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National differences in personality: Yugoslavia and England

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Comparisons are reported between results on the Eysenck Personality Questionnaire obtained from 491 male and 480 female Slovene-speaking Jugoslavs; the comparison groups were 2312 male and 3262 female English subjects. Factor analyses of item intercorrelations showed close correspondence between the factors extracted in the two national samples, with indices of factor comparison well in excess of 0·95, and with reliabilities in the Jugoslav sample exceeding those in the original English standardization group. Sex differences were identical in both countries for all four factors, men having higher P and E scores, women higher N and L scores. National differences, agreeing with stereotypes, showed Jugoslavs to have higher P and lower E scores than the English. It was concluded that the organization of personality in Jugoslavia is sufficiently similar to that in England to make national comparisons feasible. Comparisons of delinquent subjects with non-delinquent controls demonstrated similar differences to those observed in British samples.

There exists quite a large literature on the subject of national differences in personality. Most of the studies in this area have used standard questionnaires of personality, administered to residents of these various countries, and compared their scores with those given by the original standardization groups (e.g. Kline, 1967; Orpen, 1972; Hosseini *et al.* 1973; Honess & Kline, 1974; Mehryar *et al.* 1975). There are obvious criticisms of such simplistic methods, the major criticism being that the meaning of certain actions or attitudes canvassed in personality questionnaires may change completely as we pass from one country, and one culture, to another (Butcher & Pancheri, 1976). Thus, while psychometric scores can be obtained readily enough, the meaning of these scores is not always apparent, and any straightforward interpretation of results is of doubtful psychological value (Eysenck *et al.* 1977; Iwawaki *et al.* 1977). We have experimented over the past few years with a method that seems capable of overcoming this difficulty and, after discussing it briefly, will offer some empirical data to illustrate its working.

Our approach is based on an extension of the psychometric method used to provide internal validation for trait or type questionnaires within a given culture. Consider the methodology used for the construction of measures of extraversion, neuroticism, and psychoticism (Eysenck & Eysenck, 1969, 1975). Given the hypothesis that a given trait or type concept may with advantage be postulated, items are written which express the putative nature of the trait/type as expressed in a variety of situations. Questionnaires containing numbers of such items are then administered to suitable populations, the item answers are correlated, and a factor analysis is carried out. Depending on the results of such an analysis, the postulated factor may be rejected as non-existent (or at least as impossible to measure and determine by means of the chosen items), or it may be concluded that something similar to the postulated factor emerges from the data, but not as clearly defined as one might wish. Psychometrically 'bad' items are then excluded, new ones written, and the whole process is repeated as many times as is necessary to achieve a satisfactory scale (Eysenck & Eysenck, 1976).

This method may with advantage be used in trying to ascertain whether certain personality factors can be measured meaningfully in a different country/culture. What is required is the application of the scale in question to residents in the country of origin (in our case England), and in the country to be compared. Provided suitable populations have been chosen for testing (selected for age, sex, social status, education, etc.), we can now lay down the rule that the scores on the tests are comparable *if, and only if, the correlation matrices between items are identical (or closely similar) between the two countries.* A related test would be the comparison of the factor loadings of the items, using perhaps factor comparison techniques such as those

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discussed in Eysenck & Eysenck (1969). Coefficients of factor comparisons of above 0·95 might be required in order to accept the test results as properly comparable.

Three possible outcomes of such a study might be expected. There might be well-nigh perfect comparability; there might be complete lack of comparability; and there might be a fair degree of comparability, but with distinct exceptions. The first of these (almost perfect comparability) has been found by us in several unpublished studies comparing English and foreign groups where the foreign groups were culturally quite close to the English, e.g. New Zealand, or even not so close, as in Greece. Complete lack of comparability has never been found by us; identical factors, clearly recognizable and with high factor comparison indices, have never failed to appear, even in unlikely samples (e.g. Nigeria, Japan). Most frequent were results showing good agreement, but with definite exceptions, i.e. with some items which failed to show even reasonably similar factor loadings on what were clearly identical factors.

