

## Ageing and the relation of aggression, altruism and assertiveness scales to the Eysenck Personality Questionnaire

J. PHILIPPE RUSHTON<sup>1</sup>, DAVID W. FULKER<sup>2</sup>, MICHAEL C. NEALE<sup>3</sup>,  
DAVID K. B. NIAS<sup>4</sup> and HANS J. EYSENCK<sup>5</sup>

<sup>1</sup>Department of Psychology, University of Western Ontario, London, Ontario N6A 5C2, Canada, <sup>2</sup>Institute for Behavioral Genetics, University of Colorado, Boulder, CO 80309, U.S.A., <sup>3</sup>Department of Human Genetics, Medical College of Virginia, Richmond, VA 23298, U.S.A., <sup>4</sup>Department of Psychology, City of London Polytechnic, London E1 7NT, England, and <sup>5</sup>Department of Psychology, University of London Institute of Psychiatry, London SE5 8AF, England

(Received 8 February 1988)

**Summary**—Relationships among age, aggressive, assertive and altruistic tendencies are reported with the dimensions of the Eysenck Personality Questionnaire for 573 pairs of adult twins. Aggressiveness is positively related to psychoticism, both of which are negatively related to indices of prosocial behavior, including the lie scale. Assertiveness and most measures of altruism are linked to extraversion, while empathy is linked to neuroticism. Prosocial tendencies increase with age whereas antisocial and extraverted tendencies decrease.

### INTRODUCTION

A recent study of altruism and aggression in 573 pairs of adult twins found that approx. 50% of the variance on each of five questionnaires was associated with genetic effects, virtually 0% with the twin's common environment, and the remaining 50% with each twin's specific environment and/or error associated with the test (Rushton, Fulker, Neale, Nias and Eysenck, 1986). While much evidence has accumulated to show that virtually all personality traits are about 50% heritable and that almost all the environmental variance is accounted for by within-family factors, with between-family factors playing little or no part (Eaves and Eysenck, 1975; Goldsmith, 1983; Loehlin and Nichols, 1976; Plomin and Daniels, 1987), it is of interest to find similar results for altruism and aggression because these are characteristics that parents might have been expected to socialize heavily. These findings on environmental effects contradict most of the current theories of personality which make between-family factors responsible for most of the observed phenotypic differences between people.

Several researchers are exploring the extent to which a broad continuum exists from prosocial to antisocial behaviour, with individual differences linked at the behavioural level to criminality, intelligence, and sexuality, at the physiological level to arousal and to neuroandrogenic functioning, and at the ultimate level to modern gene-based evolutionary theorizing concerning reproductive strategies. For example, analyses have documented negative relationships between prosocial and antisocial behaviour (Eron, 1987; Rushton, 1980), between antisocial behaviour and age of onset of sexual intercourse (Ellis, 1987a; Jessor, Costa, Jessor and Donovan, 1983), between each of these and neurohormonal and arousal mechanisms (Ellis, 1986, 1987b; Zuckerman, 1984), and between all the above and gene-based sexual strategies (Rushton, 1985). Here we report the relationships between components of altruism and aggression with those from the Eysenck Personality Questionnaire. In previous research, aggressiveness has been found to correlate significantly positively with Psychoticism and Neuroticism, significantly negatively with the Lie scale, and zero with Extraversion, while assertiveness has been found to correlate positively with Extraversion and negatively with Psychoticism and Neuroticism (Hernandez and Mauer, 1980).

Another focus of interest is age-changes in personality. As Eysenck (1988) has pointed out, most of the work on life-span development has dealt with cognitive variables although personality changes have also been found. In particular from age 16 to 60, scores on P, E and N all decline while those on L go up (Eysenck and Eysenck, 1975). Eysenck (1989) discusses the implications of these findings for aging. Thus, since E predisposes to good mood and happiness, the decline with age means that as people get older they will generally experience less positive affect. On the other hand, since there is also a decline in N and P, which are significantly related to negative mood states, older people will experience less negative affect. It would appear that the affective turbulence of youth is replaced by the relative calm of old age. Similarly, Rushton *et al.* (1986) found prosocial tendencies to increase with age and aggressive ones to decline. We re-inspect these findings and their interrelationships here.

