

## RELATION BETWEEN INTELLIGENCE AND PERSONALITY

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*Summary.*—398 trainee male nurses were administered two intelligence tests and a personality inventory. Nurses were found more extraverted and less neurotic than the general population. Intelligence was independent of extraversion and neuroticism but correlated negatively with the Lie scale.

The writer has argued that the personality dimensions of extraversion-introversion (E) and neuroticism (N) are independent of intelligence (Eysenck, 1970), but there is in fact very little direct evidence on this point. The study here reported attempts to provide empirical data relevant to this issue. Ss were 398 trainee male nurses, who were administered two intelligence tests and the P.E.N. personality test. This test is as yet unpublished; it contains adaptations of the N (neuroticism), E (extraversion) and L (lying) scales of the E.P.I. (Eysenck & Eysenck, 1964), as well as a P (psychoticism) scale (Eysenck & Eysenck, 1968, 1969). The intelligence tests were the Mill Hill Vocabulary and the Progressive Matrices (Raven, 1958). The great majority of the nurses were between 18 and 30 yr. of age. The group was slightly above average in intelligence, but the means given by Raven are not age-corrected in a precise enough manner to make the calculation of significance values meaningful, and in any case the point is not important. The variances of the two tests were somewhat below the norms which have been accumulated in our department; again Raven does not provide the proper statistics to evaluate our results against his standardization data. On E and N the nurses do not differ greatly from our standardization groups; they are significantly more extraverted ( $p < .01$ ) and less neurotic ( $p < .01$ ) than the standardization group by  $t$  test, very much as expected (Elwood, 1927); they also have higher L scores ( $p = .01$ ) but do not differ on P. Table 1 gives these means.

The Pearsonian correlation between the two intelligence tests is .34, which is rather lower than usual. The correlation between E and N is  $-.07$ , which is not significantly different from zero and supports the writer's contention that these two dimensions of personality are independent. The Mill Hill test correlates with E .01 and with N  $-.05$ ; Matrices correlate with E  $-.04$  and with N .00. None of these values are significant; the results thus clearly support the contention that temperament and intelligence are independent, at least for this sample.

TABLE 1  
MEANS  $\pm$  STANDARD DEVIATIONS OF 398 NURSES AND 1,012 CONTROLS

Score	Nurses	Controls
Psychoticism	2.56 $\pm$ 2.36	2.50 $\pm$ 2.71
Extraversion	13.77 $\pm$ 3.41	12.75 $\pm$ 4.12
Neuroticism	6.79 $\pm$ 3.96	7.33 $\pm$ 4.37
Lying	5.76 $\pm$ 4.02	4.56 $\pm$ 2.95

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Also included in the E.P.I. is an L scale, assumed to test dissimulation or test-taking attitudes directed toward "faking good." This scale showed little evidence of lying by this sample, the mean value not departing from the standardization mean by more than  $1/4 SD$ . In our experience scores on the L scale correlate negatively with intelligence, and the present study is no exception;  $r$ s for Mill Hill and Matrices respectively are  $-.25$  and  $-.36$ . Also of interest is the correlation between L and N; Michaelis and Eysenck (1971) have shown that the size of this correlation varies monotonically with the degree of motivation to "fake good." In our case  $r$  is  $-.26$ , suggesting a moderate degree of such motivation; correlations of  $-.5$  and above have been found in cases of strong motivation. This agrees with the slightly higher L scores of the nurses. P and L are only marginally related ( $r = .16$ ); E and L show an even lower value of  $-.09$ .

As expected, the P scale correlated negatively with intelligence, the coefficients being  $-.27$  and  $-.28$ . These figures are similar to unpublished values obtained in studies carried out on smaller samples in our laboratories. This finding may lend support to theories of "mental slowness" in psychotic disorder, particularly schizophrenia (Payne, 1960): it is from such findings that our expectation was derived. We may summarize these findings by saying that intelligence is not related to E or N but that persons having high L or P scores tend to have somewhat lower IQs.

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