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## Personality traits and demographic characteristics: a validation study of the Big Five in the Moroccan context

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### Abstract

**Context and relevance.** This study investigates the Big Five personality traits within the Moroccan context, exploring their relationship with age, gender, and education level. **Objective.** This study aimed to assess the psychometric properties of the Arabic BFI within the Moroccan population and to explore the relationship between personality traits and various demographic factors. **Methods and materials.** Using the Arabic version of the Big Five Inventory (BFI), we surveyed 1537 individuals across Morocco. **Results.** The Arabic BFI displayed acceptable internal consistency (Cronbach's alpha = 0,72), and good convergent and discriminant validity. There were gender differences, with women scoring higher on neuroticism and men scoring higher on openness and conscientiousness. Age showed significant associations, with neuroticism decreasing and extraversion, agreeableness, and conscientiousness increasing as individuals grew older. **Conclusions.** These findings confirm that the instrument can be used in Arabic-speaking populations and provide valuable insights into the nature of personality traits within the Moroccan population in the North African context.

**Keywords:** Arabic BFI, Big Five personality, Moroccan population, psychometrics, demographic characteristics

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## Черты личности и демографические характеристики: валидационное исследование модели Большой пятёрки среди населения Марокко

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### Резюме

**Контекст и актуальность.** Настоящее исследование посвящено изучению черт личности у жителей Марокко по модели Большой Пятёрки и анализу их взаимосвязи с возрастом, полом и уровнем образования. **Цель.** Исследование было направлено на оценку психометрических характеристик с помощью арабской версии опросника Большой пятёрки (BFI) в контексте марокканской популяции, а также на исследование взаимосвязи между личностными чертами и различными демографическими факторами. **Методы и материалы.** В рамках данного исследования использовалась арабская версия опросника Большой пятёрки (BFI), с помощью которой был проведен опрос 1537 участников по всей территории Марокко. **Результаты.** Полученные результаты продемонстрировали, что арабская версия BFI обладает приемлемой внутренней согласованностью (коэффициент альфа Кронбаха = 0,72); также отмечаются высокие показатели конвергентной и дискриминантной валидности. Обнаружены существенные различия в показателях в зависимости от пола: женщины демонстрировали более высокие уровни нейротизма, в то время как у мужчин отмечались более высокие показатели по открытости и добросовестности. Кроме того, выявлены значимые корреляции с возрастом: по мере старения уровень нейротизма снижался, тогда как показатели экстраверсии, сознательности и добросовестности возрастали. **Выводы.** Полученные результаты подтверждают, что этот инструмент можно успешно использовать в арабоязычных группах населения. Кроме того, они помогают лучше понять особенности личностных черт у людей в марокканском обществе и в целом в Северной Африке.

**Ключевые слова:** Арабская версия BFI, Большая пятерка, население Марокко, психометрия, демографические характеристики

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## Introduction

The trait theory of personality has been widely used and accepted in the psychological community as a comprehensive framework for understanding individual differences in behavior, cognition, and emotion. One of the most influential and widely researched trait models is the Big Five. It asserts that personality can be characterized into five broad dimensions: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience. The Big Five personality traits have been found to be relatively stable over time and across cultures, making them a valuable tool for comprehending human behavior and forecasting a range of social and economic outcomes.

The Big Five Inventory (BFI) is one of many tools that have been created to evaluate the Big Five traits by Oliver P. John, Donahue, and Kentle in 1991 (John, Donahue, Kentle, 1991). They were inspired by the earlier work of Paul Costa and Robert R. McCrae, who were the first to create the NEO Personality Inventory (Costa, McCrae, 1985), a thorough and widely used personality test based on the Five-Factor Model of Personality.

The goal of Oliver P. John and his colleagues was to develop a shorter, more straightforward test that would be more usable by researchers and enable cross-cultural comparisons of personality traits. Their research resulted in a 44-item self-report assessment, each measuring one of the five personality dimensions. Despite its brevity, BFI's concision does not come at the expense of adequate content coverage or psychometric quality (John, Srivastava, 1999).

