

AN EXPLORATORY STUDY OF PREVALENCE OF MENTAL RETARDATION IN MYSORE CITY

J. BHARATH RAJ

Introduction

It is recognised long since that mental retardation is one of serious afflictions of mankind, in terms of its magnitude and dire consequences to the sufferer, his family and the society in which he lives. As elsewhere, this clinical condition remained outside the centre of interest, both for the professionals and the public in our country also. An awareness has now come among the related professional people to make a serious study of it, in all its ramifications. There has been of late, an increasing participation of various professional groups as Psychologists, Psychiatrists, Educationists, Paediatricians and Social Workers. The growing importance of this field is evidenced by the coming into being of an All India Association of Mental Retardation (A.I.A.M.R.) and the All India level conferences it successfully organised at Chandigarh in 1965, 1967 and at New Delhi in 1966, and the Indian Journal of Mental Retardation whose first volume appeared in 1968.

Of primary importance in such an area would be to gauge the magnitude of the problem, as many issues related to clinical service facilities are dependent upon it. But we have not counted heads. There has not been any comprehensive national survey to point out the prevalence rate. We seem to keep ourselves satisfied by quoting the incidence rates of foreign countries and surmising that the picture in our country would not be far different. At times we have underrated the estimates. The Department of Social Welfare, Government of India, for instance believes that the figure may fall within the range of .4 million to 1.8 million. Dr J. C. Marfatia says, 'It is said, there is one child in every hundred born that shows mental retardation at some period or another of his life' (Marfatia; 1968). Dr B. Kuppuswamy from one of his surveys in Mysore City, comprising of nearly 1000 students of middle schools who were tried on a group test of Intelligence from among whom the lowest 5 per cent (N=39) were tried on individual tests, gives a prevalence rate of 1.41 per cent (B. Kuppuswamy; 1968).

Foreign Estimates: The estimates given from foreign countries vary widely depending on the precise definition and criteria of mental retardation used by them.

Mr J. Bharath Raj is Reader and Head, Department of Psychology at the A.I.I.S.H.

Dutch estimates based on eight large cities give a mean rate of 2.6 per cent; Depending upon age, French estimates are supposed to range from 1.5 per cent to 8.6 per cent; Provision is made in English educational practice, for 1 per cent of school children in special schools, and a further 8 per cent or 9 per cent are considered to require special educational provision within the ordinary school system (W.H.O.; 1954).

Based on sixty studies conducted between 1894-1958 in U.S., Wallin states that the estimates range from 0.05 to 13 per cent of the population (Wallin; 1958).

Robinson and Robinson observe, 'If. .. we follow the suggestion of the AAMD and consider as mentally subnormal all children and adults whose intellectual ability is at least one Standard Deviation below the Mean, the incidence of such persons in the U.S. alone would be approximately 31,000,000'. (This amounts to roughly 17 per cent of the general population, Robinson and Robinson; 1965.)

Criterion followed: It must be remembered that these estimates from the W.H.O. Report deal only with relatively similar cultures as in northwestern Europe, Britain and the U.S. But in a vastly heterogenous cultural set up as India, the rates should be presumably much higher.

Although there is controversy about the criterion for identifying mental retardation, from the point of view of simplicity and practicability, the criterion of test performance is very suitable. The other criteria of social adaptability, capacity for self dependence etc., are fraught with other problems which make identification still more difficult. Except for the borderline range, the criterion of testing would give us fairly accurate results.

In the present study this is the criterion that is essentially followed. The S.R.S. authorities of the U.S.A. sanctioned a research project under the grant, S.R.S.-IND-38-68 with the principal objective: 'To Develop and Establish a Pattern of Rehabilitation Services that will provide the Most Effective Management of Patients with Hearing and Speech Disorders in the Shortest Period of Time'. This project was started at the All India Institute of Speech and Hearing, Mysore in August 1967 and is still in progress.

As a part of this project a full fledged screening programme of school going children is being carried out. Each child is tested for hearing loss, speech defects and intelligence. This study would help us evaluate the prevalence of speech handicaps, hearing defects and mental retardation among school going children in Mysore city. The results will be of considerable value in our counselling and rehabilitation measures.

