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Measuring personality in Libyan Arabs: validating the big five aspect scale with 10 factors domain

Mohamed Ali^{1,2*}, Alhadi M. Jahan^{3,4} and Rasha Mohamed Abdelrahman^{5,6}

Abstract

Research has developed the Big-Five Aspect Scale (BFAS), supporting a five-domain model that includes 10 related aspects. In Arabic societies, there is currently a lack of validation evidence for a scale with these 10 aspects. Thus, this study develops and examines the psychometric properties of the short version of the BFAS (BFAS-SV) within Libyan Arab adults. The sample ($N=1136$; 74.6% women, $M_{age}=25.30$, $SD_{age}=8.44$) completed the original BFAS and the Arabic version of the International Personality Item Pool (IPIP) to assess the BFAS-SV's convergent validity. Confirmatory Factor Analysis (CFA) was applied. The findings provide strong support for the presence of 10 distinct aspects within the Big Five personality domains. Additionally, a robust positive and negative correlation was found among the 10 BFAS-SV aspects, as well as between the BFAS-SV domains of Conscientiousness, Extraversion, Introversion, and Openness/Intellect and their corresponding dimensions in the IPIP, further confirming its concurrent and discriminant validity. Furthermore, the Cronbach's alpha coefficients for the five domains and their respective 10 aspects ranged from 0.61 to 0.85, indicating good internal consistency. Significant gender differences were observed in the Neuroticism domain, particularly in its two aspects (Volatility and Withdrawal), as well as in the Openness/Intellect domain and the Politeness aspect, with women scoring higher in all cases.

In conclusion, this study establishes the reliability, validity, and applicability of the Arabic BFAS among the Libyan Arab population. The insights gained into the personality traits and behaviors of Libyan Arab individuals provide valuable implications for personal development and professional success.

Keywords Personality, Big five, Domain, Short version, Libyan arabs

Introduction

Personality assessment involves examining an individual's distinct traits, behaviors, attitudes, and emotions to understand their psychosocial structure [1–3]. The primary objectives of personality assessment are to understand individual differences and predict behavior and outcomes [4, 3]. These insights are applicable in various contexts, such as personal growth, recruitment, educational guidance, and risk assessment in clinical or forensic settings [5–7]. Typically, personality assessments involve standardized tests and self-report measures that evaluate various facets of personality, heavily influenced

*Correspondence:

Mohamed Ali

mohamedsalem.ali@uniroma1.it

¹Department of Dynamic and Clinical and Health Psychology, Sapienza University of Rome, Rome 00185, Italy

²Department of psychology, Faculty of education, University of Tripoli, Tripoli, Libya

³College of Medical Technology, Misrata, Libya

⁴School of Rehabilitation Sciences, University of Ottawa, Ottawa, Canada

⁵Psychology department, Humanities and social sciences research center (HSSRC), College of Humanities and sciences, Ajman, UAE

⁶National Center for Examination and Educational Evaluation (NCEEE), Cairo, Egypt



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by research on trait-based adjectives extracted from language [8, 9].

Two widely recognized models categorize personality traits into five broad domains: the Big Five (BF) model and the Five-Factor Model (FFM) [2, 8, 10]. Although often used interchangeably, the Big Five is descriptive, based on common language terms for traits, while the FFM, developed by Costa and McCrae, emphasizes the biological basis of traits [10, 5]. The “Big Five” personality domains: Extraversion, Openness to Experience, Conscientiousness, Agreeableness, and Neuroticism, are considered universal across cultures, as confirmed by numerous studies [11, 10, 12, 13]. These traits are neither inherently positive nor negative; their effects can be adaptive or maladaptive depending on context [1, 4], providing insights into how individuals navigate different situations [14].

Recent research suggests that the Big Five model may benefit from additional factors to better capture individual differences [15, 5]. Two notable examples are Honesty-Humility from the HEXACO model and Psychoticism, both of which have empirical support as valuable extensions of personality structures [16]. Honesty-Humility includes traits such as sincerity, fairness, and modesty, while Psychoticism covers traits like aggression, impulsivity, and unconventionality [16]. These factors enhance our understanding of personality in both normal and abnormal populations [16, 17].

Despite the prevalence of these frameworks, research on personality traits in Arab populations remains limited, though some studies have been conducted [18–22, 14, 8]. Findings suggest that the Big Five traits are present among Arab individuals, with similar structures observed across different cultures [18, 21]. Gender differences in personality traits have also been noted in these populations. For example, Hachana et al. (2018) found that Tunisian women scored higher on Neuroticism, Openness, and Agreeableness, and lower on Extraversion compared to men, reflecting Tunisia’s relatively progressive stance on women’s rights and social freedom [8]. Conversely, Abdel-Khalek et al. (2023) found that Egyptian men scored higher on Openness, Extraversion, and Conscientiousness than women, possibly due to Egypt’s more conservative social norms, which may inhibit the expression of Openness in women [18]. Similarly, Alanari (2016) found that men in Kuwait scored higher than women on Extraversion and Conscientiousness, illustrating how cultural contexts shape gender differences in personality traits across Arab populations [21].

Cultural and societal factors also influence the expression of these traits [23–25, 3]. In Arab cultures, where collectivism and strong family ties are central values [24, 26], individuals tend to score higher on Agreeableness, Extraversion, and Conscientiousness compared to those from more individualistic societies [20]. These higher

scores likely reflect the cultural emphasis on social harmony and community [20, 27]. Conversely, traits like Openness to Experience and Emotional Stability (the inverse of Neuroticism in some models) tend to score lower in these populations [27], possibly due to the prioritization of interpersonal relationships and collective well-being over personal exploration and emotional independence [14, 8, 4]. It is essential to note that Arab cultures are diverse, and significant differences exist between countries. Therefore, findings should not be generalized across the entire Arab world.

In recent years, the Big Five Aspect Scale (BFAS) has gained recognition as a comprehensive tool for assessing personality traits through its 10 aspects, providing more detailed insights into the Big Five domains [15]. However, the full version of the BFAS contains 100 items, which can present challenges in contexts where lengthy assessments are impractical, such as large-scale studies or clinical settings [28, 29]. To address this, a short version of the BFAS (BFAS-SV) has been proposed, aiming to reduce participant burden while maintaining psychometric reliability and validity. The BFAS-SV offers an efficient yet reliable measure of the 10 aspects of personality.

This study uses the Big Five Aspect Scale (BFAS), expanding upon the Five-Factor Model (FFM) by breaking down each broad domain into two aspects, resulting in 10 aspects: Withdrawal and Volatility (Neuroticism), Assertiveness and Enthusiasm (Extraversion), Compassion and Politeness (Agreeableness), Industriousness and Orderliness (Conscientiousness), and Intellect and Openness (Openness to Experience) [15]. This aspect-level approach provides a detailed understanding of personality traits in the Libyan context.

