. (1994), Trottier et al. (2008), Hmieleski and Baron (2009), and Elhem et al. (2015), the three positive statements are as follows: “In uncertain times, I usually expect the best,” “I am always optimistic about the future,” and “Overall, I always expect more good things happen to me than bad.” The three negative items, oriented to measure pessimism, are as follows: “If something can go wrong for me, it will,” “I hardly ever expect things to go my way,” and “I rarely count on good things happening to me.” In the revised life orientation test, the filler statements are the following: “It is easy for me to relax,” “I enjoy my friends a lot,” “It is important for me to keep busy,” and “I do not get upset too easily.” Entrepreneurs indicated the extent to which they strongly agreed with each item on a five-point Likert scale ranging from “strongly agree” to “disagree” (Otero et al., 1998).

We follow Scheier et al.’s (1994) recommendations regarding the measurement of optimism, where a value of zero is given to each statement that was answered “strongly disagree”, one is given if the answer was “disagree”, two is given if the answer was “neutral”, three is given if the answer was “agree”, and four is given if the answer was “strongly agree”. This scoring is reversed for the three items that measure pessimism. Filler statements are excluded because they are given a value of zero. As such, the measure of optimism is between zero and twenty-four (Elhem et al., 2015).

Measuring entrepreneurial success and other variables

Measuring entrepreneurial success is challenging because success itself has many dimensions and definitions. Studies in this field have concluded that success is a multidimensional construct (Crook et al., 2005; Angel et al., 2018).

Two dimensions govern entrepreneurial success: the financial and operational performance of the entrepreneurial organization (Venkatraman & Ramanujam, 1986). Financial performance indicators are oriented to capture a firm's economic achievements. In contrast, operational performance indicators, such as innovativeness, may contribute to a firm's financial performance (Unger et al., 2011).

The results of Unger et al.'s (2011) meta-analysis support the convergent and discriminant validity of three dimensions of entrepreneurial success, namely, profitability, growth, and stock market performance. Regarding the nature of the unit of analysis in entrepreneurship research, we may exclude stock market performance, as we discuss firms that are analyzed before going public (Unger et al., 2011). Alternatively, we may use firm age or size to indicate success (Eisenhard and Schoonhoven, 1990; Frese et al., 2007).

Although the nature of entrepreneurial success is closely related to the individual, research in entrepreneurship has focused on the project (Achtenhagen et al., 2010; Angel et al., 2018). It is possible to rely on criteria based on project owners' satisfaction, especially their satisfaction with the wealth achieved from launching the project (Wach et al., 2016).

The literature on entrepreneurial success suggests to using nonmonetary criteria, such as environmental and sustainability goals and job creation. Nevertheless, financial performance goals are usually the benchmark of success (Lumpkin et al., 2013).

In light of what has been previously discussed and to ensure the quality and credibility of measuring entrepreneurial success so that it does not affect the results of this study, we rely on more than one measure.

Practically, we use sales growth, the variation in the number of employees between the current year and the project start year, and the entrepreneur's satisfaction with what has been achieved from his entrepreneurial project. The questionnaire was designed to measure all of these criteria of entrepreneurial success.

Education is measured using an ordinal variable reflecting the educational level of the entrepreneurs. Specifically, the variable takes the value of 1 if the educational level of the entrepreneur is elementary or less, 2 if the entrepreneur has a high school diploma, and 3 if the entrepreneur has obtained a diploma. Finally, this variable takes a value of 4 if the entrepreneur is an undergraduate (Habibov et al., 2017; Essel et al., 2019; Lappi et al., 2022).

Since we test the impact of financial education, which assumes that entrepreneurs with education in the field of finance, accounting, or business administration are most able to achieve success, this variable is a dichotomous variable, as it takes the value 1 if the entrepreneur has an education in the field of finance, accounting, or business administration and economics in general. In contrast, in other cases, its value is 0.

