



Adaptation and Validation of the Big Five Inventory-2-Short Form in a Sample of Moroccan Young Adults

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ABSTRACT

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A Person's reactions and human behavioral information may be easily understood and anticipated if the personality traits underlying differences are correctly identified. The purpose of this study is to examine the adaptation and validation of the Big Five Inventory 2 Short Form (BFI-2-S) in the Moroccan context. This measure identifies the five major personality traits of persons: extraversion, agreeableness, conscientiousness, negative-Emotionally, and open-mindedness. The factor analysis confirms the five domains described by the BFI-2-S authors. The means and internal consistency of the five domains obtained are very satisfactory and close to those found in previous studies. The psychometric properties obtained from this study support the BFI-2-S's applicability to Arabic-speaking young adults in the Moroccan context.

KEYWORDS:

Adaptation, Validation, Arabic version, BFI-2-S, Big Five Inventory

1. INTRODUCTION

Persons differ from one another based on their character traits. A personality trait is a term that covers a set of human behavioral information, as well as a variety of other attributes in a person (Soto & John, 2017b). The big five domains that characterize person's personalities are defined as extraversion, agreeableness, conscientiousness, negative emotionality, and open-mindedness (McCrae & Costa Jr., 2008).

The Big Five Inventory (BFI) is a model of these five personality dimensions. It was developed by John (1989, 1990) on the basis of a list of selected trait descriptive adjectives that were categorized and turned into concise and comprehensive short phrases that comprise the BFI items, using a rational-empirical approach.

Several studies have been conducted by researchers interested in personality traits relying on the original BFI, using various approaches, although the most commonly utilized is the hierarchical approach (Soto & John, 2017b). The hierarchical approach is based on the presence of five major personality traits labeled "Domains," and each major trait has

a set of minor traits labeled "Facets" that are most descriptive and specific to it (Costa Jr. & McCrae, 1995). Various research was performed to make the original BFI short and easy to use by participants while maintaining its sufficiency; therefore, many revised versions were developed: BFI-2(60 items) (Soto & John, 2017b), BFI-2-S(30 items), and BFI-2-XS(15 items) (Soto & John, 2017a).

In sum, BFI works aimed to make big domains more precise and narrow, and instead of having a tree or multiple facets within a big domain, it's more likely to obtain one specific and central facet (Soto & John, 2017a). Personality traits were found to have a significant impact on person decision making styles (Bayram, 2017; El Othman et al., 2020), they were also revealed to have a substantial impact on the person's gratitude, which is an essential human virtue, through emotional intelligence (Szczeniak et al., 2020), they were also found to have a strong relationship with attachment styles, thus a personality trait can be predicted by the person's attachment style, and through identifying the personality trait, the attachment style can be easily identified (Nofle & Shaver, 2006).

Personality traits, decision making styles, and attachment styles are all associated factors; understanding an individual's personality traits helps to identify their dominant decision making style and attachment pattern simultaneously (Deniz, 2011).

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These results highlight the need of concentrating on personality traits in order to understand and predict individuals' behavior across fields and ages, particularly when personality traits are almost identical at older and younger ages (Soto & John, 2012).

The need to adapt and standardize a personality trait measure in order to use it in our thesis project, entitled "Decision Making Styles and Parental Attachment," as well as in various research studies alongside other measures to obtain a better understanding of individuals' behaviors in the Moroccan context, especially if the measure has high validity, reliability, is simple to use, and does not require much time from participants (Soto & John, 2017a).

Researchers in personality psychology has started to publish many personality trait measurements since the end of the 1980s; however, practitioners in the field have found some difficulties in determining the most appropriate scale to adopt, due to their similarity: they share the same name "Big Five," but differ slightly in the concepts they measure, and a lack of an organized theoretical framework (John et al., 2008). However, in recent decades, researchers have reached an integrative consensus that seeks to invest in, rather than replace, the prior measures since they provide an accurate and comprehensive description of the personality traits (John et al., 2008). This shared taxonomy of the Big Five began with the natural language that people use, understand, and practice in their daily lives to describe their and others' behaviors, beginning with the researcher Klages in 1926, Baumgarten in 1933, and Allport and Odbert in 1936, where they worked according to a lexical approach to extract all the terms describing the personality from the "Dictionary" (John et al., 2008).

Norman (1963) was capable of organizing a list of traits derived from Cattell's (pioneer) 35 variables into five categories, which he termed Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Culture. The five factors were called "The Big Five" later on. Since then, a number of personality researchers have analyzed and refined this model, with some retaining the label "Big Five" but introducing minor changes to the names of the major factors or/and the names/number of variables, while others have produced alternative models with different labels (John et al., 2008). As a result, there are several personality traits scales available, as well as thousands of articles on the subject.

