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# Personality and Individual Differences

journal homepage: [www.elsevier.com/locate/paid](http://www.elsevier.com/locate/paid)

## J.P. Rushton's contributions to the study of altruism

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### ARTICLE INFO

Article history:  
Available online xxxx

Keywords:  
Rushton  
General factor of personality  
Social biology  
Social learning theory  
Genetics  
Twins  
Personality  
Individual difference

### ABSTRACT

This essay describes Rushton's work on altruism over the past 40 years. During his academic career, he changed his theoretical approach from social learning theory to trait theory to sociobiology. My essay includes five sections. The first gives an overview of Rushton's work on altruism. The second reviews his early work based on social learning theory. His laboratory and naturalistic experiments led him to conclude that altruism could be increased by exposure to models exemplifying the behavior, and that, once engaged in, the behavior could be durable over months and generalizable across situations. The third section discusses his work on the genetic foundation of altruism with social biology including his twin studies of prosocial behaviors using different age groups of both western and Asian samples. He concluded that about 50% of the variance in prosocial behaviors is heritable. The fourth section will describe altruism as part of the general factor of personality, the apex of the personality hierarchy. The last section summarizes my review of Rushton's work on altruism.

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### 1. Introduction

I am honored to be a contributor to this Special Issue for J.P. Rushton. I have been fortunate to work with Rushton on papers about genetic influences on prosocial behaviors in South Korean children and other research on personality. His contributions to knowledge have become well-known over the past four decades. Like other eminent psychologists, Rushton has boldly challenged conventional views. As a result, he had to endure strong opposition from critics in the field of psychology and public opinion. However, his work has also been acknowledged with much admiration and made him one of the most provocative and controversial figures in psychology.

Altruism has been a central focus for Rushton's research during his entire career. It began with his doctoral dissertation at the University of London (Rushton, 1973). During the 1970s and 1980s, many psychologists focused on negative traits such as aggression and delinquency. However, Rushton maintained the importance of also studying positive aspects of human nature. With conviction that human beings are helpful, cooperative, empathic, loving, kind and considerate, he asserted that altruism is a universal value in all human societies (Rushton, 1982). He defined altruism as "social behavior carried out to achieve positive outcomes for another rather than for self (Rushton, 1980, p. 8)". He proposed egoism to be the opposite of altruism. In defining altruism, Rushton emphasized the behavioral component, although he did not preclude motivations activating the behavior. He considered these

motivations mainly as "empathy" and "moral judgment" (Rushton, 1980, 1982).

Rushton's work on altruism has spanned a considerable range of methodologies. Early in his career (1970–1980), he performed laboratory and naturalistic field experiments to study altruism from the social learning perspective. He examined data on altruism to join the "consistency vs. specificity" debate over whether behavior was consistent enough across situations to warrant being called a trait (Mischel, 1968). By applying the *principle of aggregation* to measure altruistic and other behaviors, Rushton concluded that there was enough consistency (e.g., .50 to .60 vs. .20 to .30) to warrant a "trait" of altruism on which people differed more or less consistently.

Rushton later became interested in the theory of evolution and in social biology and how these applied to altruism. In this paper I review Rushton's early work on altruism from a social learning theory perspective, discuss his more recent work on the genetic foundation of altruism using the empirical evidence he provided, and then briefly describe his work on altruism in the context of the general factor of personality (GFP). I will use the terms 'prosocial behaviors' and 'altruism' interchangeably throughout this paper.

### 2. Early work: a social learning perspective

Rushton (1976, 1980) contended that the extent to which a person engages in altruistic behavior and the motivations underlying the behavior are the results of the person's social learning experiences. In other words, a person is honest, generous, helpful, and kind to the degree to which he has learned to be. Rushton emphasized that families, educational systems, and the mass media were

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the major agencies of socialization in society. Rushton (1982) also raised the problem of “under-socialization” in society. He argued that the family was becoming ineffectual due to the break-up of the traditional extended family, and that TV was often socializing children in an antisocial direction. Rushton provided constructive solutions to the problem of under-socialization as well. Rushton (1980, 1982) suggested that people should increase the frequency of parent–child interactions, introduce stronger regulatory guidelines to stop the pervasiveness of antisocial socialization on TV, and develop disciplined programs of prosocial education in schools.