The existence of such items, provided they were capable of some rational explanation, might advance our understanding of national differences and similarities in personality, and a special effort was made to discover such explanations. As it happened, our collaboration with native psychologists and psychiatrists in these countries furnished us with convincing explanations in almost every case. Two examples may suffice. In Nigeria, items on the P scale relating to cruelty to animals lost their loadings completely; this was clearly related to the quite different positions which animals occupy in an almost entirely agricultural and rather primitive economy, as compared with the largely urban and industrial society in which we live. In Greece, items relating to insurance lost their high loadings on the P factor; this was due to the fact that insurance is very uncommon in Greece, and also to the additional fact that recent insurance scandals, in which some of the few big firms engaging in insurance went broke, had effectively sapped confidence in this method of safeguarding oneself against risks. Alternative items were proposed by our local collaborators, and will be tried out in the next round of data gathering and factor analyses.

A possible source of validation which has been used by us in a number of cases consists of making use of extraneous criteria. In our original work, it was found that neurotics have high N and low E scores, that psychotics have high P and high L scores, that criminals and psychopaths have high P, E and N scores, with low L scores, that drug takers have high P and N scores, etc. We have tested samples of neurotics, psychotics, criminals, and drug takers in various countries (e.g. criminals in Hungary, drug takers and psychotics in Nigeria) with positive results, i.e. with results confirming experience with English samples, (e.g. Eysenck, 1977). Whenever applicable, we intend to use such criterion groups in our proposed studies, but this depends of course very much on facilities in these countries.

Experiment and analysis

The experiment to be reported consists essentially of a detailed comparison of factor loadings between the English standardization group of the EPQ (Eysenck & Eysenck, 1975), and a Slovene-speaking group of Jugoslav men and women. The sample consisted of 491 males and 480 females, with an average age of 28·40 and 26·18 respectively. Fortunately social class has not been found related to personality in any systematic fashion in the English sample (Eysenck & Eysenck, 1976), so that any differences in this respect between the two samples would not be likely to have affected the results. In addition to the normal sample of Jugoslavs, a small sample of 93 delinquent women, with a mean age of 17 years, was available as well as of 348 male prisoners, with a mean age of 30·5 years; their data may serve as a means of validating the scales as the relationship between personality and criminality is known as far as English populations are concerned, and it therefore becomes possible to predict appropriate results in other countries, provided the scales measure the same personality dimensions as in England (Eysenck, 1977).

The Jugoslav data were analysed in exactly the same manner as the English data had been analysed, i.e. product-moment correlations were factored by principal components methods, rotated by varimax and then obliquely by promax, taking the first four factors only for rotational purposes. The actual items used will not here be reprinted in detail but rather referred to by number; the actual items can be recovered by reference to Eysenck & Eysenck (1976).

Results

Table 1 shows the factor loadings of the Jugoslav men and women on the items which in the English analysis loaded most highly on the P, E, N and L factors (psychoticism, extraversion, neuroticism, lie scale), as well as the comparable English loadings. It will be seen that not only are the majority of these loadings quite high, as should be the case if the factors in the two countries were identical, and not only are the directions of the loadings identical in every case (indicated by the pattern of + and − signs), but comparison with the original English data shows that if anything the loadings of the Jugoslav data are higher (particularly for P) than the original loadings. This is somewhat odd, as one would have expected the original data to have capitalized on chance errors, thus producing higher loadings!

