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Intelligence and Reproductive Success of Bosniaks, Serbs and Roma in Serbia

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The British IQ of a sample of the Bosniaks (Serbian Muslims) and Serbs in Serbia is estimated at 94, and the British IQ of a sample of Roma at 60. Intelligence was not related to reproductive success among the Bosniaks and Serbs, but among the Roma intelligence was significantly negatively correlated with reproductive success as measured by numbers of surviving grandchildren. Intelligence was significantly negatively correlated with child mortality among the Bosniaks and Roma.

Key Words: Intelligence; Dysgenics; Fertility; Roma; Serbia; Progressive Matrices; Child mortality.

Introduction

It has been found in several countries that intelligence is negatively related to reproductive success (inclusive fitness) measured as numbers of children who survive to adulthood. This negative association is known as dysgenic fertility and has been reported in the United States, England, Scotland, Greece and Sweden in studies summarized in Lynn (2011), and recently confirmed for Taiwan by Chen, Chen, Liao & Chen (2012) and for Great Britain by Kanazawa (2014). A negative association between intelligence and fertility can be inferred from the lower fertility of those with more education and of the higher social classes that appeared in western Europe and the United States in the early stages of the demographic transition to low birth rates that took place at various times in the nineteenth century (Skirbekk, 2008). Cummins (2013) has shown that in France at the end of the 19th century, the relationship between wealth and fertility was positive and therefore eugenic in those districts that still had

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high (“natural”) fertility while it was negative and therefore dysgenic in those that were already experiencing fertility decline. By the early twenty-first century negative relationships between educational attainment and fertility had been reported for nearly all countries suggesting that dysgenic fertility was virtually universally present throughout the world (Meisenberg, 2008).

In the first half of the twentieth century it was widely believed by scholars like Cattell (1937) that the negative relation between intelligence and numbers of children would lead to a decline in national IQs. The predicted decline has been reported for cognitive ability measured by speed of reaction times in Britain and the United States from 1889-2004 by Woodley, te Nijenhuis & Murphy (2013), who estimate the rate of decline at 1.23 IQ points a generation. However, it was found that during much of the twentieth century there were increases in phenotypic (measured) intelligence assessed by intelligence tests (e.g. Cattell, 1950). These increases became known as the Flynn effect that apparently masked the genotypic decline and were attributable to greater education, improved nutrition and other factors reviewed by Williams (2013). These increases ceased were followed from the 1990s by a decline in Denmark (Teasdale & Owen, 2008), Finland (Dutton & Lynn, 2013) and Britain (Shayer & Ginsburg, 2007, 2009).

Intelligence is a major determinant of educational attainment, earnings and creative achievement among individuals and between nations (Lynn, 2008; Lynn & Vanhanen, 2012). The effect of dysgenic fertility in bringing about a decline in genotypic intelligence and in phenotypic intelligence in Denmark, Finland and Britain and possibly other countries is therefore a serious concern. For this reason it is surprising that no studies of dysgenic fertility have ever been published in a number of countries including Canada, France, Germany, the Netherlands, Switzerland, Italy or

Belgium. The purpose of the present study is to extend the literature on this issue by examining whether dysgenic fertility for intelligence is present among Bosniaks, Serbs and the Roma (formally known as Gypsies) in Serbia.