Experience is measured through a dummy variable designed to measure the extent to which entrepreneurs have experience in the field of their project activity. In fact,

they are asked directly in the questionnaire whether they have experience in their field of activity (Spanjer et al., 2017; Exposito et al., 2021).

Entrepreneurs' age as a continuous variable is measured as $Ln(age)$ (Spanjer et al., 2017; Essel et al., 2019; Exposito et al., 2021). In line with the findings of previous studies, gender is measured by a dummy variable, which takes the value of 1 if the gender of the entrepreneur is male and 0 if it is female (Spanjer et al., 2017; Essel et al., 2019).

Study sample, data collection, and descriptive statistics

This study uses the hypothetico-deductive approach, as it is based on setting hypotheses and trying to test them. Therefore, a large sample is needed, as indicated by Dana and Dana (2005). In fact, the study sample consists of 255 small and medium enterprises in the Kingdom of Saudi Arabia. Data were collected about the entrepreneurs who own these projects, as well as about their entrepreneurial projects. Surveys are considered the most popular source of data collection in the field of entrepreneurship, despite the criticism surrounding them because they enable us to directly measure complex and latent constructs (Maula & Stam, 2020). For this purpose, a questionnaire was distributed to a random sample of entrepreneurs. The data collection period took approximately four months. A large number of entrepreneurs were from the Qassim region due to the ability of researchers to reach entrepreneurs through their social relationships.

Descriptive statistics

Table 1 summarizes the descriptive statistics for the various variables in the study. Concerning the measures of entrepreneurial success, the level of entrepreneurs' satisfaction with what has been achieved from launching their project ranges between 0,000 and 5,000, with an average value of 3,659. We note that the change in the number of employees is, on average, 2,424, and its minimum value is -1,000, while its maximum is 15,000. This is due to the nature of the entrepreneurial projects in the

Table 1 Descriptive statistics

	SATI	EMP	SALG	DISP	EDU	FEDUC	EXPER	LN(AGE)	GENDER
Mean	3.659	2.424	1.059	17.490	3.176	0.600	0.812	3.526	0.670
Median	4.000	1.000	0.500	18.000	3.000	1.000	1.000	3.512	1.000
Maximum	5.000	15.000	6.000	24.000	4.000	1.000	1.000	4.673	1.000
Minimum	0.000	-1.000	-3.000	5.000	1.000	0.000	0.000	2.996	0.000
Std. Dev.	1.082	3.400	1.369	5.005	0.899	0.491	0.392	0.310	0.470
Skewness	-0.749	1.867	5.450	0.600	-0.549	-0.408	-1.595	0.460	-0.725
Kurtosis	3.541	6.051	35.506	3.192	1.927	1.167	3.544	3.573	1.526
Jarque-Bera	26.975	247.124	12489.120	15.710	25.052	42.795	111.285	12.484	45.450
Probability	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.002	0.000
Observations	255	255	255	255	255	255	255	255	255

sample (small and medium). On average, sales growth was positive at 1.059, and its value ranged from -300 to 600% .

We note that the primary variable of the research, dispositional optimism, is considered high among entrepreneurs in the study sample, as it is on average 17.49. This finding is consistent with most studies in this field, which show that the level of optimism is high among entrepreneurs.

We also note that the average $Ln(\text{age})$ ranges from 2,996 to 4,673, which indicates that the sample is heterogeneous in terms of the age of the entrepreneurs. The average experience of entrepreneurs in the sample is approximately 0.812. Since this variable is a dichotomous variable, this indicates that most of the entrepreneurs in the sample have experience in their domain of activities. The gender variable, measured as a dichotomous variable, has an average value of 0.670, meaning that the sample is almost two-thirds male.

We analyzed the correlations and tested the possibility of significant correlations between the various variables of the study. In general, we noticed a correlation between most of the independent study variables and the three measures of entrepreneurial success.

