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HANNA DAVID and RICHARD LYNN

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INTELLIGENCE DIFFERENCES BETWEEN EUROPEAN AND ORIENTAL JEWS IN ISRAEL

HANNA DAVID* AND RICHARD LYNN†

**Tel Aviv University, Israel* and †*University of Ulster, Coleraine, Northern Ireland*

Summary. A number of studies have found that Ashkenazi Jews in the United States have a high average IQ. It has been proposed by Cochran, Hardy and Harpending (2006) that this can be explained by the occupational constraints imposed on the Ashkenazi for many centuries in Europe, when they were largely confined to money-lending. They propose that this selected for the high verbal and mathematical intelligence that has several times been found in American Ashkenazim. The current study investigates how far this theory holds for European and Oriental Jews in Israel. A review of studies shows that Oriental Jews in Israel have an average IQ 14 points lower than that of European (largely Ashkenazi) Jews. It is proposed that this difference can be explained in terms of the Cochran, Hardy and Harpending theory because Oriental Jews were permitted to engage in a much wider range of occupations and hence did not come under the selection pressure to develop the high verbal and mathematical intelligence that was present for Ashkenazim.

Introduction

The recent paper by Cochran *et al.* (2006) discusses the high average IQ obtained by Ashkenazi Jews in the United States and the selection pressures that may have been responsible for this. They begin by citing a number of studies that have found that American Ashkenazi Jews have an average IQ of between 112 and 115 as compared with the average of 100 for gentile Europeans. This is a considerable difference and may arguably help to account for the over-representation of American Ashkenazi Jews in the professions, elite universities, and among Nobel Prize winners (Weyl & Possony, 1963; Weyl, 1966; Zuckerman, 1977; Paz, 2004; Jewish Laureates of Nobel Prize, 2006).

To explain these high IQs they propose the hypothesis that the demographic position of the Ashkenazim in medieval Europe selected for intelligence. The hypothesis is that the usury laws that forbade Christians from lending money with interest provided the Ashkenazim with a niche as money lenders, and that to be successful money lenders it was necessary to have the high verbal and mathematical intelligence that has several times been found in American Ashkenazim, as contrasted with their lower spatial ability. At the same time, Jews were generally prohibited from

other occupations, except second-hand dealing. The result of this was that Jews who possessed high verbal and mathematical intelligence left more surviving offspring than other Jews and gentiles and this drove up their intelligence. Most gentiles during these many centuries were agricultural serfs and peasants who did not require the same high intelligence as the Jews to survive and reproduce, or worked in craft occupations, such as masons, smiths, cartwrights, etc. for which spatial rather than verbal ability is required.

The Ashkenazim are the Jews of European origin who resided largely in Eastern Europe from the Middle Ages until the late nineteenth and twentieth centuries, when many of them migrated to the United States, Western Europe and Israel. There are also the Sephardim and the Oriental and North African Jews. All these groups have co-existed in Palestine for many decades and in Israel since the foundation of the state in 1948 (Ram, 1996; Feirberg, 2006). There have been a number of studies reporting that the Sephardim and the Oriental and North African Jews in Israel do not have the high IQs of the Ashkenazim. The object in this paper is to summarize these studies, a number of which have been published in Hebrew, and to consider how far these intelligence differences can be explained in terms of the theory advanced by Cochran *et al.* (2006).

The various terms that are used to describe these sub-populations in Israel are confusing and need clarification. The Ashkenazim are the Jews of European origin who migrated to Israel and are frequently described as the European Jews. The Jews of the Near East, the Middle East and North Africa are variously described as the Sephardim, the Oriental Jews, the Asian and African Jews, and the Mizrahim. The term Sephardim for this group is misleading. The Sephardim are the Jews who spent many centuries in Spain and Portugal until they were expelled in 1492 and 1497, following which they dispersed to a variety of places, mainly to the Balkans and the Eastern Mediterranean. The Sephardim are an ambiguous category, since most of those from the Balkans are Europeans but not Ashkenazim. Many of the Sephardim of the Balkans were killed during the Holocaust and there are only around 100,000 of them in Israel. Here the term European Jews is used to denote those from Europe and North America (very largely Ashkenazim), and Oriental Jews to denote those from the Near East, the Middle East and North Africa, also known as Mizrahim.