The purpose of this study is to adapt and validate the BFI-2 S (30 items) in Arabic in the Moroccan context.

The BFI 2 S (Soto & John, 2017a) is a revised, short, and robust version of the BFI, with strong psychometric properties, based on a set of selected traits and descriptive adjectives that were turned into short and simple phrases by adding synonymous, definitions, or making them in an appropriate context.

The BFI-2 S has been adapted and validated in a variety of languages, revealing its excellent reliability and validity.

It has been validated in many languages, including German (Rammstedt et al., 2020), Danish (Vedel et al., 2021), Slovak (Koht et al., 2020), Norwegian (Fillesdal & Soto, 2022), Chinese (Zhang et al., 2019), and Arabic (AL-Ansari & Al-Ali, 2022).

The big personality traits or domains can be defined by referring to the narrow traits or facets that describe them; for example, Extraversion is a trait that characterizes people who are sociable, assertive, and have a lot of energy, whereas Agreeable is a trait that characterizes people who are more compassionate, respectful, and trusting.

Those who demonstrate the Conscientious trait are more organized, productive, and have a sense of obligation, whereas those who show the Negative Emotion trait are characterized by a high level of anxiety, depression, and emotional instability. People that show the quality of Open Mindedness are characterized by their academic curiosity, artistic sensitivity, and creative imagination.

II. METHODOLOGY

1. Participants

A review of published studies on instrument validation found that $N = 100$ is considered the minimal sample size for conducting a factor analysis (Anthoine et al., 2014). This research includes 150 people from 20 cities in Morocco, with 41.3% male and 58.7% female. We selected an age range of 19 to 25 for the purpose of our thesis project. All respondents are students; 99.3% are single, and 7% are married. 8% of the participants have a one-year university degree, 45.3% have two years, 38.7% have a bachelor's degree, and 8% have a higher educational level.

2. Data Collection

Permission was received for the measurement tool used in the study.

With the help of some members, we used a shared Link to administer the BFI-2 S online, through university student groups on Social Networks. To inform participants about the purpose of the research and the protection of their privacy, a consent form was introduced in the first section at the beginning of the scale.

3. Instrument

The BFI is an hierarchical measure consisting of 30 items, which describe the major personality traits of individuals, and are categorized into five factors and 15 facets (Soto & John, 2017a), Extraversion (with facets of Sociability, Assertiveness, and Energy Level) (6 items), Agreeableness (Compassion, Respectfulness, and Trust) (6 items), Conscientiousness (Organization, Productiveness, and Responsibility) (6 items), Negative Emotionality (Anxiety, Depression, and Emotional Volatility) (6 items), and Open-Mindedness (Intellectual Curiosity, Aesthetic

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Sensitivity, and Creative Imagination) (6 items). The respondent answers the items according to a Likert scale ranging from 1 (Disagree strongly) to 5 (Agree strongly). Some items are false-keyed, and are denoted by ‘‘R.’’

Extraversion: 1R, 6, 11, 16, 21R, 26R; Agreeableness: 2, 7R, 12, 17R, 22, 27R; Conscientiousness: 3R, 8R, 13, 18, 23, 28R; Negative Emotionality: 4, 9, 14R, 19R, 24R, 29, and Open-Mindedness: 5, 10R, 15, 20R, 25, 30R.

Since the Big Five project is concerned with experimenting and developing of the big five domains, this study will focus on the domains instead of the Facets.

4. Adaptation of the Big Five Inventory 2 short form in Arabic Language

To adapt the BFI-2-S to the Moroccan context, a range of steps must be taken (Vallerand, 1989). As a preliminary stage, the committee's approach was used to translate and produce the scale's original version. The first author translated the questionnaire from English into Arabic, and both the translated and original versions were forwarded to three university psychology professors to evaluate and review the meaning. Following that, the first and second authors revised the translated version based on the professors' comments, and it was then submitted to an expert in translation from and to the two languages, along with the original scale, for linguistic accuracy review. Finally, the two authors revised the translated version to confirm its coherence with the original. Table 3 shows the Arabic version of the BFI-2-S.

5. Pilot Study

A pilot study was conducted before administering the scale to determine its applicability in the Moroccan context. Using Haccoun's (1987) technique. It's an interesting approach

to simultaneously examine the concurrent and content validity, as well as the test-retest reliability, of a psychological instrument using the bilingual subjects' approach, which implies asking the same group of bilingual subjects to respond to both the translated and original versions of the instrument twice with an interval between administrations. The correlations between the original and translated versions of the scale should be almost identical (Vallerand, 1989).

