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Raven Standard Progressive Matrices norms for Indian tribal areas

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Abstract

Data for the Raven Standard Progressive Matrices were collected from representative samples of school attendees in nine tribal areas in India. Altogether, 6199 young people aged 8 to 21 were tested. The norms were considerably lower than both the Indian urban norms collected some years ago and those for the UK. Nevertheless, as usual, the most striking finding is the huge variance in ability within the groups: Poor educational and economic backgrounds do not have the extreme debilitating effect that many would have expected.

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India is a vast country with a plurality of cultures and many mature languages. The difference between rural and urban cultures has diminished over recent years. Nevertheless, hundreds of tribal areas still exist in many parts of the country, either far remote from the cities or isolated by geographical barriers such as forests. The means of communication are traditional and there is meagre economic development (most live in huts made of mud which are washed away in the rainy seasons), limited ways of earning a livelihood, and lack of education.

Since the cultural, educational, and economic differences are obvious, it is of considerable interest to know how the *Raven Standard Progressive Matrices* (SPM) scores of young people living in these areas compare with those of their urban and international counterparts.

The Sample

Data were collected by trained researchers following the procedures laid down in the SPM Manual from a sample of 6,199 school pupils. This was made up of between 650 and 700 students studying in grades 4-12 in each of nine tribal clusters. Altogether, data were collected in 72 schools. While there are hundreds of tribal areas all over the country, accessibility and funding meant that it was necessary to restrict the scope of the study to nine clusters: Thane, Pune, Raigadh, Solapur, Nashik, Dhule, Chandrapur, Surat and Raipur. Testing was carried out between November 2005 and March 2006. Not all young people attend school, and the participation rates for females were much lower than those for males, especially in the higher grades. To the extent that young people not attending school were not included in the study, the results are less informative than might have been the case.

Most of the pupils' parents had not attended school at all.

Results and Discussion

The overall smoothed summary norms from the study are presented in Table 1 and, broken down by sex in Table 2. As can be seen from Table 2, there was a marked gender difference in favour of males which is probably due to differential participation rates. As can be seen from Tables 3 and 4, the tribal norms were well below both the Indian urban norms and the 1979 UK norms (which are similar to the Indian urban norms). It will be of considerable interest to find out from a future item-analysis whether the SPM test scales in the same way in this group as it does in other cultural groups previously studied.

Table 1
Standard Progressive Matrices
 Smoothed 2006 Norms for Indian Tribal Data

Percentile	Age in Years							
	8.5	9	9.5	10	10.5	11	11.5	12
95	34	36	37	38	39	39	39	40
90	30	31	33	34	34	35	36	38
75	21	22	23	24	24	25	28	31
50	15	15	16	16	16	17	19	20
25	12	12	12	12	12	12	13	13
10	9	10	10	10	10	10	10	10
5	8	8	8	8	8	8	8	8
<i>n</i>	39	84	206	245	309	245	361	284

Percentile	Age in Years							
	12.5	13	13.5	14	14.5	15	15.5	16
95	41	43	44	45	46	47	48	49
90	39	40	41	42	43	44	45	46
75	33	34	35	36	37	37	39	40
50	22	23	24	26	27	29	30	32
25	13	13	14	15	15	17	19	20
10	10	10	10	11	11	12	12	12
5	8	8	9	9	9	10	10	11
<i>n</i>	426	320	463	287	449	341	479	262

Percentile	Age in Years						
	16.5	17	17.5	18	18.5	19	19.5
95	49	49	48	48	47	46	46
90	46	46	45	45	45	44	44
75	40	41	41	41	41	40	39
50	33	34	35	35	35	34	33
25	22	24	26	28	29	28	27
10	13	14	15	16	17	16	15
5	11	11	11	12	13	12	12
<i>n</i>	352	243	251	131	144	83	87

Note: Ages are those shown plus up to six months.

