Psychological Reports, 2008, 103, 170-172.

NORMATIVE DATA FOR RAVEN'S COLOURED PROGRESSIVE MATRICES SCALE IN YEMEN[1]

OMAR KHALEEFA AND RICHARD LYNN

University of Khartoum

University of Ulster
Coleraine, Northern Ireland

Summary.—Results are reported for a standardization sample of 986 6- to 11-yr.-olds for the Coloured Progressive Matrices in Yemen. Younger children performed better than older children relative to British norms, and there was no significant sex difference in means or variability. In relation to a British IQ of 100 ($SD=15$), the sample obtained an average IQ of approximately 81.

Mean IQs for a number of countries in the Middle East have been reported by Lynn (2006) and Lynn and Vanhanen (2006). These IQs have been calculated in relation to a mean IQ of 100 ($SD=15$) in Britain. The countries for which these data have been reported are Egypt (IQ=81), Iran (84), Iraq (87), Israel (95), Jordan (84), Kuwait (86), Lebanon (82), Qatar (78), Syria (83), Turkey (90), and Yemen (85). Some critics of these figures have contended that they are unreliable (e.g., Dickins, Sear, and Wells, 2007). The best way to examine this criticism is to find further data and see whether they are consistent with those already published. The present paper summarizes a replication study of this kind for Yemen.

The IQ of 85 given above for Yemen was derived for a standardization of the Raven's Coloured Progressive Matrices on a sample of 1,000 children ages 6–11 years (Al-Heeti, Ganem, Al-Kubaldl, & Al-Nood, 1997). A description of the test and norms for Britain were given by Raven, Court, and Raven (1995). The present paper reports the results of another standardization of the Coloured Progressive Matrices in Yemen published by Al-Ani (1995) of the Department of Psychology at Sana' University in Yemen. The study was published in Arabic and, hence, is not easily accessible to Western scholars. The date of this study is not reported but can be reasonably assumed to have been carried out about two years before the year of publication, i.e., around 1993.

Method

The total sample was 986 (672 boys and 314 girls). The children were tested in socially representative schools and the sample matched the percentage of the urban and rural population in Yemen of 21 and 79%, respec-

[1]Address correspondence to Omar Khaleefa, Ph.D., P.O. Box 12718, Khartoum, Sudan or e-mail (okhaleefa@hotmail.com).

DOI 10.2466/PR0.103.1.170-172

tively. The greater number of boys reflects their greater percentage in schools (73%). The study reports test-retest reliabilities for different age groups of between .57 and .83 (significant at $p < .01$) and shows an acceptable level of reliability.

Results

The results of the study are given in Table 1. The British percentile equivalents, given in the 1979 British standardization sample of the Standard Progressive Matrices, appear in the right-hand column. These are used because they are more accurate than the norms for the Coloured Progressive Matrices. To calculate these percentile equivalents, the scores obtained on the Coloured Progressive Matrices were converted to equivalent scores on the Standard Progressive Matrices, using the conversion table given by Raven, *et al.* (1995). The average of these percentile equivalents is 13.9 and corresponds to an IQ of 84. If an adjustment is made for the increase in British norms of 2 IQ points a decade (Lynn & Hampson, 1986) from the British standardization of 1979 to the approximate date of the Yemeni study (1993 = 14 years), the Yemeni IQ is reduced to 81.

TABLE 1
Sex Differences on Coloured Progressive Matrices in Yemen

Age (yr.)	Sex	*n*	*M*	*SD*	British PC*
6–7	Boys	215	16.7	3.7	39
	Girls	101	15.9	3.7	28
8	Boys	120	18.0	4.7	9
	Girls	58	18.2	5.0	9
9	Boys	111	18.8	4.3	9
	Girls	50	20.7	5.4	11
10–11	Boys	226	21.1	4.8	3
	Girls	105	22.6	4.7	3

*British PC = British percentile equivalent.

Discussion

The results show three points of interest. First, the British equivalent IQ of 81 obtained in this study is close to the IQ of 85 obtained in the previous study by Al-Heeti, *et al.* (1997). Second, the 6- and 7-yr.-olds performed much better, in relation to British norms, than the older children. This confirms results reported for Syria and the United Arab Emirates (Khaleefa & Lynn, 2008a, 2008b). A possible explanation for the younger children performing better than the older ones 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, Allik, & Irwing, 2004), and it is abstract reasoning ability that has improved most with modernization in West-

ern countries (Flynn, 2007). Another possible factor may be that young Yemeni children do better than older ones because the West provides a more cognitively stimulating environment, and this has a cumulative advantageous effect as children grow older.

Third, there were no significant differences between the means obtained by the boys and girls. This may be surprising because there is some discrimination against girls and women in Yemen, and it is sometimes contended that discrimination impairs intelligence. There is also no consistent sex difference in variability. This can be seen from the standard deviations, which were the same for boys and girls in the 6- to 7- and 10- to 11-yr.-olds and larger for girls in 8- and 9-yr.-olds. These results are contrary to the frequent contention that males show greater variability of IQs than females, e.g., "the typically greater variance of males in test scores" (Jensen, 1998, p. 536).

The smaller number of girls in the sample may suggest that the girls are more highly selected, but the greater variance of girls' scores at ages 8 and 9 makes this unlikely. If the girls had been more highly selected, the variance would have been smaller.

REFERENCES

Al-Ani, N. (1995) Tagneen I'khtibar al-masfofat al-mutatabia' al-mulawwan liravin ala atfal marhalat al-talim al-asasi fi al-Jumhuriya al-yamaniyya lilumor 6-11 sanah [Standardization of the Coloured Progressive Matrices for children in basic education in Yemen 6-11 years]. Sana', Yemen: UNICEF. [in Arabic]

Al-Heeti, K., Ganem, A., Al-Kubaldl, A., & Al-Nood, Y. (1997) Standardization of Raven's Coloured Progressive Matrices Scale on primary school children ages 6-11 in Yemen schools. *Indian Psychological Review*, 48, 49-56.

Dickins, T. E., Sear, R., & Wells, A. J. (2007) Mind the gap(s) . . . in theory, method and data: re-examining Kanazawa. *British Journal of Health Psychology*, 12, 167-178.

Flynn, J. R. (2007) *What is intelligence? Beyond the Flynn Effect*. Cambridge, UK: Cambridge Univer. Press.

Jensen, A. R. (1998) *The g Factor*. Westport, CT: Praeger.

Khaleefa, O., & Lynn, R. (2008a) Sex differences on the Progressive Matrices: some data from Syria. *Mankind Quarterly*, 48, 345-352.

Khaleefa, O., & Lynn, R. (2008b) A study of intelligence in the United Arab Emirates. Unpublished manuscript, Univer. of Khartoum and Univer. of Ulster, Coleraine, Northern Ireland.

Lynn, R. (2006) *Race differences in intelligence: an evolutionary analysis*. Augusta, GA: Washington Summit Books.

Lynn, R., Allik, J., & Irwing, P. (2004) Sex differences on three factors identified in Raven's Standard Progressive Matrices. *Intelligence*, 32, 411-424.

Lynn, R., & Hampson, S. L. (1986) The rise of national intelligence: evidence from Britain, Japan and the USA. *Personality and Individual Differences*, 7, 23-32.

Lynn, R., & Vanhanen, T. (2006) *IQ and global inequality*. Augusta, GA: Washington Summit Publishers.

Raven, J. C., Court, J. H., & Raven, J. (1995) *Coloured Progressive Matrices*. Oxford, UK: Oxford Psychologists Press.

Accepted August 4, 2008.