Given the widespread use of abbreviated Big Five scales to balance efficiency and psychometric robustness [7], this study aims to address this gap by developing and testing the psychometric properties of the Big Five Aspect Scale-short version (BFAS-SV), with a specific focus on the Libyan population. With the kind permission of DeYoung, we aim to identify the 10 distinct aspects measured by the BFAS-SV and examine their correlations with the broader Five-Factor Model (FFM) domains. We hypothesize positive correlations between BFAS-SV and the FFM domains of Conscientiousness, Extraversion, and Openness/Intellect, and a negative correlation between BFAS Neuroticism and the FFM Emotional Stability domain.

Methodology

Participants

The study included a total of 1,163 participants from over 20 major cities across Libya, using a cross-sectional design. Participants’ ages ranged from 18 to 62 years ($M_{age}=25.2$, $SD_{age}=8.43$). The age distribution was predominantly younger, with 95.7% of participants being 45

years old or younger. The majority of participants were women (74.3%), while men represented 25.7% of the sample. Regarding marital status, 78.6% were single, and 19.3% were married. Most participants were students (68.8%), followed by public sector employees (15.4%), private sector employees (8.8%), and a smaller percentage of unemployed or retired individuals.

Table 1 provides a detailed breakdown of the demographic characteristics, including age, gender, marital status, occupation, and self-reported mental health.

To be eligible for this study, participants needed to be able to read and understand standard Arabic and provide consent to participate. Additionally, they required basic technological literacy to complete the survey online via a computer or mobile device. In addition to the inclusion criteria, the following exclusion criteria were applied: participants who were under the age of 18, unable to provide informed consent, or lacked access to the necessary technological tools (such as a smartphone or computer) to complete the online survey. Furthermore, individuals with self-reported severe visual or cognitive impairments that could prevent them from accurately reading or understanding the questionnaire were excluded from the study.

Although previous guidelines have suggested a minimum of 100 participants for reliable analyses [30], more recent recommendations advise 500 or more for moderately complex models [31]. Our sample of 1,162 participants exceeded these recommendations, ensuring a robust basis for Confirmatory Factor Analysis (CFA).

Procedures

The questionnaire was distributed via social media platforms such as Facebook and Twitter, as well as the official websites of various Libyan community organizations and universities across the country. It remained available for

Table 1 Summarizes the descriptive statistics of the participants

Characteristic	Description
Participants	1163
Cities Represented	Over twenty major cities in Libya
Age Range	18 to 65 years
Mean Age	25.3 years
Standard Deviation	± 8.44 years
Age Distribution	Majority (95.7%) ≤ 45 years old
Gender	Women: 74.3%, Men: 25.7%
City Distribution	Tripoli: 55.8%, Benghazi: 15.4%, Other Cities: 28.8%
Marital Status	Married: 19.3%, Single: 78.6%, Divorced/Widowed: Remaining
Occupation	Students: 68.8%, Public Sector Employees: 15.4%, Private Sector Employees: 8.8%, Unemployed/Retired: Remaining
Self-Reported Mental Health	Very Good: 52.2%, Good: 38.4%, Fair: 8.2%, Poor: 1.2%

completion over a three-month period, from September 22nd to December 30th, 2022.

To recruit participants, we employed a combination of convenience and snowball sampling methods. Initially, participants were selected through convenience sampling by reaching out to individuals via relevant online platforms and networks. Subsequently, participants were encouraged to share the survey link with family members, friends, and colleagues, facilitating snowball sampling and broadening the study's reach.

While these methods helped gather a diverse sample from different parts of Libyan society, they do not guarantee a fully representative sample. The convenience and snowball sampling approaches may introduce bias, as participants are more likely to come from similar backgrounds or networks. Therefore, the findings should be interpreted with caution regarding their generalizability to the broader population.

Instruments

Self-reported overall mental health

Participants were asked to evaluate their overall mental health with the question: 'How would you rate your overall mental health?' Responses were provided on a Likert scale ranging from 1 (poor) to 5 (very good).

The big five aspect scale BFAS

The original BFAS, a self-report personality inventory developed by John and Srivastava (1999), assesses the Big Five personality dimensions: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. DeYoung (2007) expanded on this by breaking down each trait into two distinct aspects, resulting in a total of ten aspects: Intellect and Openness (Openness domain), Industriousness and Orderliness (Conscientiousness domain), Enthusiasm and Assertiveness (Extraversion domain), Compassion and Politeness (Agreeableness domain), and Withdrawal and Volatility (Neuroticism domain).

The original BFAS includes 100 items, with 10 items assessing each aspect (2 aspects per domain, 20 items per domain). Participants respond to each item on a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). In this study, we used a short version of the BFAS (BFAS-SV), where items with lower inter-item correlations were removed. The final BFAS-SV retained 55 items, with 5 to 6 items for each of the 10 aspects, ensuring a more efficient yet reliable measure of personality traits.

The Arabic IPIP big-five factor markers

The IPIP personality questionnaire, based on the International Personality Item Pool (IPIP), measures the Five-Factor Model of personality [2]. In this study, the Arabic

version of the IPIP questionnaire [32] was used to explore concurrent validity for the BFAS. It consists of 50 items that assess the five broad dimensions of personality: Extraversion (E), Agreeableness (A), Conscientiousness ©, Emotional Stability (ES), and Intellect (I). Participants evaluate each statement using a five-point Likert scale, ranging from “strongly agree” to “strongly disagree.” This approach allows nuanced understanding of personality traits. The structured IPIP questionnaire, with comprehensive coverage of key dimensions, enhances data reliability and validity. Notably, Cronbach’s alpha values for its subscales are as follows: Extraversion ($\alpha=0.77$), Agreeableness ($\alpha=0.82$), Conscientiousness ($\alpha=0.82$), Emotional Stability ($\alpha=0.88$), and Intellect ($\alpha=0.68$).

Translation of the big five aspect questionnaire

The translation process followed Beaton et al.’s [2000] methodology of cross-cultural translation adaptation [33]. An initial forward translation from English to Universal Arabic involved two independent professional translators. Subsequent expert review and revision, facilitated by a committee including a rehabilitation professional, a clinical psychologist, and a university professor specializing in Arabic literature, ensured accuracy and appropriateness. Any discrepancies were resolved through consensus.

The final step involved back-translation by two native Arabic speakers to guarantee accuracy and comprehension. The expert committee then reviewed the back translations, leading to the pre-final version of the questionnaire.

After adapting the questionnaire, a small sample ($n=30$), with characteristics similar to the target population, was used to test the comprehensibility and clarity of the translated items. Participants provided feedback on the wording, ease of understanding, and any potential issues they encountered with the questionnaire. Based on their input, we made necessary adjustments to improve the clarity of the final version of the items. Beaton et al. [2000] recommend piloting the questionnaire among a sample of the target population to identify misunderstandings or misinterpretations, culminating in the production of the final version after analyzing and discussing participants’ feedback.

Data analysis

Initially, we analysed descriptive statistics of the participants. Continuous data were presented as a mean and standard deviation (SD), while Categorical variables were presented as frequencies and percentages. We also calculated descriptive statistics for the BFAS items, including skewness, and kurtosis, to assess the normality of the items.