As a preliminary step, we enlisted the help of some university students in recruiting participants. We explained the study's purpose and participation conditions, especially the age and bilingualism requirements. The date and time have already been set. Forty volunteers assembled at a library near the campus for the meeting. Participants were welcomed and thanked for their time before being reminded of the study's aim and the several steps to follow. The first step was to use the bilingualism scale developed by Vallerand and Halliwell (1983) to determine their level of bilingualism. This process requires evaluating fluency in the following skills for both languages: reading, writing, comprehension of conversation, and expression on a scale ranging from 1 (very little) to 4 (very much) (fluent). Only those with at least a 12 in each language will be selected. As a consequence, 32 applicants were chosen (21 females and 11 males). All of the students have a good level of education (1st–5th university years). The participants then completed an informed consent form to participate in this study, and the data are properly anonymized. Next we gave the two surveys, the translated version first, followed by the original version. Finally, the participants were thanked, and the next session was set for two weeks later in the same place, to finish the BFI-2-S for the second time.

Table 1. Internal consistency of the Big Five Inventory's Domains: Haccoun's (1987) method

Domains	1 st Administration		2 nd Administration	
	Arabic	English	Arabic	English
Extraversion	0,94	0,91	0,87	0,91
Agreeableness	0,89	0,91	0,87	0,92
Conscientiousness	0,95	0,94	0,89	0,92
Negative Emotionality	0,96	0,92	0,88	0,92
Open-Mindedness	0,89	0,83	0,80	0,83

The internal consistency of the five Domains utilizing standardized alpha coefficients in the original and translated versions' first and second administrations is satisfactory (Table 1).

The SPSS 23 findings demonstrate a good correlation between the subscales of the English and Arabic versions in both administrations, with greater than 0.90 at $p \leq 0.01$ for each domain (Table 2). Figure 1 shows that the results are nearly comparable in all evaluated correlations proposed by Haccoun's (1987).

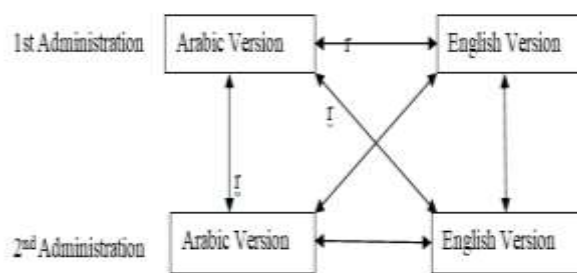


Figure 1: An illustrative diagram of the pilot study procedure according to the Haccoun's (1987) method.

6. Analytical Procedure

The focus in this study is on the domains level and not the facet level, because the recommended sample size to examine the BFI-2-S' facet level is approximately 400 or more observations (Soto & John, 2017a), thus an Exploratory Factor Analysis was performed on the 30 selected domain items in SPSS 23, using the principal components method, and Varimax rotation, deleting any coefficients with a loading value lower than 0.40.

III. RESULTS

The results found and summarized in table 3 are consistent with the previous studies on the BFI-2-S. The factors corresponding to each domain are saturated with respect to the items. The alpha coefficient for Extraversion is 0,94, Agreeableness is 0,89, Conscientiousness is 0,95, Negative-Emotionally is 0,96, and Open-Mindness is 0,89, indicating that the internal consistency of domain level is excellent. The results are closer to those for university

students found by Soto and John (2017a) in their research (Total range 0,73-0,82). These findings are nearly equivalent to those obtained in the studies regarding the validation of the BFI-2-S by Denissen et al., (2020) in the Dutch language (Total range= 0,72- 0,80), by Rammstedt et al. (2020) in the German language (Total range= 0,65-0,80), alpha of domain scales averages 0,74 in the Danish version (Vedel et al., 2021), and a total range=0,70-0,82 in a recent Norwegian version (Føllesdal & Soto, 2022).

The Table 3 presents Domains' items factor loadings and their squared multiple correlations. It shows that all items loading most strongly in their intended domains, which prove a clear Big Five structure. These findings outline the results of the previous studies (AL-Ansari & Al-Ali, 2022; Denissen et al., 2020; Føllesdal & Soto, 2022; Kohút et al., 2020; Rammstedt et al., 2020; Soto & John, 2017a; Vedel et al., 2021; Zhang et al., 2019). The Table 3 also presents information about Mean and Standard Deviations of each domain scale.

