MUFFI-2: – A Culture Sensitive Measure of Personality based on the Indian Context

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Abstract

A culturally sensitive measure of personality was developed based in the Indian context. Mumbai University Five Factor Inventory (MUFFI; Belhekar, 2017) was revised as it had less culture specific statements. In order to make it more culturally relevant Belhekar & Vader (2018) carried out the following process. Twelve psychology experts listed behaviors specific to the Indian culture which indicated high and low levels of neuroticism, extraversion, openness to experience, agreeableness and conscientiousness – the five factors of personality. Items were developed, modified and written based on this list. These items were further rated by expert psychologists for their appropriateness to measure each of the personality domains. The items were analyzed for content considering the cultural relevance and domain relevance. Community members and University students (n = 402) responded to these items. Item reliabilities and factor loadings were taken into account for retaining 50-item as a part of the final version. Exploratory factor analysis supported the five-factor structure. MUFFI 2 showed high correlations with the well-established inventories like the Big Five Inventory (BFI; John & Srivastava, 1999). A group of items with the high domain reliability, highest factor loadings and simple structure were retained for a 25-item shorter version of the inventory. Given that it has culture-sensitive statements, this measure would be more appropriate for further personality investigations in India. The MUFFI is being adapted in seven Indian languages. We understand that we need to explore the personality structure in India using the emic and research is being undertaken for this purpose.

Introduction

- Several etic measures like the NEO-PI (McCrae & Costa, 1978, 1985, 1990, 2010), BFI (John & Srivastava, 1999) and Mini-Markers (Saucier, 1994) have been utilized to understand personality structures in India. Translations of these scales have been employed as a form of "adaptive indigenization" (D. Sinha, 1997, p.148) of these etic measures.
- No emic measure of personality has so far been developed in the Indian context. Mumbai University Five Factor Inventory 2 (Belhekar & Vader, 2019) is an attempt to move away from the previous translated measures to understand personality in India.
- While considering the cultural context as relevant to the emic approach, this necessitated the study of the relationship between culture and personality. Culture is the most important of the environmental influences, alongside genetics, in shaping personality (Triandis & Suh, 2002).
- A cultural dimensions instrument, based on Hofstede's model (2010), was employed in this study to understand the relationship between two emic measures of personality and cultural dimensions. The Mumbai University Cultural Dimension Scale (MU-CDS; Belhekar et. al, 2019) measures seven dimensions – Masculinity, Femininity, Power Distance, Uncertainty Avoidance, Individualism, Indulgence and Long-term Orientation. Data from over 30 countries has found patterns of moderate to high correlations between the cultural dimensions and personality (e.g., Hofstede & McCrae, 2004).

Method

- Participants: Community members and University students (n = 397) responded to MU-CDS (Belhekar et. al., 2019); MU-FFI 3 (English version, Belhekar & Vader, 2019), BFI (John and Srivastava, NEO-FFI (McCrea and Costa, 2010)
- Analyses included Correlational analysis, MANOVA, Principal Components Analysis, Structural Equation Modeling-Confirmatory Factor Analysis (SEM-CFA), Network analysis.
- We used R software for analysis (R Core Team, 2019)

Results

Psychometric properties of MU-FFI

The original item pool consisted of 110 items. Item analysis and factor analysis resulted in a 50-item instrument with 10-items for each of the Five-Factors. An item-wise Principal Component Analysis yielded five factors as a solution.

Table 1: Descriptive Statistics and Alpha Reliabilities for MU-FFI

MU-FFI	Mean	SD	Median	Min	Range	Alpha	Alpha Short	SW P-val	JB P-val	Cor Short*
MUFFI-N	32.27	6.21	33	10	39	**.73**	**.70**	.07	.18	.80
MUFFI-E	31.75	6.36	32	15	31	**.71**	**.62**	.12	.31	.91
MUFFI-O	32.78	5.97	33	10	39	**.70**	**.63**	.13	.50	.66
MUFFI-A	32.84	5.24	33	16	30	**.63**	**.58**	.08	.79	.89
MUFFI-C	34.12	6.55	34	14	36	**.82**	**.70**	.18	.46	.92