Results

This study mainly explores the relationship between dispositional optimism bias and entrepreneurial success. Due to the nature of the studied phenomenon and its difficulty, three measures are used, and the relationship between the studied phenomenon and the independent variables is tested through OLS estimation. In Table 2, the first column shows the results of the estimation of the study model when the level of entrepreneurs' satisfaction with what was achieved from their entrepreneurial expe-

Table 2 Correlation matrix

	SATI	SALG	EMP	DISP	EDU	FEDUC	EXPER	AGE	GENDER
SATI	1								
SALG	0.2173	1							
	0.0005								
EMP	0.3477	0.2928	1						
	0.0000	0.0000							
DISP	0.7187	0.2659	0.2221	1					
	0.0000	0.0000	0.0004						
EDU	0.2323	0.1548	0.2770	0.2039	1				
	0.0002	0.0134	0.0000	0.0011					
FEDUC	0.4092	0.1820	0.1727	0.4647	0.5088	1			
	0.0000	0.0035	0.0057	0.0000	0.0000				
EXPER	0.2102	0.1530	0.2109	0.0975	-0.0059	0.1597	1		
	0.0007	0.0144	0.0007	0.1206	0.9250	0.0106			
AGE	-0.0298	0.2574	0.2100	0.0477	-0.0168	-0.0066	0.0355	1	
	0.6353	0.0000	0.0007	0.4486	0.7897	0.9171	0.5729		
GENDER	-0.1495	-0.1750	-0.0949	-0.1055	-0.0263	-0.0409	-0.0467	-0.3042	1
	0.0169	0.0051	0.1309	0.0927	0.6763	0.5158	0.4577	0.0000	

rience was used. The results reveal that the first hypothesis can be accepted: this hypothesis predicts a positive relationship between entrepreneurial success and the level of dispositional optimism among entrepreneurs. $\beta_1=0.144$ and is statistically significant at the one-percent level. Our results are consistent with those of Lindblom et al. (2020).

It seems that this bias has a positive effect on entrepreneurial success, especially if we look at the second and third columns of Table 3. We notice that even when the measurement of entrepreneurial success changes, this variable has a positive impact on entrepreneurial success. Specifically, we find that $\beta_1=0.118$ and is statistically significant at the one-percent level when we use the change in the number of employees to measure entrepreneurial success. The effect of dispositional optimism remains positive and significant at the level of 1% when we use sales growth as a measure of entrepreneurial success, where the value of $\beta_1=0.450$.

Because studies on the effect of dispositional optimism on entrepreneurial success are scarce, additional studies need to be conducted on how this bias affects entrepreneurial success and how it can indirectly influence other factors that directly affect entrepreneurial success.

The results also show, as expected, that the experience of entrepreneurs is one of the most important factors affecting their success. We notice that the effect of this factor was positive and significant at the 1% level. This effect is consistent with changing measurements of entrepreneurial success.

Specifically, the coefficient $\beta_4=0.383$ when using the entrepreneurial satisfaction level as a proxy of entrepreneurial success, and p value=3.229. $\beta_4=1.756$ and p value=3.469 when using the change in the number of employees as a measure of entrepreneurial success. Finally, the third column of the third table shows that $\beta_4=3.316$ and p value=2.036 when we use sales growth as an additional measure of entrepreneurial success.

Table 3 OLS estimation results

	Succ1(Satis)	Succ2(Empol)	Succ3(Salesg)
<i>C</i>	1.952 (2.988)***	-11.815 (-4.245)***	-36.071 (-4.031)***
<i>DISP</i>	0.144 (13.939)***	0.118 (2.674)***	0.450 (3.173)***
<i>EDU</i>	0.091 (1.534)	1.098 (4.340)***	1.326 (1.630)
<i>FEDUC</i>	0.073 (0.603)	-0.602 (-1.166)	0.162 (0.097)
<i>EXPER</i>	0.383 (3.229)***	1.756 (3.469)***	3.316 (2.036)**
<i>AGE</i>	-0.330 (-2.141)**	2.168 (3.294)***	7.687 (3.632)***
<i>GENDER</i>	-0.225 (-2.199)**	-0.019 (-0.045)	-1.749 (-1.248)
R-squared	0.558	0.188	0.163
Adjusted R-squared	0.547	0.168	0.142
F-statistic	52.256	9.603	8.056
Prob(F-statistic)	0.000	0.000	0.000
Durbin-Watson stat	1.763	2.23	2.101