The original version of the questionnaire in English has already been proven valid and reliable (John, Srivastava, 1999). It has also been concurrently tested in fifty-six countries to determine whether its concepts are universal across cultural boundaries (Schmitt et al., 2007).

The questionnaire has been translated and validated in many languages, including Brazilian Portuguese (Junior et al., 2022), Spanish (Benet-Martínez, John, 1998), French (Plaisant et al., 2010), Dutch (Denissen et al., 2008), Danish (Palsson et al., 2020), Russian (Mishkevich, 2016), Arabic (Al Ansari, AlAli, 2018), Georgian (Martskvishvili, Sordia, Neubauer, 2020), Chinese (Carciofo et al., 2016), Sawahili (Garrashi, Barelds, De Raad, 2023), and others (Husain et al., 2025).

Using the original and translated versions of the BFI, researchers have investigated the relationship between the Big Five personality traits and demographic and socioeconomic characteristics, such as age (Carciofo et al., 2016; Denissen et al., 2008), gender (Benet-Martínez, John, 1998; Carciofo et al., 2016; Denissen et al., 2008), education (Denissen et al., 2008), race/ethnicity/country (Schmitt et al., 2007), color preferences (Jue, Ha, 2022), earnings (Vella, 2024), socioeconomic status (educational attainment, income, and occupational prestige) (Hughes et al., 2021), migration behaviour (Décieux, Altmann, 2024), and nutrition-related variables (eating habits, physical activity, and obesity) (Pristyna et al., 2022). The findings of these studies suggest that demographic factors play a significant role in shaping personality traits, and highlight the importance of considering these factors when studying personality.

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This importance is further emphasized by cross-cultural studies examining the distribution of personality traits worldwide. For instance, a large cross-cultural study spanning fifty-six countries (Schmitt et al., 2007), in which 182 college students represented Morocco, discovered several cross-cultural patterns, such as people from Africa and East Asia being significantly different in conscientiousness, and people from South America and East Asia being significantly different in openness compared to other world regions.

One limitation of existing studies on Morocco is the use of the English version of the BFI. This choice may not accurately capture the nuances of the Moroccan language and culture. To address this issue, in the present work, we aim to use an Arabic version of the BFI, validated for use with Arabic-speaking populations. Using an Arabic BFI will allow for a more culturally sensitive assessment of Moroccan people's Big Five personality traits, and provide a more accurate understanding of the relationship between personality and demographic characteristics. Thus, the primary purpose of this research is to investigate (1) the validity and reliability of the Arabic version of the BFI in Morocco, and (2) the relationship between the Big Five personality traits and demographic factors in Morocco.

## Materials and methods

### Materials

The Arabic version of the BFI used in this study was adapted and published by Al Ansari and AlAli in 2018 (Al Ansari, AlAli, 2018). They based their adaptation on a back-translated version of the BFI, which they further refined through professional review to ensure better alignment with the original English version (see (Al Ansari, AlAli, 2018) for more details). The questionnaire is relatively brief (forty-four items) and is divided into five subscales, one for each of the five personality traits. It evaluates how well different short phrases apply to the responders. Each item in the inventory (question) is assessed on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), and some items are reverse-scored (1 = I strongly agree, 5 = I strongly disagree).

Trait scores range from one to five and are calculated as the responder's mean item response (i.e., adding all items scored on a scale and dividing by the number of items). The following are the questions (Q) associated with each trait (R denotes reverse-scored items):

- Agreeableness (AGR): Q2\_R, Q7, Q12\_R, Q17, Q22, Q27\_R, Q32, Q37\_R, Q42 (nine items)
- Conscientiousness (CON): Q3, Q8\_R, Q13, Q18\_R, Q23\_R, Q28, Q33, Q38, Q43\_R (nine items)
- Extraversion (EXT): Q1, Q6\_R, Q11, Q16, Q21\_R, Q26, Q31\_R, Q36 (eight items)
- Neuroticism (NEU): Q4, Q9\_R, Q14, Q19, Q24\_R, Q29, Q34\_R, Q39 (eight items)
- Openness (OPN): Q5, Q10, Q15, Q20, Q25, Q30, Q35\_R, Q40, Q41\_R, Q44 (ten items)