Note: SW P-val =Shapiro-Wilk normality test P value; JB P-val = Jarque Bera Test P value. * Correlation of full version with short version

Initial validation of MU-FFI2

The exploratory factor analysis of the MUFFI2 scales with BFI scales and NEO-FFI scales was carried out. The scree as well as parallel analysis suggested five factors.
KMO was excellent. = .80.   KMO for short version was .75

Table 2: Joint Exploratory Factor Analysis of MU-FFI, NEO-FFI 3, and BFI

Measure	N	E	O	A	C	h^2
N_MU-FFI	**.84**	–.14	–.06	–.02	–.19	.77
N_NEO-FFI	**.84**	–.22	.07	.02	–.10	.77
N_BFI	**.86**	–.18	.02	–.01	–.12	.78
E_MU-FFI	–.27	**.84**	.12	.10	.06	.80
E_NEO-FFI	–.15	**.85**	.16	.09	.16	.81
E_BFI	–.16	**.88**	.07	–.10	.09	.83
O_MU-FFI	–.03	.17	**.75**	.08	–.23	.65
O_NEO-FFI	.02	.04	**.86**	.14	.15	.78
O_BFI	.03	.11	**.77**	–.03	.23	.66
A_MU-FFI	–.04	.04	–.02	**.85**	.04	.73
A_NEO-FFI	.04	–.07	.10	**.87**	.04	.77
A_BFI	–.02	.11	.09	**.79**	.25	.71
C_MU-FFI	–.13	.15	.00	.10	**.88**	.83
C_NEO-FFI	–.08	.15	.11	.15	**.87**	.82
C_BFI	–.24	.00	.08	.10	**.87**	.83

Figure 1A: Scree plot and Parallel Analysis for Joint EFA of MU-FFI, NEO-FFI 3, and BFI
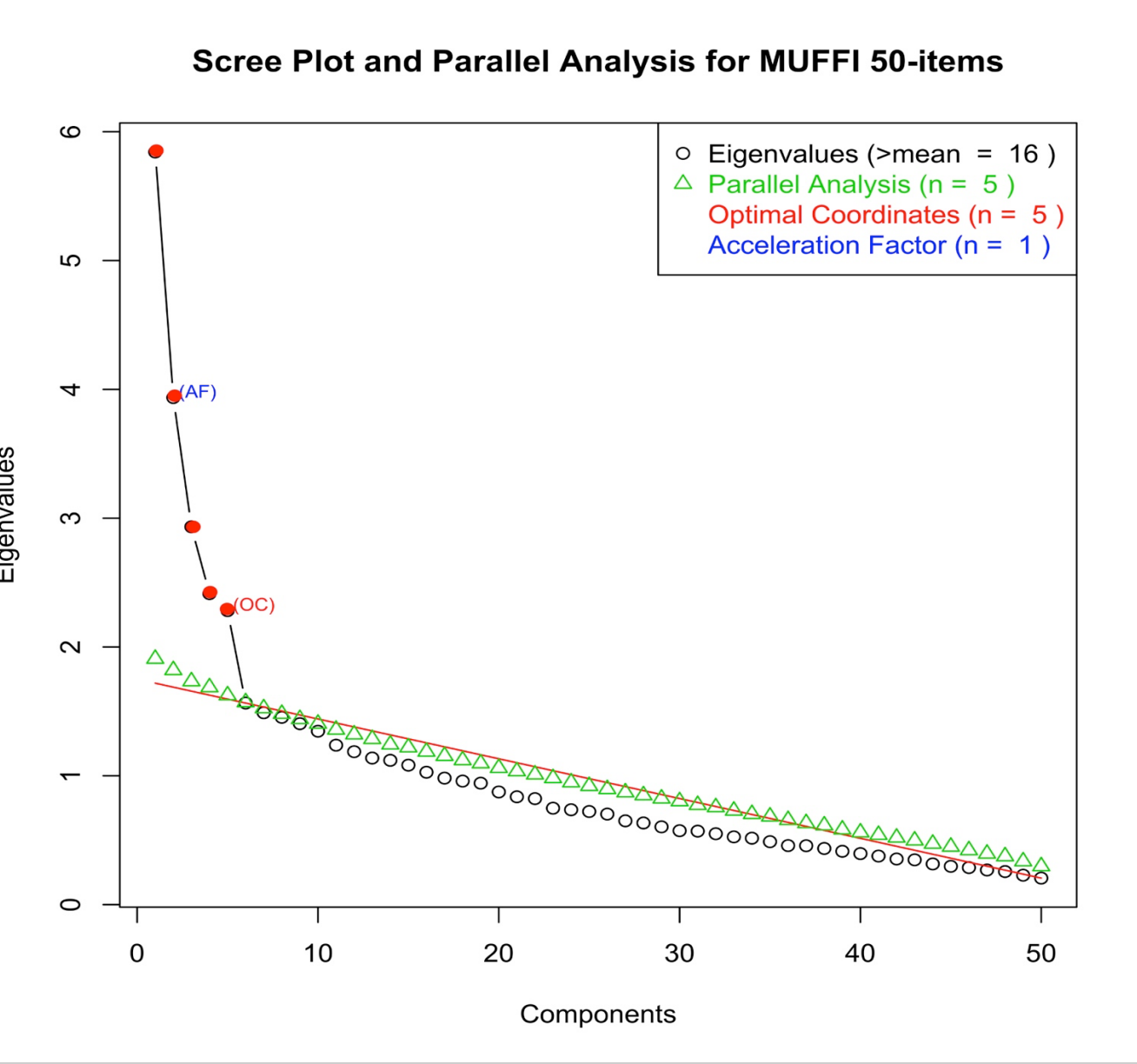

