



The influence of personality traits on sustainability-oriented entrepreneurial intentions: the moderating role of servant leadership

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Abstract

Economic, environmental, and social imperatives make sustainability-oriented entrepreneurship an indispensable phenomenon of the day, yet only sparse research exists uncovering the sustainability-oriented entrepreneurial intentions in Asian countries. This study attempts to close the gap by considering the “big five” individual personality traits—neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness—to investigate individuals’ sustainability-oriented entrepreneurial intentions in a developing Asian country, specifically Pakistan. Moreover, the study tests the moderating effects of servant leadership to know whether servant leadership impacts the relationship between personality traits and sustainability-oriented entrepreneurial intentions. Relying on quantitative methods, data were collected from employees of SMEs in the capital territory of Pakistan. The valid responses from 450 individuals were analyzed using SPSS version 23 and PROCESS V3.2. Our results confirm that those five factors significantly impact sustainability-oriented entrepreneurial intentions, and servant leadership moderates the relationships of intention with extraversion, agreeableness, and neuroticism. The study equips academicians, practitioners, and governments to devise strategies to promote sustainable entrepreneurship.

Keywords Personality traits · Sustainability-oriented entrepreneurship · Intentions · Pakistan

1 Introduction

Today, the world has become a global village, a phenomenon that has globalized the economy through multinational and transnational businesses. In this worldwide economy, entrepreneurial intentions are an important and rapidly evolving research field because intention significantly contributes to entrepreneurial formation, growth, and development, three factors which, according to Belz and Blinder (2017), are critical for a sustainable

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future. Entrepreneurship introduces innovative business ideas to the world that ultimately contribute to the social, economic, and environmental aspects that lead to sustainable development. According to Jasma et al. (2011), sustainable development is critical as it not only helps in meeting the needs of the present but also conserves the naturally available resources for future generations to satisfy their needs. Sustainable development is possible when entrepreneurs have sustainability-oriented intentions. Sustainability-oriented entrepreneurial intentions include efforts toward minimizing pollution, resource scarcity, environmental degradation, and social challenges, while at the same time enabling entrepreneurs to maximize their profits. In this way, the specific needs of the present generation are fulfilled without damaging the resources that could be used by future generations to meet their needs. However, despite all the attention, imperfections always exist in a market, which creates several opportunities for entrepreneurs connected with sustainable development.

Joint ventures and entrepreneurship are driving forces for generating employment, innovation, and massive advancements in technology, economic, and social sustainability (Hathaway and Litan 2014; Galindo and Méndez 2014). As in developed countries, entrepreneurship activities have gained interest in Asian countries because they foster economic development (Singer et al. 2015). The proportion of people (18–64 years old) involved in entrepreneurship activities in Asia Pacific countries steadily increased from 2014 to 2017. For instance, China, Indonesia, India, and Australia raised their activities by approximately 8.2, 0.5, 9.0, and 2.5%, respectively (GEM 2014–2017). These countries have put extra focus on entrepreneurial-related programs to respond to the increasing demands of society (Arokiasamy 2012; Lee et al. 2005; O'Connor 2013).

Pakistan's economy has a manifold structure with three main sectors: industry, agriculture, and services. For FY2020, the sectorial contribution of agriculture, industry, and service sectors in the country's GDP is 19.31, 19.29, and 61.40%, respectively (Pakistan Economic Review). According to Khan (2020), "there are almost 3.3 million small and medium enterprises in Pakistan. These include manufacturing units, service providers, and start-ups operating on various levels. SMEs employ 78% of the non-agricultural labor force, contributing 25% in manufacturing exports and over 30% of the GDP in Pakistan."

Recently, the Government of Pakistan has initiated the Billion Trees Tsunami Afforestation Project (BTTAP) to address the issues caused by deforestation, grassland degradation, and desertification. BTTAP is considered an important step toward promoting sustainable land use and forest restoration. According to Khan et al. (2019), the overall social impact of BTTAP was beneficial and satisfactory, enhancing social sustainability by 69% between 2014 and 2018. Furthermore, it was found that BTTAP has positively influenced the economic condition of people. A second important action was taken by the Pakistani government in 2019: banning plastic bags and requiring the use of degradable shopping bags for daily use. These new steps show that the Pakistani government is establishing serious initiatives toward the sustainable development of the total system. It is both timely and necessary to investigate the most important determinants of sustainable entrepreneurial intentions to meet complex challenges of economy, environment, and institutions (Krueger et al. 2000; Engle et al. 2010; Pihie and Bagheri 2011; Shabbir 2014).

A significant amount of research has been devoted to the topic of entrepreneurial intentions. For example, several scholars have argued that entrepreneurial intentions can be generated through entrepreneurial education due to its positive outcomes: intentions toward self-employment and self-efficacy, among others (Wang and Verzat 2011; Hattab 2014). Elali and Al-Yacoub (2016) promoted the concept that social networks and personality-related factors such as risk tolerance, perception of self-efficacy, and need for achievement

strongly influence entrepreneurial intentions. Sesen (2013) argued that individual personality characteristics, such as locus of control, self-efficacy, and environmental social networks, have significant impacts on entrepreneurial intentions. Previous studies confirmed that the entrepreneurial process takes place when people are motivated and exploit opportunities (Osiyevskyy and Dewald 2015). These results are rooted in the idea that entrepreneurial action is intentional, resulting in motivation and cognition (Frese 2009; Kautonen et al. 2013).

Many scholars in the sociological domain have also defined intentions as cognitive states which precede decisions to act (Ajzen 1991; Krueger 2005). If it is a cognitive process, then there should be a relationship between the big five personality traits and entrepreneurial intentions, but this is seldom discussed in the literature (Şahin et al. 2019; Kautonen et al. 2013). There are limited theories to explain the entire personality and its motivations, but trait theory argues that the big five fundamentals (neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness) describe an individual's personality (Epstein 1994). These personality traits stimulate an individual's internal thought processes and self-initiative, which can contribute to the community in the form of leadership (Oh et al. 2011; Wang et al. 2012). Due to self-initiatives and cognitive factors, personality traits are considered the major contributors to sustainability-oriented entrepreneurial intentions (Vuorio et al. 2018; Arru 2019). Therefore, the current study examines the relationship between the big five model factors and sustainability-oriented entrepreneurial intentions in Pakistan.