Item selection

In the second step, to develop items for the short version of the BFAS-SV, we examined the original 100-item BFAS, by selecting between the highest five to six average inter-item correlation for each Aspect factors and domains, aiming for a minimum inter-item correlation cutoff 0.30, as suggested by previous recommendations [34, 35]. This range suggests that while the items demonstrate reasonable homogeneity, they also exhibit unique variance, ensuring they are not isomorphic with each other [36]. Finally, the internal consistency of the BFAS-SV Aspect factors and domains was examined using Cronbach’s α . In this study, a Cronbach’s α of 0.60 or higher was considered acceptable internal consistency [37]. Consistent with trends in psychometric research, the shortened scales were assessed for both retest reliability and construct validity to ensure they met rigorous standards as outlined in prior large-scale validation studies [7].

Factor analysis

In order to confirm the structure of the scale and item-factor loadings of BFAS-SV factors in Libyan Arab samples, we chose to use a Confirmatory factor analysis (CFA) with Robust Weighted Least Squares (WLSM) with Promax rotation was employed. WLSM is a robust estimation method that is even less sensitive to non-normality [38]. In evaluating the model fit for the Confirmatory Factor Analysis (CFA) several indices were used to assess model fit. The Tucker-Lewis Index (TLI) value of ≥ 0.90 is generally considered to indicate an acceptable fit, with values closer to 0.95 or higher representing a good fit. For the Comparative Fit Index (CFI), a stricter criterion applies, where values ≥ 0.95 are indicative of a good fit, while values between 0.90 and 0.94 suggest an acceptable fit, though not ideal, while values < 0.08 for RMSEA indicate a good fit, with < 0.05 indicating a very good fit [39].

To assess the suitability of the data for factor analysis, the Kaiser-Meyer-Olkin (KMO) measure and Bartlett’s Test of Sphericity were used. The KMO measure, which ranges from 0 to 1, evaluates the proportion of variance among variables that might be common variance [40]. A value greater than 0.70 is considered suitable for factor analysis. Bartlett’s Test of Sphericity tests the null hypothesis that the correlation matrix is an identity matrix. A significant result ($p < .05$) indicates that the variables are related and suitable for factor analysis [41].

Discriminant and concurrent validity

In this study, the concurrent and discriminant validity of the Arabic BFAS-SV was assessed by examining the bivariate correlations among the BFAS-SV aspect factors, domain scores, and the IPIP scales. Following

Cohen's guidelines (1988), correlation coefficients are interpreted as follows: values between 0.10 and 0.29 (or -0.10 to -0.29) indicate a small or weak correlation, values between 0.30 and 0.49 (or -0.30 to -0.49) indicate a moderate correlation, and values of 0.50 or higher (or -0.50 or lower) are considered large or strong correlations. These thresholds were used to evaluate the relationships between the constructs.

Gendered trait differences

In this study, the Mann-Whitney U test was employed as a statistical tool to assess the differences between two groups. It, also known as the unequal variances t-test, is employed to assess whether the means of two populations are equal. It is particularly useful when there are differences in the variances of the two populations and when their sample sizes are not equal [42]. Specifically, we utilized this test to compare the means of the BFAS aspects between men and women. A statistical significance level was set at $p < .05$.

The data analysis was applied using the Jamovi Statistics software (Version 2.3.21) and JASP (Version 0.18.3) developed by JASP Team in 2024.

Results

Item analysis

In this step, we analyzed the inter-item correlation for each Aspect factors and domains of the full version of the BFAS with 100 inter-item correlations. Any items Less than 0.30 should not be considered. Internal consistencies for each Aspect factors and domains were quantified using Cronbach's α .

Concerning the Compassion aspect, BFAS Item 32 (R) exhibited a negative correlation of -0.023 . However, deleting this item, leading to an increase in the α of the subscale from 0.66 to 0.73. Therefore, we recommend deleting item BFAS 32.

Regarding the Politeness aspect, BFAS Item 87 (R) displayed a negative correlation of -0.26 . After deleting this item, the α (Cronbach's alpha) of the Politeness aspect increased from 0.49 to 0.62. As for BFAS Item 97 (R), it showed a weak negative correlation of -0.014 . Additionally, item BFAS 17 showed a low inter-item correlation of 0.10. By excluding the three items, BFAS 17, BFAS 87 and BFAS 97, the α of the Politeness aspect increased to 0.65. Hence, we recommend deleting these items.

Regarding the Orderliness aspect, when BFAS Item 78 (R), it displayed a negative correlation of -0.072 , and the α of this aspect factor was 0.71. when this item was dropped, the α of the Orderliness aspect slightly increased from 0.71 to 0.73. Upon dropping item BFAS 78, BFAS 23 slightly increased from 0.19 to 0.22 and the α of the aspect factor increased from 0.73 to 0.76. Therefore, BFAS items 23 and 78 were identified as having low

inter-item correlations and were subsequently removed from the scale to improve internal consistency.

Concerning the Openness/Intellect domain, all items BFAS 60, BFAS 70, BFAS 80, and BFAS 90 showed very low 100 inter-item correlations under 0.15 (i.e., 0.11, 0.015, 0.04, and 0.10, respectively), and the α of the domain was 0.51. Suspending these items, the α domain of Openness/Intellect was increased from 0.51 to 0.61. Thus, we suggest suspending all these items.

Overall, Items BFAS32, BFAS 17, BFAS 87, BFAS 97, BFAS 23, BFAS 78, BFAS 60, BFAS 70, BFAS 80, and BFAS 90, with their low inter-correlations, lack content validity evidence.

After removing these specified items, we carefully considered the entirety of the ten aspects. We chose to select between five to six items for each of the 10 Aspect factors, prioritizing those with higher item-rest correlation, with minimum threshold of 0.30, as recommended by previous studies (51). The selected items are presented Table 2.

Confirmatory factor analysis and model fit for BFAS-SV scale

To extract and correlate aspects from each of the Big Five domains, a Confirmatory Factor Analysis (CFA) was conducted. Due to the observed violation of multivariate normality (as evidenced by Mardia's $Z=79.01$, $p < .001$), We utilized Robust Weighted Least Squares (WLSM) parameters and was conducted on the total sample of 1136 participants. To mitigate collinearity in the final scales, items were included only if their loading on the intended aspect factor was at least 0.30 as suggested by previous research (17).

Remarkably, the selected 55 items in the model of the (BFAS-SV) exhibited acceptable factor loadings across a ten-factor domain for each of the Big Five dimensions. The model demonstrated a good fit statistic: TLI=0.92, GFI=0.99, CFI=93, RMSEA=0.04 (95% CI [0.05, 0.08]), SRMR=0.05. The Kaiser-Meyer-Olkin index was (KMO=0.91), indicating adequate sampling for factor analysis. Further, Bartlett's test of Sphericity showed significant correlations between variables ($\chi^2 = 47061$, $df=1485$, $p < .001$).