At the end of 2004 the population in Israel was 6,870,000; 5,238,000 were Jews and 1,340,000, about 20%, were Arabs. The rest, approximately 265,000, were non-Jewish Russians and about 30,000 Christians and some defining themselves as 'belonging to no religion' (Statistics, Israel, 2005a, Table 2.1). About 32% of the population were born in Israel; approximately 50% of the Jewish population (2.2 million) are European, and a further approximately 50% of the Israeli Jews are Oriental. There are also approximately 100,000 Ethiopian Jews (Statistics, Israel, 2005b). The total number of Russian immigrants was 916,000 of whom 671,800 were Jews according to the Jewish law requiring a Jewish mother. The majority of the 265,000 non-Jewish immigrants are spouses/children/grandchildren of Jews who had a legal right to emigrate to Israel (Statistics, Israel, 2005b, Table 2.25), while most of the 30,000 Christians are believed to be Russian immigrants who pretended to be Jews in order to obtain permission to leave the Soviet Union and emigrate to Israel (Abbink, 2002; Lazin, 2002).

Table 1. IQ differences of European Jewish and Oriental Jewish children expressed as *ds*

	Age	Test	European <i>n</i>	Oriental <i>n</i>	<i>d</i>	Reference
1	5	WISC: F. Scale	75	138	1.1	Smilansky (1957)
2	5	WISC: verb	75	138	1.1	Smilansky (1957)
3	5	WISC: perf	75	138	0.93	Smilansky (1957)
4	3–6	Milta-Verbal	115	195	0.60	Ortar <i>et al.</i> (1966)
5	3–6	Milta-Non verbal	115	195	0.40	Ortar <i>et al.</i> (1966)
6	4–6	WPPSI IQ	186	443	0.87	Lieblich <i>et al.</i> (1972)
7	9	WISC:verb	41	41	1.1	Gill (1974)
8	4	Stanford–Binet	187	450	1.1	Smilansky <i>et al.</i> (1976)
9	6–16	WISC	363	715	1.0	Gafni (1978)
10	5	WPPSI IQ	36	27	0.66	Gross (1978)

IQs of European and Oriental Jews

Ten studies comparing the average IQs of European and Oriental Jews are summarized in Table 1. All the studies have shown that European Jews obtain higher average IQs than Oriental Jews. The magnitude of the difference is expressed as *d* (the difference between the means divided by the pooled standard deviation). Conventional IQs can be obtained by multiplying *d* by 15. Row 1 gives a difference of $1.1d$ (IQ difference of 16 IQ points) for 5-year-old Oriental Jewish children on the Full Scale IQ of the Israeli standardization of the Wechsler Intelligence Scale for Children (WISC). Rows 2 and 3 give the verbal and performance *ds* of 1.1 and 0.93 (IQ difference of 16 and 14 IQ points, respectively) in the same study and show that the Oriental Jews were not significantly handicapped verbally. Rows 4 and 5 give smaller European–Oriental differences of 0.60 (verbal) and 0.40 (non-verbal) *ds* on the Milta test (an Israeli intelligence test). Row 6 gives results from the Israeli standardization of the Wechsler Preschool and Primary Test (WPPSI) for children aged 4–6 years and shows a difference of $0.87d$. These were children whose fathers had come from the Middle East or from North Africa. There was little difference in the IQs of the two groups, who obtained IQs of 88 and 86, respectively, in relation to 100 for children with European fathers. Row 7 gives a difference of $1.1d$ on the verbal WISC IQ for 9-year-old children. Row 8 gives a difference $1.1d$ for 4-year-old children on the Stanford–Binet test. Row 9 gives a difference $1.0d$ on the standardization sample of the WISC. Row 10 gives a difference of $0.66d$ for 5-year-old children but these were from matched high socioeconomic status families, so the IQ difference is reduced.

The ten studies are in close agreement in showing a median difference of $0.975d$ between European and Oriental Jewish children, equivalent to 14.6 IQ points. If the result in row 10 is discounted on the grounds that the sample is not represented, the median difference is $1.0d$, equivalent to 15 IQ points. Five of the studies (rows 4, 5, 6, 8 and 10) are on preschool children and show the same difference as on older

Table 2. Abilities of European and Oriental Jews based on means of 50 and SDs of 10 (the sample size is 80 for each row, with subjects matched for social class)

Group	Verbal	Reasoning	Number	Spatial	Mean
European	55.5	53.4	52.7	52.0	53.4
Iraqi	50.4	51.7	50.5	52.3	51.2
North African	47.5	46.5	48.9	48.8	47.9
Yemeni	46.6	48.4	47.6	46.8	47.3

children, indicating that the lower IQ of Oriental children cannot be attributed to poorer schools.