The Method

At our request the Deputy Director of Public Instruction, Dept. of Education, Mysore was kind enough to provide us with a list of all schools, nursery, primary, middle and high schools in Mysore city. Letters were then sent requesting the principals of schools, emphasizing the importance of early identification of

hearing loss, speech defects and educational backwardness and soliciting their co-operation in the screening programme. The response from the school authorities was quite encouraging. Children were brought in manageable groups of 25-60 from school after school and evaluations were done in the morning hours between 10 a.m. to 1 p.m. as the children would be fresh. Each child was taken to the Audiology, Speech and Psychology departments where the child was evaluated for hearing, speech and intelligence. After screening, the principals were informed of the results with a request to send the children who failed on any or all of these evaluations back to the institute for a further detailed evaluation. So far in our screening programme, a total of 13 schools have been covered and the results have been analysed. An advantage in the study would be that along with the prevalence figures for hearing defects speech defects and intellectual defects, it would be possible to study how they are interrelated.

In evaluating the Intelligence of children only one test, the Seguin Form Board was used. To meet the exigencies of testing fairly large groups of children in relatively short duration of time, this was thought most feasible. Moreover the results from an earlier study (Bharath Raj; 1968) had pointed out the close approximation of the Indian norms on this test with the western norms. Nowhere the difference between the two groups at the various age levels between 5 to 15 years had exceeded, 2 seconds, although at most levels this was in favour of the western children. For tables please refer to this author's article 'AIISH Norms on Seguin Form Board' in this Journal.

Each child was tried on the Seguin Form Board in separate rooms of the Psychology department. The usual procedures of administration were followed and the western norms were used to derive the MA's of children. The western norms were used for the advantage of converting to MA's from 1/2 year chronological age levels. These were converted into IQ's based upon the chronological ages of children supplied by the school authorities. The interpretations of the levels of intelligence were made according to IQ ranges as given below.

<i>I.Q. Ranges</i>	<i>Interpretation</i>
I.Q.'s above 120	Intellectually Superior
110-120	Definitely Above Average
90-109	Average Intelligence
70-89	Below Average
less than 70	Subnormal
Those who could not perform on the test	Failed

A copy of the results with interpretation of intellectual level for each child was sent to the principals.

Results and Discussion

A total of 13 schools, Nursery, Primary and Middle were covered in the screening procedure. Data regarding the number of children tested falling under the various age ranges from various schools has been presented in Table 1.

Added to this are the data derived from 1049 children collected during the **Dasara** Exhibition which formed a fairly random sample. In all, testing had been carried out on 4218 cases.

TABLE 1
Description of various schools {groups} covered in Mysore City

Sl. No.	Name or the group	Age-ranges tested					Total
		3-5	6-8	9-11	12-14	15-17	
1.	Exhibition Data	32	223	367	383	44	1049
2.	Govt. Girls Middle School	...	55	137	46	3	241
3.	Govt. Higher Primary School	5	78	82	29	2	196
4.	Sadvidya Anglo-Sanskrit Patasala	6	56	85	12	..	159
5.	Christ The King Convent	2	84	32	...		118
6.	Maharani's New Type Middle School		74	59	6	..	139
7.	Avila Convent	14	180	73	...		267
8.	St. Philomena's Kannada Girls School		138	124	9		271
9.	St. Joseph's Primary School	50	179	171	20	.	420
10.	St. Mary's Primary School	18	133	93	12	..	256
11.	St. Mary's School (Tilak Nagar)	100	214	131	16	...	461
12.	Lower Mixed Primary School, Laxmipuram	7	157	72	1	1	238
13.	Govt. Lower New Primary Girls School, Mandipet	16	125	78	3	...	222
14.	Govt. Higher Primary Boys School, Mandipet	...	104	70	7	...	181
	Total	250	1800	1574	544	50	4218

The following table (Table 2) shows the age ranges covered from the various schools and from the Exhibition data.

TABLE 2

	Age range covered
1. Exhibition Data	5—15 years
2. Govt. Girls Middle School, Old Agrahara, Mysore	7—15 yrs
3. Govt. Higher Primary School, (Railway Workshop)	5—15 yrs
4. Sadvidya Anglo-Sanskrit Patasala	5—14 yrs
5. Christ The King Convent	5—11 yrs
6. Maharani's New Type Middle School	7—14 yrs
7. Avila Convent	5—11 yrs
8. St. Philomena's Kannada Girls' School	6—12 yrs
9. St. Joseph's Boys' Primary School	4—14 yrs
10. St. Mary's Primary Boys' School	5—13 yrs
11. St. Mary's School, Wesley Road (Tilak Nagar)	3—14 yrs
12. Lower Mixed Primary School, Laxmipuram	5—15 yrs
13. Govt. Lower New Primary Girls' School, Mandipet	5—12 yrs
14. Govt. Higher Primary Boys' School, Mandipet	6—12 yrs

Later, frequency distributions for the I.Q. ranges suggested below were dwtnw for each school. The data with the group Means and Standard Deviations are presented in the following Tables. This classification system has been very close to the one suggested by the AAMD.