The conclusive items for each of the ten-aspect factors include the five domains are presented in Table 2; Fig. 1. The columns in the table display the item-rest correlation along with unstandardized factor loading, Mean and standard deviation. Items were averaged (with appropriate reversals) to generate scale scores for each aspect, and these scores were further averaged across the two aspects to generate Big Five domain scores. Table 3 highlights the comparison of factor analysis methods used in our study and those used in prior research. This comparison underscores the rigorous approach employed in the current

Table 2 Item reliability statistics and CFA unstandardized factor loadings for the inclusive BFAS-SV-items ($n = 1163$) in the nested ten-factor model. See supplementary materials for the arabic version

Scale	α if item dropped	Item-rest correlation	Mean	SD	Factor loading
Neuroticism					
Withdrawal					
Rarely feel blue (R)	0.71	0.30	3.17	1.08	0.38
Feel threatened easily	0.68	0.43	2.72	1.20	-0.51
Am easily discouraged	0.63	0.56	3.06	1.21	-0.76
Am not embarrassed easily (R)	0.69	0.39	3.54	1.17	0.44
Become overwhelmed by events	0.65	0.52	3.46	1.03	-0.61
Am afraid of many things	0.66	0.48	3.41	1.17	-0.53
Volatility					
Get angry easily	0.82	0.60	3.43	1.21	0.59
Get upset easily	0.80	0.70	3.43	1.12	0.76
Change my mood a lot	0.82	0.61	3.81	1.11	0.65
Am a person whose moods go up and down easily	0.81	0.63	3.73	1.13	0.68
Am not easily annoyed (R)	0.82	0.62	3.36	1.18	-0.69
Get easily agitated	0.83	0.55	3.09	1.10	0.75
Agreeableness					
Compassion					
Feel others' emotions	0.66	0.55	3.93	0.89	0.72
Sympathize with others' feelings	0.64	0.60	4.04	0.88	0.76
Am indifferent to the feelings of others (R)	0.65	0.58	4.00	0.98	-0.59
Take no time for others (R)	0.73	0.38	3.59	0.99	-0.43
Like to do things for others	0.73	0.38	3.71	1.03	0.49
Politeness					
Respect authority	0.59	0.28	3.44	1.01	0.39
Hate to seem pushy	0.59	0.31	3.63	1.06	0.37
Take advantage of others (R)	0.62	0.42	3.26	1.04	-0.50
Insult people (R)	0.60	0.45	3.52	0.99	-0.52
Love a good fight	0.65	0.35	2.81	1.11	0.61
Conscientiousness					
Industriousness					
Carry out my plans	0.59	0.47	3.44	1.01	0.56
Finish what I start	0.59	0.45	3.63	1.06	0.43
Get things done quickly	0.62	0.39	3.26	1.04	0.49
Always know what I am doing	0.60	0.44	3.52	0.99	0.62
Am easily distracted (R)	0.65	0.33	2.81	1.11	-0.47
Orderliness					
Like order	0.65	0.65	4.05	0.99	0.68
Keep things tidy	0.69	0.51	3.70	1.10	0.52
Want everything to be "just right."	0.71	0.46	4.05	0.95	0.56
Am not bothered by disorder (R)	0.72	0.44	3.91	1.15	-0.44
See that rules are observed	0.73	0.39	4.10	0.96	0.57
Want every detail taken care of	0.72	0.43	3.94	1.01	0.64
Extraversion					
Enthusiasm					
Warm up quickly to others	0.67	0.38	3.37	1.06	0.51
Rarely get caught up in the excitement (R)	0.69	0.32	3.18	0.99	-0.36
Am not a very enthusiastic person (R)	0.64	0.49	3.41	1.11	-0.60
Show my feelings when I'm happy	0.66	0.41	4.05	0.95	0.55
Have a lot of fun.	0.62	0.52	3.57	1.04	0.65
Laugh a lot	0.65	0.44	3.69	1.06	0.46
Assertiveness					
Take charge	0.76	0.43	3.99	1.00	0.64

Table 2 (continued)

Scale	α If item dropped	Item-rest correlation	Mean	SD	Factor loading
Have a strong personality	0.71	0.61	3.63	1.02	0.71
Know how to captivate people	0.77	0.40	3.18	1.09	0.50
Wait for others to lead the way (R)	0.74	0.51	3.55	1.08	-0.52
See myself as a good leader	0.70	0.64	3.68	1.09	0.67
Am the first to act	0.74	0.50	3.40	0.98	0.56
Openness/Intellect					
Intellect					
Am quick to understand things	0.63	0.48	3.80	0.95	0.61
Can handle a lot of information	0.61	0.53	3.60	0.91	0.65
Have a rich vocabulary	0.66	0.42	3.28	1.03	0.43
Think quickly	0.66	0.41	3.69	1.01	0.51
Formulate ideas clearly	0.66	0.42	3.54	0.97	0.60
Openness					
Enjoy the beauty of nature	0.59	0.38	4.31	0.98	0.62
Believe in the importance of art	0.55	0.47	3.47	1.14	0.40
Love to reflect on things	0.59	0.30	4.07	0.96	0.56
Get deeply immersed in music	0.63	0.33	3.36	1.31	0.30
See beauty in things that others might not notice	0.57	0.44	4.04	0.92	0.66
Overall Cronbach's α		0.90			

(R) indicates items to be reverse scored

study to validate the BFAS-SV structure. By employing confirmatory factor analysis, our study provides a detailed understanding of the psychometric properties of the BFAS-SV in the Libyan context.

Table 5 also displays correlation patterns among the Big Five 10 Aspect Scales (BFAS-SV) within each domain and the International Personality Item Pool (IPIP) scales. This presentation offers additional support for the convergent and discriminant validity of measurements across instruments. The high correlations observed between IPIP scales within the same Big Five domains further substantiate the effectiveness of BFAS-SV in measuring the standard Big Five personality trait dimensions.

Discriminant and concurrent validity

As shown in Table 5, the results support the discriminant validity of the two aspects within each Big Five domain. The distinct correlations observed between these aspects and other variables indicate that the aspects are measuring different constructs within the same domain. A key question arising from the literature is whether these aspects truly represent distinct traits. If they do, their correlations with other variables should not closely resemble one another [15].

An example illustrating this distinction is evident in the association between the Extraversion and Agreeableness domains: while the Assertiveness aspect of the Extraversion domain is not significantly associated with the Politeness aspect of the Agreeableness domain, the Enthusiasm aspect of Extraversion displays a positive correlation with Politeness. Similarly, when examining

the Agreeableness and Openness/Intellect domains, we find that while the Openness aspect correlates positively with the Politeness aspect of Agreeableness, the Intellect aspect does not show a significant correlation with Politeness.

Identifying discriminant validity goes beyond observing divergent correlation patterns. Positive correlations between two aspects within each domain suggest shared sources, leading to similar predictive power for various variables. However, discrepancies in prediction may occur, potentially due to suppressor effects. This phenomenon arises when positively correlated variables have opposing relationships with a third variable, leading to the suppression of one or both associations [43].

Notably, our study reveals a positive correlation between the BFAS Conscientiousness domain and the IPIP Emotional Stability domain (the inverse of the Neuroticism domain) ($r = .21$), indicating that individuals who are more emotionally stable also tend to be more conscientious (refer to Table 4). This is consistent with previous research, which highlights the strong and robust relationship between Conscientiousness and Emotional Stability (or the inverse of Neuroticism) [44, 36]. When the IPIP Emotional Stability domain is inverted to represent Neuroticism, the correlation becomes negative ($r = -.31$), further supporting the well-established connection between higher Conscientiousness and lower Neuroticism.

