

## NATIONAL DIFFERENCES IN PERSONALITY AS RELATED TO ABO BLOOD GROUP POLYMORPHISM

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*Summary.*—Blood group polymorphisms of the ABO system are related to personality differences, AB being more frequent among introverts, and the ratio A/B being higher among stable subjects. In view of the fact that Japanese are more introverted and more neurotic than British samples, it was predicted that Japanese, as compared with British, would have a higher proportion of AB carriers and a lower A/B ratio. Both predictions were confirmed by study of the established frequencies for blood groups in the two countries.

There is good evidence that the Japanese score significantly higher on the personality dimensions of introversion and neuroticism than do British groups. This conclusion is supported both by analysis of demographic data (Lynn, 1971; Lynn & Hampson, 1975) and by questionnaire studies (Iwawaki, Eysenck, & Eysenck, 1977). Assuming this finding to be a true description of the two national and racial groups, it becomes important to ask whether these differences are entirely due to cultural factors or whether there are genetic and other biological bases that might produce such a difference. In view of the strong evidence for genetic factors in producing individual differences in both Neuroticism and Extraversion (Eysenck, 1976), it seems likely that the latter alternative might be true, but there are obvious difficulties in providing support for such a view.

The argument here presented takes its starting point from the findings of Angst and Maurer-Groeli (1974) that there are significant differences in the frequency of blood groups found among European introverts and extraverts and between highly emotional and relaxed persons. Introversion is significantly more frequent among persons having the AB blood group. Emotionality is significantly more frequent in persons having blood group B than in persons having blood group A. If we can interpret these findings as evidence for some pleiotropic mechanism linking blood groups and personality, then it becomes possible to put forward testable hypotheses relating to national and racial comparisons in the personality field. In particular, it may be predicted that Japanese would have a significantly higher proportion of persons with the AB blood group and also that they would have a significantly smaller proportion of persons with blood group A than with blood group B; we have used the ratio A/B to test this hypothesis.

Relevant figures for blood groups can be found in Mourant, *et al.*'s paper (1976) for very large and variegated samples of both English and Japanese groups. Regarding the percentage of persons with blood group AB, the proportions are 3.01 in England and 8.98 in Japan, a very sizeable difference in the predicted direction. There is some variation in different samples and in different parts of the countries in question; the extreme values for large samples are 1.63 and 4.11 for England, and 6.63 and 12.88 in Japan; there is no overlap.

The ratio A/B is, as predicted, larger in England than in Japan; the mean values are 4.54 and 1.64, respectively. Again looking at the variability within each country, we find that in large samples extreme values are 2.0 and 7.33 in England, and 1.32 and 1.95 in Japan, i.e., again there is no overlap. There appears to be little doubt that with such very large samples (the total British sample amounted to 616,106 persons, the total Japanese sample to 421,151 persons) the predicted differences are significant statistically. These

data would seem to bear out the hypothesis that there are genetic factors predisposing the Japanese to be more introverted and more neurotic than the British. To put the whole issue on a more secure footing, it would seem desirable to investigate a Japanese sample to ascertain that the relationship between blood group and personality there was similar to that found by Angst and Maurer-Groeli. Cattell, *et al.* (1964), as Maurer-Groeli (1974b) has pointed out, found rather different relationships between blood groups and personality, but he used a much smaller and very heterogeneous sample; nevertheless, replication of the Angst and Maurer-Groeli finding is clearly desirable both for European and for Japanese samples.

The data quoted here are not decisive in answering the question of genetic determination of racial and national differences; they are offered as a suggestion for a possible use of blood groups (and perhaps other polymorphisms) in answering questions hitherto not considered in this connection. There appear to exist pleiotropic relationships between personality and blood groups which have not hitherto been utilized to any degree; in addition to Neuroticism and Extraversion, there is some evidence that Psychoticism (see Eysenck & Eysenck, 1976) may be so related (Elston, *et al.*, 1973). Similar relationships exist with respect to blood groups and certain diseases (duodenal ulcer, cancer of the stomach, stomach ulcer, pernicious anaemia, cancer of the pancreas, virus infections), and these have been used to suggest answers to the problem raised by the lack of selective principles associated with the ABO blood groups in order to explain their apparent maintenance as a balanced polymorphism (Cavalli-Sforza & Bodmer, 1971; Simmott, *et al.*, 1953). It seems possible that the connection of blood groups with personality factors, and possibly with mental disorders (Maurer-Groeli, 1974a), may fulfill a similar function of explaining the maintenance of a balanced polymorphism of the ABO system.

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