The big five model factors may have a stronger influence on sustainability-oriented entrepreneurial intentions if they are aligned with the leadership style. Because the moral responsibility of a potential social entrepreneur is not only to achieve their own success but also the success of other persons as well as stakeholders (Ehrhart 2004), servant leadership is a quality of commitment for the stakeholders' interest; such leadership role-models for stakeholder-oriented values (Abugre and Nyuur 2015). To support this conception, Reid et al. (2018) found the intersection between servant leadership and entrepreneurship. A spirit of servanthood from a servant leader (Liden et al. 2008) could be instilled into a person's interaction with and services to customers; therefore, it enhances the trust of potential entrepreneurs. The interactive effect of the big five model and servant leadership may make the personality factors a fascinating target for sustainability-oriented entrepreneurial intentions. Furthermore, servant leadership stresses the development of those who are being simultaneously led and served (Stone et al. 2004). Apart from having the direct followers be dependent on their leaders for decisions and direction, servant leaders empower direct followers to be independent decision makers (Liden et al. 2008); these behaviors of servant leaders stem from their personal values and are amplified by their personality traits (Sun and Shang 2019). Therefore, this study investigates servant leadership's role as a moderating mechanism to understand the interactive role of servant leadership and personality traits to form sustainable entrepreneurial intentions.

Our study has threefold contributions: the first and foremost contribution is that the application of trait theory we can recognize the role of the big five factors for sustainability-oriented entrepreneurial intentions. In contrast, prior studies just reported the bridge between different personality characteristics (locus of control and risk factor) and entrepreneurial intentions (Gupta and Bhawe 2007; Zhao et al. 2010; Espíritu-Olmos and Sastre-Castillo 2015). The present study enables insights about sustainable entrepreneurial intentions to minimize the difficulties of community in light of trait theory. Secondly, this investigation explores servant leadership as a moderation mechanism between the big five model and sustainability-oriented entrepreneurial intentions. Previously, studies used

servant leadership only to analyze the successful implementation of values for employees as well as customers (Wu et al. 2013; Luu 2019). Finally, this is the first model to be tested in the small and medium enterprise sector of Pakistan. We consider the entrepreneurs in this sector, who are responsible for evaluation, discovery, and exploitation of opportunities to create value, and who are running small and medium companies in Pakistan, creating value through new processes. In this way, our unique approach emphasizes the call for original entrepreneurial thought related to sustainable entrepreneurship.

2 Literature review and hypothesis development

2.1 Sustainability-oriented entrepreneurial intentions

Recently, the increasing interest of entrepreneurship researchers about the positive influence of entrepreneurial actions beyond economic gains has gained momentum. The rise of sustainable and social entrepreneurship signifies scholarly interest in comprehending the noneconomic outcomes associated with entrepreneurial actions (Thompson et al. 2011). In comparison, social entrepreneurship identifies socially relevant issues and opportunities and how altruistic motivation and intentions affect the utilization of such opportunities. These can apply to both for-profit and nonprofit organizations, but the primary cause of organizations that are led by social entrepreneurs is helping people (i.e., a social mission). On the other hand, sustainable entrepreneurship analyzes opportunities related to a socially, economically, and environmentally sustainable society (Binder and Belz 2015; Thompson et al. 2011).

Sustainability stresses “meeting the needs of the present without compromising the ability of future generations to meet their needs” (Gladwin et al. 1995). Researchers have found three primary pillars of sustainability: economic aspects, environmental aspects, and social aspects (Lozano 2008; Dalal-Clayton and Bass 2002). These pillars are also expressed as profits (economic), planet (environmental), and people (social). The focus of sustainable entrepreneurship is not merely gaining economic prosperity, but also stimulating environmental progress and fostering social equity simultaneously (Kuckertz and Wagner 2010). The new dimension of entrepreneurial endeavors and intentions endorses the culture of “living with the future in mind.” Such start-ups and ventures with sustainability orientations will lead to a better place for current and future generations. Summing up, the entrepreneurial intentions that will drive the preferences for economic, environmental, and social value creation are called sustainability-oriented entrepreneurial intentions (Vuorio et al. 2018).

Sustainability, a great concern in the current era, states that the existing generation should not benefit at the cost of creating issues for future generations. Sustainable entrepreneurship is an emerging stream in entrepreneurship research (Lawal et al. 2016), and therefore, understanding and fostering sustainable entrepreneurial intentions is key for societal development (Muñoz and Dimov 2015; Vuorio et al. 2018). Sustainability-oriented entrepreneurs exploit resources and opportunities to contribute to the social, economic, and pro-environmental causes of any society (Belz and Binder 2017; Yitshaki and Kropp 2016). Today, entrepreneurial initiatives are the national focus of many governments (Mamun et al. 2018) because sustainable entrepreneurship stimulates innovation, increases productivity, creates employment opportunities, and promotes economic well-being (Farukh et al. 2018; Galindo and Méndez 2014; Park 2017). Thus, it is imperative to know

the factors behind sustainability-based entrepreneurial intentions in the Asian context. This study holds that there are behavioral- and personality-based aspects that lead individuals to promote intentions toward sustainability and entrepreneurship.

2.2 The big five model of personality

The current study attempts to gain more theoretical and practical insights on how individuals' personality profiles affect sustainability-oriented entrepreneurial intentions. The term "personality" indicates the long-lasting patterns and traits that help individuals to develop consistent thinking and feeling, which leads to behaving in specific ways (Allport 1937). Such idiosyncratic dispositions of long-term and enduring characteristics, along with the interactions and reactions of individuals, shape one's personality (Hogan 1991). The personality characteristics are not easily changeable; rather, they are stable and long-enduring. Various studies have investigated personality traits and their impact on entrepreneurial endeavors (Kumar and Bhattacharyya 2020; Sahin et al. 2019), but this study provides a fresh perspective on how personality traits relate to sustainability-oriented entrepreneurial intentions. The study of a multiplicity of various traits and personality profiles led to the emergence of the Big Five Model (BFM), a model aimed to comprehensively cover the major traits (Goldberg 1990).

The BFM of personality (Costa and McCrae 1992, 1989) proposes that individuals have unique inner orientations toward developing sustainability-oriented entrepreneurial intentions. The uniqueness lies in one's personality traits, which are mental structures that shape the personality. Several researchers (e.g., Espiritu-Olmos and Sastre-Castillo 2015; Leutner et al. 2014; Munir et al. 2019; Mustafa et al. 2016) have researched personality and entrepreneurial intentions, but little heed has been paid to associate personality traits with sustainability-oriented entrepreneurial intentions. In this regard, this study will enrich the scholarly understanding of the role of personality factors in creating sustainability-oriented entrepreneurship. The five BFM factors are discussed in the following sections.