Table 2 attempts to put this comparison on a somewhat more quantitative footing by giving the indices of factor comparisons, first for Jugoslav men vs. Jugoslav women, then for Jugoslav men vs. English men, and Jugoslav women vs. English women. It will be seen that these factor comparisons, calculated after the method described in Eysenck & Eysenck (1969), are all above the (arbitrary) level of 0·95 which we have set for accepting two sets of factors as identical. Clearly the factor solutions found in these two countries are very close indeed, and for all practical purposes identical. Such close agreement is by no means the rule; replications of Cattell's factor analytic studies in different countries have usually failed to produce factors even reasonably similar to his original American solutions (e.g. Timm, 1968; Eysenck & Eysenck, 1969; Greif, 1970; Saville & Blinkhorn, 1976). Table 3 shows the reliabilities of the factors; it will be seen that these are all as high as or higher than, the original reliabilities; particularly in the case of P there is an increase in reliability.

Table 4*a* gives the intercorrelations between the factors, and Table 4*b* those between the scales made up from the items constituting the factor; except for P and E the correlations between factors are quite small, and for the scales, as expected, somewhat higher correlations are found. The obliqueness of factorial solutions is notoriously subject to chance errors, and only replication of the study can show whether the slightly higher angular cosines in the Jugoslav sample, as compared with the English sample, are in any sense characteristic of the two nations.

We have now given sufficient evidence for the equivalence of the scales in the two populations to go on to a meaningful comparison of the mean scores on the scales. The results are given in Table 5; the numbers making up the English sample are 2312 males and 3262 females. These figures give us another possibility of checking the similarity of results from the two national samples, by looking at the sex differences found in both. In both countries women are lower on P, lower on E, higher on N, and higher on L. All these differences are statistically significant, for both national groups, and all go in the same direction between countries. This is another powerful argument for assuming equivalence of scales for the two countries.

We may now look at the actual national differences observed in our samples. The most obvious difference between the two countries is the much higher P scores of the Jugoslavs, characteristic of both men and women. Equally, Jugoslav men and women would appear to be slightly less extraverted; the difference, although statistically significant is not very large in extent. For neuroticism the differences for men and women go in opposite directions, and it might be wiser not to draw any conclusions, particularly in view of the much larger lie scores of the Jugoslavs; these suggest the possibility that the N scores would have been much higher if the Jugoslavs had not been dissimulating. (High L scores may also have depressed P scores,