I.Q. Ranges

Above 144 I.Q.	Intellectually Superior
130 I.Q. to 144 I.Q. }	Definitely Above Average
115 I.Q. to 129 I.Q.	Average Intelligence
85 I.Q. to 114 I.Q.	Borderline defective
70 I.Q. to 84 I.Q.	Moderately retarded
55 I.Q. to 69 I.Q.	
40 I.Q. to 54 I.Q. }	
25 I.Q. to 39 I.Q.	Severely retarded
Below 25 I.Q. }	

TABLE 3

Exhibition Data

(N=1049)

	<i>f</i>
145 and above	18
130—144	59
115—129	100
85—114	603
70—84	201
55—69	59
40—54	8
25—39	1
	1049
Mean=96.95	
SD=18.15	

TABLE 5

**Govt. Higher Primary School
(Railway Workshop)**

(N=186)

	<i>f</i>
145 and above	0
130—144	2
115—129	5
85—114	98
70—84	51
55—69	26
40—54	2
25—39	2
	186
Mean=87.80	
SD=17.40	

TABLE 4

Gort. Girls Middle School: Old Agrahara

(N=240)

	<i>f</i>
145 and above	1
130—144	6
115—129	24
85—114	137
70—84	47
55—69	18
40—54	6
25—39	1
	240
Mean=94.10	
SD=19.05	

TABLE 6

Sadvidya Anglo Sanskrit Patasala

(N=151)

	<i>f</i>
145 and above	0
130—144	0
115—129	4
85—114	70
70—84	47
55—69	24
40—54	5
25—39	1
	151
>Mean=84.95	
SD=16.65	

TABLE 7

Christ The King Convent

(N=115)

	<i>f</i>
145 and above	0
130—144	2
115—129	12
85—114	58
70—84	30
55—69	13
40—54	0
25—39	0
	115

Mean=92.30
SD=18.00

TABLE 10

St Philomena's Kannada Girls' School

(N=262)

	<i>f</i>
145 and above	4
130—144	11
115—129	23
85—114	132
70—84	58
55—69	25
40—54	9
25—39	0
	262

Mean=93.50
SD=21.25

TABLE 8

Maharani's New Type Middle School

(N=136)

	<i>f</i>
145 and above	0
130—144	0
115—129	4
85—114	48
70—84	45
55—69	31
40—54	8
25—39	0
	136

Mean=81.05
SD=18.00

TABLE 11

St Joseph's Boys' Primary School

(N=402)

	<i>f</i>
Above 144	6
130—144	15
115—129	41
85—114	214
70—84	80
55—69	41
40—54	5
25—39	0
	402

Mean=95.00
SD=20.10.

(TABLE 9 T A B L E 1 2)

Avila Convent

	<i>f</i>
145 and above	2
130—144	9
115—129	26
85—114	146
70—84	52
55—69	20
40—54	3
25—39	0
	258

Mean=95.45
SD=18.60

st Mary's Primary Boys' School

(N=246)

	<i>f</i>
Above 144	5
130—144	7
115—129	30
85—114	151
70—84	36
55—69	17
40—54	0
25—39	0
	246

Mean=97.45
SD=18.00

TABLE 13 St Mary's School, Wesley Road (Tilaknagar)		TABLE 15 Govt. Lower New Primary Girls' School: Mandipet	
(N=431)		(N=197)	
	<i>f</i>		<i>f</i>
145 and above		145 and above	
130—144	13	130—144	0
115—129	31	115—129	7
85—114	55	85—114	8
70—84	243	70—84	100
55—69	69	55—69	59
40—54	18	40—54	19
25—39	2	25—39	3
	0		1
	-		197
Mean=101.30	431	Mean=90.35	
SD=19.95		SD = 18.45	

TABLE 14 Lower Mixed Primary School: Laxmipuram (N=223) Mandipet (N=170) :		TABLE 16 Govt. Higher Primary Boys' School:	
	<i>f</i>		<i>f</i>
145 and above	0	145 and above	1
130—144	1	130—144	7
115—129	15	115—129	- 11 ,
85—114	102	85—114	71
70—84	68	70—84	46
55—69	30	55—69	19
40—54	7	40—54	13
25—39	0	25—39	2
	223		170
Mean=87.65		Mean=87.65 .	
SD=18.15		SD=22.95	

The following table presents the frequency distribution of I.Q.'s for the entire group tested, including the Exhibition Data. The Mean for the group turned out to be 94.28 I.Q. and the Standard Deviation, 19.95 I.Q.