2.2.1 Extraversion

The big five personality theory includes a trait, extraversion, which tells how much a person is outgoing and sociable in adopting or changing sustainable behavior. Extraverted people are open, enthusiastic, willing to be in a central role, and engaged in social activities (McCracken and Roth 1989). In the words of Noguchi et al. (2006), the extraverts are more influenced by positive information than negative information. They are likely to be motivated to sustainable entrepreneurial intentions.

The extraversion feature contributes significantly to positive evaluation and attitudes that can be adopted as entrepreneurs perceive their abilities when they devote themselves to complicated tasks such as start-ups and entrepreneurship. Similarly, self-affirmation, energy, a high level of activity, and optimism are features associated with entrepreneurial intentions (Baron 1999; Locke 2000). Moreover, the extraverts are aggressive and attracted to affiliated environments, which can be valuable features for potential entrepreneurs who need to develop a network of external advisors (Chandler and Jansen 1992; Judge and Cable 1997). Past studies (e.g., Ariani 2013; Liang et al. 2015) confirmed that the higher the degree of extraversion, the higher the entrepreneurial intentions. This study believes

that the extraversion trait will lead to sustainability-oriented entrepreneurial intentions and hence proposes that:

H1 Extraversion positively affects sustainability-oriented entrepreneurial intentions.

2.2.2 Agreeableness

Another BFM personality trait, *agreeableness*, relates to trustworthiness, morality, altruism, and decency (McCracken and Roth 1989). People with the agreeableness quality trust others, indicating altruistic spirits that yearn to help others. This trait represents a high degree of willingness to be sympathetic and modest in nature. Barrick et al. (2003) reported that people with high agreeableness tend to be more interested in their career in society and are more likely to work in professions such as social work and teaching, rather than business, because those careers often provide interpersonal interactions that they can use for the benefit of others. Agreeableness predicts positive entrepreneurial intentions and has a positive relationship with opportunities for social entrepreneurship and sustainability (İrengün and Arıkboğa 2015; Wang et al. 2016). Therefore, individuals, having a high level of agreeableness, demonstrate concern not only for themselves but also have sympathy for those with sustainable-oriented entrepreneurial intentions.

H2 Agreeableness positively affects sustainability-oriented entrepreneurial intentions.

2.2.3 Openness to experience

Openness to experience means being willing to experience new things, ideas, and innovation. Persons with higher scores on openness are more progressive, more adaptive to changes, and have a higher level of analytical abilities (McCracken and Roth 1989). Individuals with openness are open-minded people who are curious and willing to entertain original ideas and exotic values (Costa and McCrae 1992). Conversely, persons with low openness tend to be closed-off and will resist new ideas and changes. One defining characteristic of an entrepreneur is creativity and an inclination to innovate or, in the spirit of Schumpeter's (1942/1976) famous phrase, participate in "creative destruction." In the popular imagination, entrepreneurs are considered heroes with a creative perspective, even in the face of resistance from general thinkers (Locke 2000). The openness will lead such persons to foster novel and innovative adoption rather than having a small range of options (Wang et al. 2016; Zhao and Seibert 2006). The current study posits that individuals with a high level of openness will tend to develop sustainability-oriented entrepreneurial intentions. Therefore, it is posited:

H3 Openness to experience positively affects sustainability-oriented entrepreneurial intentions.

2.2.4 Conscientiousness

The five-factor model specifies *conscientiousness* as one's personality trait of being careful and diligent. Conscientiousness is a dimension of personality that describes the level of an individual's achievement, motivation at work, organization and planning, self-control of traditional norms, acceptance, virtue, and responsibility to others (Costa and

McCrae 1992). Such people are ordered, informed, and efficient in analyzing innovations (McCracken and Roth 1989). Markman and Baron (2003) recommended that perseverance is required by entrepreneurial work, while others have highlighted the importance of motivation, perseverance, and hard work. Similarly, work goals, orientation, and perseverance in the face of frightening difficulties to achieve one's intentions are closely related to popular imagination regarding entrepreneurship (Locke 2000).

Individuals with conscientiousness use solid information and then determine a rational course of action. Zhao and Seibert (2006) clarified that individuals with a high level of conscientiousness are active in planning and organizing their tasks, showing responsibility and determination. Such people ambitiously adopt sustainability-oriented entrepreneurial intentions, while those with low conscientiousness do not care about such principles in their tasks and intentions (Ariani 2013). Following the above logic, we propose the following hypothesis.

H4 Individuals' conscientiousness positively affects sustainability-oriented entrepreneurial intentions.

2.2.5 Neuroticism

McCracken and Roth (1989) defined *neuroticism* as the trait connected with anxiety, anger, and frustration. Individuals with this trait fare poorly in response to various stressors, and they consider many situations as threatening, so they are usually prone to be nervous and tense in the adoption of new things. Persons with neurotic symptoms are not expected to have the self-confidence or attitude toward innovation (Thompson 2008). Their general tendency is to be afraid of sadness, anger, guilt, shame, and disgust; anxiety is normal for people with high scores in neuroticism. Such people are more sensitive to negative feedback and tend to become discouraged by small failures. Entrepreneurs bear a great deal of personal responsibility for the success or failure of their new business. Previous research has shown that people with highly neurotic symptoms are excluded from an innovative culture and depend on others (Ariani 2013).

High levels of neuroticism tend to make people experience negative mental states, like depression, guilt, sadness, and hostility, while the emotionally stable (those having low levels of neuroticism) are cool and calm and therefore face new ventures without being stressed. That is, individuals with low neuroticism have high intentions toward sustainable entrepreneurship (Brandstätter 2011; Zhao et al. 2010). Keeping the past literature in view, this study puts forward the hypothesis:

H5 Neuroticism negatively affects sustainability-oriented entrepreneurial intentions.

2.3 Moderating role of servant leadership

Rapid shifts in a business environment bring challenges and issues. Leaders consistently try to find solutions to deal with dynamic changes using certain necessary skills they possess. An appropriate leadership type, like Servant Leadership, is required to motivate and serve the needs of followers. "The servant-leader is servant first. It begins with the natural feeling that one wants to serve. Then conscious choice brings one to aspire to lead. The best test is: do those served grow as persons; do they, while being served, become healthier, wiser, freer, more autonomous, more likely themselves to

become servants?" (Greenleaf 1970, p.15). If one is servant, one is continuously listening, searching and expecting for betterment. They are helpful and pay attention to visionary voices (Greenleaf 2002). Servant leadership has been part of a discussion in the literature for the past thirty years. Most importantly, leadership based on traits has gained importance in the eyes of researchers and practitioners (Zaccaro 2007). Servant leaders are high in extraversion that supports new ideas and innovation (Dennis et al. 2010). Moreover, the extravert trait of servant leaders impacts their overall performance positively while doing the complex and novel tasks required on their entrepreneurship journey. Servant leaders motivate and guide others to visualize their future. Such leaders must maintain a good relationship with followers, which requires a high degree of extraversion (Krekeler 2010). Servant leaders do not just focus on their own success; they are greatly concerned about other stakeholders as well (Ehrhart 2004; Greenleaf 2002). They take responsibility, are committed, and play a model role in protecting the interest of stakeholders (Abugre and Nyuur 2015; Greenleaf 2002).