During the 1970s, Rushton conducted many laboratory studies and naturalistic field experiments to demonstrate the effects of observational learning, reinforcement learning, and learning from direct verbal procedures such as instructions and preaching. For example, Emler and Rushton (1974) found that 7- to 13-year-old children gave more valuable tokens to a charity after listening to stories concerned with distributive justice. The number of tokens the children gave was significantly related to their level of moral judgment measured as responses to the stories. In a related experiment, Rushton (1975) demonstrated that children exposed to a generous model, who donated tokens to the charity, themselves donated significantly more prized tokens (exchangeable for gifts) than children exposed to a selfish model. These modeling effects lasted several weeks. Models who preached selfishness produced less giving than models who preached generosity or neutral messages. Other studies showed that positive reinforcement following model induced altruistic behavior led to increased generosity in children, while punishment of altruism (e.g., using ridicule) led to its decrement (Grusec, Kuczynski, Rushton, & Simutis, 1978). Rushton and Campbell (1977) examined the modeling of prosocial behavior in adults on blood donating. In that field experiment, Rushton showed that observing a model not only affected an immediate test of volunteering to donate blood but also affected whether blood was actually donated in a different naturalistic setting six weeks later.

From a review of experimental studies conducted by himself and others, Rushton (1976, 1980) drew three main conclusions about modeling effects. First, exposing people to altruistic models affected the amount and direction of subsequent behaviors. Secondly, these model-induced behaviors lasted over several weeks. Finally, modeling effects were found across different age groups and situations.

During the 1960s and 1970s, a major debate took place in the area of personality assessment over the “consistency vs. specificity” of behavior. Mischel (1968) had fervently denied the existence of personality traits, arguing that the coefficient of behavior across different instances and situations was only about  $\pm .30$ . Many personality psychologists had a pessimistic view of finding a stable trait of altruism higher than that. However, Rushton and colleagues (e.g., Rushton, 1980, 1981; Rushton, Brainerd, & Pressley, 1983; Rushton, Jackson, & Paunonen, 1981) carefully reviewed the literature on personality, developmental and social psychology, and concluded that consistent patterns of individual differences were to be found when composite measures of the traits were used. Significant correlations were found among the measures of altruism using self-reports, peer-ratings, and behavioral intentions such as whether people had completed an organ-donor card attached to their driver license. These observations led Rushton to conclude that a broad-based ‘altruistic personality’ did exist and that altruism could be validly and reliably measured by self-report as well as by objective methods. He and his students constructed a 20-item Self-Report Altruism Scale (SRA) with which they (and others) conducted research, including a twin and testosterone study (to be described; Rushton, Chrisjohn, & Fekken, 1981).

### 3. The genetic foundation of altruism

In the late 1970s and early 1980s, Rushton underwent a paradigm shift from social learning to sociobiology. He began to think that altruistic behaviors like helping, protecting, and nurturing could occur in the absence of previous learning. He sought the origin of altruism in evolution, suggesting that altruism is an inborn-part of many species-typical repertoires. Sociobiology explains altruistic behaviors by the principle of ‘inclusive fitness’ and ‘kin selection’ (Hamilton, 1964). If the net result of an altruistic act helped more of the altruist’s genes to survive (e.g., in kin) and was transmitted to future generations, then the altruistic act is adaptive even if it results in the death of the altruist. Moreover, to replicate their own genes more effectively, organisms act to benefit relatives depending on how closely related they are. Paradoxically, then, altruism has a ‘selfish’ purpose.

Altruism is found in many nonhuman animals as well as in humans. In nonhuman animals, altruism includes parental care, warning calls, cooperative defense, rescue behavior, food sharing, and self-sacrifice. Rushton (1980) gave the good example of altruism in a honeybee: The poisonous sting of the bee is an adaptation against hive robbers. The recurved barbs facing backward from the sharp tip cause the whole sting to be wrenched out of the bee’s body, along with some of the bee’s vital internal organs. These barbs have been described as instruments of altruistic self-sacrifice. Although the individual bee dies, the bee’s genes survive.