### Procedure

The BFI was administered to volunteers via the internet. Participants were asked to complete an online survey (in Arabic) (*Personality Test*, 2021) that included the personality test and demographic information such as gender, age range, occupation, level of study, and specialty. Before participating,

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the participants were informed about the purpose of the research and the researchers' information, and their participation was entirely voluntary and unpaid. The participants provided explicit consent to use their data for the study. This study employed a nonprobabilistic sampling method, specifically utilizing the snowball technique.

We distributed the online survey through our university's email network. To expand the sample, we invited people to participate in social media groups. Participation was anonymous and the confidentiality of the participants' responses was ensured.

### ***Participants***

This study involved 1537 Moroccans from all over the country. The participants included 28.5 percent (n=438) males and 71.5 percent (n=1099) females. They ranged in age from eighteen to sixty-four years and were divided into five categories: 18-24 (36,6%), 25-34 (32,5%), 35-44 (18,2%), 45-54 (10,6%), and 55-64 (3,2%). All participants were either employed (45%) or studying (39%), with the remainder not specified (16%). Participants had an average education level of 15,7 years (SD = 2,7). Their academic specialties included science (29%), economics (13%), literature (12,3%), humanities (12%), engineering (11,1%), law (7,7%), medicine (5,3%), art (0,5%), and other specialties (9,1%).

### ***Statistical Analysis***

Using the Software Jamovi2.3.28, we investigated the scale's reliability by comprehensively examining various indices, including Cronbach's alpha, McDonald's omega, Guttman6, the Guttman split-half coefficient, inter-item correlations, and discriminant and convergent validity. To determine the adequacy of internal consistency, alpha, omega, and Guttman6 values equal to or exceeding 0,60 were deemed acceptable (Shi, Mo, Sun, 2012).

To explore the relationship between education level and the Big Five traits, we employed Spearman's rank correlation coefficient. Additionally, the impact of gender and age categories on the Big Five traits was evaluated using a non-parametric Independent Samples T-test and Kruskal-Wallis one-way ANOVA, respectively.

This section provides a detailed description of the research methodology. A comprehensive explanation of the methods used allows readers to evaluate their appropriateness, reliability, and validity. It is advisable to include subsections in the Materials and methods section. Common subsections include: Participants (description of the sample, including age, gender, sample size, inclusion/exclusion criteria, etc.). Procedures (description of experimental manipulations, interventions, data collection methods, sample selection procedures, study design characteristics, etc.). For quantitative research, statistical analysis methods should also be described.

## **Results**

### ***Scale Reliability***

The results of the internal consistency and reliability measures, presented in tab.1, demonstrate that the total scale of the Big Five has high scores with a coefficient  $\alpha$  of 0,72, McDonald's  $\omega$  of 0,78,

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and Guttman6 of 0.81. The Cronbach's  $\alpha$  coefficients for the individual sub-scales range from 0,62 (AGR) to 0,80 (NEU), with McDonald's  $\omega$  ranging from 0.68 (AGR and EXT) to 0.81 (NEU), and Guttman6 coefficients ranging from 0,62 (AGR) to 0,80 (NEU). The split-half coefficients range from 0,58 (AGR) to 0,77 (NEU). These results collectively indicate an overall acceptable internal consistency for the Arabic BFI.

