

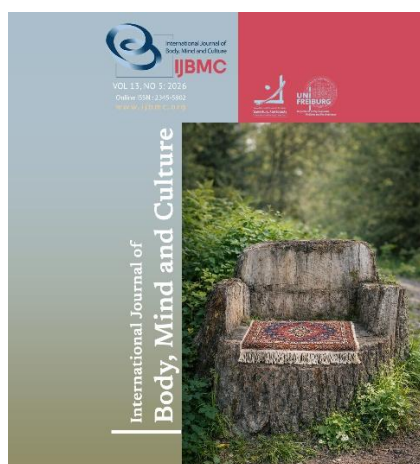
Article type:
Original Research

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Comparing Big Five Personality Traits in Iranian Entrepreneurs and Non-Entrepreneurs

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Article history:

Received 12 Feb 2026
Revised 15 Mar 2026
Accepted 03 Apr 2026
Published online 01 May 2026

How to cite this article:

Ebrahimi, F., Moghadasin, M., Afrooz, G., & Vakili, S. (2026). Comparing Big Five Personality Traits in Iranian Entrepreneurs and Non-Entrepreneurs. *International Journal of Body, Mind and Culture*, 13(5), Article e2026-824. <https://doi.org/10.61838/ijbmc.v13i5.824>



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ABSTRACT

Objective: Drawing on person–environment fit theory, research shows that entrepreneurs differ systematically from other adults in broad personality traits. However, little is known about these patterns in Iran.

Methods and Materials: In this cross-sectional comparative study, 285 Iranian adults (entrepreneurs and non-entrepreneurs) completed the NEO Personality Inventory–Revised (NEO-PI-R), which assesses the Big Five domains and 30 personality facets. Group differences were examined using univariate and multivariate analyses of variance.

Findings: At the domain level, entrepreneurs scored significantly lower on Neuroticism than non-entrepreneurs, indicating greater emotional stability. Mean scores were higher for Extraversion, Openness to Experience and Conscientiousness, and slightly lower for Agreeableness, although these domain-level differences did not consistently reach statistical significance. Facet-level analyses revealed a more differentiated entrepreneurial profile: entrepreneurs reported lower anxiety, self-consciousness and vulnerability to stress, and higher warmth, assertiveness, activity and positive emotions. They also scored higher on values within Openness and on achievement striving and perceived competence within Conscientiousness, and somewhat lower on modesty within Agreeableness. These findings broadly align with international meta-analyses showing an entrepreneurial pattern of O+, C+, E+, N– and A–, while highlighting culturally embedded nuances in the Iranian context.

Conclusion: The results portray entrepreneurial personality in Iran as emotionally stable, socially agentic, value-driven and achievement-oriented, with distinctive configurations at the level of specific facets. Mapping these traits can inform talent identification, entrepreneurship education and targeted psychological support for prospective and active entrepreneurs in emerging economies.

Keywords: Big Five Personality Traits, Entrepreneurial Personality, Iranian Entrepreneurs, Personality Facets.

Introduction

In today's rapidly changing world, economies face accelerating technological shifts, evolving consumer needs, and intensifying competition. In this context, entrepreneurship is widely recognized as a key engine for innovation, job creation, and social adaptation—especially in environments marked by uncertainty and constrained resources. In Iran, recent Global Entrepreneurship Monitor (GEM) indicators portray a distinctly mixed landscape: high awareness of entrepreneurship and relatively high self-perceived capability coexist with comparatively low perceived local opportunity, alongside relatively low fear of failure among those who do perceive opportunities (Monitor, 2016). At the global level, GEM's latest report also highlights rising fear of failure in many economies, underlining the importance of support systems and capability-building in entrepreneurial ecosystems (Monitor, 2016).

A central concept in entrepreneurship is “opportunity,” often discussed as the identification and exploitation of ideas that can create value under uncertainty. A foundational view defines the field around the nexus of entrepreneurial individuals and opportunities, emphasizing that entrepreneurship is not only about markets or resources but also about how people recognize, evaluate, and act on possibilities (Shane & Venkataraman, 2001). This lens places human agency at the heart of venture creation: individuals vary in what they notice, what they interpret as feasible, and how they mobilize resources to transform an idea into a viable venture (Shane & Venkataraman, 2001).

