Intellectual Development of Children from Interracial Matings: Performance in Infancy and at 4 Years

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Psychological tests at 8 months and at 4 years of age were administered to 129 children of interracial (Negro-white) matings in the Collaborative Study. These interracial children were divided into two groups, depending on whether the mother was the white or the Negro partner. Stanford-Binet IQs of the 4-year-old children of white mothers averaged approximately 9 points higher than those with Negro mothers (p < 0.01). The only behavioral difference on the Bayley Scales of Infant Development at 8 months of age was in favor of the interracial children of Negro mothers (p < 0.05). The results are interpreted as supporting the hypothesis that postnatal environmental factors make a very substantial contribution to racial differences in intelligence test performance.

KEY WORDS: race; intelligence; interracial; infancy; genetics.

INTRODUCTION

In an earlier paper dealing with the intelligence of children of interracial matings (Willerman *et al.,* 1970), the children of white mothers and Negro fathers obtained significantly higher IQs at 4 years of age than the children of Negro mothers and white fathers. The results suggested that maternal influences of intellectual functioning are substantial and placed in doubt the validity of the genetic argument regarding the cause of mean racial differences in IQ.

We can now report findings from psychological tests at two points in time for a larger number of interracial children. Whereas the earlier paper contained 4-year IQ analyses for only 88 interracial children, there are 129 interracial children on whom psychological test data at 8 months of age as well as at 4 years are available. The infant data are especially valuable in that they may elucidate early postnatal behavior differences between interracial children of Negro mothers and white mothers.

If racial differences in intelligence test performance are determined by additive genetic factors, then test scores for children of interracial crosses should be independent of the maternal race. But if test differences between races are largely environmental in origin, then the children of interracial crosses should more closely resemble the mother since she is the primary agent of socialization during the early years (Simmons and Schoggen, 1963). The validity of these hypotheses requires (1) that the mother does, in fact, provide most of the relevant environmental stimulation during the early years; (2) that relevant sex-linked genetic factors, if any, do not differ in frequency by race; and (3) that the average genetic potential for intelligence in matings of white mothers and Negro fathers is equivalent to the reciprocal type of mating (Negro mothers and white fathers).

METHOD

The data come from a longitudinal study currently following the children born to approximately 42,000 women who registered during pregnancy in 12 hospitals throughout the United States. These children are routinely given standardized neurological and psychological examinations at various intervals during the first 8 years of life.

The number of interracial children with recorded 4-year IQs and scores on the Bayley Scales of Infant Development included in this study is 129, of which 101 children had white mothers and 28 had Negro mothers; 54 of the children were male and 75 female.

At 8 months of age, the children were administered a research version of the Bayley Scales of Mental and Motor Development. These scales, in use for over 35 years, included items that display increasing percentages of success with increasing age, internal consistency, and *prima facie* relevance to intellectual or adaptive functions (Bayley, 1955). The test includes items tapping social

responsiveness, fine and gross motor control, and memory. The abbreviated version of the Stanford-Binet (Form L-M) was used to measure IQ at age 4.

A socioeconomic index (SEI), devised by Myrianthopoulos and French (1968), following the methodology of the Bureau of the Census, was computed for each of the subjects. This index is based on an average of a set of rankings of paternal (or other head of household) education, occupation, and family income.

RESULTS

Table I gives the comparative statistics of available data for socioeconomic and perinatal characteristics of interest by race of mother of the interracial child. None of the differences is statistically significant in this table.

Table II presents the intercorrelation matrix for all independent and dependent variables for the total interracial sample. Intercorrelation matrices calculated for children separately by race of mother are not given here because differences between the matrices were negligible. Table II indicates that Bayley Mental scores bear low but statistically significant relationships to measures of socioeconomic status (SEI and family income) as well as to mothers' and fathers' education. With respect to Bayley Motor scores, Bayley Mental scores and Binet IQ correlate significantly. For Binet IQ, number of children in family correlates negatively, while all socioeconomic indices, parental education, and Bayley scores correlate positively. The slightly lower correlation of mothers' education and IQ as compared with father's education and IQ appears related to the reduced variability in maternal education as compared with paternal education. When variability in mothers' education is equated with variability in fathers' education (Guilford, 1956, p. 320), the difference in correlation disappears.

Table III gives the Bayley Mental test raw scores of the 129 children at 8 months of age. These scores are quite similar to the mean mental score of 79.45 for all infants in the Collaborative Study. The data in the table are examined by race of mother registered for prenatal care. Dividing the infant test results by marital status and sex facilitates comparison with the IQ data, since others (e.g., Deutsch and Brown, 1964) have shown IQ to be affected by them.