A servant leader acts as a moderator to enhance or polish the social skills of individuals for the development of an entrepreneurial effort. Reid et al. (2018) also identified the moderating characteristics of servant leadership in the context of entrepreneurship. The positive attitude of servant leadership means considering all factors together and thinking about others from society (Stone et al. 2004); this attitude is helpful for potential entrepreneurs. Therefore, the essence of this leadership style—vision, empowerment, and trust inculcated in the personality of individuals—enhances the entrepreneurial goals (Liden et al. 2008). The importance of this research also revolves around the interactive effect of servant leadership between personality traits that support sustainability-oriented entrepreneurial intentions.

Furthermore, servant leadership stresses the development of those who are being simultaneously led and served (Stone et al. 2004). Rather than having the direct followers be dependent on their leaders for decisions and direction, servant leaders empower direct followers to be independent decision makers (Liden et al. 2008; Greenleaf 2002); these behaviors of servant leaders stem from their personal values and are amplified by their personality traits (Sun and Shang 2019).

Although entrepreneurs need to be energetic, enthusiastic, talkative, active, and dominant (Kerr et al. 2018), they must not be over-dominant, as being so will destroy their social interactions and thereby give a negative impression of their serving abilities (Hunter et al. 2013). However, a high extraversion score could help entrepreneurs sell their ideas of sustainable development to partners, to investors, and in social interactions. Entrepreneurs with low extraversion scores cannot impact a large portion of their surroundings, so they end up having small businesses and are less sociable. Therefore, for sustainability-oriented entrepreneurial intentions, one has to have a significant extraversion trait to develop social interactions and convert intentions into reality.

Sustainability-oriented entrepreneurs desire to serve regardless of self-interest, which makes them servants of the community because they care for others and do not desire power; this combination of traits leads them to a conscious choice of leadership style. Their motivation for serving toward a sustainable future resembles servant leadership, and their behaviors and personality characteristics observably differ from others. Jordán et al. (2018) highlighted in their review article that servant leaders ensure that others are well-served and their priority needs are met. Sun and Shang (2019) discussed various characteristics of servant leadership, focusing on the personality traits and personal values of servant leaders. It was also suggested by Reid et al. (2018) that servant leadership might be a unique

intersection between employees' personality traits and their sustainability-related entrepreneurial intentions. These ideas can be encapsulated as follows.

H6 Servant leadership plays a moderating role between extraversion and sustainability-oriented entrepreneurial intentions.

According to Washington et al. (2006), servant leadership has the attribute of agreeableness from the Big Five Traits of personality. Agreeableness and openness supplement servant leadership and enable servant leaders to be more sustainability-oriented entrepreneurs (Sun and Shang 2019). Servant leaders are motivated to see followers grow and develop, which is possible when there is a natural inclination of a leader toward developing positive relationships. This, in turn, shows that the tendency and trait of agreeableness exist in the leader. Servant leaders with high agreeableness scores have greater potential for applying greater efforts and energy in a working relationship (Hunter et al. 2013). Moreover, agreeableness is an important personality characteristic of entrepreneurs who have intentions toward sustainable development (Sun and Shang 2019). Thus, this paper investigates how servant leadership interacts with the combination of agreeableness and sustainability-oriented entrepreneurial intentions. From the above literature, it is hypothesized that:

H7 Servant leadership plays a moderating role between agreeableness and sustainability-oriented entrepreneurial intentions.

Sun and Shang (2019) also focused on the trait of openness and suggested that openness is very relevant because the creativity of a leader comes into play. Openness enables servant leaders to find their way through complex work issues, especially when the issues may impact social interactions. Openness is one of the critical personality traits of entrepreneurs because it enhances their perception of sustainable development behaviors, which brings out the creativity of their inner servant leader according to the situation (Kerr et al. 2018). If an entrepreneur has low openness, there will be difficulties in effectively engaging with complex matters to structure innovative experiences, and therefore, perceiving sustainable development ideas will not be effective (Sun and Shang 2019). Hence, the openness and sustainability-oriented intentions cannot be comprehensively modeled without investigating the role of servant leadership that emphasizes empowerment with a clear vision. Therefore, this study recommends examining the moderation effect of servant leadership style and how this leads to better achievement of sustainable entrepreneurial intentions. From the above literature, it is hypothesized that:

H8 Servant leadership plays a moderating role between openness and sustainability-oriented entrepreneurial intentions.

Serving others with sustainable development intentions requires that the leader be hardworking, organized, responsible, and caring, which means that conscientiousness has a major role in sustainability-oriented entrepreneurial intentions. Mahto and McDowell (2018) highlighted that a high conscientiousness is integral to entrepreneurs as they are more achievement-oriented, and they have the ability to take responsibility and act accordingly (Kerr et al. 2018). Being conscientious means that servant leaders are diligent in what they do, having goal-oriented behavior. This also implies that they have the power to hold others accountable because they themselves are very good at their work. Conscientiousness

further interrelates dependability and motivation for achievement. Both self-confidence and level of innovation have been found to be antecedents of entrepreneurial intentions (Butkouskaya et al. 2020; Kirkwood 2009). Viinikainen et al. (2017) substantiated that entrepreneurs with high conscientiousness scores can survive longer in the market. Therefore, the following hypothesis is developed.

H9 Servant leadership plays a moderating role between conscientiousness and sustainability-oriented entrepreneurial intentions.

Servant leaders always feel for others. Entrepreneurs who have intentions for sustainable development have emotions and feel for others and therefore are less neurotic. Neuroticism is negatively associated with all other personality traits for an entrepreneur (Hamilton et al. 2019) because it conflicts with emotional stability and, at times, can potentially initiate negative emotionality, which hinders successful entrepreneurship. Servant Leadership promotes empowerment that is inversely related to neuroticism. Leaders cannot empower employees who feel insecure. Hamilton et al. (2019) determined that a high neuroticism score means that the individual is more prone to chronic illnesses like depression and anxiety, which ultimately give rise to instability and gaps in the person's work history. Servant leadership has the characteristics of focusing on others and motivating them (Krekeler 2010; Greenleaf 2002), which implies such leadership is negatively associated with neuroticism and ultimately impacts sustainability-oriented entrepreneurial intentions. Therefore, neuroticism is less suitable for sustainability-oriented entrepreneurial intentions. Hence, the following hypothesis is developed:

H10 Servant leadership plays a moderating role between neuroticism and sustainability-oriented entrepreneurial intentions. Figure 1 represents the conceptual model of the study.