Historically, however, research has debated whether entrepreneurship should be explained by “who entrepreneurs are” or by “what entrepreneurs do.” Gartner's influential critique argued that asking “Who is an entrepreneur?” risks oversimplification and that entrepreneurship research can advance by focusing on behaviors and processes of organization creation rather than searching for a single entrepreneurial “type” (Gartner et al., 1994). This critique helped legitimize process-based approaches. Yet, over time, personality research returned—more carefully and cumulatively—supported by stronger measurement models and meta-analytic evidence that traits relate meaningfully to

entrepreneurial entry and outcomes (Bandera & Passerini, 2020; Zhao & Seibert, 2006).

A major theoretical reason personality remains relevant is person–environment (P–E) fit. P–E fit theory suggests that individuals are more likely to select, remain in, and thrive within environments that match their attributes (e.g., needs, values, and capabilities), and that fit is systematically related to satisfaction and performance outcomes (Kristof-Brown & Guay, 2011). Entrepreneurship, compared with many salaried roles, often involves autonomy, ambiguity, high responsibility, and persistent uncertainty. These conditions may attract individuals whose enduring tendencies align with such demands—and may also shape who persists when pressures intensify (Kristof-Brown & Guay, 2011).

Among personality frameworks, the Five-Factor Model (FFM; “Big Five”) has become the dominant taxonomy for organizing broad individual differences because it provides a parsimonious structure with strong empirical support and wide comparability across studies. The Big Five dimensions—Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness—capture relatively stable patterns of emotion, motivation, cognition, and behavior (McCrae & John, 1992). The FFM is particularly useful in entrepreneurship research because it allows systematic synthesis across diverse samples, methods, and operationalizations of entrepreneurship (McCrae & John, 1992).

Importantly, broad traits can be decomposed into narrower facets that describe more specific tendencies and may reveal meaningful profiles not visible at the domain level. The Revised NEO Personality Inventory (NEO PI-R) operationalizes this hierarchical logic by assessing five domains and 30 facets through a comprehensive item set, enabling detailed trait mapping beyond the five global scores (Costa & McCrae, 1992). This facet-level approach is especially relevant for entrepreneurship because different entrepreneurial tasks—such as networking, persuasion, opportunity recognition, and execution—may connect more strongly to specific facets (e.g., assertiveness, achievement striving) than to broad domains alone (Costa & McCrae, 1992).

A substantial body of evidence has examined how the Big Five relate to entrepreneurial status and outcomes. One influential meta-analysis comparing entrepreneurs

with managers reported a consistent pattern: entrepreneurs tend to score higher on Openness to Experience and Conscientiousness and lower on Neuroticism and Agreeableness (Zhao & Seibert, 2006). Beyond entrepreneurial “status,” another meta-analytic review found that personality is related to both entrepreneurial intentions and entrepreneurial performance, supporting the idea that traits matter at multiple stages of the entrepreneurial process rather than only at entry (Zhao et al., 2010). Complementing these findings, a broader meta-analysis focusing on business owners’ traits reported that personality variables show meaningful associations with business creation and success, with stronger effects when traits are conceptually matched to entrepreneurial tasks (Rauch & Frese, 2007).

Each Big Five dimension can be linked to central entrepreneurial demands. Openness may facilitate opportunity recognition through curiosity, cognitive flexibility, and receptiveness to novelty. Conscientiousness may support disciplined execution, planning, and persistence—critical when ventures require sustained effort under delayed rewards. Extraversion can be advantageous for networking, sales, leadership, and initiating collaborations. Lower Neuroticism (higher emotional stability) may help entrepreneurs tolerate ambiguity, regulate stress, and recover from setbacks. Finally, lower Agreeableness has sometimes been interpreted as greater willingness to negotiate firmly and challenge conventions, although extremes may undermine trust and relationship quality. Contemporary reviews emphasize that these are probabilistic pathways influenced by context, venture stage, and environmental constraints (Bandera & Passerini, 2020; Frese & Gielnik, 2014).

Despite the accumulation of international evidence, entrepreneurship remains culturally and institutionally embedded. National ecosystem conditions, perceived barriers, and social norms can shape who enters entrepreneurship and what psychological attributes become most adaptive. In Iran, GEM’s 2023 profile highlights simultaneously low perceived opportunity and high perceived capability, suggesting a distinctive motivational and perceptual environment in which entrepreneurial action may depend heavily on how individuals appraise risk, uncertainty, and feasibility (Monitor, 2016). This pattern strengthens the case for

locally grounded personality research rather than assuming that effect sizes and profiles observed elsewhere will transfer unchanged (Monitor, 1999).

