Intelligence in Oman assessed by the Colored Progressive Matrices

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Data are presented for a recent standardization of the Colored Progressive Matrices (CPM) in Oman for ages 5 through 11. The results show that the mean IQ relative to Britain is approximately 85. Means and variance of the boys and girls are approximately the same.

Mean IQs for nine countries in the Middle East have been presented in Lynn (2006) and Lynn & Vanhanen (2006). These IQs have been calculated in relation to a mean IQ of 100 and standard deviation of 15 in Britain. The countries for which these data have been reported are Iran (84), Iraq (87), Israel (95), Jordan (84), Kuwait (86), Lebanon (82), Syria (83), Turkey (90), and Yemen (85). More recently, studies have reported IQs for the United Arab Emirates (83) (Khaleefa & Lynn, 2008a), Syria (88) (Khaleefa & Lynn, 2008b), Yemen (81) (Khaleefa & Lynn, 2008c), Oman (85) (Abdel-Khalek & Lynn, 2008), and Jordan (85.7) (Lynn & Abdel-Khalek, 2009). Thus, apart from Israel (95), which has a large number of European immigrants, the IQs of these countries lie in the range between 81 (Yemen) and 90 (Turkey).

Some of these studies have also reported means and

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variances for males and females. These have generally shown negligible sex differences in both means and variances. The absence of a consistent sex difference in variance is contrary to the frequent assertion that males have greater variance than females. This contention was advanced in the early years of the twentieth century by Havelock Ellis (1904), Thorndike (1910) and Terman (1916) to explain why men are so greatly over-represented among geniuses, when there is apparently no sex difference in general intelligence. The theory that there is greater variability among males entailing more males among those with very high intelligence (as well as more males with very low intelligence) seemed to provide a solution to this problem. This hypothesis has come to be widely accepted. For instance "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" (Eysenck, 1981, p.42); "the consistent story has been that men and women have nearly identical IQs but that men have a broader distribution…the larger variation among men means that there are more men than women at either extreme of the IQ distribution" (Herrnstein & Murray, 1994, p. 275); "males are more variable than females" (Lehrke, 1997, p.140); "males' scores are more variable on most tests than are those of females" (Jensen, 1998, p.537); and, more cautiously, "there is some evidence for slightly greater male variability" (Lubinski, 2000, p.416).

In this paper we present new data for the Middle East consisting of a study of the standardization of the Colored Progressive Matrices in Oman. Norms for the Standard Progressive Matrices in Oman have been reported by Abdel-Khalek & Lynn (2008), but this study did not give data for males and females. We are able to provide these in the present report.

Method and Results

The Colored Progressive Matrices was standardized on a

random sample of 1042 children (534 boys and 508 girls) aged 5-11 years in Oman by Kazim et al. (2008). The results have been published in Arabic. The sample was selected randomly from 70 primary and intermediate schools from 11 areas representing the country. The test-retest reliability was 0.56. Split-half reliability ranged between 0.705 and 0.858, and Cronbach's alpha coefficient between 0.81 and 0.91. The correlation between CPM and scholastic achievement was 0.405 and was significant at the 0.01 level.

The results are given in Table 1. This shows the data for each of the seven ages 5 through 11 years (age 5 is 5-0 – 5-11 months, average 5.5 years, etc.). The table gives the numbers of males and females, their mean scores, standard deviations, the values of t as a measure of the statistical significance of the sex difference, the British percentile equivalents of the mean scores, given in the 1982 British standardization (Raven et al., 1995), and the variance ratios (VR), calculated by dividing the boys' variance by the girls' variance. Thus, a VR greater than 1.0 shows that boys have greater variance than girls, while a VR less than 1.0 shows that girls have greater variance than boys.

Discussion

The results provide four points of interest. First, the mean IQ of the sample in relation to British norms can be calculated from the British percentile equivalents given in column 7 of Table 1. This is 29.6 and is equivalent to a British IQ of 92. The IQ in Britain measured by the Colored Progressive Matrices has been increasing from 1982 up to 2007 at 3 IQ points a decade (Lynn, 2009). Assuming that the Oman data were collected in 2006, two years before publication, the British IQ should have increased by 7.2 IQ points from 1982-2006. To adjust for this 7.2 IQ points need to be deducted from the Oman IQ, to give a figure of 84.8. This is closely similar to the IQ of 85 calculated for Oman derived from the standardization of the Standard Progressive Matrices reported by Abdel-Khalek & Lynn

(2008).

Table 1.   Norms for the Colored Progressive Matrices
in Oman.

Age	Sex	N	Mean	SD	t	Brit. Pc	VR
5	M	70	16.31	5.64	2.192*	61	0.91
	F	66	18.48	5.91		79	
6	M	64	17.14	5.22	0.197	49	0.89
	F	62	16.95	5.52		49	
7	M	70	19.50	6.44	1.306	37.5	1.04
	F	67	20.93	6.33		43	
8	M	73	21.32	6.47	1.143	18	1.07
	F	69	22.54	6.25		22	
9	M	79	23.05	7.05	0.365	16	1.14
	F	75	23.45	6.60		17	
10	M	87	25.75	6.72	0.464	7.8	0.80
	F	83	25.24	7.50		7.2	
11	M	91	26.23	6.15	0.341	6.2	0.86
	F	86	26.56	6.62		6.5	

*Significant at p< 0.01

Second, there is a strong trend for the IQs of the Omani
children to decline with age, relative to those in Britain.
Thus, the 5-year-olds performed better than the British
norms, the 6-year-olds approximately the same, while from
age 7 onwards the Omani children performed progressively
less well. This trend confirms results reported for Syria and
the United Arab Emirates (Khaleefa & Lynn, 2008a, 2008b).
Possibly the explanation for the younger children
performing better than the older is that the initial and easier
items in the test are measures of visualization ability, while

the later items are measures of abstract reasoning ability (Lynn & Irwing, 2004). It is abstract reasoning ability that has improved most with modernization in western countries (Flynn, 2007). Another possible factor may be that young Omani children do better than older ones because the West provides a more cognitively stimulating education, and this has a cumulative advantageous effect as children grow older.

Third, the boys and girls perform about equally for ages 6 through 11. This confirms results for many countries reported by Lynn & Irwing (2004). Among the Omani five year olds the girls score significantly higher than the boys. This is likely a chance result, as it has not been found in other studies.

Fourth, there are no consistent differences in the variability of boys and girls. At ages 5, 6, 9, 10 and 11 the girls have greater variance, while at ages 7 and 8 the boys have greater variance. These are likely random fluctuations indicating no significant sex difference in variance. The present results fail to support the theory of greater male variability. Five other studies of the Progressive Matrices in the Middle East and North Africa have also failed to confirm the greater male variability theory. No sex difference in variability was found in Syria, the United Arab Emirates, Yemen, Sudan and Libya (Khaleefa & Lynn, 2008a; Khaleefa & Lynn, 2008b; Khaleefa & Lynn, 2008c; Khaleefa et al., 2008; Lynn et al., 2008). The frequent assertion that males have greater variability of intelligence is certainly not a universal phenomenon.

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