### METHOD

The data collected from 573 twin pairs from the University of London Institute of Psychiatry Twin Register, details of which are provided in Rushton *et al.* (1986), were re-examined. The twins ranged in age from 19 to over 60 with a mean of 30. About 70% of the sample were women. The twins came primarily from middle-class families but represented most geographical areas of the U.K.

In addition to the Eysenck Personality Questionnaire, five paper-and-pencil measures assessing altruism, empathy, nurturance, aggressiveness, and assertiveness had been completed. The first of these was the Self-Report Altruism Scale requiring respondents to report the frequency with which they had engaged in 20 specific behaviours such as 'I have given directions to a stranger', and 'I have donated blood' (Rushton, Chrisjohn and Fekken, 1981). The scale

Table 1. Intercorrelations of age, altruism and aggression scales and the Eysenck Personality Questionnaire based on 573 twin pairs

	Age	Altruism	Empathy	Nurturance	Aggressiveness	Assertiveness	EPQ P	EPQ E	EPQ N	EPQ L
Age	1.00	0.44***	0.05*	0.21***	-0.30***	0.03	-0.21***	-0.09**	-0.08**	0.29***
Altruism		1.00	0.15***	0.43***	-0.23***	0.30***	-0.09**	0.21***	-0.15***	0.05
Empathy			1.00	0.47***	-0.27***	-0.11***	-0.09**	-0.04	0.26***	0.01
Nurturance				1.00	-0.37***	0.07	-0.19***	0.09**	0.07*	0.20***
Aggressiveness					1.00	0.26***	0.32***	0.16***	0.08**	-0.34***
Assertiveness						1.00	0.09**	0.50***	-0.23***	-0.22***
EPQ P							1.00	0.12***	0.09**	-0.27***
EPQ E								1.00	-0.18***	-0.17***
EPQ N									1.00	-0.10**
EPQ L										1.00

\* $P < 0.05$ ; \*\* $P < 0.01$ ; \*\*\* $P < 0.001$ .

demonstrates high internal consistency and correlates with peer ratings, situational tests, and other questionnaire measures of altruistic tendency. The second scale was a 33-item measure of emotional empathy requiring respondents to rate the degree of agreement they felt for such positively keyed items as "I like to watch people open presents", and negatively keyed ones as "I find it silly for people to cry out of happiness" (Mehrabian and Epstein, 1972). The Nurturance Scale from the Personality Research Form, a well standardized omnibus personality inventory, was also used. This requires respondents to check whether 16 items refer to them. An example of a positively keyed item is "I often take young people under my wing", and of a negatively keyed item, "I don't like it when friends ask to borrow my possessions" (Jackson, 1974). The measure of aggressiveness consisted of 23 items taken from the 272 item Interpersonal Behavior Survey and consisted of positively keyed items such as "Some people think I have a violent temper" and negatively keyed ones as "I try not to give people a hard time" (Mauger and Adkinson, 1980). The assertiveness questionnaire consisted of 24 items, also taken from the Interpersonal Behavior Survey, with positively keyed items like "I usually say something to a person who I feel has been unfair" and negatively keyed ones like "I rarely criticize other people".

#### RESULTS AND DISCUSSION

Means, standard deviations, and internal consistencies were all comparable to published norms. The correlations among the variables are shown in Table 1 for *N*'s of between 647 and 1148, depending on missing data. The results replicate Hernandez and Mauger's (1980) findings that aggressiveness correlates positively with Psychoticism and Neuroticism and negatively with the Lie scale (although in our sample aggressiveness was positively rather than zero related to Extraversion), and that assertiveness correlates positively with Extraversion and negatively with Neuroticism (although in our sample assertiveness was related positively rather than negatively to Psychoticism). Other interesting findings to be noted include the relationship between empathy and neuroticism (+0.26), perhaps indicating the role of emotion in social sensitivity. Also that between altruism and assertiveness (+0.30) even though assertiveness is itself related to aggressiveness (+0.26).