Surprisingly, this correlation does not extend to the aspects of Industriousness within the BFAS Conscientiousness domain, which exhibit negative associations with the BFAS Neuroticism domain ($r = -.43$), yet

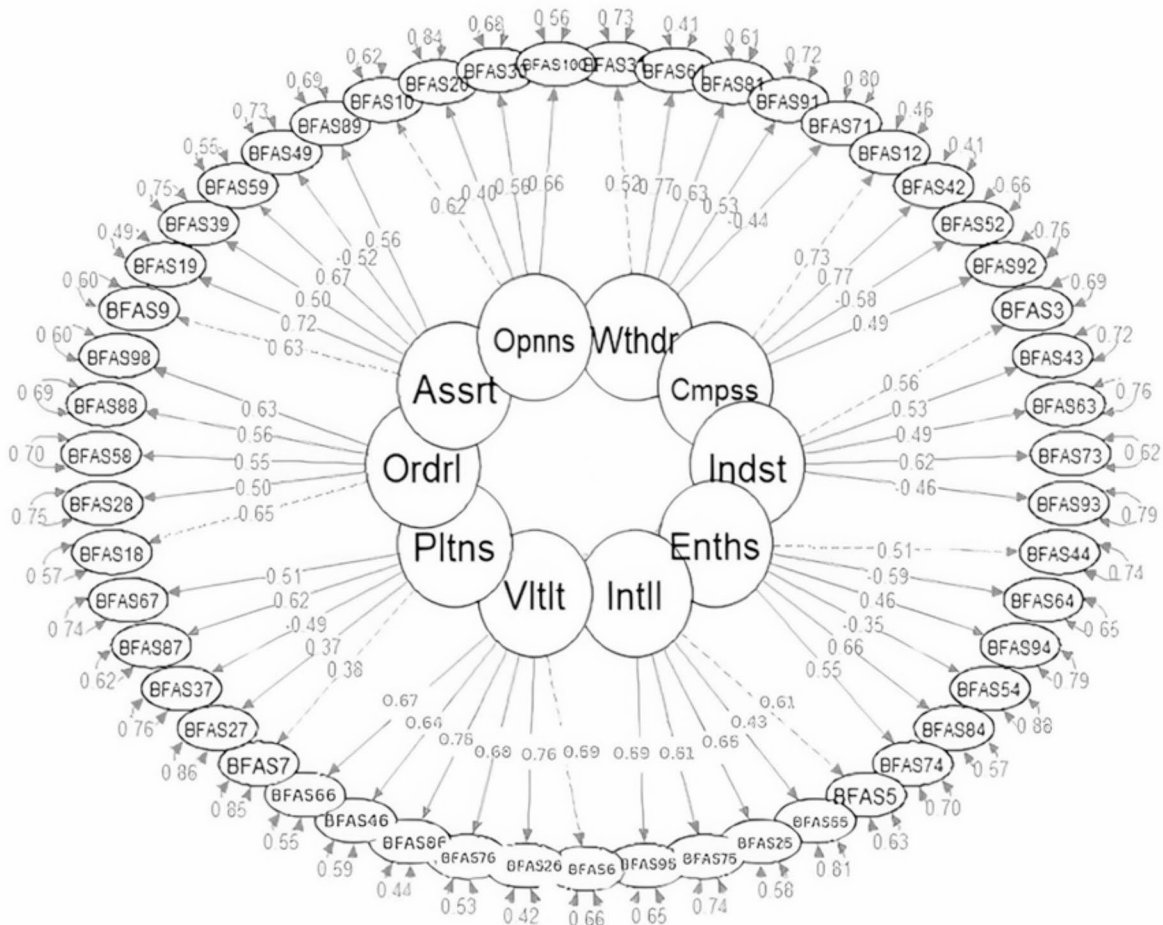


Fig. 1 Shows the CFA unstandardized factor loadings for the inclusive BFAS-SV -items ($n = 1163$) in the nested Ten-factor model

correlate positively with the IPIP Emotional Stability domain ($r = .37$). This reinforces the congruence between these constructs. However, the Orderliness aspect of the BFAS Conscientiousness domain showed no significant association with either the BFAS Neuroticism domain or the IPIP Emotional Stability domain. Nonetheless, Orderliness was positively correlated with Conscientiousness (0.58), Extraversion (0.26), and Intellect (0.23) on the IPIP scale.

This finding suggests that Orderliness may not share as much variance with emotional stability or neuroticism as other aspects of Conscientiousness. The absence of a relationship warrants further investigation, as it may indicate a more nuanced role for Orderliness in personality structure, particularly in how it relates to emotional regulation. Despite this, Orderliness appears adaptive within the personality structure, as evidenced by its positive correlations with Extraversion and Intellect, while remaining distinct from the Industriousness aspect.

As hypothesized, the BFAS domains of Agreeableness, Extraversion, Introversion, and Openness were positively correlated with their corresponding IPIP domains. Interestingly, the BFAS Neuroticism domain was negatively correlated with the IPIP Emotional Stability domain (see Table 5).

Moreover, correlations between aspects across different domains are as robust as those within the same domain in several instances [15]. For example, the relationship between the Intellect and Industriousness aspects, as well as between the Intellect and Assertiveness aspects, remains strong. Similarly, the Compassion and Enthusiasm aspects correlate strongly with the IPIP Extraversion and Agreeableness domains.

Gendered trait differences

Gender differences across the five BFAS domains and their 10 aspects are compared in Table 6. Specifically, women scored higher than men in Withdrawal and Volatility, indicating greater emotional instability.

Table 3 Comparison of Factor Analysis for the big five aspects across two studies

Factor Analysis Method	DeYoung et al. (2015)	Our Study
Principal Component Analysis (PCA)	Performed a Principal-Axis Factoring (also referred to as common factor analysis) with direct oblimin rotation. Used Velicer’s MAP test to determine the number of factors per Big Five domain. Extracted two factors for each Big Five domain (except Extraversion, which indicated three factors but was reduced to two by excluding Excitement Seeking).	The study performed PCA as part of item selection for the BFAS-SV. Items were selected based on inter-item correlations with a minimum cutoff of 0.30.
Confirmatory Factor Analysis (CFA)	This study didn’t explicitly use CFA. Instead, exploratory methods such as MAP test were applied to identify underlying factors.	A Confirmatory Factor Analysis (CFA) was conducted using Robust Weighted Least Squares (WLSM) estimation with Promax rotation due to non-normal data. Indices used for model fit included TLI, CFI, GFI, SRMSR , where acceptable levels were reported (TLI ≥ 0.90, CFI ≥ 0.90, GFI ≥ 0.95, SRMSR < 0.06).
Eigenvalues for Factor Structure	Eigenvalues for the Big Five domain were provided in the factor analysis. The first factor in each domain was substantially larger (e.g., Openness/Intellect had eigenvalues of 7.70 and 1.44)	CFA-based factor loadings with acceptable indices (factor loading > 0.30) were used to validate the BFAS-SV structure for each of the Big Five aspects.

