

## Validity and Reliability of the Big Five Personality Traits Scale in Malaysia

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**ABSTRACT:** This study examined the validity and reliability of the Big Five personality traits scale in Malaysia. The sample of the study comprised 343 nurses in the health tourism hospitals. Administered on-site method was used for data collection. The respondents were required to rate their degree of agreement in the questionnaires with regard to their personality traits. Initial pilot test results showed an excellent internal reliability for each of the subscales. However, validity test extracted only four factors of the Big Five Inventory with factor loadings ranging from 0.573 to 0.803. The four factors were extraversion, conscientiousness, neuroticism and openness to experience. The reliability coefficients for all the extracted factors were above 0.7. Thus, the validated measures of the Big Five Inventory were deemed consistent and reliable throughout the study. Plausible reasons were stated in this study to explain the outcome of the factor analysis. Although many researchers recognized the Big Five Inventory as necessary and adequate to describe the structure of personality globally, this paper suggests that conducting validity and reliability test for Big Five Inventory is necessary when the study is conducted in countries with different cultural perspectives. In addition, it also offers suggestion to healthcare managers to identify their nurses' personality traits by using the validated measures. By knowing the nurses' personality traits, one can predict their work behaviors.

**KEYWORDS:** Openness to experience, conscientiousness, extraversion, agreeableness, neuroticism, nurses.

### 1 BACKGROUND OF PERSONALITY TRAITS

Starting in the 1930's, Allport has conducted a lexical study of the personality-relevant terms in unabridged English dictionary. Four major categories of personality traits were identified [1]. The first category defined personality traits as personalized and generalized determining stable modes and tendencies-consistent of an individual's adjustment to his environment. The second category encompassed temporary activities, moods and states. The third category comprised highly evaluative judgments of personal conduct and reputation and the last category embraced physical characteristics, talents, capacities and terms that could not be assigned to any of the other three categories [1]. Since then, Cartell's structured-based systems theory describes personality as a system with regard to the environment and attempts to explain the complicated transactions between them as they generate change and growth in the individuals [2]. Cartell viewed theory of personality as a theory which must explain and analyze the goal-directed motivation of individuals because motivational learning always guides one's actions. In 1949, Cartell successfully reduced 99 percent of Allport's work and introduced a sixteen Personality Factor Scale (16 PF Scale) as a way to measure personality through a self-assessment instrument [3]. Cartell's pioneering study and the accessible of short list of variables has stimulated other researchers to further investigate the dimensions of personality and lead to the discovery of Big Five dimensions [4]. Some psychological staffs have summarized findings by Cartell by classifying those highly similar and correspond to what would later become known as the Big Five. This five factor structure has been initially named extraversion, agreeableness, conscientiousness, emotional stability and culture [4].

Further work by [5] showed that words identified by Allport earlier also fit into the Five Factor Model (FFM). This model encapsulates the main tenets of human personality into five main descriptors that are used to categorize the variety of human behaviors into an organized taxonomy [6]. The five factors are commonly labeled as openness to experience, conscientiousness, extraversion, agreeableness and neuroticism. They are recognized as the Big Five [7]. Several theories have conceptualized the Big Five as relational constructs. Interpersonal theory emphasizes the interpersonal motives of agency and communion in relationships. It interprets the Big Five dimensions in terms of their interpersonal implications owing to agreeableness and extraversion is the most obvious interpersonal dimensions [8]. Socio-analytic theory stresses on the social functions of self and other perceptions [9]. According to [9], traits are socially constructed to assist interpersonal functions and used as a tool to encode and communicate reputations whereas personality is generally defined as the ability to impress others and to get along well with people [2]. However, defining personality in terms of personable and sociable behaviors alone is not sufficient as there are many other behaviors associated with personality in the wider sense. Hence, in personality psychology, trait concept was utilized to explain the consistent patterns of a person's behaviors [10].

The Big Five has provided support for the existence of the Five Factor Model (FFM) and its universal application [11]. The Big Five factors were found positively associated with distinct aspects of contextual performance as accordance to meta-analytic research studies [12]. The validity of the Big Five is strongly supported by empirical evidence specifically when it represents taxonomy to describe human personality [13]. Owing to the wide acceptance of Big Five to describe the most salient aspects of personality [1], it has been comprehensively used in recent organizational and other applied research. However, despite the strong validity of Big Five, it is necessary to re-examine the measures validity by performing factor analysis especially when the research is conducted in countries with different cultural perspectives. This is to reasonably ensure that the instrument is measuring the concept the researcher intends to measure within the research context.

## 2 THE BIG FIVE INVENTORY

Measures of the personality traits in this study were based on the Big Five Inventory (BFI) developed by [1]. There were a total of 44 items of measurement. The researcher adapted these measures because they were short instruments and easy to understand by the respondents. In addition, BFI also shows high convergent validity with other self-report scales and with peer ratings of the Big Five [14]. Previous tested reliability of the BFI was typically ranged from 0.79 to 0.88 [15]. The measurement items are listed in Table 1.