Table 2 gives mean scores on verbal, reasoning, numerical and spatial abilities for 6- to 7-year-old children whose fathers had come from Europe, Iraq, North Africa and Yemen (calculated from Burg & Belmont, 1990). The scores are expressed in terms of means of 50 and SDs of 10 for each test. The children had all been born in Israel in 1964 and had attended kindergarten and primary schools. There were 80 children in each of the four groups, of whom 40 came from middle-class and 40 from lower-class families. The effect of this is that they were not representative of the four ethnic groups for socioeconomic status because European Jews have higher socioeconomic status than the three groups of Orientals. Matching the groups for socioeconomic status disguises the magnitude of the group differences present in representative samples. Nevertheless, the Europeans obtained generally higher scores and a higher overall mean than the other three groups, consistent with the results given in Table 1. The interest of the study lies in the size of the differences on verbal, reasoning, numerical and spatial abilities. The Europeans scored much higher than the three groups of Orientals on verbal ability, somewhat higher on reasoning and numerical abilities, but not so much higher on spatial ability. In fact, on spatial ability the Iraqis scored fractionally higher than the Europeans. This pattern of the abilities of European Jews is similar to that found in New York when Jewish children were compared with Chinese, blacks and Puerto Ricans by Lesser *et al.* (1965): Jewish children scored much higher than the other three groups on verbal ability, about the same as the Chinese on reasoning and numerical abilities, but below the Chinese on spatial ability. It appears therefore that the European Jews have particularly strong verbal ability and somewhat less strong reasoning and numerical abilities, but their spatial ability is not nearly so good, not only compared with Oriental Jews but also with other racial groups, viz. Chinese, blacks and Puerto Ricans. This pattern of abilities of European Jewish children in Israel confirms Cochran *et al.*'s (2006) theory that this pattern evolved because the Ashkenazim in Europe found a niche as money lenders for which verbal, reasoning and numerical abilities were required, and were excluded from the craft occupations for which spatial ability is required.

Table 3 gives IQs for reasoning and verbal ability, an EQ (Educational Quotient) for mathematics and the Grade Point Average (GPA) obtained by European and Oriental Jewish applicants to university in 1983. These figures have been calculated

Table 3. Mean IQ and EQ differences between European and Oriental Jewish college applicants and students

Test	European <i>n</i>	Oriental <i>n</i>	<i>d</i>
Reasoning	773	503	0.27
Maths	773	503	0.20
Verbal	773	503	0.87
GPA	773	503	0.20

Table 4. Mean IQs of European and Oriental students at Technion

Tests	European	Oriental	Sig.
Number	180	144	—
Verbal IQ	52.52	48.41	0.001
Non-verbal IQ	33.41	32.26	0.05
Mechanical IQ	12.54	10.57	0.01
Number series	7.54	6.52	0.01

from data published by Zeidner (1987). The applicants had an average age of 24 years and were not representative of the populations because fewer Oriental Jews apply, making them more highly selected and therefore reducing the differences between them and the European that are present in the general population. Thus, they are only 0.27*d* (4 IQ points lower) on reasoning and 0.20*d* lower on mathematics, although they were 0.87*d* (13 IQ points) lower on verbal ability. This confirms the results given in Table 2 showing that the European Jews are particularly strong, compared with the Orientals, on verbal ability. Row 4 gives the grade point average (GPA) of the Oriental Jews at the university and shows that this was a little lower than that of the European (0.20*d*). The author notes that 'the mean academic performance for the Oriental Jewish group was at least as low as predicted by test scores' and hence 'the cultural bias hypothesis – contending that standardized aptitude tests are systematically biased against minority groups – was once again disconfirmed' (Zeidner, 1987, p. 47).

Further evidence on intelligence differences between European and Oriental university students at Technion, the Israeli University of Technology, has been published by Rim (1983) and is summarized in Table 4. He provides scores for tests of verbal IQ, non-verbal reasoning (measured by the Dominos Test), mechanical ability and number series, a test of reasoning with numbers. The standard deviation of the verbal IQ is 10, so the difference between the European and Oriental is 0.41*d* (the equivalent of 6.2 IQ points). The report does not give standard deviations for the remaining three tests and evidently each of these tests has a different scaling. The

Table 5. Differences in educational attainment of Oriental and European Jewish children

