

# The Reliability of 44-Item Big Five Personality Inventory (Malay Version) to Measure Readiness to Breastfeed

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## ABSTRAK

Inventori "44-item Big Five Personality" (BFI-44) membantu dalam memahami pelbagai ciri personaliti yang kompleks, termasuk bagaimana personaliti mempengaruhi penyusuan susu ibu. Matlamat kajian ini adalah untuk mengkaji kebolehpercayaan BFI-44 versi Bahasa Melayu. Kajian keratan rentas telah dijalankan menggunakan pensampelan mudah di kalangan responden perempuan. Seramai 96 orang pelajar perempuan universiti awam telah menyertai kajian ini. Cronbach Alpha, pekali korelasi intrakelas (ICC), "limit of agreement" dan pengukuran ralat piawai digunakan dalam menentukan kebolehpercayaan soal selidik. Nilai Cronbach alpha untuk subskala Extraversion memperoleh ketekalan dalaman tertinggi (0.723) dan ketekalan dalaman terendah diperolehi dalam subskala Keterbukaan kepada Pengalaman (0.543). Nilai ICC untuk semua dimensi melebihi 0.70 (ICC= 0.792-0.883). Plot Bland-Altman menunjukkan kebolehpercayaan yang tinggi dalam semua dimensi kecuali Neuroticism. Bagi ralat ukuran piawai (SEM), "Extraversion" mendapat markah terendah (0.773) manakala "Neuroticism" mendapat markah tertinggi (1.199). Secara keseluruhan, BFI-44 dalam versi Bahasa Melayu mempunyai ketekalan dalaman yang sederhana sehingga ke baik dan kebolehpercayaan ujian-ujian semula yang tinggi. Penemuan ini mungkin memberi implikasi positif terhadap pelaksanaan soal selidik dalam penilaian masa hadapan terhadap ciri-ciri personaliti rakyat Malaysia.

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*Kata kunci: BFI-44; kebolehppercayaan ujian-ujian semula; ketekalan dalaman; versi Bahasa Melayu*

## ABSTRACT

The 44-item Big Five Personality Inventory (BFI-44) helps in simplify a wide range of complex personality features, including how personality affects breastfeeding. The aim of this study was to examine the reliability of the Malay version of the BFI-44. A cross-sectional study was conducted using the convenience sampling of female respondents. A total of 96 female public university students participated in this study. Cronbach's alpha, intraclass correlation coefficient, limit of agreement, and standard error of measurement (SEM) were used in determining the reliability of the questionnaire. Cronbach's alpha value for Extraversion subscale obtained the highest internal consistency (0.723) and the lowest internal consistency was obtained in the subscale of Openness to Experience (0.543). The intraclass correlation coefficient (ICC) value for all dimensions exceeded 0.70 (ICC= 0.792-0.883). The Bland-Altman plots showed high reliability in all dimensions except Neuroticism. For SEM, Extraversion scored the lowest (0.773) while Neuroticism scored the highest (1.199). Overall, the BFI-44 in Malay version had moderate to good internal consistency and high test-retest reliability. These findings may give positive implications for the implementation of the questionnaire in future evaluation of Malaysians' personality traits.

Keywords: BFI-44, internal consistency; Malay version; test-retest reliability

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## INTRODUCTION

Personality refers to the individuals' differences in characteristic patterns and how they feel, think, and behave. Big Five personality traits have been found through decades of research in order to simplify many overwhelming personality traits including to understand the role of personality towards breastfeeding (Dilek et al. 2021; Padashian et al. 2021; Padashian et al. 2022). The majority of the variance in human behaviour is suggested to be explained by the five broad categories into which personality

traits are arranged by the taxonomy of personality (Paunonen 2003; McCrae & Costa 1997). These five domains are Extraversion, Openness to Experience (or intellect), Neuroticism, Agreeableness and Conscientiousness (Hong & Paunonen 2009).