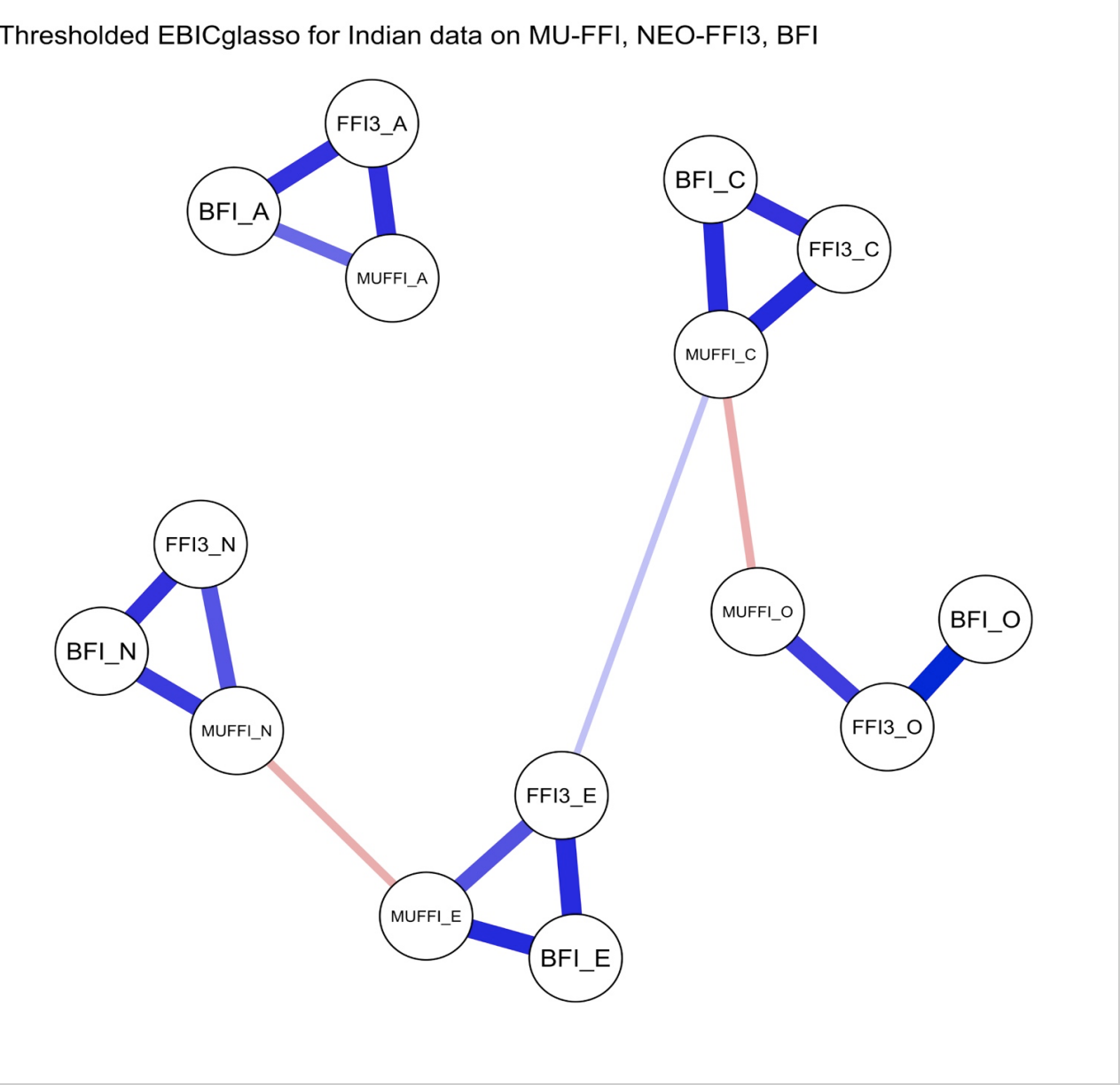### Figure 1B: Network Analysis for MU-FFI, NEO-FFI 3, and BFI