Additionally, women scored higher in both Compassion and Politeness, reflecting a higher level of Agreeableness, as well as in Orderliness, suggesting greater Conscientiousness. Women also scored higher in Openness, indicating a greater openness to new experiences. No significant mean differences were found between men and women in the remaining domains or aspects.

Discussion

The BFAS-SV effectively captures the fundamental aspects underlying the ten facets within each domain among Libyan Arabs. Averaging these aspects within each domain yields accurate representations of the Big Five traits. Notably, the 55 items selected for the BFAS through confirmatory factor analysis align with the original study’s findings, confirming a ten-factor structure for each of the Big Five traits [15].

Given the linguistic and cultural homogeneity observed across Arab nations, characterized by the widespread use of a shared *classical Arabic language* and the adherence to similar cultural and traditional practices, it seems plausible to assert that the (BFAS-SV), developed utilizing Libyan Arab sample, possesses a high likelihood of validity across a broad spectrum of Arabic-speaking populations. Furthermore, the IPIP- BFAS-SV correlation results enabled us to provide additional support for validating BFAS instrument with a good psychometric property. This study further supports the argument that personality measures, when validated cross-culturally, can provide a foundation for exploring broader applications, such as investigating their relationships with psychiatric and neurological conditions, as highlighted in previous research [7].

Table 4 Comparison of BFAS-SV scale factors and reliability coefficients across samples

Factor	ESCS M	ESCS SD	α1	University M	University SD	α2	α3	Our study M	Our study SD	α4
Neuroticism	2.46	0.63	0.89	2.82	0.70	0.89	0.89	3.35	0.71	0.85
Volatility	2.48	0.70	0.85	2.72	0.82	0.87	0.89	3.26	0.73	0.84
Withdrawal	2.45	0.71	0.84	2.92	0.75	0.81	0.80	3.48	0.86	0.71
Agreeableness	4.11	0.45	0.84	3.70	0.56	0.85	0.89	4.00	0.56	0.77
Compassion	4.11	0.54	0.84	3.87	0.65	0.84	0.91	3.86	0.66	0.73
Politeness	4.10	0.53	0.75	3.52	0.67	0.76	0.76	4.14	0.62	0.61
Conscientiousness	3.76	0.51	0.84	3.06	0.56	0.81	0.82	3.68	0.58	0.78
Industriousness	3.80	0.61	0.81	2.84	0.70	0.79	0.82	3.33	0.68	0.66
Orderliness	3.73	0.62	0.80	3.28	0.64	0.72	0.74	3.96	0.68	0.74
Extraversion	3.48	0.60	0.85	3.37	0.63	0.88	0.86	3.56	0.58	0.79
Enthusiasm	3.59	0.72	0.81	3.52	0.73	0.81	0.80	3.55	0.65	0.70
Assertiveness	3.36	0.70	0.85	3.21	0.71	0.84	0.88	3.57	0.71	0.77
Openness/Intellect	3.72	0.53	0.85	3.47	0.52	0.80	0.82	3.75	0.56	0.75
Intellect	3.70	0.68	0.84	3.39	0.67	0.79	0.81	3.58	0.66	0.70
Openness	3.74	0.61	0.78	3.52	0.64	0.72	0.77	3.97	0.69	0.63

Note. BFAS _ Big Five Aspect Scales; ESCS _ Eugene-Springfield Community Sample; α1 = internal reliability in ESCS sample; α2 = internal reliability in original sample (N _ 480); α3 = internal reliability in retest sample (N _ 90); α4 = internal reliability in our sample (N _ 1163).

M: Mean; SD: Standard Deviation; α: Cronbach’s Alpha

Table 5 Spearman correlations between the IPIP and BFAS-SV

	IPIP E	IPIP A	IPIP C	IPIP I	IPIP ES	IPIP I	BFAS E	BFAS A	BFAS C	BFAS N	BFAS O/I	(Wd)	(VI)	(Cp)	(Pt)	(Nd)	(Od)	(Et)	(At)	(It)	(Os)	Age	
IPIP A	0.34 ***	—																					
IPIP C	0.15 ***	0.27 ***	—																				
IPIP ES	0.19 ***	0.04	0.29 ***	—																			
IPIP I	0.16 ***	0.33 ***	0.33 ***	—																			
BFAS E	0.52 ***	0.41 ***	0.42 ***	0.16 ***	0.51 ***	—																	
BFAS A	0.10 ***	0.62 ***	0.23 ***	0.00	0.23 ***	0.28 ***	—																
BFAS C	0.12 ***	0.28 ***	0.75 ***	0.21 ***	0.38 ***	0.49 ***	0.26 ***	—															
BFAS N	-0.23 ***	-0.04	0.31 ***	-0.86 ***	-0.08	-0.24	0.04	-0.24	—														
BFAS O/I	0.14 ***	0.27 ***	0.33 ***	0.03	0.68 ***	0.54 ***	0.21 ***	0.43 ***	-0.11 ***	—													
Withdrawal (Wd)	-0.25 ***	-0.04	-0.34 ***	-0.70 ***	-0.14	-0.34	0.04	-0.30	0.86 ***	-0.17	—												
Volatility (VI)	-0.17 ***	-0.04	-0.22 ***	-0.81 ***	-0.01 *	-0.11	0.03	-0.14	0.91 ***	-0.04	0.58	—											
Compassion (Cp)	0.18 ***	0.69 ***	0.22 ***	0.04	0.31 ***	0.36 ***	0.85 ***	0.25 ***	-0.06 *	0.26 ***	0.05	0.06	—										
Politeness (Pt)	-0.03	0.27 ***	0.18 **	0.04	-0.05	-0.08 **	0.71 ***	0.20 ***	0.01	0.08 **	0.02	0.00	0.28 ***	—									
Industriousness (Nd)	0.20 ***	0.21 ***	0.69 ***	0.37 ***	0.34 ***	0.49 ***	0.17 ***	0.84 ***	-0.43 ***	0.38 ***	-0.47	-0.31	0.16 ***	0.14	—								
Orderliness (Od)	0.02	0.23 ***	0.58 ***	-0.04	0.30 ***	0.26 ***	0.28 ***	0.82 ***	0.03	0.36 ***	-0.01	0.07 *	0.26 ***	0.22	0.43	—							
Enthusiasm (Et)	0.53 ***	0.41 ***	0.27 ***	0.10 **	0.36 ***	0.81 ***	0.31 ***	0.31 ***	-0.11	0.39 ***	-0.15	-0.07	0.38 ***	0.12	0.30	0.25	—						
Assertiveness (At)	0.34 ***	0.30 ***	0.44 ***	0.15 **	0.52 ***	0.83 ***	0.19 ***	0.51 ***	-0.26	0.53 ***	-0.39	-0.10	0.27 ***	0.03	0.52	0.35	0.39	—					
Intellect (It)	0.23 ***	0.28 ***	0.37 ***	0.12 ***	0.64 ***	0.55 ***	0.17 ***	0.45 ***	-0.19	0.81 ***	-0.25	-0.11	0.22 ***	-0.05	0.46	0.31	0.36	0.57	—				
Openness (Os)	-0.06	0.18 ***	0.18 ***	-0.07 *	0.47 ***	0.35 ***	0.18 ***	0.27 ***	0.03	0.80 ***	-0.02	0.06 *	0.22 ***	0.09	0.17	0.30	0.30	0.31	0.33	—			
Age	0.12 ***	0.03	0.10 ***	0.18 ***	-0.09	-0.04	-0.01	0.02	-0.19	-0.10	-0.16	-0.17	-0.03	0.01	0.11	-0.06	-0.08	0.00	0.05	-0.22	—		
Gender	0.14 ***	0.01	-0.2	0.18 ***	0.06 *	-0.02	-0.13	-0.01	-0.19	-0.05	-0.17	-0.16	-0.10	-0.12	0.04	-0.07	-0.04	-0.02	0.04	-0.14	0.26	—	