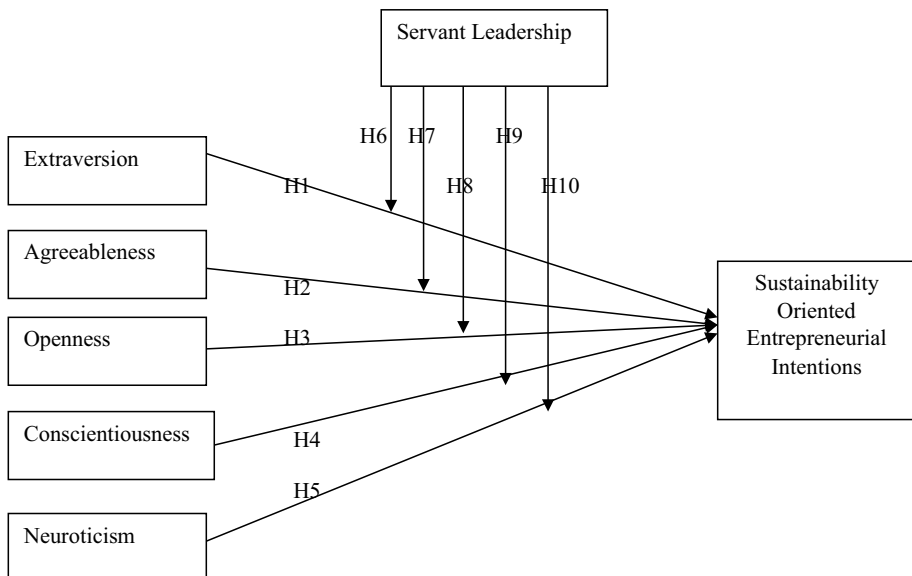


Fig. 1 Conceptual model

3 Methodology

3.1 Participants

The data were collected from the employees of small- and medium-sized enterprises of Pakistan. This provides a dataset that has many implications for the future of sustainable entrepreneurship, implications that have not yet been investigated. Moreover, SMEs are heavily engaged with the BTTAP project in Pakistan. For the data collection, 530 questionnaires were distributed, and 450 questionnaires were returned, which is 84.90% of the total distributed. The respondents were 70.7% male and 29.3% female. The age range of the respondents was 18–27 years of age. Among the respondents, 59.3% had the master level as their highest academic qualification, and 22.5% had the bachelor level.

3.2 Measurements

Data regarding servant leadership were collected using the Liden et al. (2015) servant leadership measurement scale. The items measure all the components of servant leadership. The scale was well-constructed through the guidance provided by Smith et al. (2000) on error-free development. A sample item was “My manager emphasizes the importance of giving back to the community.” Responses were recorded based on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Meanwhile, entrepreneurial sustainability intentions were measured using items from Liñán and Chen (2009) and Vuorio et al. (2018), each using a five-point Likert scale of 1 (Not at all) to 5 (my main concern). A limited number of scales are available for entrepreneurial sustainability intentions; this paper is adapted Liñán and Chen (2009) and Vuorio et al. (2018) entrepreneurial intention scale. The scale measures the intentions of entrepreneurs regarding the suitability of the environment (natural resources, biodiversity, and energy type) and society (poverty reduction, employment, and increasing equality), focusing on social betterment instead of economic gain. The items were initially developed based on Sustainable Development Goals (SDG) determined by UNDP. A sample item was to indicate how much the respondents cared about “Environmental impact (e.g., use of natural resources, protecting biodiversity, and energy type) that the venture could have.”

Finally, John and Srivastava (1999) items for the Big Five trait taxonomy were adopted to collect data about personality traits. The scale covers all five personality traits: extraversion, agreeableness, conscientiousness, neuroticism, and openness. This scale suits the current study well; it is frequently adopted and highly recommended by numerous researchers (Rammstedt and John 2007; DeYoung et al. 2007). The scale is considered valid, reliable, and amongst the suitable options for the current research purpose.

4 Results

4.1 Descriptive analysis

Data analysis was carried out using IBM SPSS V.23. Reliability analysis was conducted for each variable. The results show that all the instruments’ overall reliability was in the acceptable range, with the reliability of the big five personality traits at $\alpha=0.81$, servant leadership at $\alpha=0.71$, and entrepreneurial intentions at $\alpha=0.78$. We conclude that the

instrument is fit for use in the context of Pakistan. Table 1 further highlights the means, standard deviations, and correlations, showing that all personality traits are positively related to entrepreneurial sustainability intentions. The highest correlations are between extraversion and sustainability intentions (0.407), followed by agreeableness and sustainability intentions (0.389).

To address the issue of common method variance (CMV), Harman's single factor test was conducted to check how much a single factor accounts for variance in the data (Chang et al. 2010). The results show that a single factor accounts for at most 19% of the variance, which suggests that CMV is not an issue in this study.

Table 2 shows that personality traits significantly affect sustainability-oriented entrepreneurial intentions. Extraversion, agreeableness, openness, and conscientiousness have a positive effect ($\beta=0.297, 0.234, 0.140, 0.243$, respectively), and the entrepreneurial sustainability intentions have t -value < 1.64 at $\alpha=0.05$ and p -value < 0.05 . Moreover, neuroticism shows no significant correlation to entrepreneurial sustainability intentions. The value of R^2 (0.232) indicates a substantial predictive accuracy of the model (Cohen 1988). Table 2 further indicates that extraversion, agreeableness, and conscientiousness contribute more to entrepreneurial intentions than do neuroticism and openness. Therefore, the results support H1, H2, H3, and H4, while H5 is not supported.

