

PERSONALITY FACTORS IN A RANDOM SAMPLE OF THE POPULATION

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Summary.—A Gallup Poll quota sample of 600 English males and 598 English females was administered the Eysenck Personality Questionnaire, and a factor analysis made of the intercorrelations between items, for men and women separately. The results were compared with the results obtained from the original standardization groups, in order to study the influence that attention to sampling might have on factor composition, reliabilities, factor intercorrelations, etc. Indices of factor comparison were all above .98, and all other comparisons, including means and *SDs*, showed very similar results for the two samples. Correlations between personality factors and socio-economic status were very small; those with age somewhat larger and in the same direction as those in the original sample.

The Eysenck Personality Questionnaire (Eysenck & Eysenck, 1976a), with its four scales measuring Psychoticism (P), Extraversion (E), Neuroticism (N), and Dissimulation (Lie Scale, L), has been widely used to investigate cultural and national differences (Eysenck, Adelaya, & Eysenck, 1977; Iwawaki, Eysenck, & Eysenck, in press; Saklofske & Eysenck, 1978; Lojk, Eysenck, & Eysenck, in press; Dimitriou & Eysenck, in press; Eysenck, Humphery, & Eysenck, in press). The major question asked was whether the same factors which appeared in the original British standardization would appear in these varied cultures. The method involved collecting random samples in the various countries, administering the questionnaire (if necessary in a translated form) to large samples of men and women, intercorrelating the items for the sexes separately, and factor analyzing the resulting matrices with the same method as was used on data from the original British standardization sample. Identity was assumed if and only if the indices of factor comparison between the new culture and the old were in excess of .95, and preferably in excess of .98; it was reassuring to see that the higher standard was achieved in most of these studies. The formula used was that given by Eysenck and Eysenck (1969).

One weakness of this approach is, of course, that in no country investigated (including the original standardization study) was the sample a truly random one; at most one might refer to the sample as fortuitous, i.e., collected in such a way as to maximize diversity, but relying on chance rather than design for the achievement of the aim of getting a properly random sample. Fortunately the results indicated that, while age had some effect on all the scores, social class had little systematic effect (Eysenck & Eysenck, 1976b); this is reassuring as social class is least well controlled in our studies and most difficult to estimate.

The present study addresses the question of how representative such "random" samples as we have used in the past really are, in comparison to a proper quota sample collected by a polling agency. The study was part of a larger investigation into smoking and the effects of giving up smoking; the design called for 150 men and 150 women in each of four groups—smokers, non-smokers, people who had successfully given up smoking, and people who had tried and failed to give up smoking (Eysenck, 1979). These groups do not make up one quarter of the population each exactly, but proportions are not too dissimilar, particularly when the actual mean scores of the four smoking groups are taken into account (Eysenck, 1979).

A quota sample was interviewed by the Gallup Poll agency, and administered the personality questionnaires, as well as certain other questionnaires concerned with smoking. In the actual procedure employed the interviewer approached interviewees in the correct age, sex, and status groups, ascertained their smoking histories, and then presented them with the questionnaires to be completed at home and sent to the Gallup Poll agency. When the requisite categories were filled, interviewees were excluded from the study and not given the questionnaires. Socio-economic status was classified into six grades, of which the first three (A, B, C₁) are non-manual, the next two (C₂, D) are manual, and the last (E) is state-supported. Age was also ascertained. Directions issued to interviewers regarding grading can be obtained from the agency directly. Numbers included in the analysis differ from 150 in each group by a small amount, as not every person interviewed filled in every question on the questionnaire. All in all, 600 men and 598 women gave data which are reported here; these are compared with data from 500 men and 500 women who took part in the original standardization study (factor analysis), and the much larger number on whom mean standardization scores were computed (Eysenck & Eysenck, 1976b).

Table 1 gives the indices of factor comparison between the two samples, for men and women separately, and for the comparison between the males and females in the new group. All are above the .98 criterion, and most are well above it. For all practical purposes we may say, therefore, that the original manner of selecting a sample was not in essence inferior to the proper quota selection method in the sense of giving practically identical factors. Table 2 shows the reliabilities, and Table 3 the intercorrelations between factors, of the new and the old samples; the similarities are considerable.