TABLE 17
Frequency Distribution of I.Q.'s for the Total Group

Above 144	/
130—144	50
115—129	157
85—114	358
70—84	2173
55—69	889
40—54	360
25—39	71
	8
	N=4066
Mean=94.28	
SD=19.95	

The summary table that follows presents the group-wise distribution of I.Q.'s, along with percentages at each range.

TABLE 18

I.Q's	Groups														%	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14		
Above 144	18	1	_____				2	4	ft	5	13			1	50	1.19
130-144	59	6	2		2		9	11	15	7	31	1	7	7	157	3.72
115-129	100	24	5	4	12	4	26	23	41	30	55	15	8	11	358	8.49
85-114	603	137	98	70	58	48	146	132	214	151	243	102	100	71	2173	51.50
70-84	201	47	51	47	30	45	52	58	80	36	69	68	59	46	889	21.07
55-69	59	18	26	24	13	31	20	25	41	17	18	30	19	19	360	8.54
40-54	8	6	2	5		8	3	9	5		2	7	3	13	71	1.69
25-39	1	1	?	1	_____								1	?	8	0.19
Total (N)	1049	240	186	151	115	136	258	262	402	246	431	223	197	170	4066	
Below 25 (failures)	...	1	10	8	3	3	9	9	18	10	30	15	25	11	152	3.61
Grand total	1049	241	196	159	118	139	267	271	420	256	461	238	222	181	4218	...

1* Exhibition Data

2* Govt. Girls' Middle School, old Agrahara

3* Govt. Higher Primary School, Railway Workshop Colony

4* Sadvidya Anglo-Sanskrit Patasaja

5* Christ the King Convent

6* Maharani's New Type Middle School

7* Avila Convent

8* St. Philomena's Girls' School

9* St. Joseph's Boys' Primary School

10* St. Mary's Boys' Primary School

11* St. Mary's School, Wesley Road, Tilak-nagar

12* Lower Mixed Primary School, Laxmi-puram

13* Govt. Lower New Primary Girls' School, Mandipet

14* Govt. Higher Primary Boys' School, Mandipet

Almost in every case normality of the distribution of scores around the central high point can be seen, with a general tendency in the scores being pulled towards the lower part of the distribution. Except for this, there is good representation of scores in the upper end of the distribution.

It is a general experience in clinical practice, that Indian children find the Western Intelligence tests somewhat difficult. This is easily recognised when we try them on tests like the Wechsler-Bellevue, the Alexander's Battery or other performance tests of Intelligence. This tendency is obviously reflected in the somewhat lower estimates of I.Q.'s that we obtain, which may be very true even on the Seguin Form Board. We should interpret the Mean I.Q. of 94 for the total group in this light.

In fact in one of the earlier studies (Bharath Raj; 1968), it was noted that at almost each age level (from 5 yrs to 15 yrs), the Indian children were slower than the Western children, on the Seguin Form Board, the maximum difference being

2 seconds, in favour of Western children. Non-familiarity on the part of Indian children with similar materials might have resulted in the increased time scores and consequently this might have affected a slightly reduced mental age and I.Q.

The Standard Deviation value of 19.95 or approximately 20, should be considered as fairly high, when compared with foreign estimates. It is questionable whether we should consider this high, in the light of vast heterogeneity in terms of the socio-economic conditions prevalent in India. Variations in the background of children in terms of caste, parental education, parental income, size of family etc., are tremendous. This should obviously make room for greater variability. It is also our impression that for several of these children tested, it was not possible to obtain the true chronological age. The age list provided by the school authorities was taken in the estimation of I.Q.s. This may as well be the reason for the many failures, accounting almost for 3.61 per cent of the total group. From each school, at least there were a few children, who could not complete the test or who did not co-operate. Quite a few children among them could have been around the age of 3 years. All these factors could have possibly affected the variability and the downward pull of scores.

If we now set forth that the Mean I.Q. of the tested population is 94 with a Standard Deviation of 20 I.Q., the range, $M \pm 1 SD$ would cover the average level of intelligence, i.e., I.Q.s from 75 to 114. The following table shows the school-wise distribution of children within the normal range of intelligence. The total 2115 works out to 70.1 per cent of the total population tested. The serial numbers 1 to 13 stand for the names of schools specified under Table 20.