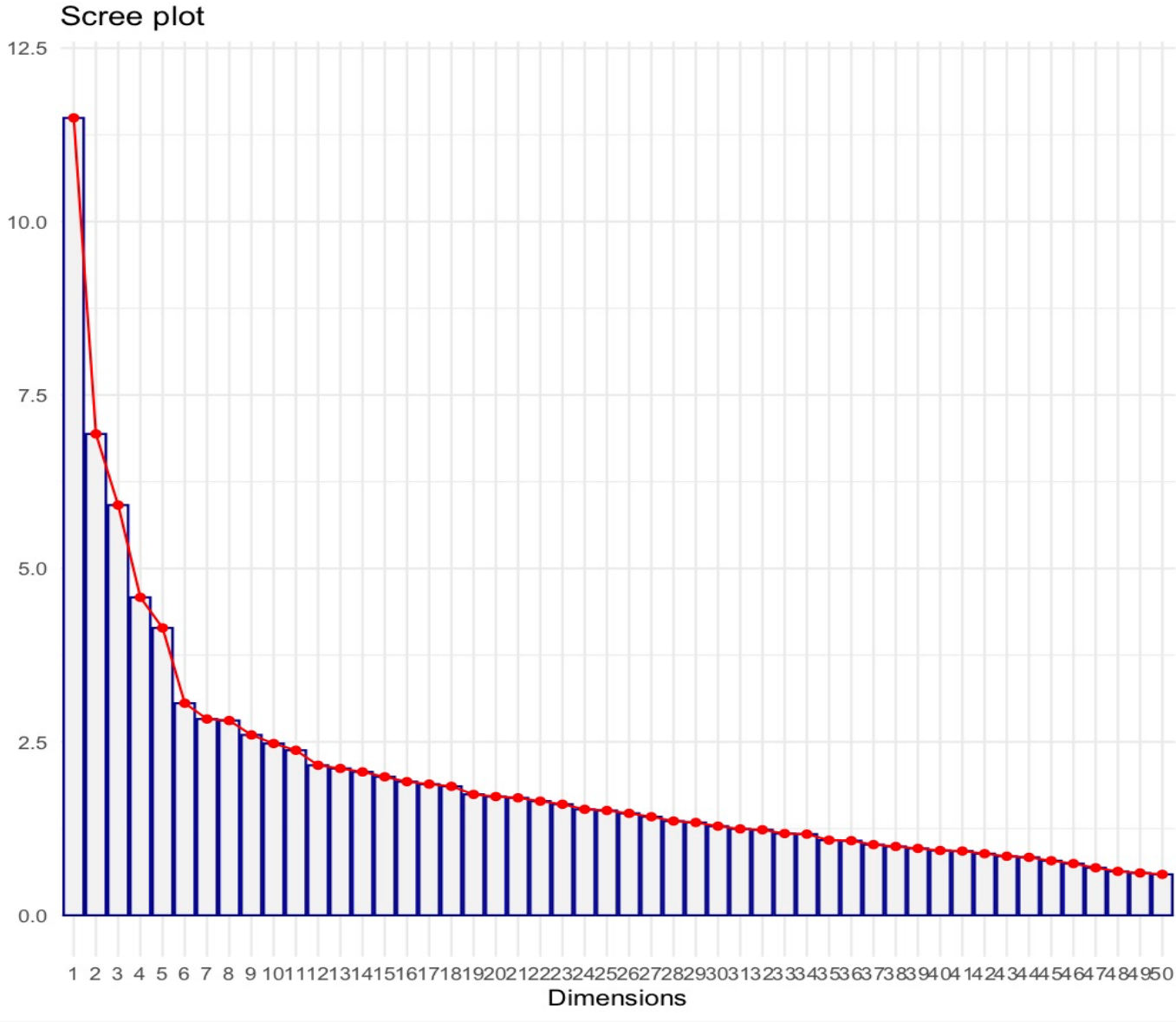### Figure 2A: Scree plot for EFA of MU-FFI items