Perhaps the most clear cut findings are that Psychoticism correlates positively with aggressiveness and negatively with prosocial behavior and that both ends of this continuum co-vary in opposite ways with age. In general, in accord with common observation, it would seem that the affective turbulence of youth is replaced by the relative calm of age. This conclusion is directly supported by data from research on "affect intensity", which is distinctly found to decrease with age (Diener, Sandvik and Larsen, 1985). Although not presented here, many of the age differences are paralleled by sex differences, with males being more aggressive and less altruistic than females (Rushton *et al.*, 1986). It is also noteworthy that other social behavioural variables show the same relationships with age and sex, including criminality (Eysenck and Gudjonsson, 1988), sexuality (Eysenck, 1976), and components of research creativity (Rushton, 1988). Since individual differences in these have been linked to variation in P, E and N it may be that underlying changes in hormonal mechanisms mediate them all. If so, age changes could become a crucible for understanding the nature and structure of personality.

#### REFERENCES

- Diener E., Sandvik E. and Larsen R. J. (1985) Age and sex effects for affect intensity. *Devl Psychol.* **21**, 542-546.
- Eaves L. J. and Eysenck H. J. (1975) The nature of extraversion: a genetical analysis. *J. Person. soc. Psychol.* **32**, 102-112.
- Ellis L. (1986) Evidence of neuroandrogenic etiology of sex roles from a combined analysis of human, nonhuman primate and nonprimate mammalian studies. *Person. individ. Diff.* **7**, 519-552.
- Ellis L. (1987a) Criminal behavior and *r*- vs *K*-selection: an extension of gene-based evolutionary theory. *Deviant Behav.* **8**, 149-176.
- Ellis L. (1987b) Relationships of criminality and psychopathy with eight other apparent behavioral manifestations of sub-optimal arousal. *Person. individ. Diff.* **8**, 905-925.
- Eron L. D. (1987) The development of aggressive behavior from the perspective of a developing behaviorism. *Am. Psychol.* **42**, 435-442.
- Eysenck H. J. (1976) *Sex and Personality*. Open Books, London.
- Eysenck H. J. (1989) Personality and aging: An exploratory analysis. *J. soc. Behav. Person.* In press.
- Eysenck H. J. and Eysenck S. B. G. (1975) *Manual for the Eysenck Personality Questionnaire*. Educational and Industrial Testing Service, San Diego.
- Eysenck H. J. and Gudjonsson G. (1988) *Causes and Cures Of Criminality*. Plenum Press, New York.
- Goldsmith H. H. (1983) Genetic influences on personality from infancy to adulthood. *Child Dev.* **54**, 331-355.
- Hernandez S. K. and Mauger P. A. (1980) Assertiveness, aggressiveness, and Eysenck's personality variables. *Person. individ. Diff.* **1**, 143-149.
- Jackson D. N. (1974) *Personality Research Form Manual*, (2nd edn). Research Psychologists Press, Port Huron, Mich.
- Jessor R., Costa F., Jessor L. and Donovan J. E. (1983) Time of first intercourse: a prospective study. *J. Person. soc. Psychol.* **44**, 608-626.
- Loehlin J. C. and Nichols R. C. (1976) *Heredity, Environment and Personality*. University of Texas Press, Austin, Tex.
- Mauger P. A. and Adkinson D. R. (1980) *Interpersonal Behavior Survey (IBS) Manual*. Western Psychological Services, Los Angeles, Calif.
- Mehrabian A. and Epstein N. (1972) A measure of emotional empathy. *J. Person.* **40**, 525-543.
- Plomin R. and Daniels D. (1987) Why are children in the same family so different from one another? *Behav. Brain Sci.* **10**, 1-60.
- Rushton J. P. (1980) *Altruism, Socialization, and Society*. Prentice-Hall, Englewood Cliffs, N.J.
- Rushton J. P. (1985) Differential K theory: the sociobiology of individual and group differences. *Person. individ. Diff.* **6**, 441-452.
- Rushton J. P. (1988) Scientific creativity: an individual differences approach. *J. soc. biol. Struct.* **11**, 140-143.
- Rushton J. P., Chrisjohn R. D. and Fekken G. C. (1981) The altruistic personality and the self-report altruism scale. *Person. individ. Diff.* **2**, 292-302.
- Rushton J. P., Fulker D. W., Neale M. C., Nias D. K. B. and Eysenck H. J. (1986) Altruism and aggression: the heritability of individual differences. *J. Person. soc. Psychol.* **50**, 1192-1198.
- Zuckerman M. (1984) Sensation seeking: a comparative approach to a human trait. *Behav. Brain Sci.* **7**, 413-471.