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

IPIP=International Personality Item Pool; A=Agreeableness; C=Conscientiousness; ES=Emotional stability; E=Extraversion; I=Intellect
 BFAS=Big Five 5 domains and 10 Aspect Scale; N=Neuroticism (Withdrawal+Volatility); A=Agreeableness (Compassion+Politeness); C=Conscientiousness (Industriousness+Orderliness); E=Extraversion (Enthusiasm+Assertiveness); O/I=Openness/Intellect (Intellect+Openness); The first letter of an aspect is represented by subscript letters

Table 6 Comparison of gender differences in BFAS aspects with statistical significance

Trait	Group	N	Mean	SD	Coefficient of Variation	W	p	Rank-Biserial Correlation	SE Rank-Biserial Correlation
Withdrawal	Women	864	3.302	0.733	0.222	158080.500	< 0.001	0.224	0.039
	Men	299	3.006	0.687	0.229				
Volatility	Women	864	3.508	0.850	0.242	156879.500	< 0.001	0.215	0.039
	Men	299	3.187	0.876	0.275				
Neuroticism	Women	864	3.405	0.704	0.207	161479.500	< 0.001	0.250	0.039
	Men	299	3.097	0.696	0.225				
Compassion	Women	864	3.894	0.650	0.167	145901.500	< 0.001	0.130	0.039
	Men	299	3.744	0.687	0.183				
Politeness	Women	864	3.732	0.488	0.131	149117.000	< 0.001	0.154	0.039
	Men	299	3.599	0.502	0.139				
Agreeableness	Women	864	3.813	0.471	0.124	150386.500	< 0.001	0.164	0.039
	Men	299	3.672	0.523	0.142				
Industriousness	Women	864	3.362	0.648	0.193	121647.500	0.132	-0.058	0.039
	Men	299	3.431	0.620	0.181				
Orderliness	Women	864	3.991	0.663	0.166	140957.500	0.018	0.091	0.039
	Men	299	3.871	0.724	0.187				
Conscientiousness	Women	864	3.677	0.558	0.152	131265.000	0.675	0.016	0.039
	Men	299	3.651	0.594	0.163				
Enthusiasm	Women	864	3.503	0.660	0.188	136011.500	0.170	0.053	0.039
	Men	299	3.453	0.648	0.188				
Assertiveness	Women	864	3.582	0.702	0.196	132196.500	0.544	0.023	0.039
	Men	299	3.549	0.738	0.208				
Extraversion	Women	864	3.542	0.565	0.159	132886.500	0.457	0.029	0.039
	Men	299	3.501	0.608	0.174				
Intellect	Women	864	3.573	0.648	0.181	122036.500	0.152	-0.055	0.039
	Men	299	3.614	0.674	0.187				
Openness	Women	864	3.904	0.668	0.171	152440.500	< 0.001	0.180	0.039
	Men	299	3.688	0.714	0.194				
Openness/Intellect	Women	864	3.738	0.539	0.144	137063.500	0.114	0.061	0.039
	Men	299	3.651	0.613	0.168				

Note. Mann-Whitney U test.

Mean differences between men and women marked in bold

The BFAS-SV proves instrumental in exploring the discriminant validity of different facets within each domain, particularly regarding suppression, where a positive association between two variables obscures their relationship with a third variable. In contrast to prior research [15], our findings did not reveal instances of suppression. The negative correlation between the BFAS Conscientiousness and Neuroticism domains reinforces the established evidence of robust cross-domain correlations within the Big Five personality dimensions [44].

Interestingly, BFAS Conscientiousness, including its two aspects, positively correlates with the IPIP emotional stability domain and negatively associates with the volatility and withdrawal aspects of the BFAS Neuroticism domain. This suggests that Conscientiousness may be adaptive as a positive personality dimension, consistent with previous research [19, 20, 11].

Aspect-level traits exhibit more pronounced patterns of cross-domain correlations than the Big Five traits, presenting a potential advantage for uncovering meaningful cross-domain connections that have received limited attention in Big Five literature [45]. For instance, the strong correlation between Enthusiasm and Compassion aspects may stem from their association with positive emotions and behaviors [46, 47]. Enthusiasm fosters a positive and open approach to situations, enabling individuals to connect with others and empathize with their needs. This disposition often translates into compassionate actions, as enthusiastic individuals are motivated to positively influence others' lives. Likewise, individuals characterized by compassion tend to approach situations with care and support, fostering positive relationships and generating enthusiasm and energy. This reciprocal relationship creates a cycle of positivity, where acts of

compassion fuel enthusiasm, and enthusiasm, in turn, inspires further acts of compassion [46, 48].

While the Enthusiasm and Compassion aspects exhibit a positive association, the Assertiveness and Politeness aspects show a non-significant association. When examining the Extraversion and Agreeableness domains separately, Assertiveness correlates positively with Compassion. However, the non-significant association between Assertiveness and Politeness may stem from cultural role distinctions in certain contexts. In many Arab cultures, there is a strong emphasis on social hierarchy, which influences modes of expression and interactions [48, 49]. This inclination towards politeness, especially in formal or hierarchical settings, may be perceived as more prevalent among women. For instance, the Arabic term “Al-Hayaa,” encompassing notions of bashfulness, decency, modesty, or shyness, often leads to heightened acceptance and admiration in society, particularly in comparison to men. Women may adopt kind and courteous language based on “Al-Hayaa,” emphasizing good manners and sensitivity to others’ feelings [50, 51].

Additionally, the Industriousness/Orderliness aspects of the Conscientiousness domain, along with the Enthusiasm/Assertiveness aspects of the Extraversion domain, and the Intellect/Openness aspects exhibit moderate correlations, averaging 0.35 in this study. Conscientiousness is crucial for work productivity, linking to diligence, organization, and reliability, and is a key predictor of job performance across various occupations [15, 52, 53, 54]. Although extraversion may be less critical for industrial work, openness, characterized by intellectual curiosity—can introduce novel approaches to problem-solving [5, 6]. Our correlational results between BFAS Openness and Conscientiousness suggest that fostering openness may enhance productivity [55].

