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# Intelligence and physical attractiveness ☆

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ABSTRACT

This brief research note aims to estimate the magnitude of the association between general intelligence and physical attractiveness with large nationally representative samples from two nations. In the United Kingdom, attractive children are more intelligent by 12.4 IQ points ($r = .381$), whereas in the United States, the correlation between intelligence and physical attractiveness is somewhat smaller ($r = .126$). The association between intelligence and physical attractiveness is stronger among men than among women in both nations. The association remains significant net of a large number of control variables for social class, body size, and health.



## 1. Introduction

Scientists have long suspected that intelligence and physical attractiveness may be positively correlated across individuals (Berscheid & Walster, 1974, p. 195; Vandenberg, 1972, p. 153). For example, Buss (1985, p. 49) speculates, "If females generally prefer intelligent males because they typically have higher incomes and status, and if most males prefer physically attractive females, then over time these two characteristics will tend to covary." Consistent with such views, meta-analyses (Jackson, Hunter & Hodge, 1995; Langlois et al., 2000) show that there is a small but significantly positive correlation between intelligence and physical attractiveness. Zebrowitz et al.'s (2002) analysis of the Intergenerational Studies of Development and Aging data shows that the correlation between intelligence and physical attractiveness throughout life course ranges from $r = .11$ to $r = .26$. In an earlier analysis of the National Child Development Study, Denny (2008, p. 618) concludes that "the relationship between intelligence and being attractive is generally positive." However, to the best of my knowledge, the correlation between intelligence and physical attractiveness has never been quantitatively established in a large, nationally representative sample.

More recently, evolutionary psychologists have suggested possible explanations for why physically more attractive individuals should on average be more intelligent. Miller (2000a, 2000b, Prokosch, Yeo & Miller (2005)), and propose that both general intelligence and physical attractiveness may be indicators of underlying genetic fitness. His general fitness factor (*f*-factor) model suggests that intelligence and physical attractiveness are positively correlated across individuals because both reflect the quality of their genes and developmental stability. In this view, the correlation between intelligence and physical attractiveness should disappear once measures of the quality of genes and developmental stability are statistically controlled.

In contrast, Kanazawa and Kovar (2004) follow Buss's speculation above and posit that physically more attractive individuals may on average be more intelligent because of the cross-trait assortative mating of intelligent men of high status and beautiful women. If more intelligent men are more likely to attain higher status, and if men of higher status are more likely to marry beautiful women, then, given that both intelligence and physical attractiveness are highly heritable, there should be a positive correlation between intelligence

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and physical attractiveness in the children's generation. In their view, the correlation is "extrinsic," not "intrinsic" (Jensen, 1998), and it should persist even when measures of genetic quality and developmental stability are held constant.

The purpose of this brief research note is firmly to establish the empirical association between intelligence and physical attractiveness in population-based samples. It seeks to estimate the magnitude of the correlation with two large, nationally representative samples from the United Kingdom and the United States. The two samples have complementary strengths. The British sample has one of the best measures of general intelligence in all survey data, but a comparatively weak measure of physical attractiveness. In contrast, the American sample has a stronger measure of physical attractiveness, but a comparatively weak measure of general intelligence.

## 2. British sample

### 2.1. Data

The National Child Development Study (NCDS) is a large-scale prospectively longitudinal study which has followed a *population* of British respondents since birth for more than half a century. The study includes *all* babies ($n=17{,}419$) born in Great Britain (England, Wales, and Scotland) during one week (March 03–09, 1958). The respondents are subsequently reinterviewed in 1965 (Sweep 1 at age 7; $n=15{,}496$), in 1969 (Sweep 2 at age 11; $n=18{,}285$), in 1974 (Sweep 3 at age 16; $n=14{,}469$), in 1981 (Sweep 4 at age 23; $n=12{,}537$), in 1991 (Sweep 5 at age 33; $n=11{,}469$), in 1999–2000 (Sweep 6 at age 41–42; $n=11{,}419$), and in 2004–2005 (Sweep 7 at age 46–47; $n=9534$). In each Sweep, personal interviews and questionnaires are administered to the respondents, to their mothers, teachers, and doctors during childhood, and to their partners and children in adulthood.