Table 3 indicates that servant leadership moderates the relationship of extraversion, agreeableness, neuroticism, and entrepreneurial intentions as interactions 1, 2, and 3

Table 1 Mean, standard deviation, and correlations

	Mean	Std. dev	1	2	3	4	5	6	7
ExT_VER	4.1419	.59056	1						
AGREE_AB	4.0620	.57759	.586**	1					
CONC	4.1553	.51350	.510**	.407**	1				
NEURN	4.1185	.50614	.327**	.323**	.470**	1			
OPENSS	4.1149	.54827	.352**	.374**	.441**	.420**	1		
SERLed	4.1019	.59756	.476**	.484**	.327**	.321**	.324**	1	
ENTIN	4.0463	.73239	.407**	.389**	.285**	.280**	.321**	.459**	1

**Correlation is significant at the 0.01 level (2-tailed). ExT_VER, Extraversion; AGREE_AB, Agreeableness; CONC, Conscientiousness; NEU, Neuroticism; OPENS, Openness; SERLed, Servant leadership; ENTIN, Entrepreneurial Intentions

Table 2 Direct hypotheses result

Variables	β	R^2	S.E	t value	Sig
Constant	.754	.232	.308	2.448	.015
ExT_VER	.297		.068	4.388	.000
AGREE_AB	.234		.067	3.504	.001
OPENS	.140		.062	2.242	.025
CONC	.243		.061	2.708	.015
NEU	-.175		.059	-1.365	.083

ExT_VER, Extraversion; AGREE_AB, Agreeableness; CONC, Conscientiousness; NEU, Neuroticism; OPENS, Openness

Table 3 Servant leadership moderation between personality traits and entrepreneurial sustainability intentions

Variables	<i>B</i>	<i>R</i> ²	<i>R</i> ² Change	S.E	<i>t</i> value	LLCI	ULCI
Constant	4.071	.278	.011	.031	130.870	4.010	4.132
ExT_VER	.219			.065	3.387	.091	.347
SERLed	.380			.058	6.508	.265	.495
Interaction 1	-.150			.056	-2.659	-.261	-.039
Constant	4.062	.252	.030	.031	129.506	4.00	4.124
AGREE_AB	.232			.065	3.603	.105	.360
SERLed	.406			.060	6.824	.390	.523
Interaction 2	-.195			.056	-3.710	-.405	-.103
Constant	4.093	.273	.043	.031	132.113	4.032	4.154
NEURN	.103			.065	1.576	-.025	.232
SERLed	.485			.052	9.256	.382	.588
Interaction 3	-.486			.095	-5.138	-.672	-.300
Constant	4.062	.223		.032	127.775	3.100	4.124
CONC	.096			.057	1.706	-.015	.207
SERLed	.520			.054	9.677	.414	.625
Interaction 4	-.134			.085	-1.570	-.302	.034
Constant	4.060	.239		.032	126.755	3.996	4.122
OPENS	.200			.058	3.454	.086	.314
SERLed	.493			.053	9.235	.388	.598
Interaction 5	-.122			.101	-1.200	-.321	.078

EXT_VER, Extraversion; AGREE_AB, Agreeableness; CONC, Conscientiousness; NEU, Neuroticism; OPENS, Openness, interaction 1 (Extraversion * Servant leadership), Interaction 2 (Agreeableness*Servant leadership), Interaction 3 (Neuroticism* Servant leadership), Interaction 4 (Conscientiousness *Servant leadership), Interaction 5 (Openness *Servant leadership)

have *t*-value > 1.64 at $\alpha=0.05$. No moderation effect was found between conscientiousness, openness, and entrepreneurial intentions because interactions 4 and 5 have *t*-value < 1.64 at $\alpha=0.05$. The results further show that 1%, 3%, and 4% change occurred in *R*² due to servant leadership moderation among the relationships of extraversion and entrepreneurial intentions, agreeableness and entrepreneurial intentions, and neuroticism and entrepreneurial intentions, respectively.

Moreover, to explain the nature and form of the significant interactions among the personality traits and servant leadership, the authors conducted simple slope analyses using one standard deviation above and below the mean of servant leadership (Aiken and West 1991). The simple slope helps comprehension of the nature of the relationship between independent variables (personality traits) and dependent variables (sustainability-oriented entrepreneurial intentions) across the range of moderating variables (servant leadership). It provides information about the specific nature of the interaction (Cohen et al. 2003), explaining how the moderating variable increases or decreases the direct effect of the independent variable on the dependent variable (Figs. 2, 3, 4). The results support H6, H7, and H10, but they do not support H8 and H9.

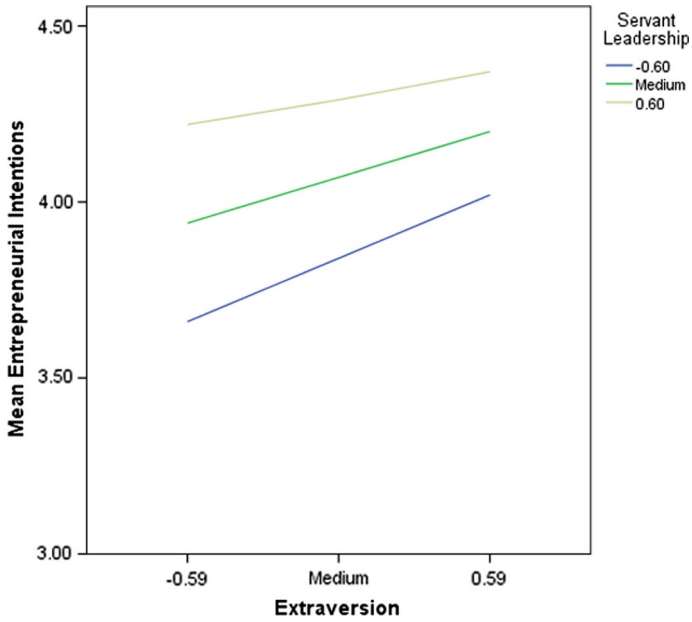


Fig. 2 Servant leadership moderation between extraversion and sustainability-oriented intentions

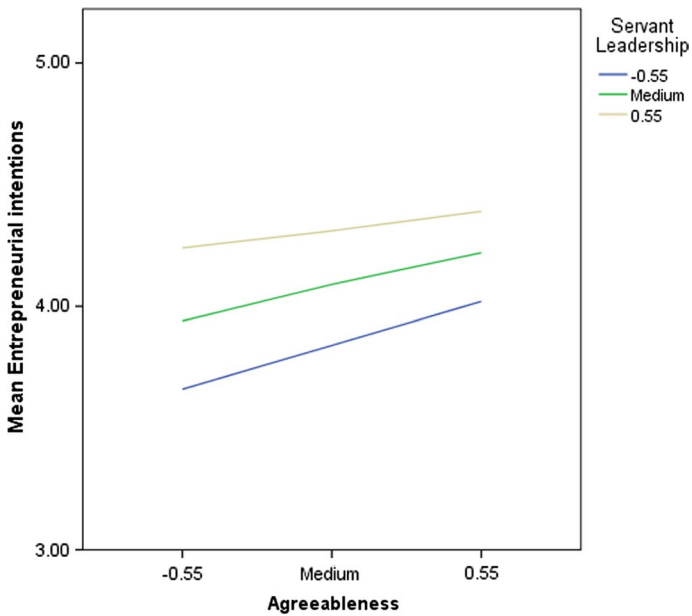


Fig. 3 Servant leadership moderation between agreeableness and sustainability-oriented intentions