Accordingly, the present study seeks to develop a more comprehensive picture of entrepreneurial personality in Iran by comparing entrepreneurs and non-entrepreneurs using both the five Big Five domains and the 30 NEO PI-R facets (Costa & McCrae, 1992). Building on P–E fit logic (Kristof-Brown & Guay, 2011), and meta-analytic evidence (Rauch & Frese, 2007; Zhao & Seibert, 2006; Zhao et al., 2010), the study expects entrepreneurs to exhibit greater emotional stability (lower Neuroticism) and a more agentic and achievement-oriented profile (often reflected in Extraversion- and Conscientiousness-related facets). By providing domain- and facet-level evidence in an Iranian sample, the findings aim to inform entrepreneurship education, talent development, and targeted psychological support for prospective and active entrepreneurs in emerging-economy contexts.

Methods and Materials

Study Design

This study used a cross-sectional, comparative design to examine differences in Big Five personality traits between Iranian entrepreneurs and non-entrepreneurs. Data were collected as part of a broader project on psychological and cognitive correlates of entrepreneurship; the present article focuses on the personality component of that project.

Participants and Sampling

Participants were recruited using a combination of purposive and convenience sampling. The target population comprised: Entrepreneurs introduced by the Ministry of Labor, university-based accelerators, and start-up incubators; Entrepreneurs attending relevant national or regional entrepreneurship conferences and events; Non-entrepreneur adults, including university students and community volunteers with no current business ownership or founding experience. Individuals were invited to take part if they were at least 20 years old, able to read and complete questionnaires in Persian, and willing to participate voluntarily. Those who agreed completed a battery of self-report measures and cognitive tasks, either in small group sessions or

individually, under the supervision of trained research assistants.

Of all individuals contacted, only those who completed the full set of required questionnaires were retained in the final sample. Any case with missing responses on even one of the core instruments was excluded from analyses. The final analytic sample consisted of 285 adults, including both entrepreneurs and non-entrepreneurs. Demographic information (age, gender, education level, and marital status) was recorded and summarized separately for each group (see Table 1 in the original manuscript). Participants ranged from early adulthood (20–30 years) to late adulthood (over 60 years) and represented bachelor's, master's, and doctoral levels of education.

Entrepreneurial status was defined as currently owning, founding, or actively leading a business or start-up (including ventures supported by accelerators and university start-up programs). Non-entrepreneurs were individuals without such experience at the time of data collection.

Instruments

Data collection included two broad sets of instruments: (a) personality traits and (b) cognitive-executive function measures. The present article focuses on the personality instruments.

Big Five Personality Traits

NEO Personality Inventory – Revised (NEO-PI-R): Personality was assessed with the long form of the NEO Personality Inventory – Revised (NEO-PI-R), developed by [Costa & McCrae \(1992\)](#). The NEO-PI-R consists of 240 items that measure the Five-Factor Model domains—Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness—and their 30 facet scales (six facets per domain). Each item is rated on a Likert-type response format, and item scores are summed to obtain raw facet and domain scores, which are then interpreted according to the test manual. Domain scores reflect broad tendencies (e.g., overall emotional instability vs. stability), whereas facet scores provide more fine-grained information about specific tendencies within each domain. In this study, both domain- and facet-level scores were used in the analyses.

The Persian version of the NEO-PI-R used in this study is a standardized translation adapted for Iranian samples. The revised form was normed in Iran by [Haghshenas & Bard \(2007\)](#), who reported acceptable

reliability indices, with correlation coefficients for the main scales ranging approximately from .53 to .76. Additional work by [Grossi Farshi \(2001\)](#) has supported the construct validity and overall suitability of the instrument for assessing personality traits in Iranian populations. In the present project, the NEO-PI-R was administered in paper-and-pencil format. Participants were instructed to respond honestly and spontaneously and were assured that there were no “right” or “wrong” answers. Questionnaires were checked for completeness at the time of collection; any protocol with missing responses was excluded from further analysis, as noted above.

Cognitive and Executive Function Measures (broader project)

In addition to personality assessment, participants completed a set of tests designed to evaluate cognitive traits, particularly executive functions (e.g., working memory, cognitive flexibility, and inhibitory control). These measures were used in the wider project to examine joint contributions of personality and cognitive functioning to entrepreneurial status and performance. Because the present article concentrates on Big Five personality differences, detailed descriptions and results for the cognitive tasks are not reported here, but they were included in the multivariate comparisons of entrepreneurs and non-entrepreneurs in the original study.

Procedure

Entrepreneurs were identified through official lists and collaborations with the Ministry of Labor, university technology and innovation centers, and start-up accelerators, as well as through attendance lists from entrepreneurship-related conferences. Non-entrepreneurs were recruited from universities and the general community through announcements and researcher networks. Interested individuals were contacted, screened for inclusion criteria, and scheduled for assessment sessions.