There are many measures in assessing Big Five personality traits, including one of the instruments created by John et al. (1991) which is the 44-item Big Five Personality Inventory (BFI-44). Brief and basic phrase are utilised in the questionnaire items of BFI-44. It eliminates some of the inconvenience that has numerous or unclear meanings

and outstanding desirability while maintaining the advantages of simple and unambiguous adjective items for the respondents. Each item consists of a five-point Likert scale ranged from 1 (strongly disagree) to 5 (strongly agree). Scale scores for the respondents are determined by combining all items rated on one scale and dividing the entire sum by the number of items on the scale (John et al. 1991).

In earlier research, there are five distinct personality characteristics in BFI-44, each of them is described in depth. The characteristic feature of openness to experience refers to a person with wide interest, original and willingness to risk. In addition, people with the personality of openness to experience are liberal, independent, and courageous while culture contributes significantly to this mentality (Costa & McCrae 1992). For conscientiousness person, he or she is cautious, persistent, and careful. According to Barrick and Mount (1991), highly conscious individuals are responsible, trustworthy, hardworking, obedient, organised, and reliable. Meanwhile, extraversion is a personality feature that comprises of assertiveness, enthusiasm, warmth, pleasant feelings, and sociability (Matthews & Campbell 2009). Extrovert people are vigorous, lively, cheerful, loving, and enthusiastic because of their social behaviour (Besser & Shackelford 2007; Devaraj et al. 2008). They tend to have pleasant emotional states that feel wonderful of themselves and the world around them (Costa & McCrae 1992; George 2013). In addition, individuals with Agreeableness tend to get along well

with other people (Costa & McCrae 1992). They are also confident and pleasant to others (Kariyawasam & Welmilla 2020). In addition, Barrick and Mount (1991) stated that high Agreeableness people tend to be kind, joyful, forgiving, polite, charitable, useful to others and cooperative. For Neuroticism, it is a personality characteristic that individuals tend to experience unpleasant mental expressions and see themselves and the world around them negatively (Costa & McCrae 1992). LePine & Van Dyne (2001) report that highly neurotic people are more likely to show an attitude towards their colleagues, exchange knowledge and engage with others.

The test-retest reliability for English BFI-44 has proved to be excellent, with the research showing that the coefficient ranged between 0.80 to 0.90 (John et al. 2008). In the meanwhile, BFI-44 was translated into 28 languages and its structure replicated in 56 countries (Schmitt et al. 2007). It is accessible in English, Chinese, Dutch, Hebrew, Italian, Latvian, Portuguese, Spanish and Swedish (John et al. 2008). The BFI-44 version in Malay language is one of the several translations.

Malay language is commonly spoken by population of the Malay Archipelago, including Malaysia, Singapore, Brunei, Indonesia and other smaller communities in Laos, Vietnam, Thailand, Cocos islands and Sri Lanka. It was also the fourth biggest spoken language in the world with approximately 250 000 000 total speakers (The Sun Daily 2014). Malaysia is a multi-racial society made

up of Malays, Chinese, Indians, Iban and other minorities ethnic groups. The biggest ethnic group is Malay, which comprises about half of the people of Malaysia and the primary language spoke is Malay. Since 1957, Malay has already been a national language with Malaysia's declaration of independence (Adelaar 2011). It is the major language used for government administration, education settings and the fundamental medium of communication for Malaysian (Rabiatul 2014).

The Lawton Instrumental Activities of Daily Living Scale (Lawton IADL), Montreal Cognitive Assessment (MoCA) and Depression, Anxiety and Stress Scale-21 Items (DASS-21) had been translated from the English language version to Malay. From the research, it had proved that the translated versions are appropriate to be applied with the strong study validity and reliability achieved in the corresponding native languages (Masne et al. 2018). The translated MoCA in Malay version was also shown to be a valid and effective screening tool for the elderly in Malaysia to identify moderate cognitive impairment (MCI) (Normah et al. 2016). In addition, Ramli et al. (2009) have demonstrated good psychometric properties of Malay version DASS-21 in the general Malaysian population.

