Intelligence in Jordan: Norms for the Advanced Progressive Matrices

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Results are reported for a standardization of the Advanced Progressive Matrices in Jordan for the ages 11 through 40 years (sample size = 2542). The mean IQ in relation to 100 in Britain is estimated at 86.

Key Words: Intelligence; Progressive Matrices; Jordan.

The Standard Progressive Matrices (SPM) is the most extensively used test for the assessment of intelligence in numerous countries throughout the world. The test was constructed in Britain in the 1930s by John Raven (1939) and consists of a set of 60 problems which present a series of designs that progress according to some principle. The task is to work out the principle and deduce the last design of the series. Thus, inductive and deductive reasoning are involved. These reasoning abilities are the core of general intelligence as defined by Spearman and the test is widely accepted as one of the best tests of Spearman's g (Jensen, 1998). The Standard Progressive Matrices is designed to measure the intelligence of 6 to 16 year olds and adults. There are two other versions of the test. These are the Colored Progressive Matrices (CPM) designed to measure the intelligence of 5 to 11 year olds, and the Advanced Progressive Matrices (APM) designed as a more difficult test to measure the intelligence of 12-18 year olds and adults.

Studies of the results of the Progressive Matrices in many countries are reviewed and summarized in Lynn (2006). These show that in relation to an average IQ of 100 in Britain, IQs in China, Japan and other Northeast Asian countries are approximately 105, IQs in the Near East and

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North Africa are approximately 84, and IQs in sub-Saharan Africa are approximately 70.

Only one study (to the best of our knowledge) has been carried out of a standardization of the Progressive Matrices in Jordan. This study has been published in Arabic, and is therefore difficult for western readers to access and evaluate. Our objective in this paper is to summarize the results of this study.

Method and Results

A standardization of the Advanced Progressive Matrices (APM) in Jordan was carried out in 1986 by Alyian & Al-Samadi (1988). The test was given to a sample of 1300 males and 1242 females ranging in age from 11 to 40 years. The study does not give separate means for males and females.

Table 1 gives the data from the study consisting of the numbers in each age group (note that age 11 = 11.0, age 12 = 12.0, etc.), mean scores, and the British percentile equivalent of the mean scores. For the 11-15 year olds the percentile equivalent is derived from the British 1979 standardization of the SPM, and for the 18-30+ year olds it is derived from the British 1992 standardization of the APM given by Raven et al. (1998). There are no British norms for 16 and 17 year olds. The right hand column gives the mean scores for Britain. It will be seen that the 11-15 year olds performed better relative to the British norms than the 18-30+ year olds. The 11-15 year olds scored at the 26.6th percentile of the British norms, equivalent to an IQ of 90.7. This IQ needs adjustment for the Flynn effect, amounting to an increase for this age group of the British IQ by 0.7 IQ points a decade on the Progressive Matrices from the 1979 to 2008 (Lynn, 2009). The data in Jordan were collected 7 years later than in Britain, so this requires a deduction of 0.5 IQ points from the Jordanian mean, reducing it to 90.2. The 18-30+ year olds scored at the 11.5th percentile of the British norms, equivalent to an IQ of 82. This IQ does not need adjustment for the Flynn effect in Britain because there has been no increase in the British IQ assessed by the SPM for those aged 13-15 from 1979 to 2008 and it is assumed that there has also been no increase for adults

(Lynn, 2009). The two results of 90.2 and 82 can be averaged to give an IQ of 86.

Table 1.
Means for the Advanced Progressive Matrices in Jordan and Britain.

Age: years	N	Jordan Mean	British Percentile	British Mean
11	200	6.3	24	10
12	180	6.8	23	10
13	194	7.5	21	11
14	179	10.7	34	12
15	174	11.0	31	14
16	140	11.6	-	-
17	150	12.0	-	-
18	145	13.0	12	22
19	160	12.6	11	22
20	150	13.0	12	22
21	140	12.1	10	22
22	146	12.3	11	22
23	170	12.8	12	22
24	210	12.7	12	22
30+	204	12.0	12	21.5

Discussion

The best reading of the results is that the mean IQ in Jordan can be taken as the average of the 11-16 year olds (89.7) and of the 18-30+ year olds (83) to give an IQ of 86.35. Possibly the reason for the higher IQs obtained by the 11-16 year olds is that IQs have been increasing at a faster rate in Jordan than in Britain, which would result in the 11-16 year olds performing better than the 18-30+ year olds.

The mean IQ of 86.35 in Jordan is closely similar to that obtained in four other studies in which western tests have been standardized in Jordan. Za'rour & Khuri (1977) administered Piagetian tests (i.e. tests based on the work of the Swiss developmental psychologist Jean Piaget) to a sample of 8-13 year olds and obtained a mean IQ of 82. Piagetian tests are essentially intelligence tests as both types of test measure cognitive abilities. El-Mneizel (1987) administered the Kaufman Assessment Battery for Children (KABC) to a sample of 6-12 year olds and obtained a mean

IQ of 84. Rindermann (2007) used tests of reading comprehension, math and science obtained by 8-15 year olds as measures of cognitive ability and calculated an IQ for Jordan of 87. In addition, Lynn & Mikk (2009) have used more recent tests of reading comprehension, math and science obtained by 15 year olds in the 2006 PISA study in 56 countries as measures of cognitive ability and calculated an IQ for Jordan of 85. The similarity of these results is testimony to the accuracy of these assessments.

These IQs for Jordan averaging approximately 85 are also closely similar to other results in the Near East given in Lynn (2006), e.g. Syria (83), Lebanon (82), Arabs in Israel (86), Iraq (87) and Kuwait (86) (Abdel-Khalek & Lynn, 2006).

It has become well established that IQs in the United States, Britain, Japan and a number of other economically developed countries have been increasing during the twentieth century at about 2 to 4 IQ points a decade. This increase was first reported for a national American sample by Tuddenham (1948) and has subsequently been confirmed by numerous studies (Flynn, 1984, 1987, 2007;2008; Lynn & Hampson, 1986; Lynn, 2009). More recently, it has been reported that IQs have been increasing in the economically undeveloped nations of Kenya, Dominica, Brazil and Sudan. In Kenya an IQ increase of 14 IQ points from 1984 to 1998 (10.0 IQ points a decade), based on samples of 7 year olds measured by the Colored Progressive Matrices, was reported by Daley et al. (2003). In Dominica, an IQ increase of 18 IQ points (5.1 IQ points a decade), in cohorts born in 1948 and 1983, measured by the Standard Progressive Matrices, has been reported by Meisenberg et al. (2005). In Brazil an IQ increase of 17 IQ points from 1930 to 2002 (2.4 IQ points a decade), based on samples of 7-11 year olds measured by the Draw-a-Man test, has been reported by Colom et al. (2007). In Sudan, an IQ increase of 12.19 IQ points for 4-10 year olds from 1964 to 2006 (2.9 IQ points a decade), measured by the Draw-a-Man test, has been reported by Khaleefa et al. (2008). IQ increases in the economically developed countries appear to be due mainly to improvements in nutrition and education

(Lynn, 1990), and can be anticipated for the future with further economic development in Jordan and in other economically developing nations.

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