Data collection took place in classrooms, meeting rooms, or offices in universities and partner organizations. At the beginning of each session, participants received an explanation of the study aims, the voluntary nature of participation, and confidentiality procedures. After providing informed agreement to participate, they completed the demographic form, the NEO-PI-R, and the cognitive tests in a standardized order

under the supervision of trained research staff. Short breaks were offered to reduce fatigue.

Data Analysis

Data were analyzed in several stages. First, descriptive statistics (means, standard deviations, and frequency distributions) were computed for demographic variables and all study measures, separately for entrepreneurs and non-entrepreneurs. These descriptive indices are reported in the original manuscript's tables.

To examine the relative contributions of personality components to entrepreneurial status (entrepreneur vs. non-entrepreneur), structural equation modeling (SEM) was employed. SEM analyses used variance-covariance and correlation matrices to estimate latent factors representing the Big Five domains (and, in extended models, selected facets) and their associations with a binary outcome variable indicating entrepreneurial status. Because the dependent variable was dichotomous, conventional linear SEM procedures were not appropriate; instead, models were estimated using Mplus version 8.3, which accommodates categorical outcomes through appropriate link functions (e.g., probit or logit) and robust estimators.

In a second analytic step, group differences between entrepreneurs and non-entrepreneurs in personality traits (and, in the broader project, cognitive measures) were tested using univariate analysis of variance (ANOVA) and multivariate analysis of variance (MANOVA). Separate MANOVAs were conducted for the five domains and for clusters of facet scales, followed by ANOVAs and post hoc comparisons as needed. These analyses were performed in SPSS version 27. Unless otherwise noted, statistical significance was evaluated at an alpha level of .05. Effect sizes (e.g., partial η^2) were interpreted to gauge the practical magnitude of observed group differences, complementing significance tests.

Findings and Results

Demographic characteristics of the two groups (non-entrepreneurs vs. entrepreneurs) were compared using chi-square tests for categorical variables. The groups differed significantly in *gender*, *marital status*, and *education level* (all $p < 0/05$). In addition, an independent-samples *t* test indicated a significant difference between groups in *age* ($t = 4/345$, $p < 0/05$). Detailed distributions and test statistics are presented in [Table 1](#).

Table 1

Demographic Characteristics by Group and Group Comparisons

Characteristic	Category	Non-Entrepreneur n (%)	Entrepreneur n (%)	Test statistic
Gender	Women	64 (92.8)	20 (34.5)	$\chi^2 = 47.779$, $p < 0.05$
	Men	5 (7.2)	38 (65.5)	
Education	Bachelor's	39 (56.5)	18 (31.0)	$\chi^2 = 16.911$, $p < 0.05$
	Master's	24 (34.8)	18 (31.0)	
	Doctorate	6 (8.7)	22 (37.9)	
Marital status	Single	39 (56.5)	17 (29.3)	$\chi^2 = 10.195$, $p < 0.05$
	Married	30 (43.5)	40 (69.0)	
	Divorced	0 (0.0)	1 (1.7)	
Age	—	—	—	$t = 4.345$, $p < 0.05$

Note. Percentages are within each group. Age descriptive statistics (mean,SD) were not provided in the source text; therefore, only the inferential statistic is reported.

[Table 2](#) reports the mean and standard deviation of the five personality traits for each group. Overall, entrepreneurs showed lower mean scores on neuroticism and higher mean scores on extraversion,

openness, and conscientiousness relative to non-entrepreneurs, while agreeableness was slightly higher in the non-entrepreneur group.

Table 2*Means and Standard Deviations of Personality Traits by Group*

Trait	Non-Entrepreneur Mean	Non-Entrepreneur SD	Entrepreneur Mean	Entrepreneur SD
Neuroticism	90.51	25.89	76.95	25.13
Extraversion	103.65	22.57	111.50	24.80
Openness	114.39	16.58	151.10	263.14
Agreeableness	122.48	18.69	118.55	16.37
Conscientiousness	122.52	20.20	125.40	20.49

To examine whether entrepreneurs and non-entrepreneurs differed across the five personality traits, univariate analyses of variance (ANOVAs) were conducted (Table 3). A significant group effect was found for *neuroticism*, indicating that entrepreneurs scored

lower than non-entrepreneurs. The group effect for *extraversion* was marginal. No statistically significant group effects were observed for *openness*, *agreeableness*, or *conscientiousness*.