Table 1

**Means, Standard Deviations, Medians, and Statistical reliability measures of the Arabic BFI**

Trait	M(SD)	Median	Cronbach's $\alpha$	McDonald's $\omega$	Guttman6	Guttman Split-Half Coefficient
Agreeableness	3,82(0,51)	3,89	0,62	0,68	0,62	0,58
Conscientiousness	3,59(0,62)	3,56	0,72	0,74	0,72	0,67
Extraversion	3,11(0,63)	3,13	0,67	0,68	0,68	0,69
Neuroticism	3,18(0,79)	3,25	0,80	0,81	0,80	0,77
Openness	3,75(0,53)	3,80	0,73	0,76	0,73	0,66
M(44 BFI Items)	3,87(1,01)	3,83	0,72	0,78	0,81	0,71

### ***Convergent And Discriminant Validity***

The results of the convergent and discriminant validity assessment, presented in tab.2, demonstrate a high level of validity for the measurement. Almost all items exceeded the 0,4 criteria for convergent validity across all scales, with only items Q21 (Tends to be quiet), Q35 (Prefers work that is routine), and Q41 (Has few artistic interests) showing correlations slightly below the threshold, ranging from 0,37 to 0,39. Additionally, most correlations between the items and their respective scales were significantly higher than those with other scales, indicating good discriminant validity. The only exception was item Q26 (Has an assertive personality), which displayed a slightly higher correlation with the openness trait than extraversion. These findings suggest strong convergent and discriminant validity of the measurement tool.

Table 2

**Convergent and discriminant validity of Arabic BFI**

	Agreeableness	Conscientiousness	Extraversion	Neuroticism	Openness
Item-convergent validity scaling error a	0/9	0/8	1/8	0/8	2/10
Divergent-validity scaling error b	0/36	0/36	0/28	0/28	1/24

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Item-own-scale correlation	0,45-0,76	0,49-0,76	0,63-0,86	0,44-0,74	0,45-0,69
Item-other-scale correlation	0,15-0,55	0,16-0,53	0,17-0,53	0,06-0,50	0,06-0,64

*Note.* a: number of item-scale correlations lower than 0,40/total number of item-scale correlation.

b: number of correlations of items with own scales not significantly higher than correlations with other scales.

### ***Inter-Factor Correlations***

The results of the inter-correlations between the BFI dimensions, as shown in tab.3, revealed generally weak and positive correlations among all the traits, except for neuroticism, which displayed weak negative correlations with all other traits.

Table 3

**Inter-factor correlations between the five traits of the Arabic BFI**

Trait	Agreeableness	Conscientiousness	Extraversion	Neuroticism
Conscientiousness	0,30***			
Extraversion	0,15***	0,37***		
Neuroticism	-0,24***	-0,33***	-0,12***	
Openness	0,14***	0,39***	0,43***	-0,23***

*Note.* «\*\*\*»— p-value <.001

### ***Demographic Factors And Personality Traits***

The analysis of the relationship between personality traits and demographic factors, as shown in tab.4, revealed notable and significant connections.

Table 4

**Relationships between the Big Five traits and gender, educational level, and age categories**

	Agreeableness	Conscientiousness	Extraversion	Neuroticism	Openness
<b>Gender</b>					
<b>Median values</b>					
Female	3,89	3,56***	3,13	3,38 ***	3,70***
Male	3,78	3,67***	3,13	2,88***	3,80***
Effect Size (Cohen's d)	0,05	-0,13	-0,04	0,52	-0,16

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<b>Education level - Spearman's coefficient</b>	-0,098***	0,17***	0,071**	-0,142***	0,04
<b>Age Category – Median values</b>					
18-24	3,78	3,44	3,00	3,38	3,70
25-34	3,89	3,67	3,13	3,25	3,70
35-44	3,89	3,78	3,25	3,13	3,80
45-54	4,00	3,89	3,25	3,00	3,80
55-64	3,89	4,11	3,38	2,63	3,90
p-value	<,001	<,001	<,001	<,001	0,050
Effect Size Eta-squa	0,02	0,05	0,02	0,03	0,01

*Note:* «\*\*\*»— p-value <.001

Concerning gender, there are significant differences in conscientiousness, neuroticism, and openness. The findings indicate that women tend to have higher neuroticism scores ( $d = 0,52$ ,  $p < 0,001$ , indicating a medium effect size), whereas men score higher than women, with a small effect size, in openness ( $d = -0,16$ ,  $p < 0,001$ ) and conscientiousness ( $d = -0,13$ ,  $p < 0,001$ ).