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Table 2: The correlations between the original and Arabic version of the Big Five Domains in the 1st and 2nd Administration: Haccoun's(1987) method.

Arabic 1 st Administration-English 1 st Administration						
Domains	Extraversion	Agreeableness	Conscientiousness	Negative Emotionally	Open-Mindness	
Extraversion	,987**					
Agreeableness		,993**				
Conscientiousness			,989**			
Negative Emotionally				,993**		
Open-Mindness					,984**	
Arabic 1 st Administration-English 2 nd Administration						
Domains	Extraversion	Agreeableness	Conscientiousness	Negative Emotionally	Open-Mindness	
Extraversion	,985**					
Agreeableness		,994**				
Conscientiousness			,973**			
Negative Emotionally				,977**		
Open-Mindness					,973**	
Arabic 1 st Administration-Arabic 2 nd Administration						
Domains	Extraversion	Agreeableness	Conscientiousness	Negative Emotionally	Open-Mindness	
Extraversion	,958**					
Agreeableness		,955**				
Conscientiousness			,980**			
Negative Emotionally				,965**		
Open-Mindness					,964**	
Arabic 2 nd Administration-English 1 st Administration						
Domains	Extraversion	Agreeableness	Conscientiousness	Negative Emotionally	Open-Mindness	
Extraversion	,952**					
Agreeableness		,964**				
Conscientiousness			,979**			
Negative Emotionally				,962**		
Open-Mindness					,976**	
English 1 st Administration-English 2 nd Administration						
Domains	Extraversion	Agreeableness	Conscientiousness	Negative Emotionally	Open-Mindness	
Extraversion	,964**					
Agreeableness		,987**				
Conscientiousness			,958**			
Negative Emotionally				,971**		
Open-Mindness					,967**	
Arabic 2 nd Administration-English 2 nd Administration						
Domains	Extraversion	Agreeableness	Conscientiousness	Negative Emotionally	Open-Mindness	
Extraversion	,952**					
Agreeableness		,958**				
Conscientiousness			,953**			
Negative Emotionally				,927**		
Open-Mindness					,949**	

Note: N=32; Significance: ** P ≤ 0.01

Table 3: The Big Five Inventory -2-Short form, the Domains/items, Factor Loadings, Squared Multiple Correlations

Domains /items	Arabic version		R2
Extraversion M=18,03; SD=8,00; alpha=0,94			
1. Tends to be quiet	1.يميل إلى الهدوء	0,908	0,82
6. Is dominant, acts as a leader.	6.سلطوي ويتصرف كقائد	-0,809	0,56
11. Is full of energy.	11. مفعم بالحيوية	-0,896	0,78
16. Is outgoing, sociable.	16. منفتح واجتماعي	-0,888	0,75
21. Prefers to have others take charge.	21. يفضل أن يتولى الآخرون زمام الأمور	0,912	0,83
26. Is less active than other people.	26. أقل نشاطا من الآخرين	0,834	0,63
Agreeableness M=20,40 ;SD=6,70; alpha=0,89			
2. Is compassionate, has a soft heart.	2. عطوف ورفيق القلب	0,747	0,55
7. Is sometimes rude to others	7. وقح مع الآخرين في بعض الاحيان	-0,824	0,68
12. Assumes the best about people.	12. يحسن الظن بالناس	0,855	0,66
17. Can be cold and uncaring.	17. يمكن أن يكون عنيد الإحساس وغير مبال	-0,779	0,50
22. Is respectful, treats others with respect.	22. محترم ويعامل الآخرين باحترام	0,787	0,70
27. Tends to find fault with others.	27.يميل إلى تصيد أخطاء الآخرين	-0,818	0,63
Conscientiousness M=19,90; SD=8,52; alpha=0,95			
3. Tends to be disorganized.	3. يميل إلى سوء التنظيم	0,961	0,95
8. Has difficulty getting started on tasks.	8. يجد صعوبة في بدء المهام	0,880	0,87
13. Is reliable, can always be counted on.	13. موضع ثقة، ويمكن الاعتماد عليه في أي وقت	-0,894	0,83
18. Keeps things neat and tidy.	18. يحافظ على الأشياء نظيفة ومرتبّة	-0,829	0,74
23. Is persistent, works until the task is finished.	23. مثابر و يعمل حتى ينهي المهمة المطلوبة	-0,921	0,85
28. Can be somewhat careless.	28. يمكن أن يكون مستهترا نوعا ما	0,937	0,89
Negative Emotionality M=16,60; SD=7,62; alpha=0,96			
4. Worries a lot.	4. كثير القلق	0,910	0,83
9. Tends to feel depressed, blue.	9. يميل إلى الشعور بالكآبة والحزن	0,901	0,80
14. Is emotionally stable, not easily upset.	14. ثابت إنفعاليا ، ويصعب إستقزازه	-0,892	0,82
19. Is relaxed, handles stress well.	19. مرتاح البال، ويتعامل جيدا مع الإجهاد النفسي	-0,903	0,77
24. Feels secure, comfortable with self.	24. يشعر بالأمان والراحة النفسية	-0,776	0,50
29. Is temperamental, gets emotional easily.	29. مزاجي وينفعل بسهولة	-0,907	0,86
Open-Mindness M=20; SD=6,91; alpha=0,89			
5. Is fascinated by art, music, or literature.	5. مولع بالفن و الموسيقى و الأدب	0,696	0,58
10. Has little interest in abstract ideas.	10. قليل الاهتمام بالأفكار المجردة	-0,801	0,69
15. Is original, comes up with new ideas.	15. أصيل وآتي بأفكار جديدة	0,843	0,66
20. Has few artistic interests.	20. قليل الاهتمامات الفنية	-0,859	0,71
25. Is complex, a deep thinker.	25. معقد، وذو تفكير عميق	0,780	0,78
30. Has little creativity.	30. قليل الإبداع	-0,853	0,82