Table 4 sets out the mean scores and *SDs* for the old standardization group and the new quota sample. The differences which appear are not large, although inevitably, with groups as large as these, they are often statistically significant. For the males, differences on Psychoticism and Neuroticism are non-significant, those on Extraversion and Lie are significant at the .01 and .001 levels, respec-

TABLE 1
INDICES OF FACTOR COMPARISON FOR STANDARDIZATION AND QUOTA SAMPLES

Groups	Factor Comparison			
	Psychoticism	Extraversion	Neuroticism	Lie
English Male vs Quota Male	.991	1.000	.997	.997
English Female vs Quota Female	.993	1.000	.999	.998
Quota Male vs Quota Female	.987	.999	.999	.995

TABLE 2
RELIABILITIES OF QUOTA AND ORIGINAL SAMPLES

Measure	Reliability			
	Male		Female	
	Quota	Original	Quota	Original
Psychoticism	.80	.74	.63	.68
Extraversion	.87	.89	.85	.84
Neuroticism	.87	.84	.86	.85
Lie	.80	.81	.78	.79

TABLE 3
INTERCORRELATIONS BETWEEN FACTORS FOR QUOTA AND ORIGINAL SAMPLES

Measures	Male		Female	
	Quota	Original	Quota	Original
Psychoticism/Extraversion	.10	.06	.12	.07
Psychoticism/Neuroticism	.17	.12	.20	.07
Psychoticism/Lie	-.20	-.23	-.23	-.19
Extraversion/Neuroticism	-.19	-.16	-.23	-.14
Extraversion/Lie	-.16	-.10	-.14	-.09
Neuroticism/Lie	-.07	-.04	-.11	-.15

TABLE 4
INCREASED STANDARD DEVIATIONS OF QUOTA SAMPLE AND ORIGINAL STANDARDIZATION GROUP

Measure	Quota Sample				Original Sample			
	Male		Female		Male		Female	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Psychoticism	4.00	3.75	2.43	2.29	3.78	3.09	2.63	2.30
Extraversion	12.60	5.24	12.71	4.94	13.19	4.91	12.60	4.83
Neuroticism	9.83	5.39	13.21	5.21	9.83	5.18	12.74	5.70
Lie	7.61	4.15	9.32	4.13	6.80	4.14	7.73	4.18
<i>n</i>	600		598		2312		3262	

tively. For the females, differences on Psychoticism and Extraversion are non-significant, those on Neuroticism and Lie are significant at the .01 and .001 levels, respectively. It will be seen that only the Lie scale shows differences that ought to be taken seriously psychologically; these are in the direction of higher Lie scores for the interviewed sample. This difference may be due to the manner of gathering data; anonymity was guaranteed for the original group, but, of course, could not be guaranteed when data were collected by an interviewer (even though the interviewer let the subjects fill in the forms without actually inspecting these or reading them). However, subjects would not have known that they would in fact be more or less anonymous and might therefore have answered the Lie questions more readily in the socially acceptable direction. We would conclude that the results vindicate the method according to which our original samples were collected, in that the present sample, which in many ways was more satisfactory, did not give very dissimilar results from those originally obtained.

TABLE 5
CORRELATIONS OF PSYCHOTICISM, EXTRAVERSION, NEUROTICISM, AND
LIE WITH SOCIO-ECONOMIC STATUS AND AGE

Scale	Socioeconomic Status		Age	
	Male	Female	Male	Female
Psychoticism	.15*	.13*	.21*	-.23
Extraversion	.01	-.04	-.29*	-.18*
Neuroticism	.04	.16*	.01	-.06
Lie	.04	.08	.32*	.32*

* $p = .01$.

In the original sample, there was little evidence of any relationship between personality and socio-economic status and correlations with age were negative for Psychoticism and Extraversion, and marginally so for Neuroticism; for Lie the correlations were positive. Table 5 shows the results for the present sample; it will be seen that they are very similar to those of the original sample. High socioeconomic status is ranked 1, low status 6, so that the positive correlations between socioeconomic status and Psychoticism mean that the subjects of lowest status have the highest Psychoticism scores. Similarly, for females, high Neuroticism scores are achieved by subjects of the lowest status. It is clear that in comparing groups, corrections must be made for differing ages, but that there is little need to correct for differences in socioeconomic status unless these are very extreme. Here too, therefore, our new data are in essential agreement with those of the original study.

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