Table 4 Estimations with/without control variables

	Success1 (Satis)			Success2 (Empol)			Success3 (Sales growth)		
	Without control variables	Control: age	Control: gender	Without control variables	Control: age	Control: gender	Without control variables	Control: age	Control: gender
<i>C</i>	0.455 (1.783)*	1.247 (2.173)**	0.704 (2.369)**	-4.341 (-3.945)***	-11.877 (-4.907)***	-3.636 (-2.836)***	-12.200 (-3.409)***	-41.553 (-5.323)***	-7.075 (-1.709)*
<i>DISP</i>	0.145 (13.965)***	0.146 (14.067)***	0.143 (13.786)***	0.126 (2.830)***	0.118 (2.639)***	0.122 (2.713)***	0.498 (3.415)***	0.465 (3.286)***	0.464 (3.198)***
<i>EDU</i>	0.094 (1.574)	0.093 (1.563)	0.093 (1.555)	1.089 (4.224)***	1.098 (4.350)***	1.085 (4.209)***	1.311 (1.560)	1.344 (1.651)*	1.282 (1.539)
<i>FEDUC</i>	0.075 (0.614)	0.070 (0.573)	0.079 (0.648)	-0.651 (-1.237)	-0.602 (-1.168)	-0.640 (-1.217)	-0.054 (-0.031)	0.137 (0.082)	0.025 (0.014)
<i>EXPER</i>	0.385 (3.213)***	0.391 (3.27)***	0.377 (3.157)***	1.817 (3.524)***	1.757 (3.479)***	1.796 (3.480)***	3.613 (2.149)**	3.378 (2.073)**	3.455 (2.072)**
<i>AGE</i>		-0.228 (-1.540)			2.177 (3.475)***			8.481 (4.196)***	
GENDER			-0.159 (-1.829)*			-0.450 (-1.063)			-3.278 (-2.395)**
R-squared	0.545	0.549	0.550	0.149	0.188	0.153	0.098	0.157	0.118
Adjusted R-squared	0.538	0.540	0.541	0.135	0.172	0.136	0.083	0.140	0.100
F-statistic	74.998	60.802	60.914	10.950	11.591	8.996	6.812	9.334	6.700
Prob(F-statistic)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Durbin-Watson stat	1.675	1.669	1.747	2.148	2.228	2.177	1.977	2.118	1.958

Our results are consistent with most of the findings of previous studies. This proves that experience is one of the most influential factors on entrepreneurial success, as predicted by human capital theory.

Regarding the impact of the entrepreneur's age on the success of his or her entrepreneurial project, we generally find that this variable has a statistically significant effect on entrepreneurial success. We find that the indication of this effect is especially positive when we use the change in the number of employees and sales growth as measures of entrepreneurial success. $\beta_5 = 2.168$ and $P \text{ value} = 3.294$, which means that the age of entrepreneurs positively affects their success, and this effect is statistically significant at the one-percent level. This result is consistent in the third model, where $\beta_5 = 7.687$ and $p \text{ value} = 3.632$, which means that age has a strong and positive effect on entrepreneurial success. An increase in age is usually accompanied by an increase in the experience of entrepreneurs, which reflects positively on the possibility of success.

On the other hand, we find a negative relationship between the age of the entrepreneur and his or her entrepreneurial success. When we used the entrepreneur's level of satisfaction with what was achieved by sending his project, we found that $\beta_5 = -0.330$ and $p \text{ value} = -2.141$. This is evidence at the five-percent level of a negative effect of age on entrepreneurial success. This result can be attributed to the nature of the proxy used to measure entrepreneurial success.