Table 1. Yugoslav and British loadings

P item	Yugos. male $n=491$	Brit. male $n=500$	Yugos. f/male $n=480$	Brit. f/male $n=500$	E item	Yugos. male	Brit. male	Yugos. f/male	Brit. f/male	N item	Yugos. male	Brit. male	Yugos. f/male	Brit. f/male	L item	Yugos. male	Brit. male	Yugos. f/male	Brit. f/male
−2	−0·74	−0·28	−0·51	−0·15	1	0·32	0·30	0·34	0·29	3	0·43	0·58	0·49	0·48	−4	−0·21	−0·37	−0·37	−0·36
−6	−0·72	−0·26	−0·76	−0·42	5	0·64	0·52	0·69	0·58	7	0·46	0·44	0·51	0·42	−8	−0·35	−0·59	−0·24	−0·49
−9	−0·29	−0·37	−0·32	−0·06	10	0·62	0·69	0·57	0·65	12	0·45	0·46	0·34	0·43	13	0·27	0·24	0·30	0·43
−11	−0·82	−0·53	−0·93	−0·44	15	0·35	0·58	0·30	0·54	16	0·48	0·40	0·51	0·38	−17	−0·22	−0·39	−0·33	−0·45
−19	−0·44	−0·30	−0·36	−0·31	18	0·38	0·52	0·28	0·47	20	0·50	0·56	0·36	0·52	21	0·37	0·44	0·23	0·46
23	0·84	0·44	0·83	0·37	−22	−0·57	−0·59	−0·60	−0·61	24	0·48	0·57	0·62	0·58	−25	−0·65	−0·59	−0·59	−0·49
27	0·62	0·35	0·75	0·41	26	0·33	0·53	0·31	0·46	28	0·49	0·50	0·39	0·50	−29	−0·16	−0·47	−0·16	−0·42
31	0·32	0·40	0·32	0·43	−30	−0·39	−0·50	−0·42	−0·41	32	0·59	0·53	0·64	0·54	37	0·44	0·45	0·43	0·44
35	0·71	0·45	0·77	0·41	34	0·54	0·52	0·59	0·31	36	0·61	0·59	0·65	0·65	−41	−0·54	−0·41	−0·54	−0·42
−39	−0·86	−0·49	−0·85	−0·36	38	0·17	0·35	−0·01	0·42	40	0·42	0·53	0·38	0·51	−49	−0·47	−0·42	−0·52	−0·40
47	0·52	0·52	0·54	0·44	42	0·51	0·56	0·44	0·55	44	0·62	0·51	0·54	0·53	−53	−0·64	−0·55	−0·60	−0·48
51	0·60	0·28	0·75	0·28	−46	−0·49	−0·52	−0·55	−0·56	52	0·47	0·33	0·46	0·47	−57	−0·47	−0·42	−0·52	−0·36
55	0·54	0·28	0·49	0·29	50	0·52	0·59	0·62	0·62	60	0·46	0·32	0·40	0·35	61	0·39	0·35	0·51	0·38
−59	−0·84	−0·30	−0·82	−0·33	54	0·49	0·39	0·56	0·28	64	0·51	0·41	0·51	0·48	−65	−0·58	−0·54	−0·49	−0·41
−63	−0·28	−0·36	−0·10	−0·21	58	0·34	0·61	0·32	0·49	68	0·34	0·40	0·48	0·41	−69	−0·49	−0·54	−0·40	−0·52
−67	−0·81	−0·35	−0·87	−0·33	62	0·33	0·17	0·35	0·40	72	0·24	0·31	0·05	0·32	−76	−0·45	−0·30	−0·46	−0·32
71	0·69	0·35	0·74	0·34	66	0·48	0·42	0·34	0·39	75	0·15	0·37	0·44	0·28	−80	−0·02	−0·38	−0·17	−0·35
74	−0·06	0·30	−0·03	0·32	70	0·20	0·24	0·11	0·23	79	0·56	0·51	0·46	0·52	87	0·46	0·50	0·45	0·51
−78	−0·61	−0·36	−0·67	−0·27	77	0·54	0·66	0·62	0·58	82	0·60	0·54	0·67	0·56	−91	−0·41	−0·45	−0·46	−0·38
81	0·36	0·35	0·20	0·16	92	0·23	0·51	0·40	0·58	86	0·50	0·52	0·56	0·48	−95	−0·57	−0·47	−0·50	−0·34
85	0·67	0·32	0·64	0·36	96	0·69	0·63	0·64	0·66	89	0·45	0·47	0·36	0·44	99	0·23	0·40	0·32	0·40
88	0·40	0·28	0·53	0·29						94	0·40	0·42	0·48	0·47					
93	0·82	0·40	0·93	0·46						98	0·32	0·41	0·22	0·35					
97	0·08	0·24	0·27	0·28															
−100	−0·65	−0·36	−0·85	−0·47															

Table 2. Factor comparisons

	P	E	N	L
Yugoslav males vs. Yugoslav females	0·994	0·990	0·987	0·997
Yugoslav males vs. British males	0·967	0·970	0·999	0·982
Yugoslav females vs. British females	0·967	0·991	0·999	0·986

Table 3. Reliability

	$n = 491$ M	$n = 480$ F
P	0·90	0·91
E	0·81	0·82
N	0·85	0·84
L	0·82	0·82

Table 4*a*. Intercorrelations (of factors)

	M	F
PE	−0·41	−0·21
PN	0·20	0·05
PL	−0·03	−0·11
EN	−0·18	−0·17
EL	−0·04	−0·04
NL	−0·09	−0·01

Table 4*b*. Intercorrelations (of scales)

	M	F
PE	−0·34	−0·24
PN	0·24	0·01
PL	−0·34	−0·38
EN	−0·26	−0·17
EL	−0·03	0·00
NL	−0·23	−0·05

suggesting the possibility that these might in reality be even higher than shown in Table 5. This suggestion is in good accord with the existing stereotype of the Slovenes.) It is interesting to note that within the complex of Jugoslav national groups (Serbians, Slovenes, Croats, Macedonians and Montenegrians), Slovenes are thought of as being less extraverted than the other groups; this would agree with our finding that they are less extraverted than the English, although of course direct comparisons with other Jugloslav national groups would be required to provide proper proof for this stereotype.

