

RETEST RELIABILITY OF 16 PF-E

Brian Bolton
University of Arkansas

ABSTRACT

Retest reliability coefficients with a one week interval for the 16 primary and 5 secondary scales of 16 PF-E were calculated for a sample of 100 rehabilitation clients. The primary scale reliabilities ranged from .43 to .78, with a median of .68. Three secondary scale reliabilities were in the low .70s and two were in the .80s. It was concluded that the primary scales of 16 PF-E should be used with extreme caution and counseling applications should focus on the secondary scales.

INTRODUCTION

One of the perennial criticisms of the Sixteen Personality Factor Questionnaire (16 PF; Cattell, Eber, & Tatsuoka, 1970) has been its lower than desirable reliability (e.g., see Zuckerman, 1985). Although Form E of the 16 PF (16 PF-E; Institute for Personality and Ability Testing, 1985) has been in use for 20 years, there are no published test/retest reliability data available for this instrument. Hence, the purpose of this research note is to report 16 PF-E retest reliability coefficients for a sample of vocational rehabilitation clients.

METHOD

SAMPLE

One hundred vocational rehabilitation clients who were participating in the evaluation program at a comprehensive rehabilitation facility completed the 16 PF-E twice. The interval between first and second administrations was 7 days for 76 respondents, and between 5 and 9 days for everyone else.

The sample consisted of 74 men and 26 women with a median age of 23 years (range from 17 to 54 years). Slightly more than half (58%) of the respondents completed 12 years of school, one-third (35%) completed between 8 and 11 years, and 7% attended 7 years or less. Disabling conditions were as follows: 62% physical/medical, 19% psychiatric/emotional, and 19% intellectual/learning. On the General Aptitude Test Battery, the clients averaged one-half standard deviation lower on the perceptual (SPQ) tests and one standard deviation lower on the cognitive (GNV) and psychomotor (KFM) tests.

INSTRUMENT

The Sixteen Personality Factor Questionnaire-Form E (16 PF-E) is a special purpose personality inventory that was designed for use with persons with limited educational and cultural backgrounds. In particular, it is appropriate for individuals who read as low as the third grade level. Two simplifying features of the 16 PF-E are: (a) a forced choice format is used rather than allowing an "in between" or "uncertain" response to each item, and (b) all 128 items are phrased as simple questions consisting of two options separated by the conjunction or. Each of the 16 primary scales is represented by eight items. The five secondary scales are scored according to formulae derived from the results of a factor analysis of the protocols of more than 17,000 respondents (Krug & Johns, 1986). Norms are available for a heterogeneous sample of almost 1,000 rehabilitation clients, subdivided by sex and age (Institute for Personality and Ability Testing, 1985, pp. 22-26).

RESULTS AND DISCUSSION

The retest reliability coefficients for the 16 primary scales and the five secondary scales of the 16 PF-E are listed in Table 1. For the primary scales, the retest coefficients range from .43 to .78, with a median of .68. Three of the secondaries have reliabilities in the low .70s and two are in the .80s.

It should be noted that there were eight significant mean changes from test to retest, an outcome that is difficult to explain. Only one significant ($p < .05$) mean change occurred for another instrument, the USES Interest Inventory, that was administered concurrently with the 16 PF-E (Bolton, 1988). The retest reliabilities for the USES-II ranged from .73 to .88, with a median of .83. The 12 scales of the USES-II are composed of 10 to 15 items.

The 16 PF-E Manual (Institute for Personality and Ability Testing, 1985, p. 8) reports "parallel form" reliabilities for the 16 primary scales for Form E against total scores from Forms C and D that range from .31 to .80, with a median of .60. When the item variation between Form E and Forms C and D is considered, these values are not inconsistent with the retest coefficients obtained in this study.

The 16 PF-E Manual (p. 7) also reports internal consistency reliabilities for the 16 primary scales calculated for two subject samples. The alpha coefficients for these samples range from -.12 to .73, with a median of .50. Internal consistency coefficients for a large sample of rehabilitation clients ranged from -.05 to .72, with a median of .53 (see Table 1). It is noteworthy that the scales with the lowest internal consistency coefficients (primary scales M and N) also have the lowest retest coefficients in the present study. Not surprisingly, two investigations of the factorial validity of 16 PF-E found that scales M and N were the least well substantiated scales (Brookings & Bolton, 1988; Burdsal & Bolton, 1979).

The 16 PF-E authors argue that the "ideal" personality scales possess "moderate internal consistency" (IPAT, 1985, p. 7). It is clear, however, that scales M and N fall far below this standard, with internal consistency coefficients close to zero in three independent studies. That these scales achieved retest reliabilities in the .40s is remarkable. But, primary scale Q1, with internal consistencies typically in the .30s (in the three studies cited), generated a relatively high retest reliability of .73.

TABLE 1
RELIABILITY STATISTICS FOR 16 PF-E

	Test ^a		Retest		Paired t-test	K-R20 ^b	r _{tt} ^c
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>			
A	5.16	1.85	5.12	1.83	0.27	0.54	0.69
B	5.34	1.75	5.48	1.71	-1.14	0.62	0.75
C	5.22	1.86	5.24	1.95	-0.12	0.49	0.64
E	5.70	1.82	5.98	1.87	-1.85	0.49	0.67
F	5.68	1.62	5.41	2.00	2.18*	0.66	0.78
G	5.53	1.88	5.23	2.05	2.01*	0.50	0.71
H	5.54	1.96	5.40	1.88	0.96	0.66	0.71
I	5.47	1.93	5.40	2.14	0.50	0.72	0.77
L	5.56	1.75	5.49	1.93	0.43	0.51	0.61
M	5.71	1.81	5.84	1.86	-0.66	0.07	0.43
N	6.05	2.08	5.30	1.95	3.51**	-0.05	0.44
O	6.37	1.82	5.95	2.04	2.33*	0.57	0.57
Q1	5.78	1.77	5.62	2.00	1.14	0.39	0.73
Q2	5.60	1.89	5.94	1.82	-2.72**	0.62	0.77
Q3	5.41	1.87	5.66	1.86	-1.55	0.44	0.62
Q4	5.86	1.61	5.50	1.77	2.63**	0.63	0.68
I	5.49	1.89	5.20	1.86	2.97**	0.81	0.86
II	5.04	1.79	5.35	1.97	-2.67**	0.81	0.82
III	5.35	1.75	5.35	1.98	0.03	0.53	0.71
IV	5.45	1.97	5.73	2.13	-1.92	0.63	0.75
V	5.45	1.85	5.36	2.03	0.60	0.59	0.73

^a Means and standard deviations are Sten scores based on the general rehabilitation client norms in the 16 PF-E Manual (IPAT, 1985, pp. 22-23).

^b Calculated for a sample of 1123 vocational rehabilitation clients (Brookings & Bolton, 1988).

^c Calculated for the test-retest sample ($n=100$).

* $p < .05$, ** $p < .01$

So, while it is possible for scales with low internal consistencies to have moderately high retest reliabilities, with short scales like 16 PF-E (eight items per scale), internal consistencies above .50 are desirable (see Krug, 1991). In conclusion, these data suggest that the primary scales of 16 PF-E should be used with extreme caution, and counseling applications should focus on the five second-order scales, as the Vocational Personality Report does (Bolton, 1987).

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