Parenting has evolved through differential reproductive success. In a population of social animals, those that protect their offspring will successfully raise more progeny than those who do not. Any genes associated with parenting behavior will, thereby, out-produce the selfish alternatives. Rushton (1991) hypothesized that empathy in humans is a disposition that might have evolved from parental care. Numerous twin studies have documented that genes influence individual differences in empathy (Bouchard & McGue, 2003; Hur & Rushton, 2007; Rushton, Fulker, Neale, Nias, & Eysenck, 1986).

Rushton (1989) proposed genetic similarity theory to extend the idea of kin selection to human beings who are also altruistic to non-kin such as to spouses and friends. In a twin study Rushton and Bons (2005) found the amount of genetic similarity between spouses and friends on personality and attitude questions (measured by the magnitude of the correlation between them on each item). The overall correlations were .53 for monozygotic (MZ) twin pairs, .32 for dizygotic (DZ) twin pairs, .32 for spouse pairs, and .20 for pairs of friends. As mentioned, partner similarity was more pronounced on the more heritable items. Rushton and Bons (2005) concluded that people are *genetically inclined* to choose as social partners those who resemble themselves. However, not all studies have found the evidence of positive assortative mating strong (Lykken and Tellegen (1993). A review of the literature shows an average correlation of social assortment of about .20 (Rushton, 2009). Although low, the magnitude of the correlations between spouses and friends on each item predict the level of partner satisfaction and liking on those more heritable.

Rushton (2009) also explained ethnic nepotism from the point of view of genetic similarity. He proposed that people help members of their own race or ethnic group more than members of other races or foreigners because they share more genes in common. Individuals within an ethnic group are genetically more similar to each other than they are to individuals from different ethnic groups.

Rushton and colleagues conducted several twin studies and found that altruism is heritable. In one early study, Rushton et al. (1986) found that 50% of the variance in altruism, nurturance,

empathy, assertiveness and aggression in 573 pairs of adult twins was associated with genetic effects, with the remainder due to environmental effects. Moreover, the important environmental factors were not those shared by siblings within a family (such as social class, parental values, and child rearing styles), but rather were those unique to each member of the twin pair (such as having an illness or meeting a special friend). Rushton (2004) also included “social responsibility” as part of altruism. He administered a 22-item Social Responsibility Questionnaire to adult twins and found that 42% of the variance was due to genes, confirming genetic influences. In contrast to his earlier work (Rushton et al., 1986), however, Rushton (2004) noted that 23% of the reliable variance of Social Responsibility was due to the twins’ common family environment. These findings are consistent with a study by Krueger, Hicks, and McGue (2001) in which the authors found that a significant proportion of common family environmental variance contributed to prosocial behavior.

Because prosocial behaviors are partly rooted in the genes, it is reasonable to expect some relationships between sex hormones and prosocial behaviors. In an attempt to detect underlying physiological mechanisms for genetic influences on prosocial behaviors, Rushton and colleagues (Harris, Rushton, Hampson, & Jackson, 1996) found that among both male and female university students, testosterone was negatively related to prosocial behaviors and positively related to aggression. Given genetic influences on testosterone levels found in other studies (Hoekstra, Bartels, & Boomsma, 2006), these results raise the interesting question of pleiotropy and whether common genes are operating for the relationship between the level of testosterone and social behaviors.

Several studies have found that children as young as 15 months spontaneously and repeatedly give things to each other and that babies who hear other babies’ cries begin crying themselves, suggesting that prosocial behaviors and empathy emerge very early in life (Zahn-Waxler, Schiro, Robinson, Emde, & Schmitz, 2001). Rushton and I (Hur & Rushton, 2007) examined mothers’ ratings of prosocial behavior in 514 pairs of 2- to 9-year-old South Korean twins. Monozygotic and dizygotic twin correlations showed a tendency of increasing genetic effects and decreasing family environmental effects with increasing age. The study found that 55% of the total variance of prosocial behavior was associated with genetic influences and the remainder with environmental effects unique to each member of a twin pair and measurement error. Common family environmental influences were near zero. Overall, these results were similar to those reported by studies of prosocial behaviors based on western samples (e.g., Knafo & Plomin, 2006; Rushton et al., 1986). The implications of these findings are twofold: First, genetic influences on prosocial behavior emerge very early in childhood. Second, genetic factors in prosocial behaviors found in western populations generalize to Asian populations.