BFI-44 has been constructed as a time saving, efficient and flexible assessment of the Five-Factor Personality Model (FFM) (John et al. 1991; Soto & John 2009). To evaluate the personality of Malaysians, the evaluation tools which are highly

reliable, culturally and context-specific are required while BFI-44 Malay version exists as one of them. There was limited research examined the reliability of the BFI-44 in Malay version with the exception of the single study carried out in 2014 (Hee et al. 2014). Therefore, the purpose of this study was to investigate the reliability of the BFI-44 (Malay version) to ensure that the Malay version can be used without hesitation in measuring any behaviour related to personality traits.

## MATERIALS AND METHODS

This was a cross-sectional study looking at the reliability of BFI-44 (Malay version). It utilised purposive sampling involving female university students. The inclusion criteria for this study were Malaysian citizen aged 18 and above. The study was approved by the UKM Research and Ethics Committee (JEP-2019-531). A total of 96 respondents were recruited to meet the sample size calculation (Bujang et al. 2017). As this BFI-44 (Malay version) were planned to be used to understand breastfeeding motivation among mothers, this reliability study was carried out among female respondents. Female respondents were considered the most suitable as at some point later they might be a mother and involved in breastfeeding activity.

## Research Tools

Respondents were measured using BFI-44 Malay version. The BFI-44 Malay version is an assessment reported by

respondents themselves to test the five personalities dimensions which include 8 items for Extraversion, 9 items for Agreeableness, 9 items for Conscientiousness, 8 items for Neuroticism, and 10 items for Openness to Experience. The BFI-44 Malay version consisted of 44 items which all the items were constructed in brief and basic phrase. Therefore, it commonly took just five to ten minutes for the questionnaire completion.

The respondents must rate each item on a scale of five-point Likert scale i.e. (i) indicated strongly disagree; (ii) indicated disagree; (iii) indicated neither agree nor disagree; (iv) indicated agree and (v) indicated strongly disagree. The scoring represented the personality traits dimension with the highest total score reflects the respondents' personality traits (John et al. 1991).

### Data Collection

The respondents in this study were approached by the researchers. Respondents who gave their consent were given a set of questionnaires. They could answer the questions at any convenient time and then were required to return the questionnaires in three days. The respondents sealed their completed questionnaires in the provided envelope and placed it in an identified locked box in the designated place.

### Data Analysis

The data collected were tabulated and entered into IBM SPSS Statistics Software version 28.0 (Statistical

Package for the Social Sciences, IBM Corp., Armonk, NY, USA). The reliability of the BFI-44 (Malay version) was assessed by using a test-retest analysis, Cronbach's alpha, intraclass correlation coefficient (ICC), limit of agreement (LoA), and standard error of measurement (SEM). Cronbach's alpha is a measure of the level of internal consistency between the items of Big Five Personality Inventory, while ICC, LoA and SEM were best to measure test-retest reliability.

## RESULTS

### Response Rate and Respondents' Sociodemographic Characteristics

A total of 96 female respondents participated in the study (Table 1). In regards of the races among the respondents, Chinese participated the most in this study, with a total of 51 individuals (53.1%), followed by Malay with a total number of 39 individuals (40.6%), Indian with four individuals (4.2%), one Bajau individual (1%) and one Serani individual (1%). The

TABLE 1: Demographic characteristics of respondents (N=96)

Demographic	n (%)
Ethnicity	
Chinese	51 (53.1)
Malay	39 (40.6)
Indian	4 (4.2)
Others	2 (2.1)
Age (years)	
20	10 (10.4)
21	25 (26.0)
22	33 (34.4)
23	24 (25.1)
24	3 (3.1)
25	1 (1.0)

respondents' age was ranged between 20 to 25 with respondents aged 22 participated the most in the study with 34.4%.

**Reliability of BFI-44 (Malay version)**

Cronbach's alpha value exceeding 0.7 indicated good internal consistency (Taber 2018). From the results of the current study, the Cronbach's alpha value of the BFI-44 Malay version showed moderate to good internal consistency which the highest internal consistency was in the subscale of

Extraversion (0.723) and the lowest internal consistency was in the subscale of Openness to Experience (0.543) as shown in Table 2. The BFI-44 test-retest reliability was studied using the ICC statistical measures. The results showed that the test-retest reliability of the Big Five dimensions was good where all ICC values exceeded the value of 0.70.