Table 3*Univariate ANOVA Comparing Groups on Personality Traits*

Dependent Variable	Sum of Squares	df	Mean Square	F	p	η^2
Neuroticism	5793.31	1	5793.31	8.878	0.003	0.066
Extraversion	1940.761	1	1940.761	3.481	0.064	0.027
Openness	42471.036	1	42471.036	1.339	0.249	0.011
Agreeableness	485.839	1	485.839	1.556	0.215	0.012
Conscientiousness	260.431	1	260.431	0.63	0.429	0.005

According to Table 3, the effect of group on neuroticism was significant ($F = 8.878$, $p = 0.003$, $\eta^2 = 0.066$). The effect on extraversion was marginal ($F = 3.481$, $p = 0.064$, $\eta^2 = 0.027$). Group effects for openness, agreeableness, and conscientiousness were not

significant (all $p > 0.05$). Facet-level ANOVAs for neuroticism indicated significant group effects for *self-consciousness* and *vulnerability* (Table 4). Marginal means (and standard errors) for each facet are reported in Table 5.

Table 4*Univariate ANOVA Comparing Groups on Neuroticism Facets*

Dependent Variable	Sum of Squares	df	Mean Square	F	p	η^2
Anxiety	144.1	1	144.1	3.525	0.063	0.027
Aggression	4.924	1	4.924	0.141	0.708	0.001
Depression	136.229	1	136.229	2.818	0.096	0.022
Self-consciousness	118.632	1	118.632	4.12	0.044	0.032
Impulsiveness	1.573	1	1.573	0.046	0.83	0.001
Vulnerability	181.742	1	181.742	5.489	0.021	0.042

Based on Table 4, significant group differences were observed for self-consciousness ($F = 4.12$, $p = 0.044$, $\eta^2 = 0.032$) and vulnerability ($F = 5.489$, $p = 0.021$, $\eta^2 =$

0.042). Other neuroticism facets did not differ significantly between groups (all $p > 0.05$).

Table 5*Estimated Marginal Means and Standard Errors for Neuroticism Facets by Group*

Facet	Group	Mean	SE
Anxiety	Non-Entrepreneur	16.725	0.77
	Entrepreneur	14.586	0.84
Aggression	Non-Entrepreneur	13.188	0.711

Depression	Entrepreneur	12.793	0.775
	Non-Entrepreneur	16.855	0.837
Self-consciousness	Entrepreneur	14.776	0.913
	Non-Entrepreneur	16.406	0.646
Impulsiveness	Entrepreneur	14.466	0.705
	Non-Entrepreneur	13.913	0.701
Vulnerability	Entrepreneur	13.69	0.765
	Non-Entrepreneur	13.246	0.693
	Entrepreneur	10.845	0.756

Based on Table 5, Entrepreneurs showed lower marginal means than non-entrepreneurs for self-consciousness and vulnerability, consistent with the significant effects reported in Table 4. Facet-level

ANOVAs for extraversion revealed significant group effects for *warmth.intimacy*, *assertiveness*, *activity*, and *positive emotions*. Marginal means and standard errors are reported in Table 7.

Table 6

Univariate ANOVA Comparing Groups on Extraversion Facets

Dependent Variable	Sum of Squares	df	Mean Square	F	p	η^2
Warmth.Intimacy	162.608	1	162.608	5.698	0.018	0.044
Gregariousness	96.684	1	96.684	1.972	0.163	0.016
Assertiveness	755.688	1	755.688	16.491	0.001	0.117
Activity	351.708	1	351.708	10.914	0.001	0.08
Excitement Seeking	114.153	1	114.153	3.227	0.075	0.025
Positive Emotions	207.682	1	207.682	4.901	0.029	0.038

According to Table 6, significant group effects were found for *warmth.intimacy* ($F = 5.698$, $p = 0.018$, $\eta^2 = 0.044$), *assertiveness* ($F = 16.491$, $p = 0.001$, $\eta^2 = 0.117$), *activity* ($F = 10.914$, $p = 0.001$, $\eta^2 = 0.08$), and *positive*

emotions ($F = 4.901$, $p = 0.029$, $\eta^2 = 0.038$). *Gregariousness* and *excitement seeking* were not significant ($p > 0.05$).