The relatively low and non-significant correlations between corresponding IPIP Extraversion, particularly for BFAS Agreeableness (0.10), including its two aspects Compassion (0.18) and Politeness (-0.03), as well as BFAS Openness (0.14), including its two aspects Intellect (0.23) and Openness (-0.06), raise concerns about the extent to which these aspects capture shared variance within their respective domains. Previous studies suggest that Agreeableness may be particularly complex. Crowe et al. (2018) uncovered different subdimensions of Agreeableness that may not be uniformly captured by various self-report measures. Similarly, Soto and John (2009) emphasize that facet-level scales of Big Five traits may not always align perfectly with other personality inventories, which could explain the variability in correlations. Regarding Openness, Christensen et al. (2019) propose that it involves both intellectual and experiential facets, which may contribute to the lower correlations observed in this study. Thus, the lower correlations may reflect the unique ways

these traits are captured by the BFAS-SV or potential cultural differences in their expression.

In our study, women exhibited higher levels of Withdrawal and Volatility—two aspects of Neuroticism—compared to men. These findings align with a well-established body of literature indicating that women tend to score higher in Neuroticism across cultures [25, 12, 56, 13]. Gender differences in Neuroticism are one of the most robust and consistent findings in personality psychology, likely due to underlying biological and physiological factors, such as hormonal influences and emotional regulation, rather than primarily cultural factors. While some studies have noted cultural influences on the expression of personality traits, these are often secondary to the biological mechanisms driving gender differences in Neuroticism. Schmitt et al. (2008) conducted a cross-cultural study across 55 nations and found that, despite cultural differences, the gender gap in Neuroticism persists, suggesting that these differences are rooted in more universal biological foundations.

Cultural and societal expectations may impact men and women differently in Arab societies, influencing emotional expression and susceptibility to stress. Traditional gender roles may socialize women to be more emotionally expressive, while men may be encouraged to display emotional restraint [18, 47, 50]. Additionally, the discrimination faced by women in many Arab societies can contribute to heightened stress and anxiety, possibly elevating scores on Neuroticism measures [57, 4]. Another potential explanation for these differences could be influenced by Libya’s socio-political context. Given Libya’s history of economic instability, challenging living conditions, limited access to resources, and exposure to violence [58], such factors may influence the development of certain personality traits, as suggested by previous research [19].

Although the Compassion and politeness aspects of the BFAS showed higher scores in Favor of women. Women in Arab culture may express a higher level of compassion and politeness, Arab society places great value on hospitality, respect, and politeness, instilling these virtues from an early age. Hospitality and generosity towards guests and others are regarded as virtues in many Arab societies, with politeness and respect seen as indicators of good character [59].

Research indicates that, on average, women tend to exhibit slightly higher scores on measures of openness compared to men [14, 60]. Our study found that women scored higher than men on BFAS Openness, contradicting some previous findings [18]. This discrepancy may relate to Libya’s recent transition towards democracy since 2011, where women have made significant strides towards political engagement. Previous studies have linked Openness to political and economic liberalism

[61]. Theories also suggest that women may be socialized to be more attuned to social cues, enhancing their openness to new experiences [62]. Women's engagement in multitasking duties, which require executive functions, may also contribute to their heightened openness [60].

Among Libyan Arabs, women exhibit higher levels of Agreeableness (including Compassion and Politeness), greater Orderliness, and increased Openness. However, no disparities were found in the Industriousness aspect of conscientiousness, nor in the Extraversion domain and its two aspects, Assertiveness and Enthusiasm, and the Intellect aspect of Openness/Intellect. This suggests that, for these domains and aspects of the BFAS, gender differences may not significantly impact personality traits among Libyan Arabs. The absence of disparities in traits such as Extraversion (including Enthusiasm and Assertiveness), Industriousness, and Intellect indicates that men and women in this sample may share similarities in work ethic and social engagement.

Strength and limitation

The BFAS-SV assessment scale is a promising tool for personal and professional development. It enhances self-awareness, refines goal-setting strategies, provides valuable feedback, fosters adaptability, and facilitates continuous self-assessment. Notably, the associations observed in this study reinforce the utility of abbreviated scales for cross-cultural research, as previously demonstrated in large-scale studies conducted in Western contexts [7]. For Arab individuals, the BFAS-SV offers a way to recognize and enhance various dimensions of their personal traits, potentially increasing motivation and sharpening focus on achieving life goals. Additionally, the BFAS-SV serves as a valuable resource for Arab researchers, allowing them to better understand their strengths, weaknesses, values, and aspirations across different BFAS factor domains.

However, this research has limitations due to the online survey methodology. The reliance on self-report scales may have introduced social desirability bias, influencing participants' responses. Furthermore, the gender distribution was imbalanced, with men comprising only 25.7% of the total sample.

Some items were removed compared to the original study due to low loadings (less than -0.30). We suggest employing item response theory to explain the differences in the number of identified items.

The relatively lower correlations between BFAS-SV Extraversion (0.52) and BFAS-SV Agreeableness (0.62) with their IPIP counterparts align with previous research on short forms of the Big Five, such as the findings from Topolewska et al. (2014). This indicates that while the BFAS-SV captures the broader dimensions of these traits, the specific aspects measured by each instrument

may differ, resulting in moderate correlations. However, the observed correlations between BFAS-SV Extraversion and other traits, such as BFAS-SV Conscientiousness (0.49) and BFAS-SV Openness (0.54), raise concerns regarding discriminant validity. These findings suggest the need for further research to determine whether these correlations reflect overlaps in trait measurement or are influenced by factors such as cultural contexts or methodological differences.

Moreover, despite cultural and linguistic similarities among Arab populations, significant variations may affect the test's validity. Cultural sensitivity is essential; therefore, it is important to include culturally relevant test items and scoring methods. Differences in understanding certain concepts or behaviors across Arabic cultures may impact the test's relevance and fairness. A reassessment of this scale is necessary to verify the presence of the 10 specified aspects within new Arab populations. While shared characteristics may exist, a cautious approach is crucial when applying the test to different Arab groups. A thorough retesting of the BFAS-SV in new Arab populations is typically recommended to ensure its reliability and validity.

Conclusion

The study aimed to examine the psychometric properties of the Big Five Aspect Scale - Short Version (BFAS-SV) using confirmatory factor analysis. The findings indicate that the Arabic BFAS-SV is reliable, valid, and suitable for use within the Arab population. This research significantly enhances the range of personality measurement tools available in Arabic. By translating and validating the BFAS-SV in a Libyan Arab sample, the study provides researchers and practitioners in Arabic-speaking countries with an effective tool for assessing personality traits.

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s40359-024-02270-y>.

Supplementary Material 1

Supplementary Material 2

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Author contributions

Mohamed Ali: Conceptualization, Project administration, Investigation, Methodology, Writing-original draft preparation, Writing- review& editing, Validation, Formal analysis. Alhadi M. Jahan: Data curation, Writing- review& editing. Rasha Mohamed Abdelrahman: Conceptualization, Visualization,

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Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethical approval

This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. Ethical approval was obtained from the Institutional Review Board (IRB) of the University of Misrata, College of Medical Technology, under reference number SK.23-1015.

Consent to participate

Participants provided their consent voluntarily through an online form to participate in this study. They were informed that they could withdraw from the survey at any time without facing any negative consequences. The participants understood that their involvement would require completing a survey, which is expected to take approximately 45 min.

Consent for the publication

Not Applicable.

Competing interests

The authors declare no competing interests.

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