TABLE 19

Showing School-wise distribution of children within the normal range

IQ	1	2	3	4	5	6	7	8	9	10	11	12	13	Total	% of N
75-114	175	135	109	94	76	183	178	273	183	298	159	145	107	2115	70.1

Further, presuming that all those children obtaining I.Q.s behind the limit of $M-1 SD$, i.e., those with I.Q.s 74 and less, to be retarded the following system for interpretation of various levels of retardation in terms of extent of deviation from the Mean in units of Standard Deviation can be worked out.

$M=94$ I.Q.; $SD=20$ I.Q.

<i>Description of Retardation</i>	<i>Range of SD covered</i>	<i>Corresponding range in I.Q. values</i>
Mild Retardation	$-1 SD$ to $-2 SD$	55 I.Q. — 74 I.Q.
Moderate Retardation	$-2SD$ to $-3 SD$	35 I.Q. — 54 I.Q.
Severe Retardation	$-3SD$ to $-4 SD$	15 I.Q. — 34 I.Q.

The following table shows school-wise distribution of children, under the above specified ranges of retardation. School-wise percentage of retardation and range-wise retardation are also worked out.

TABLE 20

Showing school-wise and range-wise distribution of children

I.Q. Range	1 N=240	2 N=186	3 N=181	4 N=115	5 N=136	6 N=258	7 N=262	8 N=402	N=246	10 N=431	11 N=223	12 N=197	13 N=170	Total N=3017	%
55-74	27	40	32	7	48	35	37	62	21	32	41	33	29	444	14.7
35-54	7	3	5	...	8	3	9	5		2	6	4	14	66	2.2
15-34	•	1	1										1	3	0.1
Total	34	44	38	7	56	38	46	67	21	34	47	37	44	513	17.0
% of Nof respective schools	14.2	23.7	25.1	6.1	41.2	14.7	17.5	16.7	8.5	7.9	21.0	18.8	25.9	17.0	

1. Govt. Girls' Middle School, Old Agrahara
2. Govt. Higher Primary School, Railway Work-shop
3. Sadvidya Anglo-Sanskrit Patasala
4. Christ the King Convent
5. Maharani's New Type Middle School
6. Avila Convent
7. St. Philomena's Girls' School
8. St. Joseph's Boys' Primary School
9. St. Mary's Boys' Primary School
10. St. Mary's School, Wesley Road, Tilaknagar
11. Lower Mixed Primary School, Laxmipuram
12. Govt. Lower New Primary Girls' School, Mandipet
13. Govt. Higher Primary Boys' School, Mandipet

The relatively higher percentage prevalence figures may be because of the many factors cited above. In addition to these, it is well known that in our educational set up, no stringent methods of selection are followed so that quite a few retarded children do find admission to schools. Perhaps the private educational institutions may be an exception to this. This is clearly revealed in Table 20 in percentage prevalence. The Government schools have more retarded children than the private.

It is realised, that reliance has been exclusively placed on this single test, the Seguin Form Board, to assess mental development. But in such circumstances where a large number of children are to be screened in relatively short time there is no other go. It is most probable that the obtained high figures on the prevalence of mental retardation would be due to this and a number of other reasons as those given above. In spite of all this, it should be surmised that the actual prevalence is much higher than the figures that we knew of from previous studies in our country and perhaps they are not far too low than what has been found in this study.

[This research was carried out under Project VRA. IND. 38-68 at the A.I.I.-S.H. Mysore.]

REFERENCES

- Bharath Raj, J. (1968) A.I.I.S.H. Norms on Seguin Form Board with Indian children—Seventh Annual Conference of Indian Academy of Applied Psychology, Mysore, December 1968.
- Kuppuswamy, Dr B. (1968) A Survey of Mental Retardation Among children Enrolled in Middle Schools of Mysore City in (1968) *Indian J. of Mental Retardation*, Vol. 1, No. 1.
- Marfatia, J. C. (1968) Mental Health Services, in *Encyclopaedia of Social work*.
- Robinson, H.B. and Robinson, N.M. (1965) *The Mentally Retarded child—A Psychological Approach*, New York, McGraw Hill. Inc.
- Wallin (1958) in Robinson, H. B. and Robinson, N. M. (1965) *Ibid*.
- World Health Organisation (1954) Committee of the W.H.O. Report—in *Ibid*.