Table 7

Estimated Marginal Means and Standard Errors for Extraversion Facets by Group

Facet	Group	Mean	SE
Warmth.Intimacy	Non-Entrepreneur	21.159	0.643
	Entrepreneur	23.431	0.701
Gregariousness	Non-Entrepreneur	16.145	0.843
	Entrepreneur	17.897	0.92
Assertiveness	Non-Entrepreneur	15.275	0.815
	Entrepreneur	20.172	0.889
Activity	Non-Entrepreneur	16.797	0.683
	Entrepreneur	20.138	0.745
Excitement Seeking	Non-Entrepreneur	16.217	0.716
	Entrepreneur	18.121	0.781
Positive Emotions	Non-Entrepreneur	18.536	0.784
	Entrepreneur	21.103	0.855

Based on Table 7, entrepreneurs demonstrated higher marginal means than non-entrepreneurs on the facets with significant group effects (*warmth.intimacy*, *assertiveness*, *activity*, and *positive emotions*), aligning

with Table 6. ANOVA results indicated a significant group effect only for the *values* facet (Table 8). Marginal means and standard errors are shown in Table 9.

Table 8*Univariate ANOVA Comparing Groups on Openness Facets*

Dependent Variable	Sum of Squares	df	Mean Square	F	p	η^2
Fantasy	52.793	1	52.793	0.852	0.358	0.007
Aesthetics	1.092	1	1.092	0.036	0.85	0.001
Feelings	3.104	1	3.104	0.095	0.758	0.001
Actions	9.662	1	9.662	0.244	0.622	0.002
Ideas	45.634	1	45.634	0.932	0.336	0.007
Values	70.76	1	70.76	3.997	0.048	0.031

Based on [Table 8](#), A significant group effect was found for values ($F = 3.997$, $p = 0.048$, $\eta^2 = 0.031$). No other

openness facets showed significant differences ($p > 0.05$).

Table 9*Estimated Marginal Means and Standard Errors for Openness Facets by Group*

Facet	Group	Mean	SE
Fantasy	Non-Entrepreneur	17.188	0.947
	Entrepreneur	18.483	1.033
Aesthetics	Non-Entrepreneur	22.928	0.662
	Entrepreneur	22.741	0.722
Feelings	Non-Entrepreneur	19.928	0.687
	Entrepreneur	20.241	0.75
Actions	Non-Entrepreneur	16.101	0.757
	Entrepreneur	16.655	0.826
Ideas	Non-Entrepreneur	21.072	0.842
	Entrepreneur	22.276	0.919
Values	Non-Entrepreneur	19.174	0.507
	Entrepreneur	20.672	0.552

According to [Table 9](#), Entrepreneurs scored higher than non-entrepreneurs on values, consistent with the significant difference in Table 8. The ANOVA results for

agreeableness indicated a marginal group effect only for *modesty*. Marginal means and standard errors are presented in Table 11.

Table 10*Univariate ANOVA Comparing Groups on Agreeableness Facets*

Dependent Variable	Sum of Squares	df	Mean Square	F	p	η^2
Trust	16.96	1	16.96	0.374	0.542	0.003
Straightforwardness	62.719	1	62.719	1.416	0.236	0.011
Altruism	12.975	1	12.975	0.441	0.508	0.004
Compliance	11.023	1	11.023	0.463	0.498	0.004
Modesty	137.904	1	137.904	3.569	0.061	0.028
Empathy (Tender-mindedness)	5.468	1	5.468	0.14	0.709	0.001

Based on [Table 10](#), Modesty showed a marginal group effect ($F = 3.569$, $p = 0.061$, $\eta^2 = 0.028$). No other agreeableness facets were significant ($p > 0.05$).

Table 11*Estimated Marginal Means and Standard Errors for Agreeableness Facets by Group*

Facet	Group	Mean	SE
Trust	Non-Entrepreneur	21.232	0.81
	Entrepreneur	21.966	0.884

Straightforwardness	Non-Entrepreneur	23.652	0.801
	Entrepreneur	22.241	0.874
Altruism	Non-Entrepreneur	24.435	0.653
	Entrepreneur	23.793	0.712
Compliance	Non-Entrepreneur	17.609	0.588
	Entrepreneur	17.017	0.641
Modesty	Non-Entrepreneur	18.333	0.748
	Entrepreneur	16.241	0.816
Empathy	Non-Entrepreneur	21.986	0.753
	Entrepreneur	21.569	0.821

According to Table 11, Entrepreneurs demonstrated lower modesty scores than non-entrepreneurs, consistent with the marginal effect reported in Table 10. For conscientiousness, a significant group effect was

found for *achievement striving*, and a marginal effect was observed for *competence*. Marginal means and standard errors are provided in Table 13.