Contrary to what was previously assumed, it appears that female entrepreneurs are more likely to succeed than males. Specifically, when we used the satisfaction level of entrepreneurs as a proxy for entrepreneurial success, we found that $\beta_6 = -0.225$ and $p \text{ value} = -2.199$. This means that the negative effect of male entrepreneurs on entrepreneurial success is statistically significant at the five-percent level.

When we use the change in the number of employees as a measure of entrepreneurial success, $\beta_6 = -0.019$ and $p \text{ value} = -0.045$, which means that there is a negative effect of gender, but this difference is not statistically significant. We find the same result when using sales growth as a measure of entrepreneurial success, as there is a negative relationship between gender and success, but this relationship is not statistically significant.

Concerning the educational level of entrepreneurs, it appears that this factor has a positive effect, but this effect is not statistically significant. The same result was found for financial education. In general, it appears that financial education has a positive effect, but this effect is not statistically significant. The exception is the model in which the change in the number of employees was used to measure entrepreneurial success, as it has a negative effect but is also not statistically significant.

These results support those reached by Almobaireek et al. (2016) in the Saudi context. In fact, the authors found that the education level of entrepreneurs has a positive impact on entrepreneurial success but that this effect is not statistically significant. They argue that the relationship between the level of education of an entrepreneur and the probability of entrepreneurial success is more tenuous in emerging markets.

To ensure the robustness of the results, especially for the effect of dispositional optimism, which is the main variable in this study, we re-estimated the research model and used the following variables. First, we extracted the results by using only dispositional optimism, education, financial education, and experience. Second, we

introduced the age variable along with the first four variables. Finally, we used the gender of the entrepreneurs with the first four variables.

In summary, we found that most of the results that we obtained previously remained stable. Table 4 clearly shows that dispositional optimism, regardless of the composition of the independent variables and the method of measuring the dependent variable, has the same positive effect and is statistically significant at the one-percent level.

The effect of experience on entrepreneurial success also remained constant, and the same was true for age and gender. Finally, the positive effect of the educational level of the entrepreneurs on entrepreneurial success became more evident. We found that in some models, its positive impact became statistically significant (when using the change in the number of employees as a measure of entrepreneurial success).

Conclusion and implications

This study focuses on identifying the main factors affecting entrepreneurial success in the Kingdom of Saudi Arabia. It is also primarily directed at examining how dispositional optimism bias can affect entrepreneurial success. The choice of this bias is primarily due to the massive growth of literature in psychology about its influence on individuals and their decisions. We also test the impact of education, financial education, the experience of entrepreneurs, and their age and gender on their success.

Due to the difficulty of measuring entrepreneurial success, three different proxies are used: the level of entrepreneurs' satisfaction with what has been achieved from their entrepreneurial project, the change in the number of employees between the current year and the start year, and sales growth.

Based on what has been proven about the role of dispositional optimism in entrepreneurial success, entrepreneurs must be aware of the ability of psychological factors to succeed or fail in their entrepreneurial endeavors. Decision-makers should provide psychological and follow-up support to entrepreneurs just as they provide support for financial aspects or administrative facilities.

On the other hand, we find that entrepreneurs with experience in their projects' activity are better able to achieve entrepreneurial success. This result is consistent even after changing the measurement of the dependent variable and changing the control variables. Based on this result, we recommend supporting entrepreneurs by increasing their experience in their field of activity. Solutions may include training courses as well as raising entrepreneurs' awareness of the need to gain experience before launching their projects to ensure their success.

This research is important because it highlights the role of psychological aspects in entrepreneurship, especially concerning entrepreneurial success. However, research should be extended in this respect, especially to address the possibility of an indirect effect of dispositional optimism on entrepreneurial success. Future studies may also focus on examining the effect of dispositional optimism on opportunity recognition and other vital issues in entrepreneurship to further clarify the relationship between this bias and entrepreneurial success.

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Data availability Data is available on request from the authors.

Declarations

Competing interests The authors declare no conflict of interest.

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