On the other hand, education level demonstrated a noteworthy yet relatively weak correlation with four traits. It displays a positive correlation with conscientiousness and extraversion, while conversely, it exhibits a negative correlation with agreeableness and neuroticism. This indicates that as the education level increases, there is an inclination for conscientiousness and extraversion scores to rise, while agreeableness and neuroticism scores decline.

Moreover, our analysis underscores an association between age categories and the five personality traits, excluding openness. The data highlighted that as age categories advanced, scores for agreeableness, conscientiousness, and extraversion tended to increase, while neuroticism scores tended to decrease.

## Discussion

### *Scale Reliability*

The reliability of a measurement tool is paramount for ensuring the consistency and accuracy of the obtained results. In this study, the internal consistency and reliability of the Arabic version of the BFI were rigorously assessed using multiple indices. The obtained coefficients of  $\alpha$ , McDonald's  $\omega$ , Guttman6, and Guttman split-half demonstrated satisfactory levels of internal consistency for both the total scale and individual traits. The overall Big Five scale showed good internal consistency, as

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evidenced by the  $\alpha$  coefficient of 0,72. Notably, this result surpasses the internal consistency reported in the Arabic version administered to undergraduate students in Kuwait (0,67) (Al Ansari, AlAli, 2018). Furthermore, it aligns closely with the levels of internal consistency observed in other translations, such as the French (0,79) (Plaisant et al., 2010) and Spanish (0,78; 0,72) (Benet-Martínez, John, 1998; Zamorano et al., 2014) versions.

The variation in Cronbach's alpha coefficients across different versions of the BFI in various languages and cultural contexts is an intriguing observation that underscores the complexity of personality measurement and its cultural nuances. The slight differences in alpha coefficients between the original (0.83) (Benet-Martínez, John, 1998) and translated versions, including the current Arabic version, can be attributed to several factors that merit discussion.

First, the linguistic and cultural adaptation of the BFI may have influenced participants' understanding of the items. Translating psychological constructs across languages while maintaining conceptual equivalence can be challenging, leading to variations in participants' responses, thus impacting internal consistency. This challenge is particularly pronounced in the case of Moroccan Arabic, also known as *Darija* (Dialect), a colloquial form of Classical Arabic commonly spoken by Moroccans as their native language. *Darija* has a unique vocabulary, grammar, and pronunciation influenced by the Berber, French, and Spanish languages.

Second, cultural norms and societal values can influence individuals' responses to certain items. Different cultural contexts may prioritize certain traits over others, leading to variations in how participants rated themselves on the scales. This variation in response patterns can contribute to fluctuations in internal consistency coefficients across different language versions.

Examination of individual traits further revealed acceptable internal consistency, with Cronbach's  $\alpha$  coefficients ranging from 0,62 to 0,80. The lowest score was associated with agreeableness, as in the original BFI (0,79) (Benet-Martínez, John, 1998), Arabic (0,32) (Al Ansari, AlAli, 2018), Spanish (0,66) (Benet-Martínez, John, 1998), Mexican (0,62) (Zamorano et al., 2014), Dutch (0,73) (Denissen et al., 2008), and Danish (0,73) (Palsson et al., 2020) studies.

The lower Cronbach's alpha coefficient observed for agreeableness is not uncommon. This can be attributed to various factors inherent in the construct of agreeableness and the nature of the items within the trait.

One possible explanation is that some items related to agreeableness may be more context-dependent or culturally influenced, causing response fluctuations that could impact internal consistency. Furthermore, agreeableness involves interpersonal behaviors that can be affected by situational factors, making it more prone to fluctuating responses across different settings or time points.

