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Factors related to the level of personality functioning and implications for the mental health care system in Poland

Czynniki związane z poziomem funkcjonowania osobowości oraz implikacje dla systemu ochrony zdrowia psychicznego w Polsce

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Supplementary Material – LPFS Standards

NORMALISATION TEST

Normalisation studies were conducted on a representative sample of 1,030 individuals aged 18–25 years ($M = 42.39$; $SD = 13.06$), of which 541 (52.5%) were women.

Norms were calculated for both the general population and in subgroups obtained by dividing the participants based on gender (women and men) and age, with the age division set at 40 years. This resulted in four groups: younger women, older women, younger men, and older men. The distribution of the number of individuals in each subgroup is presented in Tab. 1S.

		Age [years]		Total
		Up to 40	41 and above	
Biological sex	Female	307	234	541
	Male	164	325	489
Total		471	559	1,030

Tab. 1S. Distribution of the number of individuals in respective reference groups

DESCRIPTIVE STATISTICS

Descriptive statistics and a measure of internal consistency of the personality functioning scales in the entire group and in subgroups identified for the purpose of norm calculation are presented in Tab. 2S. To assess the distribution shape of the analysed scale results in all samples, the values of skewness and kurtosis, the Shapiro–Wilk test, and histograms were taken into account. The skewness and kurtosis values fall within the range of $[-1; 1]$, suggesting that the distribution of results does not significantly deviate from normal. However, the Shapiro–Wilk test statistic was significant for all analyses, indicating that result distributions deviate from normal distribution. Histogram analysis indicates that variable distributions exhibit a high frequency of low results and significant right skewness. Consequently, these scales poorly differentiate individuals with low scores but allow for precise differentiation of high and very high scores. This is a typical situation for scales designed to assess psychopathological aspects.

Scale	Cronbach's α	M	SD	Skewness	Kurtosis
General population ($N = 1,030$)					
Total score	0.89	24.08	7.68	0.28	−0.55
Intrapsychic functioning	0.86	12.02	4.65	0.43	−0.68
Interpersonal functioning	0.80	12.06	3.73	0.27	−0.25
Younger women ($n = 307$)					
Total score	0.89	26.02	7.97	−0.02	−0.62
Intrapsychic functioning	0.86	13.61	4.89	0.10	−0.84
Interpersonal functioning	0.79	12.40	3.82	0.20	−0.21
Older women ($n = 234$)					
Total score	0.88	23.27	7.39	0.52	−0.19
Intrapsychic functioning	0.85	11.32	4.44	0.63	−0.44
Interpersonal functioning	0.79	11.96	3.67	0.42	0.04
Younger men ($n = 164$)					
Total score	0.89	24.71	7.70	0.16	−0.38
Intrapsychic functioning	0.86	12.52	4.54	0.23	−0.75
Interpersonal functioning	0.78	12.19	3.75	0.21	−0.03
Older men ($n = 325$)					
Total score	0.90	22.52	7.19	0.42	−0.50
Intrapsychic functioning	0.85	10.76	4.11	0.66	−0.34
Interpersonal functioning	0.82	11.75	3.66	0.25	−0.56

Tab. 2S. Descriptive statistics and measures of internal consistency of personality functioning scales in the whole group and in subgroups

NORMS

Taking into account the nature of the distribution of results, two types of norms were calculated. Firstly, the results were presented in the form of a percentile scale, which is a linear transformation of results characterised by a rectangular distribution and takes into account the percentage distribution of results. For this purpose, the following formula was used:

$$C = \frac{cf_{i-1} + 0.5f_i}{N} \times 100\%$$

Transforming results into a percentile scale involves assigning percentile values to raw scores. This means that all raw scores are represented in norm tables. In cases where a particular raw score did not appear in the empirical distribution, the nearest percentile score lower than the raw score was assigned to it. Interpretation of percentile results is done by locating the raw score in the norm table and reading the corresponding percentile. The obtained percentile reflects the percentage of surveyed individuals who scored equal to or lower than that raw score. Results converted to the percentile scale are presented in Tabs. 3S and 4S.

The second type of norms was developed based on the T-scale, which takes into account the area transformation and the shape of the result distribution, i.e. the percentage of individuals under the curve. The T-scale is a type of normalised scale with a mean of 50 and a standard deviation of 10. It has a wide range and can accommodate scores from approximately -4 to $+4$ standard deviations (Z -scores). For this reason, it is particularly useful in situations where one wants to distinguish individuals with extremely high or extremely low scores, as is the case with psychopathological scales. The distributions of LPFS scales exhibited deviations from normality; therefore, before calculating the norms, the results were normalised using the rankit function in SPSS. Each raw score was assigned a score on the T-scale. In cases where a particular raw score did not appear in the empirical distribution, the nearest T-scale score lower than the raw score was assigned to it. Results converted to the T-scale are presented in Tabs. 5S and 6S.