Year	Age	Test	<i>d</i>	Reference
1954/67	14	Seker	0.93	Ortar (1967)
1963	14	Language	1.0	Smilansky & Yam (1969)
1963	14	Maths	0.87	Smilansky & Yam (1969)
1969/71	11	General	0.87	Lewy & Chen (1976)
1971	7	Reading	1.0	Smilansky & Shephatia (1977)
1972	15	English	0.80	Lewy <i>et al.</i> (1978)
1973	14	General	0.87	Chen <i>et al.</i> (1978)
1975	6/12	Reading	0.66	Eshel (1980)
1980	14	General	0.60	Chen (1983)
1982	11	Science	0.47	Zuzovsky (1987)
1983	15	Science	0.60	Levin (1988)
1985	12	General	0.53	Chen (1987)

significance levels are lower than for the Verbal IQ, so the European–Oriental Jewish difference is evidently a little smaller. Hence, once again the European Jews are particularly strong on verbal ability. These samples of university students are selected for high intelligence, so the IQ difference is less than in general population samples.

Educational attainment of European and Oriental Jews

Intelligence is moderately highly correlated with educational attainment with correlations in numerous studies typically lying between 0.4 and 0.7 (Mackintosh, 1998, p. 44). Groups with low IQs typically also have low educational attainment, and it would be expected that this would be true for Oriental Jews compared with European Jews in Israel. Studies showing that this is the case have been summarized by Dar & Resh (1991) and are shown in Table 5. Differences in educational attainment of Oriental and European Jewish children are expressed as *ds*. The Seker test result shown in row 1 is an examination in a number of subjects including maths, Hebrew, history, geography and science. The median differences in educational attainment between the Oriental and European Jewish children in the twelve studies is 0.80*d*, fractionally smaller than the median 0.975*d* difference in IQ shown in Table 1.

Most Oriental Jews had quite basic education in the countries from which they migrated to Israel, as compared with the typically better education of European immigrants. It has been widely assumed that the gap in educational attainment between European and Oriental Jews would decrease with assimilation in Israel. Some evidence that this has occurred has been reported by Minkowitch *et al.* (1982) in a study that found that the difference in educational attainment between European and Oriental Jews decreased from the first generation of immigrants to the second. Their sample consisted of 12-year-olds tested in reading, maths and geography and the

Table 6. Educational attainment of first and second generation Oriental and European Jews (*ds*)

Generation	<i>n</i>	Reading	Maths	Geography
First	2753	0.87	0.80	1.0
Second	423	0.66	0.47	1.0

results are shown in Table 6. It will be seen that the attainment of the Oriental Jews improved in the second generation in reading and maths, although not in geography.

Discussion

The results raise four points of interest. First, the high average IQ obtained by the Ashkenazim is not shared by the Oriental Jews in Israel, whose mean IQ is approximately 1.0*d* (15 IQ points) lower than that of the Ashkenazim. Second, this IQ difference is confirmed by the difference in educational attainment in maths, geography, language, etc. Third, the Ashkenazi Jews in Israel have the same intelligence profile of high verbal and mathematical intelligence but not so high spatial intelligence that has been found in Ashkenazi Jews in the United States (see Tables 2, 3 and 4).

Fourth, these results raise the question of whether the IQ difference between the Ashkenazim and the Oriental Jews can be explained in terms of Cochran, Hardy and Harpending's (2006) theory. It is proposed that they can and the difference can be explained as follows. The Cochran, Hardy and Harpending theory states that the Ashkenazi Jews were forced into the niche of money lenders and this selected for high verbal and mathematical intelligence. In the later Middle Ages most European Jews migrated east to Russia and Poland where they were permitted to work not only as money lenders but also as tax farmers, estate managers and tavern keepers. These occupations are all relatively cognitively demanding for verbal and numerical intelligence and would have continued the selection pressure for the enhancement of these abilities. A number of authorities have noted that these occupational constraints were not imposed on the Oriental Jews who lived for many centuries under the rule of the Turkish Ottoman Empire. Thus, 'the Ottomans' success in government largely consisted in the wise policy of toleration which they practised towards Jews' (Fisher, 1936, p. 138); and Jews 'were engaged in food processing, soap making, tanning, and a host of other artisanal occupations' (Benbassa & Rodrigue, 1995, pp. 36, 41). The Oriental Jews were permitted to work in a wide range of occupations, so they were not put under the selection pressure to develop the high verbal and mathematical intelligence that acted on the Ashkenazim. We suggest, therefore, that the IQ difference between the Ashkenazim and the Oriental Jews provides a confirmation of the Cochran, Hardy and Harpending theory.

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