**Table 1. Big Five Inventory by John and Srivastava (1999)**

Dimensions	Items
Openness to Experience	<ol style="list-style-type: none"> <li>1. I am curious about many things.</li> <li>2. I always come up with new ideas.</li> <li>3. I am creative and a deep thinker.</li> <li>4. I have an active imagination.</li> <li>5. I am inventive.</li> <li>6. I value artistic experiences.</li> <li>7. I prefer work that is routine.(R)</li> <li>8. I like to reflect and play with ideas.</li> <li>9. I have few artistic interests.(R)</li> <li>10. I am advanced in art, music or literature.</li> </ol>
Conscientiousness	<ol style="list-style-type: none"> <li>1. I can be somewhat careless.(R)</li> <li>2. I carry out my job thoroughly.</li> <li>3. I am a reliable worker.</li> <li>4. I tend to be disorganized.(R)</li> <li>5. I tend to be lazy.(R)</li> <li>6. I persevere until the task is finished.</li> <li>7. I do things efficiently.</li> <li>8. I make plans and follow through with them.</li> <li>9. I am easily distracted. (R)</li> </ol>
Extraversion	<ol style="list-style-type: none"> <li>1. I see myself as someone who is reserved.(R)</li> <li>2. I am talkative.</li> <li>3. I am full of energy.</li> <li>4. I am passionate and spirited.</li> <li>5. I tend to be quiet.(R)</li> <li>6. I have an assertive personality.</li> <li>7. I am sometimes shy and inhibited.(R)</li> <li>8. I am outgoing and sociable.</li> </ol>
Agreeableness	<ol style="list-style-type: none"> <li>1. I am helpful and unselfish with others.</li> <li>2. I tend to find fault with others.(R)</li> <li>3. I tend to start quarrel with others.(R)</li> <li>4. I have a forgiving nature.</li> <li>5. I am generally trusting.</li> <li>6. I can be cold and isolated.(R)</li> <li>7. I am considerate and kind to almost everyone.</li> <li>8. I am sometimes rude to others.(R)</li> <li>9. I like to cooperate with others.</li> </ol>
Neuroticism	<ol style="list-style-type: none"> <li>1. I am relaxed and can handle stress well.(R)</li> <li>2. I am depressed and blue.</li> <li>3. I can be tense.</li> <li>4. I worry a lot.</li> <li>5. I am emotionally stable and not easily upset.(R)</li> <li>6. I can be moody.</li> <li>7. I remain calm in tense situation.(R)</li> <li>8. I get nervous easily.</li> </ol>

### 3 METHOD

Participants were consisted of 343 nurses in the health tourism hospitals in Malaysia (295 females, 48 males, age range from 18 to 55 years old). In order to have a better response rate, administered on-site method by [16] was used for data collection. This method is very efficient in generating large amount of data especially when the survey is conducted during meeting with the respondents [17]. Respondents were required to rate their degree of agreement by assigning point on a

Likert scale ranging from 1 (*Strongly disagree*) to 5 (*Strongly agree*). They were also reminded that there is no right or wrong answer to the questions and confidentiality of their answers is guaranteed.

**4 RESULTS AND DISCUSSIONS**

**4.1 PILOT TEST**

According to [18], data collected from a small sample of 15 to 30 subjects of the study served as a guide for the larger study. The survey instruments were pilot tested on a small scale sample of respondents in one of the selected health tourism hospitals. A total of 35 questionnaires were distributed to the respondents to collect data. The pilot test was completed with a total of 30 responses. The instruments were then tested for internal reliability based on the data collected from the pilot survey. Table 2 shows the overall internal reliability for each of the instruments during the pilot test.

*Table 2. Internal Reliability for Personality Traits*

<b>Instrument</b>	<b>Item</b>	<b>Cronbach's Alpha</b>
Personality Traits		
• Openness to Experience	10	0.859
• Conscientiousness	9	0.888
• Extraversion	8	0.774
• Agreeableness	9	0.904
• Neuroticism	8	0.736

The results of the internal reliability showed an excellent reliability coefficient for each of the instruments. The Cronbach's Alphas obtained were above the minimum acceptable level of 0.7 as suggested by [19], [20] and [21]. Therefore, all the items require no modification and ready to be administered in the survey to the remaining of the sample.

**4.2 VALIDITY TEST**

Upon receiving all the responses in the survey, factor analysis was conducted for the Big Five personality traits scale. Prior to conduct factor analysis, inspection of the correlation matrix was done and it indicated that most of the item coefficients were 0.3 and above. The analysis of Measure of Sampling Adequacy and Partial Correlations showed that the value of Kaiser-Meyer-Olkin for measuring of sampling adequacy (KMO/MSA) was 0.806. It exceeds the minimum value of 0.6 for a great factor analysis (0.8 – 0.9) [22]. Bartlett's test of sphericity was significant at  $p < 0.001$  where it supported the factorability of the correlation matrix. Table 3 shows that the Principal Component Analysis (PCA) extracted four factors compared to the original of five factors after cross loadings were deleted and loadings below 0.35 were discarded. These 4 factors cumulatively captured 48.572% of the variance. Factor 1, 2, 3 and 4 contributed 20.178%, 11.589%, 9.638% and 7.167% of the common variance with Eigenvalues of 4.237, 2.434, 2.024 and 1.505 respectively. The factor loading values for the scales were in the range of 0.573 to 0.803. Drawing upon the factor analysis results, items that loaded on Factor 1 (7 items) were labeled as openness to experience, Factor 2 (5 items) were categorized as extraversion, Factor 3 (5 items) were named as neuroticism and Factor 4 (4 items) were designated as conscientiousness.