Method

The sample consisted of 297 women who had largely completed their reproductive years. There were three groups consisting of Bosniaks (N=90, age 40-65, average 44.9), Serbs (N = 72, age 37-61, average 47.2) and Roma (N = 105; age 39-72, average 48.20). The data for the Bosniaks and Serbs were gathered in 2006–2008 from a municipality located in the Sandzak region of Southern Serbia. The data for the Roma were gathered in 2006-2011 from four different Roma settlements around Belgrade and in Macva, an agricultural area in Western Serbia. The Bosniaks were Muslims and the Serbs were Christians. The Roma were equally divided between 52 Muslims and 53 Christians. All the women in the sample were interviewed by the first author (JC). Information was obtained for age, age at first reproduction, intelligence, number of living children, number children who had died, and number of grandchildren. Intelligence was tested with the Raven's Standard Progressive Matrices test (Raven, Raven & Court, 2000) and was given to each participant individually, usually in their homes, free from interruption and with no time limit. The number of surviving children and grandchildren is taken as a measure of reproductive success. Information on educational levels was not obtained in the study. The majority of Roma have very little education and many are functionally illiterate. Previous studies from the region found no association between maternal IQ, schooling and child mortality (Čvorović, Rushton and Tenjevic, 2008; Čvorović 2012). It has been shown that the differences in fertility between Roma and the non-Roma majority of Europeans remain even after controlling for important socio-economic variables (Koytcheva and Philipov 2008).

Results

The mean scores and standard deviations of the three groups on the Standard Progressive Matrices are given in Table 1. It will be seen that the Bosniaks obtained a higher average score than the Serbs (48.6 and 44.5, respectively), but the difference is not statistically significant tested by Scheffé ($p = .097$). The score of 24.1 of the Roma is significant lower than that of the Bosniaks and the Serbs ($p < .001$).

The right hand columns give the British percentiles of the scores and their IQ equivalents based on the British 1992 standardization data given by Raven, Raven & Court (2000: Table SPM8, p.81). The mean score of the Roma is below the first British percentile and can be estimated at approximately 60.

To examine the ethnic differences in reproductive success, the numbers of children, grandchildren and deceased children of the three groups are given in Table 2.

It will be seen that the Bosniaks had the greatest total number of children including deceased (3.74) and of surviving children (3.46), followed by the Roma (3.65; 3.09), and the Serbs had the smallest number (1.96; 1.93). But for surviving grandchildren, the Roma had the greatest number (3.16) followed by the Bosniaks (1.22), and the Serbs had the smallest number (0.63). Child mortality is highest among the Roma (.56), lower among the Bosniaks (.28), and negligible among the Serbs (.03). In percentages, infant and child mortality among the Roma is 15.4% (out of the total children born), among the Bosniaks it is 7.5%, and among the Serbs it is 1.4%.

There are significant differences between the groups in age at first reproduction. The Roma have the earliest average age of first reproduction at 19.20; for the Bosniak women, it is 22.30, and for the Serbian women, it is 26.98.

Table 1. SPM scores and British IQs in Serbia

Group	N	M	SD	British PC	British IQ
Bosniaks	90	48.6	6.4	48.0	99.5
Serbs	72	44.5	5.9	22.5	88.6
Roma	105	24.1	9.9	0	60

Table 2. Numbers of children, child mortality, total children (deceased +living) and grandchildren (means and sds and percentage)

Group	N	Children	Child Mortality %	Child mortality	Total children	Grand children
Bosniaks	69	3.46 (1.50)	7.5	.28 (.59)	3.74 (1.83)	1.22 (1.63)
Serbs	72	1.93 (.86)	1.4	.03 (.16)	1.96 (.86)	.63 (.97)
Roma	105	3.09 (1.76)	15.4	.56 (.77)	3.65 (2.19)	3.16 (2.19) ^b

The differences between the groups in child mortality and in total children are both statistically significant ($F = 107.645$; 23.096). All paired comparisons are statistically significant except the difference between Bosniaks and Roma in numbers of children and numbers of surviving children.

To examine the relation between intelligence and reproductive success, the correlations between intelligence and numbers of children, surviving grandchildren, and child mortality are given in Table 3.

The Roma consisted of 53 Christians and 52 Muslims. The differences between these two groups are shown in Table 4. The Christians obtained a higher mean SPM score than the Muslims but the difference is not statistically significant ($t=1.35$, $p=0.179$). The Muslims had more children and grandchildren than the Christians and both the differences are statistically significant ($t=3.84$, $p<.000$; $t=2.22$, $p=0.28$). Muslim and Christian Roma also differ in child mortality: among the Muslim Roma, child mortality is 16.8% while among Christian Roma, it is 13.2%.