Table 12

Univariate ANOVA Comparing Groups on Conscientiousness Facets

Dependent Variable	Sum of Squares	df	Mean Square	F	p	η^2
Competence	28.576	1	28.576	3.148	0.078	0.025
Order	21.726	1	21.726	1.234	0.269	0.01
Dutifulness	16.297	1	16.297	1.127	0.29	0.009
Achievement striving	127.026	1	127.026	5.296	0.023	0.041
Self-discipline	41.109	1	41.109	1.251	0.265	0.01
Deliberation	0.431	1	0.431	0.021	0.886	0.001

Based on Table 12, achievement striving differed significantly between groups ($F = 5.296$, $p = 0.023$, $\eta^2 = 0.041$), while competence showed a marginal difference

($F = 3.148$, $p = 0.078$, $\eta^2 = 0.025$). Other conscientiousness facets were not significant ($p > 0.05$).

Table 13

Estimated Marginal Means and Standard Errors for Conscientiousness Facets by Group

Facet	Group	Mean	SE
Competence	Non-Entrepreneur	21.203	0.363
	Entrepreneur	22.155	0.396
Order	Non-Entrepreneur	18.986	0.505
	Entrepreneur	18.155	0.551
Dutifulness	Non-Entrepreneur	24.246	0.458
	Entrepreneur	24.966	0.499
Achievement striving	Non-Entrepreneur	18.768	0.59
	Entrepreneur	20.776	0.643
Self-discipline	Non-Entrepreneur	18.841	0.69
	Entrepreneur	19.983	0.753
Deliberation	Non-Entrepreneur	20.435	0.549
	Entrepreneur	20.552	0.599

Based on Table 13, Entrepreneurs showed higher achievement striving than non-entrepreneurs, consistent with the significant group effect in Table 12.

The competence facet was higher in entrepreneurs as well, consistent with the marginal effect.

Discussion and Conclusion

The descriptive indices indicated that the entrepreneur group was characterized by a higher proportion of men, a higher proportion of individuals with doctoral education, a greater proportion of married participants, and a concentration of age in the 40–50 range. Inferential tests confirmed that the two groups differed significantly in gender, education, marital status, and age. These findings suggest that entrepreneurship in the present sample is associated with a distinct socio-demographic profile that should be considered when interpreting personality differences and when designing entrepreneurship development programs.

The main objective of the study was to examine whether entrepreneurs and non-entrepreneurs differ in the Big Five traits. The results provided clear evidence for a significant group difference in neuroticism, with entrepreneurs scoring lower than non-entrepreneurs. This pattern implies greater emotional stability, lower stress reactivity, and more adaptive affect regulation among entrepreneurs—features that may support functioning in uncertain, high-demand environments. This interpretation is consistent with the argument that entrepreneurs often operate in relatively unstructured settings with high responsibility and blurred work–life boundaries, which can increase psychological and physical stress and therefore require greater resilience and calmness under pressure (Dyer Jr & Handler, 1994; Landström, 2020).

The group effect for extraversion was marginal, yet the direction of the descriptive means suggested higher extraversion among entrepreneurs. The entrepreneurship context typically rewards social initiative, networking, influence, and opportunity-seeking, which aligns with theoretical and empirical perspectives that link extraversion to stronger engagement with one's environment, perceived control, and risk-related behavioral patterns (Bandera & Passerini, 2020; Baron, 2000; Şahin et al., 2019). Importantly, the facet-level results (reported below) clarified that differences were not uniform across all aspects of extraversion.

No statistically significant group differences were observed for openness, agreeableness, or conscientiousness at the broad trait level. This suggests that, in this sample, entrepreneurship status is more

strongly distinguished by emotional stability (lower neuroticism) than by the overall levels of the other broad traits. However, the facet-level findings showed that meaningful differences emerged in specific components.

At the facet level, entrepreneurs scored significantly lower on self-consciousness and vulnerability, while differences in other neuroticism facets were not statistically significant. This pattern is theoretically coherent: self-consciousness reflects heightened sensitivity to evaluation and social threat, and vulnerability reflects difficulty coping under stress. Lower levels of these facets may facilitate entrepreneurial action under uncertainty, where repeated evaluation, setbacks, and resource constraints are common. Prior work suggests that entrepreneurial success often requires sustained attention control, optimism, and reduced maladaptive impulsive responding to stressors (Bellò et al., 2018; Ortiz-Terán et al., 2013). In addition, conscientious, goal-oriented decision styles may reduce impulsive choices and support deliberate problem solving (Munir et al., 2019).