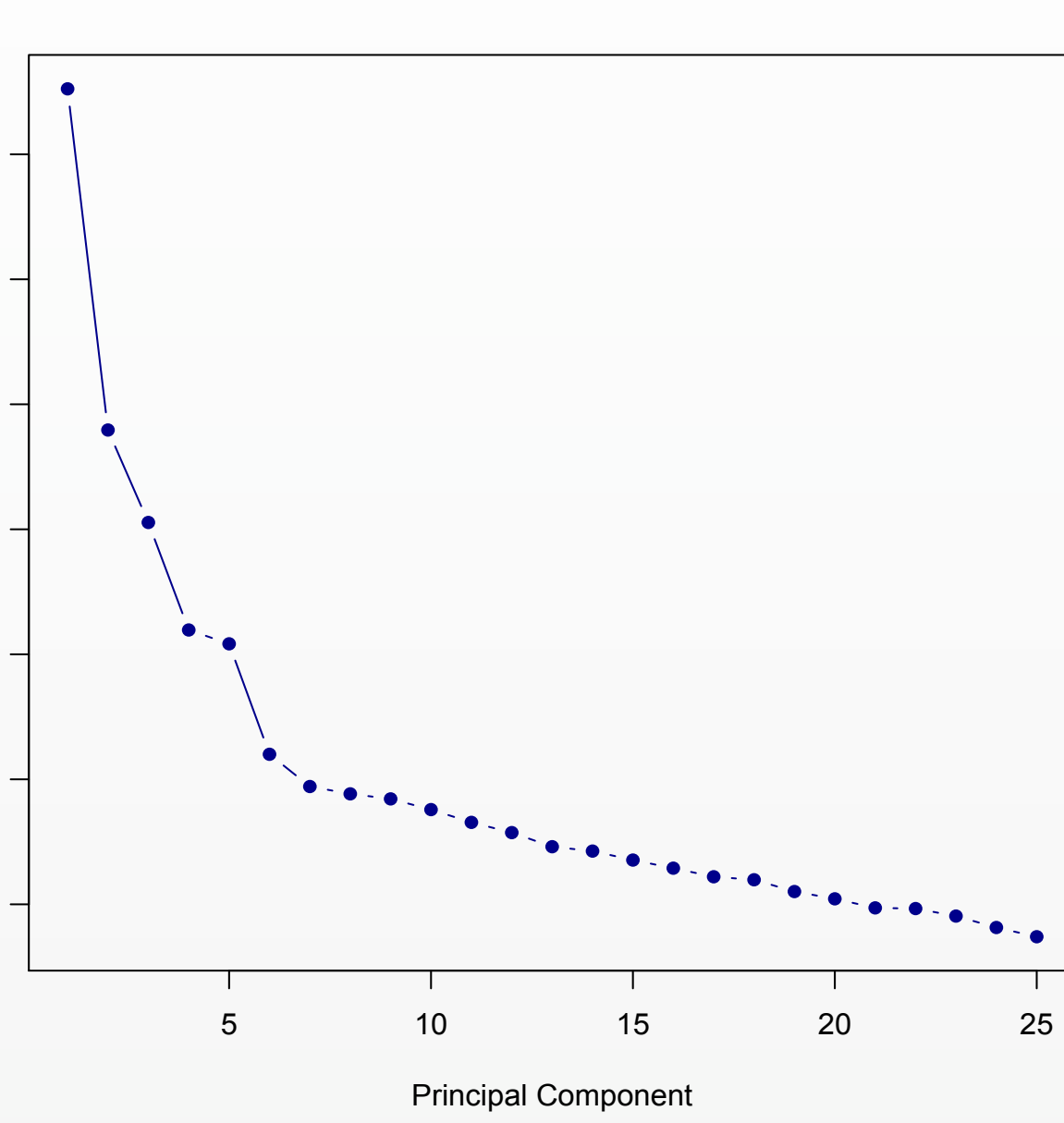### Figure 2B: Scree plot for EFA of MU-FFI Short version items