Figure 1, Figure 2, Figure 3, Figure 4 and Figure 5 illustrated the graphs that had been used to define LoA. The interpretation of the LoA involved few criteria such as the mean difference

TABLE 2: Internal consistency and intraclass correlation coefficient

BFI-44 Dimensions	ICC Single Measures	Cronbach's Alpha
Openness to Experience (O)	0.824	0.543
Conscientiousness (C)	0.815	0.709
Extraversion (E)	0.883	0.723
Agreeableness (A)	0.831	0.640
Neuroticism (N)	0.792	0.678

ICC: Intraclass correlation coefficient

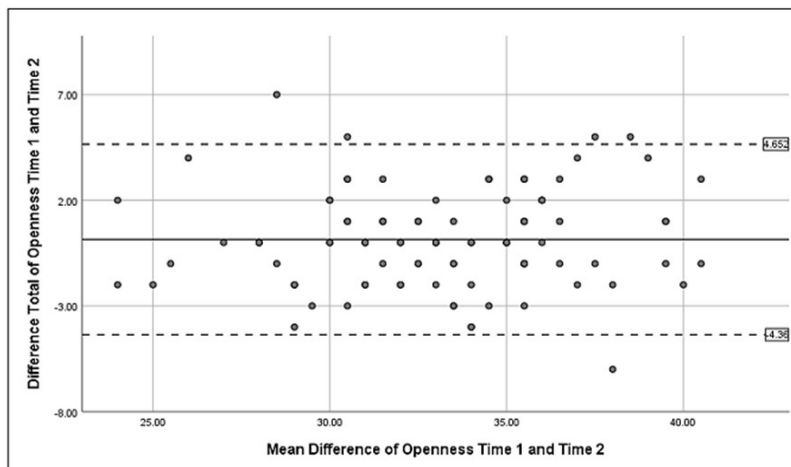


FIGURE 1: The bland-altman plot for Openness to Experience

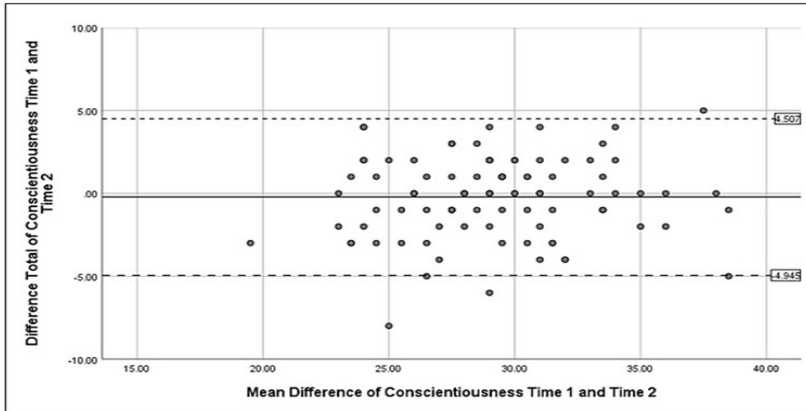


FIGURE 2: The bland-altman plot for Conscientiousness

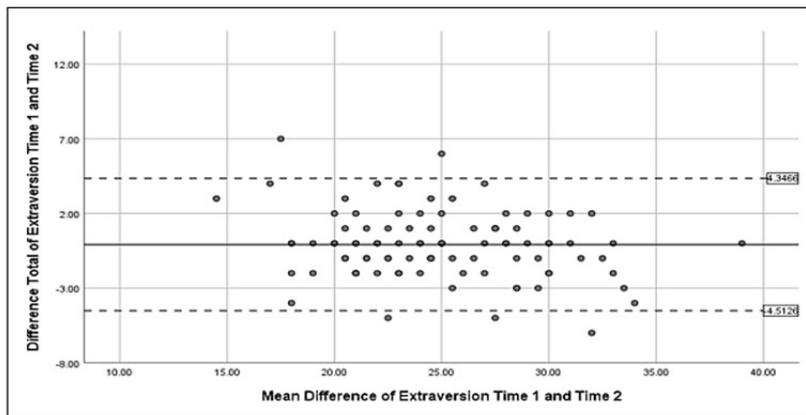


FIGURE 3: The bland-altman plot for Extraversion

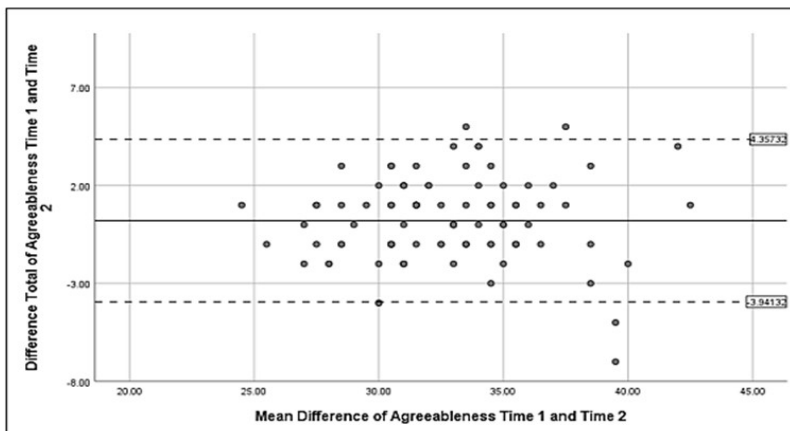


FIGURE 4: The bland-altman plot for Agreeableness

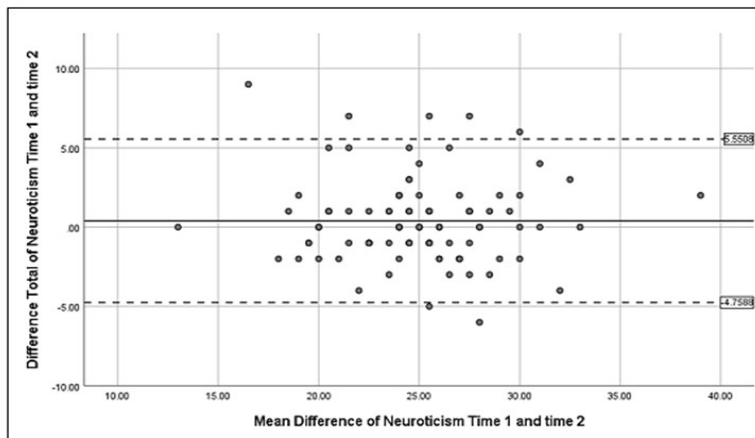


FIGURE 5: The bland-altman plot for Neuroticism

closeness to zero, variance mean difference, spread of data around mean and presence of outlier (Nor Afifi et al. 2016). Based on the four criteria that have been set, in terms of mean difference, all the dimensions were close to zero and had positive variance mean difference and spread of data around mean. Further detailed findings for the LoA interpretation were shown in Table 3. Overall, all the dimensions in BFI-44 showed high reliability according to the Bland-Altman plots with the exception of Neuroticism which it only obtained moderate

reliability since its plot had the most outliers.

Table 4 showed the absolute value of SEM for the Big Five dimensions (OCEAN). Extraversion had the lowest SEM value with 0.773 while the Neuroticism had the highest value of SEM with 1.199.

The summary of the results of the three statistical analyses for test-retest reliability which included ICC, LoA and SEM were shown in Table 5. The current study revealed that combination of these three statistical analyses showed all Big Five

TABLE 3: Limit of agreement interpretation based on four categories

BFI-44 Dimensions	The Mean Difference is Close to Zero	Variance Mean Difference	Spread of Data Around Mean	Outlier	Overall
Openness to Experience (O)	+	+	+	±	+
Conscientiousness (C)	+	+	+	±	+
Extraversion (E)	+	+	+	±	+
Agreeableness (A)	+	+	+	±	+
Neuroticism (N)	+	+	+	-	±

(+) Have high reliability; (±) Have moderate reliability; (-) Have low reliability



