

Sex Differences in Intelligence: Some New Data from Serbia

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It has often been asserted that there is no sex difference in intelligence, but some studies have shown that among adults men have a higher average IQ than women by 4 to 5 points. Although the sample was necessarily small, these reports are confirmed in a study of the intelligence of 136 adult Jews in Serbia tested with Raven's Standard Progressive Matrices. Men had a higher IQ than women of 4.07 points. Men also had a lower standard deviation than women.

Key Words: Intelligence; Sex differences; Progressive Matrices; Serbia.

1 Introduction

For the last century it has been consistently asserted by almost all experts that there is no sex difference in intelligence. For example: "it is now demonstrated by countless and large samples that on the two main general cognitive abilities – fluid and crystallized intelligence – men and women, boys and girls, show no significant differences" (Cattell, 1971, p.131); "males and females do not differ in IQ" (Jensen, 1998, p. 360); "on practically all tests now in use, men and women have equal average scores" (Eysenck, 1981, p. 40); "the consistent story has been that men and women have nearly identical IQs" (Herrnstein & Murray, 1994, p. 275).

This consensus that there is no sex difference in intelligence was broken in 1994 when it was contended by the first author that while up to the age of 15 to 16 years males and females do have approximately the same intelligence except for a small male advantage on the visualization

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abilities, from the age of 16 to 17 years males begin to show greater intelligence reaching an advantage of 4 to 5 IQ points in adults (Lynn, 1994, 1999). The starting point of this new contention was Ankney's (1992) finding that men have a larger average brain size than women, even when this is controlled for body size. Brain size is positively associated with intelligence at a correlation of .40, as shown in the meta-analysis of Vernon et al (2000, p.248), so it was argued that it follows that men should have greater average intelligence than women. The usual counterargument here is that men use their extra brain space for killing, raping and war, rather than general intelligence.

As might be expected, the contention that men have a higher average intelligence than women was not received with immediate and universal acceptance. Most experts ignored it and continued to assert that there is no sex difference in intelligence. For instance, Mackintosh (1996, p.567): "there is no sex difference in general intelligence worth speaking of"; Butterworth (1999, p.293): "women's brains are 10% smaller than men's, but their IQ is on average the same"; Bartholomew (2004, p. 91): "men on average have larger brains than women but display no significant advantage in cognitive performance"; Anderson (2004, p. 829): "it is an important finding of intelligence testing that there is no difference between the sexes in average intellectual ability; Hines (2007, p. 103): "there appears to be no sex difference in general intelligence." As recently as 2012, Halpern (2012, p.233) in her book on sex differences in intelligence has written that "Males and females score identically on IQ tests".

There have, however, been a few scholars who have addressed the issue and confirmed the claim that men have a higher average intelligence than women. Nyborg (2003) reported a male advantage on *g* of 5.55 IQ points. Jackson & Rushton (2006) reported that among 100,000 17-18 year olds males have an advantage on *g* of 3.63 IQ points on the SAT,

although here it could be argued that mediocre females are more likely than mediocre males to take the SAT because lower-IQ males tend to be lacking in ambition and have better opportunities for occupational careers that do not require a college education. And Meisenberg (2009) has reported a male advantage of 2.8 IQ points among 22-23 year old whites in the United States on the ASVAB (Armed Services Vocational Aptitude Battery). This difference, however, was not present among blacks. In this study intelligence was also measured as *g*, and for this there was no significant sex difference among 15 year olds among either blacks or whites, but among whites a significant male advantage of 4 IQ points was present among 16 year olds and this increased to an advantage of 6.5 among 22-23 year olds, while for blacks a male advantage of 1 IQ point was present among 16 year olds and this increased to an advantage 2.15 points among 22-23 year olds.

While numerous scholars have continued to state that there are no sex differences in intelligence, the only one who has contested the claim that men have a higher average intelligence than women is Mackintosh (1996). He defined intelligence as *g* (general intelligence) and contended that it is best measured as non-verbal reasoning ability by the Progressive Matrices. He asserted that there is no difference in the mean scores obtained by males and females on the Progressive Matrices and therefore that there is no difference between males and females in reasoning or in *g*. The absence of a sex difference on the Progressive Matrices had been asserted previously by Court (1983) and subsequently by Jensen (1998). This test certainly is widely regarded as one of the best tests of *g*. To examine the contention made by Court (1993), Mackintosh (1996) and Jensen (1998) that there is no sex difference on the Progressive Matrices, a meta-analysis of studies of sex differences on the Progressive Matrices was carried out by Lynn & Irwing (2004). This showed that there

was no sex difference in children aged 5 to 15, but that from the age of 16 males began to obtain higher scores, reaching an advantage in all fourteen known studies of adults by an average of 5 IQ points. In a further meta-analysis of the performance of male and female college students on the Progressive Matrices giving results of 22 studies it was found that males obtained a higher mean than females by 4.6 IQ points (Irwing & Lynn, 2005).