### ***Scale Validity***

The results regarding the convergent and discriminant validity of the measurement tool provided crucial insights into the effectiveness of the Arabic version of the BFI in capturing the intended constructs. The high level of convergent validity observed in this study, indicated by most items surpassing the 0,4 threshold, reflects the consistent pattern of correlations among items within each

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trait. This pattern suggests that the items within each trait measure the same underlying personality trait, further confirming the construct validity of the measurement.

While items Q21, Q35, and Q41 exhibited correlations slightly below the threshold, ranging from 0,37 to 0,39, it is essential to note that these correlations were still within the proximity of the accepted benchmark and may be reflective of the nuanced nature of personality traits. It should be noted here that these items were reverse-coded. Reverse coding adds a layer of complexity to these correlations, potentially influencing how participants interpreted and responded to negatively worded items.

Moreover, the findings related to discriminant validity provided additional support for the construct validity of the measurement tool. The majority of correlations between the items and their respective scales were significantly higher than their correlations with other scales, underscoring the distinctiveness of each personality trait being measured. This pattern of correlations suggests that the Arabic BFI effectively differentiates between the Big Five traits, thus contributing to the overall validity of the instrument.

The presence of an exception (Q26) warrants further investigation. This finding could reflect the shared characteristics between assertiveness and specific aspects of openness to experience, highlighting the intricate interplay between personality traits and the inherent complexity of human behavior.

Regarding inter-correlations between traits, the majority of the traits displayed a relatively independent relationship, with an average absolute scale intercorrelation of 0,27. These findings align with those of similar studies (Carciofo et al., 2016; Denissen et al., 2008), which also reported comparable results. However, some exceptions are observed. Most notably, there was a moderate positive correlation between openness and extraversion (0,43,  $p < 0,001$ ). Furthermore, the observed negative correlation between neuroticism and the other scales is consistent with findings from the original version of the BFI (Benet-Martínez, John, 1998) and the different translated versions (Carciofo et al., 2016; Denissen et al., 2008).

### ***Demographic Factors And Personality Traits***

Regarding the second research question, significant differences were found between the two genders in terms of personality traits. The finding that women have higher scores in neuroticism than men is consistent with research encompassing fifty-five cultures (Schmitt et al., 2008), as well as findings from the original BFI (Benet-Martínez, John, 1998), Spanish (Benet-Martínez, John, 1998), Dutch (Denissen et al., 2008), Arabic (Al Ansari, AlAli, 2018), and Chinese (Carciofo et al., 2016) BFI versions, among others. This consistency reinforces the statement put forth by (Benet-Martínez, John, 1998): ‘Women tend to score slightly higher on neuroticism and agreeableness regardless of instrument, language, and culture.’ Similarly, our observations regarding agreeableness reflect these trends, albeit without reaching statistical significance.

Conversely, in our study population, men scored higher than women for conscientiousness and openness. According to a cross-cultural study (Schmitt et al., 2008), women consistently outperformed men in conscientiousness across twenty-three countries. Notably, only in India and Botswana did men outperform women in conscientiousness. The Chinese sample study also supports the finding that women score higher than men on conscientiousness (Carciofo et al., 2016). In

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addition, the report found that men scored higher on openness than women across thirty-seven cultures (with eight cultures showing a statistically significant difference). However, this result contradicts the findings of the Chinese study (Carciofo et al., 2016) and the Kuwaiti population study (Al Ansari, AlAli, 2018).

Furthermore, our investigation revealed a significant but weak correlation between education level and four of the five personality traits (excluding openness). This observation indicates that education may have a minor influence on the expression of these personality traits within the studied population. This result is consistent with those of previous research (Goldberg et al., 1998; Hughes et al., 2021). According to a study conducted on a Dutch-speaking population (Denissen et al., 2008), education level is positively correlated with openness and conscientiousness and negatively correlated with neuroticism. Our results agree with these findings in the cases of conscientiousness and neuroticism but not in the case of openness.