Table 2
Standard Progressive Matrices
 Smoothed 2006 Norms for Indian Tribal Data
 Female /Male Comparisons

Percentile	Age in Years (Months)													
	9		9.5		10		10.5		11		11.5		12	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M
95	34	39	35	40	35	40	35	40	37	41	37	41	38	42
90	28	34	29	35	30	36	31	36	32	37	34	37	36	39
75	18	25	19	25	20	26	21	27	23	29	24	31	26	33
50	13	17	14	17	15	18	15	18	15	18	16	20	17	22
25	12	12	12	12	12	13	12	13	12	13	12	13	12	14
10	10	10	10	10	10	10	10	10	10	10	10	10	10	11
5	8	8	8	8	8	8	8	8	8	8	8	8	9	9
<i>n</i>	29	55	95	111	127	118	147	162	124	121	145	216	143	141

Percentile	Age in Years (Months)													
	13		13.5		14		14.5		15		15.5		16	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M
95	41	44	43	44	44	45	45	46	46	47	47	48	48	49
90	39	41	40	41	41	42	42	43	43	44	44	44	45	45
75	31	37	33	37	34	37	35	39	37	39	39	39	41	39
50	20	24	21	25	22	27	24	29	26	30	28	32	30	32
25	13	15	14	16	14	16	15	18	16	19	18	20	19	22
10	10	11	10	11	11	11	11	11	11	12	11	13	12	14
5	9	9	9	9	9	9	9	10	9	10	9	10	11	10
<i>n</i>	180	140	246	217	149	138	221	228	153	188	201	278	118	144

Percentile	Age in Years (Months)													
	16.5		17		17.5		18		18.5		19		19.5	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M
95	48	50	48	50	48	49	47	48	47	48	47	47	46	46
90	45	47	45	47	44	46	44	46	44	46	44	45	40	45
75	41	40	41	41	41	41	41	41	40	41	37	40	35	40
50	32	34	33	36	34	36	35	36	35	37	35	34	32	34
25	20	24	21	27	24	28	26	29	27	29	28	27	27	26
10	12	14	14	15	14	15	16	16	17	18	16	17	13	16
5	11	11	12	11	12	11	12	12	13	13	12	13	11	14
<i>n</i>	151	201	101	142	87	164	61	70	64	80	35	48	29	58

Note: Ages are those shown plus up to six months.

Table 3

Standard Progressive Matrices

Smoothed 2006 Norms for Indian Tribal Data

In the Context of 1997 Norms for Pune and Mumbai (Bombay), India.

Percentile	Age in Years										
	8	8.5	9	9	9.5	10	10	10.5	11	11	11.5
	P&M	TR	P&M	TR	TR	P&M	TR	TR	P&M	TR	TR
95	39	34	44	36	37	46	38	39	49	39	39
90	36	30	41	31	33	43	34	34	46	35	36
75	31	21	34	22	23	37	24	24	41	25	28
50	19	15	21	15	16	28	16	16	33	17	19
25	13	12	13	12	12	17	12	12	22	12	13
10	11	9	11	10	10	12	10	10	14	10	10
5	10	8	10	8	8	11	8	8	12	8	8
<i>n</i>	100	39	592	84	206	1104	245	309	1189	245	361

Percentile	12	12	12.5	13	13	13.5	14	14	14.5	15	15
	P&M	TR	TR	P&M	TR	TR	P&M	TR	TR	P&M	TR
	95	52	40	41	53	43	44	54	45	46	55
90	49	38	39	51	40	41	52	42	43	53	44
75	45	31	33	47	34	35	48	36	37	49	37
50	39	20	22	41	23	24	43	26	27	44	29
25	30	13	13	33	13	14	36	15	15	38	17
10	18	10	10	23	10	10	27	11	11	29	12
5	14	8	8	17	8	9	20	9	9	24	10
<i>n</i>	1293	284	426	1310	320	463	1344	287	449	1108	341