Discussion

The results provide five points of interest. First, the Bosnian and the Serb samples obtained British IQs of 99.5 and 88.6, respectively. The difference is not statistically significant and can be averaged to give a British IQ of 94 for Serbia. No adjustment is made to this figure for any possible Flynn effect increase in the British IQ because no increase took place among 13 to 15 year between 1979 and 2008 (Lynn, 2009) and it is assumed that there was no increase for adults. The IQ of 94 confirms previous studies showing that the IQ in Serbia is lower than in Britain and the rest of northern and central Europe, although it is a little higher than the British IQ of 90.5 for Serbia and Montenegro calculated from previous studies given by Lynn & Vanhanen (2012, p.28).

Table 3. Correlations between intelligence and numbers of surviving children and grandchildren, and child mortality

Group	N	Children	Grandchildren	Child mortality
Bosniaks	69	-.10	.09	-.26**
Serbs	72	.04	-.20	.07
Roma	105	-.18	-.25*	-.28**

and ** denote statistical significance at $p < .05$ and $p < .01$, respectively

Table 4. Differences between Christian and Muslim Roma

Roma	N	SPM	Children	Grandchildren	Child mortality%
Christians	53	25.3	2.4	2.7	13.2
Muslims	52	22.7	3.7	3.6	16.8

Second, the Progressive Matrices score of 24.1 of the Roma is significantly lower than that of the Bosniaks and the Serbs. The British IQ of the Roma of approximately 60 confirms a previous study of 323 Roma 16-66 year olds who obtained a British IQ of 68 reported by Rushton, Cvorovic & Bons (2007). These very low IQs are likely partly attributable to adverse environmental factors. Many of the Roma are unemployed, poor and illiterate, and have little or no education. It may be that genetic factors are also partly responsible.

Third, the results for the relation between intelligence and numbers of children, surviving grandchildren, and child mortality given in Table 3 show no significant correlations and therefore no evidence for dysgenic fertility among the Bosniaks and Serbs. There is, however, dysgenic fertility among the Roma shown by the significant negative correlation of $-.25$ between intelligence and numbers of grandchildren. The dysgenic fertility among the Roma could be explained by a combination of their relatively high birth rates and early reproduction. The Roma appear to be in the middle stage of the demographic transition in which there is relatively high fertility and a young age structure (Habicsek 2008), and during which dysgenic fertility is highest. In later stages dysgenic fertility declines as contraceptive practices become accepted even by the less educated or intelligent sections of the population (Lynn 2011). Contraception is not much used by the Roma or by the Bosniaks (Čvorović 2011, 2012). The main characteristic of Roma reproductive behavior is that all fertile females participate in reproduction, regardless of desirable or undesirable characteristics (Čvorović 2004). As the Roma mean IQ is lower than other Europeans as shown in the present study and by Rushton, Cvorovic & Bons (2007), this would imply very little selection for IQ because virtually all females marry and reproduce.

Fourth, there are significant negative correlations between

intelligence and child mortality among the Bosniaks (-.26) and the Roma (-.28). This confirms an early study in Britain by Savage (1946) showing that parents with low intelligence had a high rate of infant mortality. In addition, negative correlations between intelligence and infant mortality have been found among the regional populations in the British Isles ($r = -.78$, Lynn, 1979), in France ($r = -.30$, Lynn, 1980), and in Italy ($r = -.86$, Lynn). The principal explanation for these negative correlations is probably that parents with low intelligence are less efficient in looking after their children and this results in a greater number of deaths.

Fifth, among the Roma the Muslims had significantly more children and grandchildren than the Christians. This replicates others studies reporting higher fertility among Muslims than Christians the result of which is that Muslim populations in Serbia and in other parts of the Balkans are growing much more rapidly than those of non-Muslim (Apostolov, 2010; Kettani, 2010; Čvorović and Nikolić, 2012; Čvorović 2012).

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