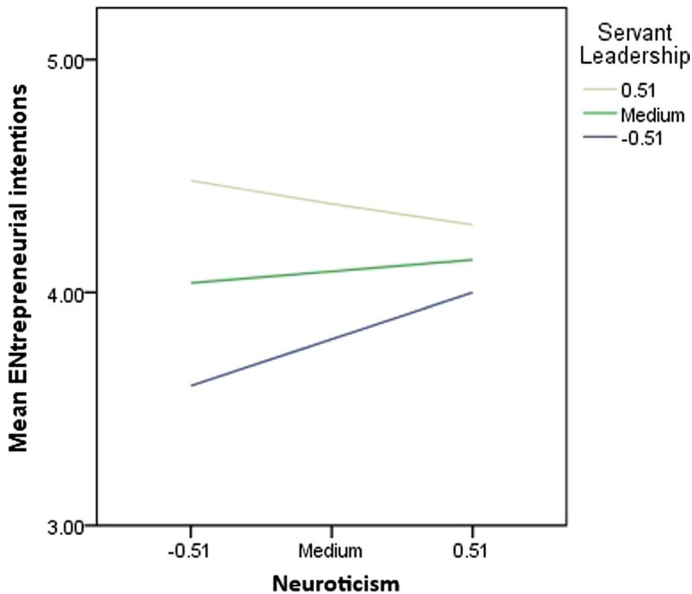


Fig. 4 Servant leadership moderation between neuroticism and sustainability-oriented intentions

5 Discussion

This paper adopts the position that personality traits play a significant role in molding the individual's perceptions and intentions regarding sustainable entrepreneurship, and they are instrumental in driving a social mission. Our analysis shows that extraversion, agreeableness, and conscientiousness contribute more to constructing entrepreneurial sustainability intentions than neuroticism and openness. The discussion of each finding is articulated separately below in order to provide a thorough explanation.

Considering the personality traits, the results indicate that extraversion contributes more than any other trait to creating sustainable intentions. It is evident that sustainable entrepreneurship is different from commercial entrepreneurship, as the former focuses on social and ecological gains along with economic benefits. According to Crant (1996), extraverted individuals possess a proactive personality and are more active and energetic (Saucier 1994) to establish a trustworthy and mutual relationship with stakeholders. Perrini et al. (2010) also suggested that the first phase of opportunity identification is fostered by the entrepreneur's sensitivity toward a social problem. Individuals with higher extraversion are more open to social and cultural aspects, and they are more interested in engaging in activities related to social obligation. Recently, Kazmi et al. (2019) found that, in Pakistan, moral obligation shows a significant positive relationship with attitude, social norms, and self-efficacy, which further leads to sustainable entrepreneurship intention.

Agreeableness is another personality trait contributing to entrepreneurial sustainability intentions. This study's results contradict the finding of Kets de Vries (1985) and Zhao

and Seibert (2006), who claimed that a high level of agreeableness could be unexpectedly destructive for both the entrepreneur and the organization. They called it the dark side of agreeableness. The Kets de Vries (1985) and Zhao and Seibert (2006) claims were based on the context of commercial entrepreneurship having the sole purpose of profit maximization; hence, the entrepreneurs want to control the business, which makes it difficult for others to work with them. In contrast, sustainable entrepreneurship is based on the notion of the triple bottom line of economic, social, and ecological gains (Binder and Belz 2015). In line with the current study, Nga and Shamuganathan (2010) found that agreeableness is positively related to social entrepreneurship intentions in the Malaysian context. Moreover, Pakistan has a collectivist culture based on social consensus while upholding mutual understanding and trust; doing so results in more empathy and promotes harmony. Therefore, agreeableness results in positive, sustainable intentions in the Pakistani context.

Conscientiousness is the personality trait with the second-highest relationship (after extraversion) to sustainable intentions. In terms of entrepreneurial intentions, conscientiousness has been considered a global trait positively correlated with intentions and performance (Antoncic et al. 2015; Brandstätter 2011; Voda and Florea 2019; Zhao et al. 2010). Our study found that individuals with a higher need for achievement, goal-orientation, planning, and organization of tasks are identified with higher sustainable intentions. Individuals with a high level of conscientiousness or need for achievement show a strong desire to solve different problems; they are enthusiastic, happy to receive feedback, and constantly improve their performance (Voda and Florea 2019). Some authors have stated that conscientiousness is culturally dependent, and it might differ across different countries and cultures, based on particular conditions (Tajeddini et al. 2009; Korunka et al. 2003). The current study found conscientiousness to be the second-most important personality trait after extraversion. The reason could be that the individual's level of motivation and need for achievement may be affected by government policies and regulations. Despite the collectivist culture, the entrepreneurship development environment has not prevailed in Pakistan due to poor government policies and regulations, exemplified by the lack of entrepreneurship education, lack of small- and medium-sized enterprises (SMEs), and lack of government support by providing short- and long-term loans (Shafique et al. 2018). As a result, entrepreneurial conscientiousness or need for achievement only moderately contributed to the entrepreneurial sustainable intentions in the Pakistani context.

Neuroticism is the opposite of emotional stability. Individuals who are highly neurotic frequently show self-consciousness, mood swings, impulsiveness, depression, and low self-esteem. The current study shows no effect of neuroticism on sustainable intentions, while some previous studies indicated a negative relationship between neuroticism and entrepreneurial intentions (Nga and Shamuganathan 2010; Zhao and Seibert 2006). However, our results are in line with several other studies that found no significant effect of neuroticism on entrepreneurial intentions (Antoncic et al. 2015; Şahin et al. 2019). It may be the case that an individual's higher degree of extraversion, agreeableness, and conscientiousness acts like a coping strategy to minimize stress and conflict and deal with low self-esteem. The measures of the traits are usually based on descriptions of how people think, feel, and act in a variety of situations, but these reports are conceived of as indicators of real internal causes (interacting with the external causes) of a person's experiences and actions (Brandstätter 2011).