Table 3. Factor Analysis for Personality Traits

Items	Description	Factor Loading			
		1	2	3	4
E2	I am talkative.		0.701		
E3	I am full of energy.		0.698		
E4	I am passionate and spirited.		0.718		
E5	I tend to be quiet (R).		0.616		
E6	I have an assertive personality.		0.682		
C2	I carry out my job thoroughly.				0.803
C3	I am a reliable worker.				0.685
C7	I do things efficiently.				0.645
C8	I make plans and follow through with them.				0.690
N3	I can be tense.			0.681	
N4	I worry a lot.			0.618	
N5R	I am emotionally stable and not easily upset.			0.717	
N6	I can be moody.			0.671	
N7R	I remain calm in tense situation.			0.717	
O2	I always come up with new ideas.	0.620			
O3	I am creative and a deep thinker.	0.615			
O4	I have an active imagination.	0.631			
O6	I value artistic experiences.	0.646			
O8	I like to reflect and play with ideas.	0.721			
O9R	I have few artistic interests.	0.686			
O10	I am advanced in art, music or literature.	0.573			
Eigenvalue		4.237	2.434	2.024	1.505
Percentage of Common Variance		20.178	11.589	9.638	7.167
Cumulative Percentage (%)		20.178	31.767	41.405	48.572
KMO/MSA		0.806			
Bartlett's Test of Sphericity (sig.)		0.000			

The result of the factor analysis has omitted the dimension of agreeableness. This indicates that the measuring items of agreeableness were not reflecting the concept it is intended to measure. Agreeableness, which is described as likeability or compliance, does not exist as one of the traits possess by the respondents although it is regarded as an obvious interpersonal dimension in the Big Five [8]. The exclusion of agreeableness may due to the respondent's behavior, nature of work and culture in the organization. In other words, agreeable personnel were not found in the sample of the study. Since the measures of agreeableness has been discarded during factor analysis, the remaining four factors of the Big Five (i.e. openness to experience, conscientiousness, extraversion and neuroticism) shall represent the respondents' personality traits. One plausible reason to explain openness to experience as descriptor of the respondents' personality trait is that they may be good at generating new ideas to help patients to solve their problems. Comparatively, conscientiousness is found to be one of the personality traits because the nursing profession requires responsible, meticulous, hardworking and dependable work behaviors. Previous investigations by past researchers like [23], [24], [25], [26] and [27] have shown conscientiousness is positively linked to service performance. Among other possible reasons to explain extraversion as the respondents' personality trait is that extroverted people are friendly, outspoken, confident and overbearing [25], [28]. Nurses always perform tasks involving extensive interaction with the patients where they have to communicate with them very often. Neuroticism exists among the respondents because nurses usually encounter stressful events in the hospital. According to [29], neurotic personnel have the propensity to experience distress that might affect their behavioral actions. Therefore, there is a necessity to identify nurses' personality traits because by knowing their personality traits, one can predict their work behaviors.

4.3 RELIABILITY TEST

The reliability test results show that the reliability coefficient (Cronbach’s Alpha) for each factor of the personality traits was 0.779 (openness to experience), 0.727 (conscientiousness), 0.725 (extraversion) and 0.716 (neuroticism) (see Table 4). Since all the reliability coefficients have surpassed the minimum value of 0.7, the measures were deemed consistent and reliable throughout the study.

Table 4. Reliability Coefficients for Personality Traits

Extracted Factors	Number of Items	Cronbach’s Alpha
Openness to Experience	7	0.779
Conscientiousness	4	0.727
Extraversion	5	0.725
Neuroticism	5	0.716

5 THEORETICAL AND PRACTICAL IMPLICATIONS

This study attempts to perform validity and reliability test for the Big Five personality traits scale in Malaysia. In terms of theoretical implication, the results of factor analysis and reliability test have added to the literature of personality traits in relation to its scale validity and reliability. Although many researchers recognized BFI as necessary and adequate to describe the structure of personality globally, it is suggested that conducting another validity and reliability test is necessary when the study is conducted in countries with different cultural perspectives. Therefore, the outcome of this study shall guide future personality research especially in the healthcare context in Malaysia.

In terms of practical implication, the present study offers suggestion to healthcare managers to identify their nurses’ personality traits. Managers can use the validated measures in this study to identify their personality traits and assign them into different groups according to their traits. Those nurses with positive traits can be assigned to guide and motivate those with negative traits. By doing so, it can improve their work behaviors and enhance the organization’s service performance.

6 CONCLUSION

In conclusion, the validated measures in the present study have accurately measured the concept of Big Five personality traits in the Malaysian context. The reliability of the measures has been found consistent and indicates the homogeneity of the items in the measures. The validated measures can be used by future researchers in similar empirical research.

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