More recently, using 1110 pairs of South Korean adolescent and young adult twins [mean age = 18.0y (SD = 3.3y)], Rushton and I (Hur, Jeong, Schermer, & Rushton, 2011) explored genetic and environmental influences on miserliness, a trait opposite to generosity. Freudian theory which is still cited in many psychology textbooks, suggests that miserliness originates from a fixation at the anal stage in childhood, that is, about two years of age (Kalat, 2011). Thus, if a child receives too much pressure or punishment from parents during toilet training, he will experience anxiety over bowel movements and, subsequently, take pleasure in withholding feces, which may lead to the later development of miserliness. However, our analyses demonstrated that family environmental factors were negligible for the development of miserliness, whereas genetic influences were about 28%. Non-genetic variance was due to individual-specific environmental influences and measurement error.

#### 4. Altruism and the general factor of personality

Rushton integrated his work on altruism and personality into two broad evolutionary hypotheses known as the general factor of personality (GFP; Rushton, Bons, & Hur, 2008; Rushton & Irwing, 2011) and life history theory (Rushton, 1985, 1995). Rushton (1985) conjectured that “one basic dimension—*K*—underlies much of the field of personality” (p. 445). From an evolutionary perspective, traits need to be harmonized, not work independently of each other. Both narrow and broad personality traits (miserliness, generosity, altruism) are organized hierarchically with altruism as part of the general factor of personality at the apex of both “normal” (i.e., non-clinical) personality traits and clinical disorders (in the same way in which *g*, the general factor of mental ability, occupies the apex in the organization of cognitive abilities; Rushton et al., 2008). High scores on the GFP indicate what is meant by someone having a “good” personality; low scores indicate a “difficult” personality, that is, someone who is hard to get along with. Individuals high on the GFP are altruistic, agreeable, relaxed, conscientious, sociable, and open, with high levels of well-being and self-esteem. Because the GFP defines clear positive and negative poles, it provides potential for understanding the socially “advantaged” (those with high levels of emotional intelligence), as well as the socially “challenged” (those more likely to suffer a personality disorder).

The GFP has been found across diverse samples, procedures, and questionnaires. For example, the GFP was found to be independent of method variance based on a multitrait–multimethod analysis of self-, teacher-, and parent-ratings of 391 13- to 14-year-olds using the Big Five Questionnaire—Children (Rushton et al., 2009). Several cross-national twin studies have found that 50% of the variance on the GFP is attributable to genetic influence and 50% to non-shared environmental influence (Rushton et al., 2008, 2009). A South Korean twin study showed that the GFP had emerged by 2- to 3-years of age (Rushton et al., 2008).

Rushton et al. (2008) conjectured that the GFP is a dimension of social effectiveness arising from selection for socially desirable traits that facilitate performance across a wide range of contexts. This followed Charles Darwin’s view that natural selection had acted directionally to endow humans with more cooperative and less contentious personalities than their archaic ancestors or nearest living relatives, the chimpanzees (1871, 1872). Rushton et al. (2008) suggested that individuals high on the GFP left more progeny because people prefer as spouses, fellow workers, and leaders those who are altruistic, conscientious, and emotionally stable, thereby giving such people a reproductive advantage over their less altruistic counterparts. Moreover, as Darwin (1871) suggested, people able to cooperate in groups were more likely to win competitions and wars and so also pass on their genes.

#### 5. Summary

As someone who became a psychologist in the era of social learning theory (late 1960s, early 1970s), in Rushton’s early career he performed laboratory experiments to explore how people acquired their altruism characters. Subsequently (late 1970s, early 1980s), he became fascinated with social biology and challenged the social learning perspective. He began to search for the roots of human altruism in evolution and genetics and enthusiastically argued that it was people’s genes rather than their environments that played the key role in development of altruism. Rushton’s arguments have sometimes generated heated controversy and criticism – especially when he generalized his research to group differences such as sex, social class and race.

Altruism and empathy are vital for the good functioning of all human societies. Many of the world’s great religious leaders and

social reformers have been motivated by altruism to bring about positive changes. We are deeply indebted to Rushton for the advances in altruism research that he has made.

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