The data were entered into a computer program that fitted various regression models by weighted least squares. Equations involving main effects alone, main effects and two-factor interactions, and main effects and all interactions were tested, with 0/1 scores assigned to the race, sex, and marital status dichotomies. Interactions were not significant whether judged in groups by reduction of residual sums of squares in analyses of variance or by comparison of constants to standard errors. A model based on main effects was therefore sufficient. This indicated that interracial children of Negro mothers outperformed those of white mothers by 1.74 ± 0.72 points ($P < 0.05$). Children of married mothers

Table I. Characteristics of Samples of Interracial Matings by Race of Mother

Variable	White mother (Negro father)			Negro mother (white father)			
	Mean	SD	n	Mean	SD	n	p
Socioeconomic index	46.58	19.82	98	44.64	19.54	28	NS
Income (dollars)	3469	2048	98	3888	2147	26	NS
Maternal education (yr)	11.30	2.26	101	10.46	2.70	28	NS
Paternal education (yr)	11.54	3.12	74	10.67	3.51	21	NS
Gestation (wk)	40.50	2.65	101	41.11	3.83	28	NS
Birth weight (g)	3299	585	101	3221	680	28	NS
Birth length (cm)	50.24	2.45	99	49.89	3.63	27	NS
Number of children	2.95	1.76	101	2.79	1.71	28	NS

Table II. Intercorrelations of Variables in Total Interracial Sample[a]

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Gestational age		0.16	-0.08	-0.05	-0.09	-0.13	-0.04	-0.06	-0.11	*0.19*	*0.25*
(2) Number of children			*-0.26*	*-0.21*	*-0.19*	-0.05	-0.14	0.13	*-0.17*	*0.18*	0.06
(3) Education/ mother				0.16	*0.54*	*0.43*	*0.17*	0.14	*0.36*	0.00	0.03
(4) Family income					*0.58*	0.02	*0.17*	0.01	0.15	0.01	-0.03
(5) SEI						*0.57*	*0.24*	0.02	*0.36*	-0.07	-0.02
(6) Education/ father							*0.25*	0.03	*0.41*	-0.10	-0.15
(7) Bayley Mental								*0.43*	*0.22*	0.13	0.15
(8) Bayley Motor									*0.31*	0.07	0.14
(9) 4-year IQ										0.13	0.10
(10) Birth weight											*0.77*
(11) Birth length											

[a]Italicized correlation coefficients are significant at < 0.05 level.

did better than those of unmarried mothers by 1.30 ± 0.60 points ($P < 0.05$). Girls nonsignificantly outscored boys by 0.53 ± 0.60 points.

Table IV displays the data for the Bayley Motor test raw scores of these 129 infants. Again these data are quite similar to the Bayley Motor score of all children in the Collaborative Study (mean motor score 33.22). The analysis of these data failed to reveal any significant differences for mother's race, sex of child, marital status, or interactions of these variables.

Table III. Bayley Mental Raw Scores of 8-Month-Old Interracial Infants Categorized by Race of Mother, Sex of Child, and Marital Status

Race of mother	Sex of child	Marital status	Mental score	SD	N
White	Male	Unmarried	78.70	2.66	20
White	Male	Married	80.09	3.85	23
White	Female	Unmarried	79.39	2.69	31
White	Female	Married	79.96	4.13	27
Negro	Male	Unmarried	79.33	2.89	3
Negro	Male	Married	81.38	3.29	8
Negro	Female	Unmarried	80.13	4.02	8
Negro	Female	Married	83.44	2.07	9
All white			79.56	3.39	101
All Negro			81.46	3.35	28
All subjects			79.98	3.46	129

Table IV. Bayley Motor Raw Scores of 8-Month-Old Interracial Infants Categorized by Race of Mother, Sex of Child, and Marital Status

Race of mother	Sex of child	Marital status	Motor score	SD	N
White	Male	Unmarried	32.70	3.70	20
White	Male	Married	33.78	4.47	23
White	Female	Unmarried	32.87	4.63	31
White	Female	Married	33.63	4.55	27
Negro	Male	Unmarried	31.67	4.51	3
Negro	Male	Married	31.88	3.87	8
Negro	Female	Unmarried	32.75	3.49	8
Negro	Female	Married	35.44	3.09	9
All white			33.25	4.36	101
All Negro			33.25	3.73	28
All subjects			33.25	4.23	129

Table V presents the IQ data from the test administered at 4 years to the 129 children. In a regression analysis allowing for main effects, children of white mothers were estimated to have an IQ significantly higher by 9.71 ± 3.38 IQ points. Children of married mothers had an advantage of 7.04 ± 2.80 IQ points. Girls did better than boys by 7.52 ± 2.82 IQ points. Deviations from regression were not significant ($p = 0.17$), so that the option of denying the existence of interactions is available. If one, nevertheless, proceeds to fit a model including the race-sex interaction, the constants are marital status 7.39 ± 2.80 IQ points; race -19.51 ± 5.34 IQ points; sex-by-race 16.25 ± 6.87 IQ points.