Table 4: Standard error of measurement

BFI-44 Dimensions	SEM
Openness To Experience (O)	0.964
Conscientiousness (C)	1.037
Extraversion (E)	0.773
Agreeableness (A)	0.870
Neuroticism (N)	1.199

SEM: Standard error of measurement

dimensions in BFI-44 (Malay version) had high test-retest reliability. The results demonstrated that all Big Five dimensions showed definite and close agreement between the three main statistical analyses measurements. Definite agreement meant that there was agreement between the three statistical analysis measurements while close agreement meant that there was agreement between at least two of the three statistical analysis measurements. To conclude, all the Big Five dimensions in BFI-44 (Malay version) attained high reliability after finding out the agreement between all the statistical analyses measurements.

### DISCUSSION

This study had determined the 44-

item Big Five Inventory of the Malay version reliability among Malaysian female public university students. The Cronbach’s alpha values in BFI-44 of the study showed moderate to good internal consistency. Extraversion had the highest internal consistency while Openness to Experience had the lowest internal consistency. The findings of the current study were found contrasted with the previous study carried out by Hee et al. (2014), in which their result showed that Openness to Experience had the highest internal consistency (0.779) whilst Neuroticism had the lowest internal consistency (0.716). Another study done in Kuwaiti population by Alansari (2016), found out that Conscientiousness had the highest internal consistency (0.920) while Neuroticism had the lowest internal consistency (0.740), which was same with the study conducted by Hee et al. (2014). The internal consistency results obtained in the current study which were different as compared to the previous studies may be due to the small study sample size involved.

A previous study revealed that ICC value for all dimensions of Big Five exceeded 0.7 except for agreeableness,

TABLE 5: Summary results of ICC, LoA, SEM for BFI-44 dimensions

BFI-44 Dimensions	ICC	LOA	SEM	Agreement	Ratings
Openness to Experience (O)	+	+	+	Yes	High
Conscientiousness (C)	+	+	±	Close	High
Extraversion (E)	+	+	+	Yes	High
Agreeableness (A)	+	+	+	Yes	High
Neuroticism (N)	+	±	±	Close	High

ICC: Intraclass correlation coefficient; LOA: Limit of agreement; SEM: Standard error of measurement  
 (+) Have high reliability; (±) Have moderate reliability; (-) Have low reliability

in which the value was 0.694 (Carciofo et al. 2016). However, the ICC results obtained in this study were good, in which all the ICC values of Big Five dimensions exceeded 0.7. Previously, most of the previous studies focused on ICC to measure the relative reliability for an instrument. According to Shrout and Fleiss (1979), ICC is a recommended reliability estimation method since it connects the variability in interest to the sizes of the error in repeated measurements. ICC however is a unitless number, which gives no indication of the exact measurement range or bias and hence it is difficult to be used in clinical interpretation (Shrout & Fleiss 1979).

Hence, this study included both the LoA and the SEM for further evaluation of test-retest reliability which these statistical analyses were still not accessible in the earlier studies of BFI-44. LoA was used to test reliability because the 95% Confidence Interval (CI) of the agreement limit which it enables the estimation of the potential sampling error size (Giavarina 2015). The Bland-Altman plot thus contains the bias line and the agreement limits (Haghighyegh et al. 2020). In this study, Bland-Altman plots showed that all the dimension of 44-item Big Five Inventory (Malay version) were highly reliable, with the exception of Neuroticism which it only obtained moderate reliability.

SEM is also included in the study since it offers an absolute reliability index and measures the accuracy of individual test scores. The interpretation of the SEM evaluates the reliability within each respondent

(Shrout 1998). SEM results indicated the lowest in Extraversion and the highest in Neuroticism in the current study. The SEM serves to put the ICC into account of the data it generates, with smaller SEMs indicate better reliability (Bruton et al. 2000). The combination of the three different techniques and their findings in this study had provided more accurate test-retest reliability information.

There were some limitations to this study with regards to the socio-demographic where the study had a narrow respondent age range with the respondents aged between 20-25 years old and focused among female university students which limited the generalisation of the results to other populations.