Nevertheless, despite these studies showing that men have higher IQs measured by the Progressive Matrices than women, many scholars remain unconvinced. Thus, Anderson (2004, p.829): “it is an important finding of intelligence testing that there is no difference between the sexes in average intellectual ability; this is true whether general ability is defined as an IQ score calculated from an omnibus test of intellectual abilities such as the various Wechsler tests, or whether it is defined as a score on a single test of general intelligence, such as Raven’s Matrices”. Hunt (2011, p.381) has acknowledged the two meta-analyses but expressed reservations about their validity, writing that “their conclusions must be taken with a pinch of salt” on the grounds that the samples “must be reasonably representative of males and females” and he suggests that in several of the studies this cannot be accepted. His conclusion is that “if there is any systematic difference between men’s and women’s scores on the Raven’s tests, it is a small one” (p.382). This conclusion begs the question of how small is small. It is evident that more data need to be collected on this question. As a contribution to this, we present some data for sex differences on intelligence among a sample of adults in Serbia.

2 Method

The sample consists of 62 Jewish men and 74 Jewish women with an average age of 54.5 years in Serbia. The sample was recruited through personal contacts and

community organizations led by the local rabbi, who heads the only remaining functioning synagogue in Serbia, the Belgrade Synagogue. All of the sample had university degrees except for six men and two women. The intelligence of the sample was tested with the Raven's Standard Progressive Matrices (SPM) (Raven et al, 1996). This test is considered the most widely used of all culture-reduced tests, measuring reasoning ability, general intelligence and Spearman's g (Jensen, 1998). The test has 60 diagrammatic puzzles with a missing part to be chosen from several options. The participants were not paid for their participation and there was no time limit placed on completing the test. Approximately two-thirds of the sample were tested individually and one third was group-tested at the Annual Jewish Family Seminar outside Belgrade.

3 Results

The SPM means and sds for the men and women are given in Table 1. The men obtained a higher average score than the women by 1.5 raw score points. The difference expressed in sd units as an effect size (d) is 0.27 obtained by dividing the difference between the two means by the sd and is the equivalent of 4.07 IQ points. The difference between the men and the women is statistically significant at $p < .10$ ($t = 1.56$).

Table 1. SPM means and SDs of men and women in Serbia.

Sex	N	Mean	SD
Men	62	54.0	5.2
Women	74	52.5	5.9

4 Discussion

The result that men obtained a higher average IQ than the women by 4.07 IQ points is a further confirmation of the thesis proposed by the first author that among adults men have a higher average IQ than women by 4 to 5 IQ points.

This result is at the same time a further refutation of the contention of Court (1993), Mackintosh (1996), Jensen (1998) and Anderson (2004) that there is no sex difference on the Progressive Matrices. Hunt's (2011, p.381) observation that the sample "must be reasonably representative of males and females" is fulfilled in the present study because there is no reason to suspect any bias in the selection of the sample. As noted above, all of the sample had university degrees except for six men and two women so the two groups were almost perfectly matched for education.

A second result of interest is that the standard deviation of the men of 5.2 is lower than that of the women of 5.9. This is contrary to the frequent contention that men have greater variability of intelligence than women. This proposition was advanced more than a century ago by Havelock Ellis (1904, p.425): "It is undoubtedly true that the greater variational tendency in the male is a psychic as well as a physical fact". This sex difference in variability has been repeatedly reaffirmed, e.g. by Eysenck (1981, p.42): "While men and women average pretty much the same IQ score, men have always shown more variability in intelligence. In other words, there are more males than females with very high IQs and very low IQs"; by Ceci & Williams (2007, p.223): "all sides in the gender wars agree that there is greater variability in male distributions of many abilities" and by Deary et al (2010): "Males have a slightly but consistently wider distribution than females at both ends of the range."

However, not all scholars have accepted that males have greater variability of intelligence than females. Irwing & Lynn (2005) reported that there was no sex difference in variability in their meta-analysis of 22 studies of sex differences on the Progressive Matrices among university students. Meisenberg (2009, p.148) notes that in his own study males had greater variability but that "not all studies find higher male variance"; he cites Harnqvist (1997) and Reynolds et al. (2008) as among

the studies that failed to find this. Abdel-Khalek & Lynn (2009, p.112) failed to find greater male variance in a study of 13 samples in Saudi Arabia and concluded that “the greater variance of males is not a universal phenomenon”. The present result of greater variability among women confirms this conclusion.

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