The facet-level analyses showed that entrepreneurs scored significantly higher on warmth, intimacy, assertiveness, activity, and positive emotions. This provides a more precise explanation for the marginal broad-trait finding: entrepreneurs may not differ strongly on global extraversion, but they are more likely to display the particular interpersonal and energetic facets most relevant to venture building—such as assertive influence, sustained activity, and positive affect. Entrepreneurial work frequently emphasizes opportunity focus, growth, personal advancement, and social rewards (Hendry, 2004), and proactive behavior may enable entrepreneurs to anticipate and pursue emerging market opportunities. Positive affect is also widely discussed as a contributor to creativity and flexible problem solving in entrepreneurial contexts (Fuller et al., 2018; Tang et al., 2023; Zheng et al., 2025).

Within openness, only the values facet differed significantly, with entrepreneurs scoring higher. Values are relatively stable cognitive structures that guide evaluation and choice yet remain open to change through experience and socialization (Schwartz et al., 2012). A higher values score may reflect greater willingness to reconsider existing assumptions, evaluate alternatives,

and adopt novel guiding principles—features potentially important for entrepreneurial judgment under ambiguity. This finding can also be interpreted through local conceptualizations of entrepreneurship as “value creation,” which emphasize both material and non-material value generation in society.

For agreeableness, only modesty showed a marginal group effect, with entrepreneurs scoring lower. Conceptually, modesty reflects a reduced tendency to highlight one’s achievements. In entrepreneurial contexts, lower modesty may sometimes accompany self-promotion, negotiation, and persuasive pitching. At the same time, entrepreneurs can still exhibit warmth and empathy; therefore, modesty should be interpreted carefully and not equated with low prosocial orientation.

Within conscientiousness, entrepreneurs scored significantly higher in achievement striving, and the difference in competence was marginal. Achievement striving is theoretically central to entrepreneurial persistence and sustained effort toward challenging goals. Competence reflects perceived efficacy and capability, which is widely considered important for entrepreneurial intention and performance. These results align with perspectives suggesting that individuals who perceive themselves as capable and goal-driven may be more likely to engage in venture creation and persist in the face of obstacles (Krueger Jr, 2003; Landström, 2020; McClelland, 1962; Smith et al., 2014; Snyder, 2019).

Overall, the findings indicate that entrepreneurship status in this sample is most clearly associated with lower neuroticism and with specific facet-level advantages in stress-related coping (lower self-consciousness and vulnerability), energetic and interpersonal activation (warmth, assertiveness, activity, positive emotions), values-based openness, and achievement-oriented conscientiousness (achievement striving, competence). These patterns suggest that entrepreneurs may be distinguished less by uniformly “higher” personality levels across all domains and more by a functional constellation of traits and facets that support resilience, proactive engagement, and goal persistence in uncertain environments.

Several limitations should be considered. First, data collection was demanding because the study relied on the long form of the NEO assessment and participation required substantial time, which likely contributed to

participant attrition and reduced sample size. Second, recruitment depended on extensive personal efforts and limited institutional support, resulting in delays and challenges in securing cooperation from entrepreneurship centers and busy entrepreneurs. Third, the availability of local and meta-analytic literature focusing on facet-level Big Five comparisons—especially in the Iranian context—was limited, constraining the breadth of direct empirical comparisons. Finally, the cross-sectional nature of the design limits causal inference; personality differences may both influence and be shaped by entrepreneurial experiences.

The results have several applied implications. Educational systems may benefit from early identification and development of entrepreneurial-relevant psychological capacities—particularly emotional resilience, purposeful activity, and goal striving—among students, potentially contributing to long-term human capital development and economic growth. In higher education, entrepreneurship courses and workshops could incorporate structured training and simulation-based practice aimed at strengthening stress management, resilience, and confident decision making under uncertainty. Moreover, counseling and coaching systems grounded in the personality competency framework suggested by these findings may help entrepreneurs gain a clearer understanding of their strengths and vulnerabilities and improve self-regulation. Finally, investors, organizations, and policymakers may use validated personality-competency frameworks as one component—alongside skills, experience, and context—to support selection, mentoring, and targeted resource allocation for entrepreneurial initiatives.

Acknowledgments

The author thanks the participating students, school administrations, and educational authorities for facilitating data collection.

Declaration of Interest

The author declares no conflict of interest.

Ethical Considerations

The study was conducted with attention to voluntary participation, confidentiality, parental consent, and student assent. The exact ethics committee name, approval number, and approval date were not available in the source manuscript and should be added before final submission.

Transparency of Data

The revised statistical results were recalculated from the aggregate values reported in the submitted manuscript. Raw item-level data were not available in the source file.

Funding

This research received no external funding.

Authors' Contributions

Murtadha Hameed Shalaga was responsible for the conception, design, data collection, analysis, and writing of the manuscript.

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