A smaller sample size in the study might be one of the reasons for the current internal consistency results varied from previous studies. Future studies should include a larger sample size with varied age ranges.

## CONCLUSION

Overall, the BFI-44 (Malay version) has moderate to good internal consistency and high test-retest reliability among Malaysian female students in public university. It may benefit in determining whether the BFI-44 (Malay version) applicable among Malaysian population to evaluate their personality traits. This information is essential to provide accurate information on the effectiveness of the questionnaire and any intervention related to the personality of an individual. The findings of this study also give positive

implications for the other researchers and health professionals during the implementation of the BFI-44 (Malay version) and interpretation of the data.

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### CONFLICTS OF INTEREST STATEMENT

No conflict of interest has been declared by the authors

### REFERENCES

- Adelaar, A. 2011. Malay. The National Language of Malaysia 1996. Atlas of Languages & Intercultural Communication in the Pacific, Asia, and the Americas 729-734. Berlin: De Gruyter Mouton.
- Alansari, B. 2016. The big five inventory (BFI): Reliability and validity of its arabic translation in non-clinical sample. *Eur Psychiatry* 33(51): S209-10.
- Barrick, M.R., Mount, M.K. 1991. The big five personality dimensions and job performance: A meta-analysis. *Pers Psychol* 44(1): 1-25.
- Besser, A., Shackelford, T. 2007. Mediation of the effects of the big five personality dimensions on negative mood and confirmed affective expectations by perceived situational stress: A quasi-field study of vacationers. *Pers Individ Differ* 42(2007): 1333-46.
- Bruton, A., Conway, J.H., Holgate, S.T. 2000. Reliability: What is it, and how is it measured? *Physiotherapy* 86(2): 94-9.
- Bujang, M.A., Nurakmal, B. 2017. A simplified guide to determination of sample size requirements for estimating the value of intraclass correlation coefficient: A review. *Arch Orofac Sci* 12(1): 1-11.
- Carciofo, R., Yang, J., Song, N., Du, F., Zhang, K. 2016. Psychometric evaluation of chinese-language 44-item and 10-item big five personality inventories, including correlations with chronotype, mindfulness and mind wandering. *PLoS ONE* 11(2): e0149963.
- Costa, P.T., McCrae, R.R. 1992. The five-factor model of personality and its relevance to personality disorders. *J Pers Disord* 6(4): 343-59.
- Devaraj, S., Easley, R.F., Crant, M. 2008. Research note-How does personality matter? Relating the five-factor model to technology acceptance and use. *Inf Syst Res* 19(1): 93-105.
- Dilek, M., Oznur, T., Ozge, K.S., Nursan, C. 2021. An investigation of the relationship between mother's personality traits, breastfeeding self-efficacy and perception of insufficient milk supply. *Health Care Women Int* 42(4-6): 925-41.
- George, J.M. 2013. Mood, emotion and personality. In *Handbook of personality at work*. Edited by Neil DC & Rober PT, New York: Routledge; 671-91.
- Giavarina, D. 2015. Understanding bland altman analysis. *Biochem Med* 25(2): 141-51.
- Haghighayegh, S., Kang, H.A., Khoshnevis, S., Smolensky, M.H., Diller, K.R. 2020. A Comprehensive guideline for bland-altnan and intra class correlation calculations to properly compare two methods of measurement and interpret findings. *Physiol Meas* 41(5): 055012.
- Hee, O.C. 2014. Validity and reliability of the big five personality traits scale in Malaysia. *Int J Innov Appl Stud* 5(4): 309-315.
- Hong, R.Y., Paunonen, S.V. 2009. Personality traits and health-risk behaviours in University Students. *Eur J Pers* 23: 675-96.
- John, O.P., Donahue, E.M., Kentle, R.L. 1991. The Big Five Inventory – Versions 4a and 54. Berkeley, C.A: University of California, Institute of Personality & Social Research.
- John, O.P., Naumann, L.P., Soto, C.J. 2008. Paradigm shift to the integrative big five trait taxonomy: History, measurement, and conceptual issues. In *Handbook of personality: Theory and resarch* John OP, Robins RW, Pervin LA (Eds.) New York: The Guilford Press; 114-58.
- Kariyawasam, J.D., Welmilla, I. 2020. The impact of big five personality factors on employees' career success. *Proceedings of the International Conference on Buisness & Information (ICBI) November 19 2020*; 275-85.
- LePine, J.A., Van Dyne, L.A. 2001. Voice and cooperative behaviour as contrasting forms of contextual performance: Evidence of differential relationships with big five personality characteristics and cognitive ability. *J Appl Psychol* 86(2): 326-36.
- Masne, K., Suhaili, I., Razaob, Nor Afifi, R., Chai, S.C., Dzalani, H. 2018. Validity and reliability of a malay version of the lawton instrumental activities of daily living scale among the malay