Openness exerts an affinity toward novelty and intellectual curiosity. The current study indicates that openness is an important personality trait which moderately contributes to sustainable entrepreneurial intentions. Openness shows the risk-taking and imaginative aspects of an individual's personality (Nga and Shamuganathan 2010). It

is a common perception among researchers that openness is an important trait (Antoncic et al. 2015; Brandstätter 2011; Şahin et al. 2019; Voda and Florea 2019), but in the Pakistani context, it contributed less to entrepreneurial intentions than other personality traits ($\beta = 0.14$). The reason may be that, in Pakistan, horizontal inequality and hostility is very high because of sectarian-, ethnic-, regional-, religious-, and gender-based differences. Another reason may be the insurgency in certain parts of the country and the high interference of state actors in the common people's lives (Shafique et al. 2018). These factors affect the creativity and risk-taking behavior of individuals because uncertainty and unstable economic conditions discourage people from taking risks and starting new businesses. To conclude, personality traits play a significant role in shaping entrepreneurial sustainability intentions in the Pakistani context. The most important personality trait based on contribution to intentions is extraversion, followed by conscientiousness, then agreeableness and openness.

To study the importance of leadership, this study utilized a servant leadership style as a moderating variable. The results reveal that servant leadership significantly moderates the relationships of extraversion, agreeableness, neuroticism to entrepreneurial sustainability intentions, but no moderation effect was found between conscientiousness and entrepreneurial sustainability intentions, and between openness and sustainability intentions. These results address the call by Reid et al. (2018) to see if the role of servant leadership in the entrepreneurship context might provide unique insights for those interested in entrepreneurship research. The results also provide opportunities for leadership scholars to expand their knowledge related to servant leadership. According to social cognitive theory, these personality traits affect motivational intentions based on working behavior, which is helpful for servant leaders interested in analyzing direct reports on growth and development (Barrick et al. 2003; Hunter et al. 2013; Sun and Shang, 2019). Our research verifies that for servant leadership, the primary motivation should be the urge to serve (De Juan Jordan et al. 2018).

Scholars have argued that servant leaders engage in servant behaviors because of their identity as servants, and such an identity is an important aspect of their self-concept (Anderson 2009; Sun 2013). Most of the definitions and attributes of servant leadership are personality traits such as empathy (Anderson 2009; Barbuto and Wheeler 2006; Sun 2013), calling and self-esteem (Sun 2013), and agreeableness and openness (Sun and Shang 2019). Moreover, the negative moderation effects (Table 3) identify that when entrepreneurial servant leadership characteristics become stronger, the change decreases the individual effect of each personality trait on entrepreneurial intentions. When servant leadership is not practiced by an entrepreneur, individual personality traits play their key role in entrepreneurial sustainability intentions. The reason could be that the main distinction of sustainability entrepreneurship is to not sacrifice our future for our today, a belief based on the notion of social and environmental concern. Therefore, entrepreneurial servant leadership focuses on the betterment of others' lives and the solving of environmental problems.

To conclude, this study revealed that entrepreneurial servant leadership characteristics play a more significant role in sustainability-oriented intentions compared to the big five personality traits. The reason, we believe, is that most of the big five personality traits are exhibited by servant leaders (along with many other personality traits), and the motivation to serve others makes servant leadership more critical for sustainability intentions.

6 Implications

6.1 Practical implications

According to the Vision 2025 Planning and Development Commission of Pakistan (2015), Pakistan is one of the most populated countries in the world, with a projected population of 227 million by 2025. Astonishingly, 63% of the total population is less than 30 years of age (World Bank 2018; Planning Commission of Pakistan 2015), which offers a huge opportunity for development through utilizing this young human capital to address the challenges of the local and global markets. This study's result reveals that among the "big five" personality traits, extraversion followed by conscientiousness has the greatest effects on sustainability intentions. Thus, sustainability-oriented education and awareness programs are the keys to promoting sustainable entrepreneurship. The education curriculum of higher education institutions needs to be upgraded to encourage constructive debate to promote a better understanding of sustainable orientation. Government and educational institutions should encourage the students' future roles within an ecosystem comprising environment, society, and businesses. This will ultimately provide grounds for more social inclusion (extraversion) and critical thinking (conscientiousness) as well as the quality of agreeableness toward constructive endeavors.

The economic structure of Pakistan is mostly based on the agriculture sector. The main reason is that 64% of the population lives in rural areas, and their major source of income is agriculture-related occupations and industries (Labour Force Survey 2013). Therefore, agreeableness through social and economic consensus between NGOs, the Education Ministry, and the private sector may develop healthy admiration for different stakeholder views, which should lead to a more dynamic, holistic, and safe business development culture in the agriculture sector (Nga and Shamuganathan 2010). More importantly, Pakistan's law-and-order situation, unstable political conditions, corruption, and unrealistic business conditions result in low foreign direct investment (Shafique et al. 2018), which ultimately affects the openness of individuals to take risks and think critically. Therefore, it is the responsibility of the government to provide safe havens for individuals to think critically in order to analyze and exploit different entrepreneurship opportunities.

6.2 Theoretical implications

This research provides a theoretical contribution by examining how servant leadership shapes sustainability-oriented entrepreneurial intention while also allowing leadership scholars to extend their understanding regarding leadership and entrepreneurship. First, the study is rich in providing new theoretical grounds to use the personality model in sustainability-oriented entrepreneurship. Such a model can be used as a reference for future studies. Secondly, this study argues that servant leadership plays a more significant role in shaping entrepreneurial intentions than individual personality traits. According to Jackson (2019), the mindfulness of servant leadership offers an understanding of a broad perspective of corporate social responsibility and sustainability that reflects higher results of economic life and the role of business leadership in contributing to fundamental human development. The utilization of servant leadership in sustainable entrepreneurship research is fruitful because the primary motivation behind servant leadership is to serve others, while sustainable entrepreneurship is also concerned with environmental and social gains.

Therefore, our research highlights that an individual's servant leadership style and sustainability entrepreneurship goals are complementary, in the sense that both reflect concern about social ventures.

7 Research limitations and future research directions

Though the contributions of this work are numerous, limitations remain that restrict the generalizability of its findings. First, the researchers have used the context of Pakistan, which may limit generalizing the results to other developed or developing countries. Practitioners must be cautious in applying the results, keeping in view the contextual limitations. The cross-sectional design of the data collection also limits the results and suggests a longitudinal approach be used in further studies. This study only discussed the servant leadership style; new research may consider other leadership styles such as transformational leadership, distributed leadership, and ethical leadership. Sustainable entrepreneurship is a new field of research, so there is still much room to study other variables in the sustainable entrepreneurship context. Our model, possibly modified with other variables, could also be used to investigate other contexts and cultural backgrounds.

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