In terms of age categories, our findings, along with those of previous studies, underscore the association between age and the expression of specific personality traits in different cultural populations. Within our Moroccan population, we identified a significant correlation between age categories and neuroticism, extraversion, agreeableness, and conscientiousness. This suggests that as people age, their levels of neuroticism tend to decrease, whereas their levels of extraversion, agreeableness, and conscientiousness tend to increase. Interestingly, we found no significant association between age and openness, implying that age might not determine the level of openness displayed by individuals in this population. Our findings regarding conscientiousness, agreeableness, and neuroticism are consistent with those of a large cross-sectional study (Soto et al., 2011).

We discovered some interesting differences when comparing our findings with those of other cultural groups. Age was positively correlated with openness, conscientiousness, and agreeableness in the Dutch-speaking population (Denissen et al., 2008), and negatively correlated with neuroticism, with no significant correlation with extraversion. Conversely, age has a positive association with agreeableness and conscientiousness, a negative association with neuroticism and openness, and no significant association with extraversion in the Chinese population (Carciofo et al., 2016).

These cross-cultural differences emphasize the importance of considering cultural contexts when examining the relationships between personality traits and demographic factors. The variations observed in the associations between gender, education, age, and personality across different populations suggest that cultural factors may play a significant role in shaping the developmental trajectories of personality traits. It also highlights the need for further research to investigate the cultural factors that contribute to these differences and gain a more comprehensive understanding of the interaction between demographic characteristics, culture, and personality.

### ***Limitations And Future Work***

The study's cross-sectional design prevents causal inferences and tracking of potential personality traits and demographic changes over time. However, it lays the groundwork for more detailed and comprehensive research. Furthermore, online data collection may have introduced selection bias, as participation was restricted to individuals with internet access. However, we gathered data from people of various socioeconomic backgrounds and levels of academic achievement, which is

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considered more diverse and representative than other studies that rely solely on college students. Additionally, the nature of self-report measures could lead to response biases and social desirability effects, thereby influencing data accuracy. We attempted to mitigate this effect by anonymously collecting data. Finally, while efforts were made to ensure the accuracy and reliability of the Arabic version of the BFI, language and translation nuances could still influence the instrument's validity.

Future research should address these limitations to improve our understanding of the Moroccan society's relationship between personality traits and demographic factors. Longitudinal studies would provide a more dynamic perspective on how personality traits change across different life stages. Incorporating more diverse demographic variables and exploring their potential interactions could also offer a more comprehensive picture of the factors that shape personality traits. Extending the study to include a broader representation of the Moroccan population, including individuals from various socioeconomic backgrounds and regions, would improve the generalizability of the findings.

## Conclusions

This study has contributed to Arabic language personality research by evaluating the psychometric properties of the Arabic translation of the BFI administered to a Moroccan population. Overall, there was acceptable internal consistency and good convergent and discriminant validity, affirming the utility of the Arabic BFI as a valid and reliable tool for assessing personality traits in the Moroccan population. The investigation of this population revealed various patterns of association between personality traits and demographic factors, which are consistent with the existing literature. We found some significant gender differences, as well as a tendency for some traits to increase with age and others to decrease with age.

This study provides a preliminary look at the potential relationship between personality traits and specific demographic factors. However, delving deeper into the underlying reasons behind these associations and exploring the unique cultural dynamics within Morocco that contribute to certain differences from other populations warrant further investigation.

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Ilham Chaker — Conceptualization, Methodology, Writing - Review & Editing, Supervision

Azeddine Zahi — Conceptualization, Methodology, Supervision

All authors participated in the discussion of the results and approved the final text of the manuscript.

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Хаула Шрайби — Концептуальная разработка, планирование методов, проведение исследования, подготовка первоначальной версии текста, редактирование и доработка текста.  
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### **Conflict of interest**

The authors declare no conflict of interest.

### **Конфликт интересов**

Авторы заявляют об отсутствии конфликта интересов.

### **Ethics statement**

All procedures performed involving human participants were in accordance with the ethical standards of the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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