- speaking elderly in Malaysia. *Aust Occup Ther J* **65**(1): 63-8.
- Matthews, G., Campbell, S. 2009. Sustained performance under overload: Personality and individual differences in stress and coping. *Theor Issues Ergon Sci* **10**(5): 417-42.
- McCrae, R.R., Costa, P.T. 1997. Personality trait structure as a human universal. *Am Psychol* **52**(5): 509-16.
- Nor Afifi, R., Priscilla, T.S.F., Masne, K., Noorashikin, S. 2016. Kebolehpercayaan alat penilaian kefungsi mobiliti di kalangan warga emas di Malaysia. *Jurnal Sains Kesihatan Malaysia* **14**(1): 47-54.
- Normah, C.D., Suzana, S., Baitil Husna, Z., Rosdinom, R., Chyn, A.V., Azhadi, O. 2016. Validation and optimal cut-off scores of the Bahasa Malaysia version of the Montreal Cognitive Assessment (Moca-BM) for mild cognitive impairment among community dwelling older adults in Malaysia. *Sains Malays* **45**(9): 1337-43.
- Padashian, F., Yadollahi, P., Doostfatemeh, M., Moshfeghy, Z. 2022. Examining exclusive breastfeeding in Iranian mothers using the five-factor model of personality traits. *J Taibah Univ Med Sci* **17**(1): 51-6.
- Padashian, F., Yadollahi, P., Moshfeghy, Z. 2021. Predicting exclusive breastfeeding based on maternal personality traits: A correlational study. *Iran J Nurs Res* **34**(131): 7-18.
- Paunonen, S.V. 2003. Big five factors of personality and replicated predictions of behaviour. *J Pers Soc Psychol* **84**(2): 411-24.
- Rabiatal, K. 2014. Malay can be world language, says Brunei Lecturer. The Jakarta Post. <https://www.thejakartapost.com/news/2014/01/14/malay-can-be-world-language-says-brunei-lecturer.html> [17 June 2022].
- Ramli, M., Salmiah, M.A., Nurul Ain, M. 2009. Validation and psychometric properties of bahasa malaysia version of the depression anxiety and stress scales (DASS) among diabetic patients. *Malays J Psy* **18**(2): MJP 01-11-09.
- Schmitt, D.P., Allik, J., McCrae, R.R., Benet-Martínez, V.J. 2007. The geographic distribution of big five personality traits: Patterns and profiles of human self-description across 56 nations. *J Cross-Cult Psychol* **38**(2): 173-212.
- Shrout, P.E., Fleiss, J.L. 1979. Intraclass correlations: Uses in assessing rater reliability. *Psychol Bull* **86**(2): 420-8.
- Shrout, P.E. 1998. Measurement reliability and agreement in psychiatry. *Stat Methods Med Res* **7**(3): 301-17.
- Soto, C.J., John, O.P. 2009. Ten facet scales for the big five inventory: Convergence with Neo Pi-R facets, self-peer agreement, and discriminant validity. *J Res Pers* **43**(1): 84-90.
- Taber, K.S. 2018. The use of Cronbach's Alpha when developing and reporting research instruments in science education. *Res Sci Educ* **48**: 1273-96.
- The Sun Daily. 2014. Malay Fifth Largest Spoken Language in The World, Says Najib. The Sun Daily. <http://www.thesundaily.my/news/1063766> [1 Dec 2021].