Raw score	Total score					Raw score
	In general	K > 41	K < 40	M > 41	M < 40	
12	7	6	6	9	8	12
13	8	7	7	10	10	13
14	11	9	10	12	13	14
15	14	13	15	12	17	15
16	19	15	20	16	22	16
17	22	17	24	19	27	17
18	25	20	27	22	32	18
19	29	22	31	25	36	19
20	33	25	37	28	41	20
21	37	28	41	30	46	21
22	41	31	46	35	51	22
23	46	35	50	41	55	23
24	50	39	55	46	60	24
25	55	42	62	51	63	25
26	59	45	67	56	68	26
27	64	50	71	61	73	27
28	68	56	75	64	76	28
29	72	61	79	70	79	29
30	77	68	82	76	82	30
31	81	74	85	80	87	31
32	85	77	88	84	90	32
33	87	80	90	87	92	33
34	89	84	91	89	94	34
35	91	87	93	91	95	35
36	94	90	94	93	96	36
37	95	92	95	95	98	37
38	96	94	95	95	98	38
39	97	96	96	96	98	39
40	97	97	97	97	98	40
41	98	98	98	97	99	41
42	99	98	99	98	99	42
43	99	98	99	98	99	43
44	99	99	100	99	99	44
45	100	99	100	100	100	45
46	100	99	100	100	100	46
47	100	100	100	100	100	47
48	100	100	100	100	100	48

Tab. 3S. Percentile results for overall LPFS scores

Raw score	Intrapsychic Functioning					Interpersonal functioning					Raw score
	In general	K > 41	K < 40	M > 41	M < 40	In general	K > 41	K < 40	M > 41	M < 40	
6	16	10	17	13	21	9	9	7	12	10	6
7	19	13	21	16	24	11	11	9	13	12	7
8	26	18	31	21	32	16	14	16	16	18	8
9	33	23	38	28	42	23	20	24	20	26	9
10	39	26	45	34	51	31	28	32	27	36	10
11	46	31	52	40	57	40	37	41	36	44	11
12	52	38	60	46	64	49	45	51	46	53	12
13	59	44	67	53	70	59	55	62	58	62	13
14	66	52	73	61	76	69	65	71	69	70	14
15	72	60	78	67	82	78	75	80	80	80	15
16	78	66	83	74	87	86	84	87	88	87	16
17	84	74	87	82	91	91	90	91	91	92	17
18	89	81	91	88	95	94	93	94	94	96	18
19	92	85	94	94	97	97	96	97	95	98	19
20	94	89	95	94	98	98	97	98	97	99	20
21	96	93	97	96	99	98	98	99	98	99	21
22	98	95	99	98	99	99	99	99	99	100	22
23	99	97	99	98	100	100	99	99	100	100	23
24	100	99	100	99	100	100	100	100	100	100	24

Tab. 4S. Percentile results for the scores of intrapsychic and interpersonal functioning scales

Raw score	Total score					Raw score
	In general	K > 41	K < 40	M > 41	M < 40	
12	32	31	31	33	32	12
13	36	35	35	37	37	13
14	38	37	37	38	39	14
15	39	39	39	38	40	15
16	41	40	42	40	42	16
17	42	41	43	41	44	17
18	43	42	44	42	45	18
19	44	42	45	43	47	19
20	46	43	47	44	48	20
21	47	44	48	45	49	21
22	48	45	49	46	50	22
23	49	46	50	48	51	23
24	50	47	51	49	52	24
25	51	48	53	50	53	25
26	52	49	54	51	55	26
27	54	50	56	53	56	27
28	55	51	57	54	57	28
29	56	53	58	55	58	29
30	57	55	59	57	59	30
31	59	56	61	58	61	31
32	60	57	62	60	63	32
33	61	59	63	61	64	33
34	62	60	63	62	65	34
35	64	61	64	64	66	35
36	65	63	66	65	68	36
37	66	64	67	66	70	37
38	67	66	67	66	71	38
39	68	67	68	67	71	39
40	70	69	69	69	71	40
41	71	70	70	69	74	41
42	72	70	71	70	74	42
43	73	71	75	72	74	43
44	74	72	79	74	80	44
45	77	74	79	77	80	45
46	77	74	79	77	80	46
47	83	79	79	77	80	47
48	83	79	79	77	80	48

Tab. z1. T-scale results for the overall LPFS score

Raw score	Intrapsychic functioning					Interpersonal functioning					Raw score
	In general	K > 41	K < 40	M > 41	M < 40	In general	K > 41	K < 40	M > 41	M < 40	
6	36	34	36	35	37	33	33	32	34	33	6
7	41	39	42	40	43	38	38	37	39	38	7
8	44	41	45	45	45	40	39	40	40	41	8
9	46	45	47	44	48	43	41	43	42	44	9
10	47	45	49	46	50	45	44	46	44	46	10
11	49	46	51	47	52	47	47	48	46	49	11
12	51	47	52	49	54	50	49	50	49	51	12
13	52	48	54	51	55	52	51	53	52	53	13
14	54	50	56	53	57	55	54	56	55	55	14
15	56	52	58	55	59	58	58	58	58	58	15
16	58	54	60	57	61	61	60	61	61	61	16
17	60	57	61	59	63	63	63	63	64	64	17
18	62	59	64	62	66	66	65	66	65	67	18
19	64	61	65	65	69	68	67	68	67	71	19
20	66	64	67	65	71	70	69	70	68	72	20
21	68	64	69	58	72	72	70	72	70	74	21
22	70	67	72	70	74	74	72	72	74	76	22
23	72	69	75	72	76	76	75	72	77	80	23
24	76	74	79	75	80	80	79	76	77	80	24

Tab. z2. T-scale results for the sub-scales of personality functioning