97.8% of the NCDS respondents are Caucasian. There are so few respondents in other racial categories that, if I control for race with a series of dummies in multiple regression analyses, it often results in too few cell cases to arrive at stable estimates for coefficients. I therefore do not control for respondents' race in my analysis of the NCDS data.

### 2.2. Dependent variable: general intelligence

The NCDS respondents take multiple intelligence tests at ages 7, 11, and 16. At age 7, the respondents take four cognitive tests (Copying Designs Test, Draw-a-Man Test, Southgate Group Reading Test, and Problem Arithmetic Test). At age 11, they take five cognitive tests (Verbal General Ability Test, Nonverbal General Ability Test, Reading Comprehension Test, Mathematical Test, and Copying Designs Test). At age 16, they take two cognitive tests (Reading Comprehension Test, and Mathematics Comprehension Test). I first perform a factor analysis at each age to compute their general intelligence score for each age. All cognitive test scores at each age load only on one latent factor, with reasonably high factor loadings (Age 7: Copying Designs Test = .671, Draw-a-Man Test = .696, Southgate Group Reading Test = .780, and Problem Arithmetic Test = .762; Age 11: Verbal General Ability Test = .920, Nonverbal General Ability Test = .885, Reading Comprehension Test = .864, Mathematical Test = .903, and Copying Designs Test = .486; Age 16: Reading Comprehension Test = .909, and Mathematics Comprehension Test = .909).

The latent general intelligence factors at each age are converted into the standard IQ metric, with a mean of 100 and a standard deviation of 15. I then perform a second-order factor analysis with the IQ scores at three different ages to compute the overall childhood general intelligence score. The three IQ scores load only on one latest factor with very high factor loadings (Age 7 = .867; Age 11 = .947; Age 16 = .919). I use the childhood general intelligence score in the standard IQ metric as the dependent variable. All of the following analyses would have produced identical results had I used the arithmetic mean of all 11 IQ test scores, as the correlation between the mean and the general intelligence factor (extracted from the factor analysis) is .991.

### 2.3. Independent variable: physical attractiveness

At ages 7 and 11, the teacher of each NCDS respondent is asked to describe the child's physical appearance, by choosing up to three adjectives from a highly eclectic list of five: "attractive," "unattractive or not attractive," "looks underfed or undernourished," "abnormal feature," and "scruffy or slovenly & dirty." A respondent is coded as attractive = 1 if he or she is described as "attractive" at *both* age 7 *and* age 11 by two different teachers, 0 otherwise. I use this binary measure of physical attractiveness as the independent variable. 62.0% of all NCDS respondents are coded as attractive.

Zebrowitz, Olson and Hoffman (1993) analysis of the longitudinal data from the Intergenerational Studies of Development and Aging shows that individuals' relative physical attractiveness remains very stable across the life course. Their structural equation model suggests that physical attractiveness in childhood (measured between the ages of 9 and 10) is significantly positively correlated with physical attractiveness in puberty (measured between the ages of 12 and 13 for girls and 14 and 15 for boys) ($r=.70$ for boys, $r=.79$ for girls), and physical attractiveness in puberty is significantly positively correlated with physical attractiveness in adolescence (measured between the ages of 17 and 18) ($r=.72$ for boys, $r=.70$ for girls). This suggests that physical attractiveness in childhood is correlated with physical attractiveness in adolescence at $r=.504$ for boys and $r=.553$ for girls.

### 2.4. Control variables

Because social class is positively associated with both general intelligence (Herrnstein & Murray, 1994) and physical attractiveness (Elder, 1969), I control for the respondent's social class at birth measured by: father's occupation (0 = unemployed, dead, retired, no father present, 1 = unskilled, 2 = semiskilled, 3 = skilled, 4 = white-collar, 5 = professional); mother's education (age at which the mother left full-time education); and father's education (age at which the father left full-time education). Controlling for such measures of social class likely removes much