Percentile	15.5	16	16	16.5	17	17	17.5	18	18	18.5	19
	TR	P&M	TR	TR	P&M	TR	TR	P&M	TR	TR	TR
	95	48	56	49	49	56	49	48	55	48	47
90	45	54	46	46	54	46	45	53	45	45	44
75	39	50	40	40	50	41	41	49	41	41	40
50	30	45	32	33	45	34	35	44	35	35	34
25	19	39	20	22	39	24	26	37	28	29	28
10	12	31	12	13	31	14	15	30	16	17	16
5	10	23	11	11	26	11	11	25	12	13	12
<i>n</i>	479	1192	262	352	769	243	251	287	131	144	83

Note: TR ages are those shown plus up to six months.

Table 4

Standard Progressive Matrices

Smoothed 2006 Norms for Indian Tribal Data in the Context of 1979 British Data

		Age in Years										
		8	8.5	8.5	9	9	9.5	9.5	10	10	10.5	10.5
Percentile		7(9) to 8(2)	8(3) to 8(8)		8(9) to 9(2)		9(3) to 9(8)		9(9) to 10(2)		10(3) to 10(8)	
		UK	UK	TR	UK	TR	UK	TR	UK	TR	UK	TR
95		40	42	34	44	36	46	37	48	38	49	39
90		38	40	30	42	31	44	33	46	34	47	34
75		33	36	21	38	22	41	23	42	24	43	24
50		25	31	15	33	15	36	16	38	16	39	16
25		17	22	12	25	12	28	12	32	12	33	12
10		14	16	9	17	10	19	10	23	10	27	10
5		12	13	8	14	8	15	8	17	8	22	8
<i>n</i>		174	153	39	166	84	198	206	172	245	194	309

		11	11	11.5	11.5	12	12	12.5	12.5	13	13	13.5
Percentile		10(9) to 11(2)		11(3) to 11(8)		11(9) to 12(2)		12(3) to 12(8)		12(9) to 13(2)		13(3) to 13(8)
		UK	TR	UK	TR	UK	TR	UK	TR	UK	TR	UK
95		50	39	51	39	52	40	53	41	54	43	54
90		48	35	49	36	50	38	51	39	52	40	53
75		44	25	45	28	46	31	47	33	49	34	49
50		40	17	41	19	41	20	42	22	43	23	44
25		34	12	36	13	37	13	38	13	39	13	41
10		29	10	31	10	31	10	32	10	33	10	35
5		24	8	25	8	26	8	27	8	28	8	29
<i>n</i>		187	245	164	361	164	284	174	426	185	320	180

		13.5	14	14	14.5	14.5	15	15	15.5	15.5	16	16.5
Percentile			13(9) to 14(2)		14(3) to 14(8)		14(9) to 15(2)		15(3) to 15(8)			
		TR	UK	TR	UK	TR	UK	TR	UK	TR	TR	TR
95		44	55	45	56	46	57	47	57	48	49	49
90		41	54	42	54	43	55	44	55	45	46	46
75		35	50	36	50	37	51	37	51	39	40	40
50		24	45	26	46	27	47	29	47	30	32	33
25		14	42	15	42	15	42	17	42	19	20	22
10		10	36	11	36	11	36	12	36	12	12	13
5		9	30	9	33	9	33	10	33	10	11	11
<i>n</i>		463	196	287	189	449	191	341	171	479	262	352

Table 4 cont.

Percentile	17	17.5	18	18.5	19	19.5
	TR	TR	TR	TR	TR	TR
95	49	48	48	47	46	46
90	46	45	45	45	44	44
75	41	41	41	41	40	39
50	34	35	35	35	34	33
25	24	26	28	29	28	27
10	14	15	16	17	16	15
5	11	11	12	13	12	12
<i>n</i>	243	251	131	144	83	87

Note: TR ages are those shown plus up to six months.