Table 3: Intercorrelaitons among MU-FFI Scales

	N	E	O	A	C
N	1				
E	–.35	1			
O	–.05	.01	1		
A	–.20	.23	.17	1	
C	–.21	.26	–.04	.22	1

1. Factor analysis of MUFFI 2 clearly supported the the Five-Factor Structure. All loadings were on the intended factors.
2. The distributions of all five MU-FFI domain scales were fairly normal.
3. Reliability analysis suggested high Cronbach alpha values for all the domain scales given that every scale consists of only 10 items. Reasonable reliability estimates for shorter version of the scale (with 5-items each scale) were obtained.
4. A joint factor analysis of MU-FFI, NEO-FFI, and BFI provided support for the validity of MU-FFI and thereby supported the FFM (Table 2).
5. Network analysis of MU-FFI, NEO-FFI, and BFI clearly indicated the independence of the five dimensions. It also suggests that the cultural conception of Openness for the Indian population may differ from that applied to the Western cultures in the past.

Conclusion

1. The MU-FFI is a reliable and valid emic instrument for the measurement of the Five-Factor Model (FFM) in India.
2. The network analysis supports the independence of the Five dimensions.
3. Subtle cultural differences in conceptualization of openness are indicated.
4. The cultural dimensions correlate in predictable directions with personality factors.
5. Conceptualization of cultural dimensions needs to considered while theorizing personality.
6. Cultural intricacies need to be factored in while conceptualizing the personality structure, especially of such complex and dense cultures like that of India.

References

Costantini, G., Epskamp, S., Borsboom, D., Perugini, M., Mõttus, R., Waldorp, L. J., & Cramer, A. O. (2015). State of the aRt personality research: A tutorial on network analysis of personality data in R. *Journal of Research in Personality, 54,* 13-29.

Hofstede, G., & McCrae, R. R. (2004). Personality and culture revisited: Linking traits and dimensions of culture. *Cross-cultural research, 38*(1), 52-88.

John, O. P., & Srivastava, S. (1999). The Big-Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), Handbook of personality: Theory and research (Vol. 2, pp. 102–138). New York: Guilford Press.

McCrae, R. R., & Costa, P. T., Jr. (2010). NEO inventories professional manual. Odessa, FL: Psychological Assessment Resources.