Table 6 gives the results for the delinquent women, contrasting them with the non-delinquent sample. Prediction from results obtained in England, Hungary, India and other countries, and from theory, suggest that the delinquents should have higher P, E and N scores (Eysenck, 1977).

Table 5. Means and standard deviations

	British			Yugoslav			Significance of difference
	n	M	SD	M	SD	*n*	
Males							
P	2312	3·78	3·09	6·67	5·90	491	< 0·001
E	2312	13·19	4·91	12·35	4·57	491	< 0·001
N	2312	9·83	5·18	10·24	5·32	491	n.s.
L	1624	6·80	4·14	11·95	4·61	491	< 0·001
Females							
P	3262	2·63	2·36	5·76	5·65	480	< 0·001
E	3262	12·60	4·83	11·90	4·60	480	< 0·01
N	3262	12·74	5·20	11·78	5·22	480	< 0·001
L	2462	7·73	4·18	13·16	4·50	480	< 0·001

Table 6. Means and standard deviations: Yugoslav delinquents and controls

	Yugoslav female delinquents			Yugoslav female controls			Significance of differences
	n	M	SD	M	SD	*n*	
P	93	7·29	3·39	5·76	5·65	480	< 0·05
E	93	13·04	3·51	11·90	4·60	480	< 0·05
N	93	16·44	4·56	11·78	5·22	480	< 0·001
L	93	9·20	4·12	13·16	4·50	480	< 0·001

Table 7. Means and standard deviations: Yugoslav delinquents and controls

	Yugoslav male delinquents			Yugoslav male controls			Significance of differences	
	n	M	SD	*n*	M	SD	*'t'*	
P	348	7·34	4·30	491	6·67	5·90	1·8075	n.s.
E	348	11·46	4·15	491	12·35	4·57	2·8892	< 0·01
N	348	14·62	5·29	491	10·24	5·32	11·7894	< 0·001
L	348	10·70	4·69	491	11·95	4·61	3·8459	< 0·001

It will be seen that all three predictions are borne out in actual fact. It will also be seen that, as in England, delinquents are not particularly high on the L scale; thus there is no reason to suspect dissimulation.

Table 7 gives similar results for male delinquents. For P, N and L results for males and females show similar differences; for E the difference is in the opposite direction, with male delinquents less extraverted than male controls. It is impossible to suggest any reason for this discrepancy; further studies are being carried out to investigate this point more thoroughly.

Discussion

The data require little discussion. We have seen that the factorial analyses of item intercorrelations give results very similar with English populations, suggesting that the items of the scales are as valid and applicable in Slovene Jugoslavia as they are in England; indeed, the indices of factor

comparison are as high as those we usually observe between different English samples. The reliabilities of the scales are as high as in England, if not higher, and the correlations between factors, and between scales, although somewhat higher than in England, are not too dissimilar, particularly in view of the unreliability of direction cosines. We would conclude that the EPQ is directly applicable to Slovene Jugoslav samples, and that the organization of personality in that country is remarkably similar to that observed in England.

Given that this conclusion is acceptable, it becomes possible to interpret observed differences in mean scores. There seem to be indications, agreeing with existing stereotypes, that Slovene Jugoslavs are characterized by high P and low E; they also have high L scores as compared with the English. These data should be regarded as merely suggestive until replication has shown them to be stable, and until historical and anthropological study has verified the interpretations put on the results.

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