Either mathematical formulation can be taken to confirm what seems to be rather clear in Table V, namely that the major constant is between interracial

Table V. 4-Year IQ Scores of Interracial Children for Whom Infant Test
Scores Are Also Present

Race of mother	Sex of child	Marital status	IQ score	SD	N
White	Male	Unmarried	96.15	15.00	20
White	Male	Married	102.83	16.30	23
White	Female	Unmarried	100.68	17.41	31
White	Female	Married	106.33	15.76	27
Negro	Male	Unmarried	70.33	17.21	3
Negro	Male	Married	85.87	7.97	8
Negro	Female	Unmarried	94.75	13.51	8
Negro	Female	Married	105.67	15.64	9
All white			101.78	16.41	101
All Negro			93.11	16.88	28
All subjects			99.90	16.84	129

boys and girls born to Negro mothers and that the IQs of the girls differ much
less at 4 years with respect to race of mothers. However, only a discussion of the
simpler "main effects" will follow.

A one-way analysis of covariance, treating education of mother as the
covariate and IQ of child as the criterion, was also performed. This was done in
order to insure that the slight and nonsignificant educational superiority of the
white mothers (Table I) could not account for the superior performance of their
children. First, it was established that the regression slopes for maternal
education and IQ of child did not differ by race of mother ($p > 0.10$). After
correcting for maternal education, the adjusted mean IQ for the children of
Negro mothers was 94.7 and for the children of white mothers the adjusted
mean IQ was 101.5, with the difference between the two means being significant
at $p < 0.05$. Thus it would appear that material educational differences cannot
account for the superiority of the children of white mothers. No covariance
analysis for paternal education and IQ of child was undertaken because
educational data on 25% of the fathers were lacking.

DISCUSSION

The results indicate that infant testing at 8 months on the Bayley Scales of
Infant Mental and Motor Development did not show any deficits associated with
having a Negro mother. The only significant finding at 8 months of age was that
the interracial children of Negro mothers outperformed those of white mothers
on the Bayley Mental test, a difference opposite in direction from that which
might have been predicted from the notion of an inferior prenatal environment
associated with the Negro mother.

On the other hand, 4-year-old children of white mothers and Negro fathers

score significantly higher on the Stanford-Binet IQ test than children of Negro mothers and white fathers. The advantage of about 9 IQ points does not appear to be explained by differences in perinatal environments favoring the interracial children of white mothers, as there were no differences in birth weight, length at birth, gestational age, or birth order as a function of the mother's race.

Based on data collected on Boston intermarriages from the years 1914-1938, Goldhamer (1971) has suggested the possibility that the white female by Negro male mating type is genetically superior for intelligence than its reciprocal. His conclusion stems from the finding that a larger proportion of intermarrying Negro males were gainfully employed relative to their nonintermarrying counterparts. However, intermarrying white males as well as white and Negro intermarrying females were occupationally below their respective noninter-marrying counterparts.

Leaving aside a consideration of the conceptually complex relationship of occupational class to IQ, Goldhamer's data also indicate that the relative occupational inferiority of the white females to their nonintermarrying white counterparts is greater than that of the Negro females to their nonintermarrying counterparts. Thus it is quite possible that the average superiority of the Negro male is balanced by the average inferiority of his white female partner.

Nevertheless, it would seem worthwhile to consider briefly from a genetic perspective how superior either Negro males (or white females) must be in the mating type of white female by Negro male in order to produce children averaging 9 points higher than the reciprocal mating type. Since each parent transmits only half his genes to his progeny, calculations suggest that the magnitude of the superiority would be of the order of at least a standard deviation elevation in intelligence above the average for the other mating type. One would expect that this superiority should have been detectable in the educational, socioeconomic, or income levels reported in Table I. That such differences were not observed places in doubt such a contention.

Thus it appears that the explanation for the superiority of the interracial children of white mothers most likely rests on postnatal environmental influences. A good place to look for these positive influences might be in the child-rearing practices of the high social classes. Only rarely do they have children with intellectual impairments, even when there is definite central nervous system damage (Holden and Willerman, 1972).

The significant sex effect in favor of females for IQ has been reported before for Collaborative Study data. However, the present data are not particularly appropriate for investigation of sex differences on cognitive traits and therefore the matter will not be pursued further here.

The race of mother by sex of child interaction noted for the IQ data is consistent with the finding of Jensen (1971), who reviewed this topic at length. Though many studies indeed have found larger sex differences in favor of females among Negroes than among whites, their magnitudes are considerably

smaller than that reported for these data.

The association of single marital status with lower IQ has been documented before, with the interpretation based on increased disorganization in one-parent families (Deutsch and Brown, 1964). Since females do most of the child rearing during the early years, the explanation remains to be clarified.

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