Note: N=150 ;M:Mean; SD: Variance,

Extraction method: Principal component analysis.

Rotation method: Varimax with Kaiser normalization.

Convergence of the rotation in 5 iterations.

IV. DISCUSSION

The aim of this research is to examine the BFI-2 S in the Moroccan context, in order to apply it in our Ph.d. thesis, entitled "Decision-

making styles and parental attachment". Before sending the test to the research respondents, we performed a pilot study with bilingual subjects utilizing Haccoun's (1987) unique approach, which allows us to simultaneously assess the sc

ale's concurrent and content validity, as well as test retest reliability. Significant correlations were observed between the scales, which should statistically range between 0.7 and 1. (Akoglu, 2018). The EFA of the BFI-2-S of (30 items) and the alpha coefficients for each domain scale in the present study are moreover closer to the study of Soto and John (2017a), and to the previous studies (AL-Ansari & Al-Ali, 2022; Denissen et al., 2020; Føllesdal & Soto, 2022; Kohút et al.,

2020; Rammstedt et al., 2020; Soto & John, 2017a; Vedel et al., 2021; Zhang et al., 2019). These studies, however, concentrated on the Facets level rather than the Domains level, which explains the very minor discrepancies in the values of Cronbach's alpha coefficients and Loading. The psychometric properties of the BFI-2 S in the Moroccan context are satisfactory, and they are consistent with prior studies on adapting and validating the BFI-2-S.

V. CONCLUSION

The BFI is considered one of the most widely used personality tests, with thousands of publications in various databases. In view of its importance, it was developed by researchers interested in personality traits, each with its own approach, which explains the enormous number of publications and forms concerning it. Nonetheless, due to its simplicity, time administration, and strong psychometric properties, Soto and John's (2017b) BFI model was used in this study, particularly in its short form BFI-2 -S (Soto & John, 2017a).

The aim of this study is to validate the short form of the BFI, as part of our doctoral project entitled "Decision-making styles and parental attachment". Given the important relationship of personality traits to our subject's variables, and also to the best of our knowledge, this is the only instrument available in the Moroccan context. Therefore, the availability of this scale in its short Arabic form will be a valuable advantage that can be used in many research related to personality patterns, especially since there is an increased demand for personality studies from students and researchers in various fields, especially psychology. According to the results of this study, the psychometric properties of the instrument make it applicable in the Moroccan context, especially among young people.

We adapted the scale using the members' approach (Vallerand, 1989), and then we conducted pilot study using Haccoun's interesting approach (Haccoun, 1987), which depends on bilingual subjects. This pilot study yielded significant correlation coefficients. Afterward, when the translated version was applied to the research sample, the obtained psychometric properties were good and comparable to previous studies, with a focus on the domain level in comparing the findings.

The current study only included students between the ages of 19 and 22. This could explain the strong psychometric characteristics obtained in this study; thus, we recommend that future studies include a large sample, including different regions of Morocco and different ages, as well as examine it in relation to some other measures, which we were unable to conduct due to time constraints associated with the completion of our doctoral project.

DISCLOSURE

The authors report no conflicts of interest in this work.

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