

# Pattern of Mental Retardation (Intellectual Disability) in the Mentally Challenged School in Rural Maharashtra

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## Abstract

**Background:** mental retardation is a generalized disorder, characterized by significantly impaired cognitive functioning and deficits in two or more adaptive behaviors with onset before the age of 18 yrs. The mental health of the child affects his physical health and the learning process. **Objectives:** to study the pattern of mental retardation among mentally retarded children in rural maharashtra. **Material & methods:** the present study was conducted on 232 mentally retarded children in school for mentally challenged. A detailed study of their health status and etiological factors was recorded on a pre-designed and pre-tested proforma. **Setting:** school for mentally challenged at sangamner, nasik district in rural maharashtra. **Study design:** cross sectional study. **Statistical analysis:** spss statistical software. **Results:** majority (68.0%) of mentally retarded children were in from the age group 5-9 years. Most (43.0%) of the children had moderate retardation. Down's syndrome was the commonest clinical syndrome (17.23%) associated with mental retardation. 60.35% children were off springs of consanguineous marriages. Most causes for mental retardation, were unknown or idiopathic (63.8%) and genetic (29.31%). **Conclusion:** there is need for genetic, premarital counseling and forensic psychiatry to limit problem due to mental retardation.

**Key words:** Mentally retarded child, consanguineous marriage, intellectual disability, juvenile delinquency

## Introduction

The term "mental retardation" is a diagnostic term denoting the group of disconnected categories of mental functioning such as "idiot", "imbecile", and "moron" derived from early iq tests, which acquired pejorative connotations in popular discourse. Mental retardation (mr) is defined as sub-average general intellectual functioning, which originated during developmental period and is associated with impairment in adaptive behaviour. Mental handicap is a condition of sub-average

intellectual function combined with deficits in adaptive behaviour.

persons with less than average mental ability or intelligence are called mentally challenged<sup>1</sup>. Nearly 83 million of the world's population is estimated to be mentally challenged, with 41 million having long-term or permanent disability. It ranks fourth in the list of leading causes of disability<sup>2</sup>. Terms which were previously used such as idiot, moron and imbecile are now discarded. At least 2 per cent of india's population is said to be suffering from some kind of mental disability. Mentally challenged may occur as part of a syndrome or broader disorder but is most commonly an isolated finding<sup>3</sup>.

The burden of mentally retarded children is one of the most frequently encountered, and most distressing, disabilities among

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children in most industrialized<sup>4</sup> and developing countries<sup>5</sup> world-wide. It is more common in developing countries because of the higher incidence of injuries and anoxia around birth, and early childhood brain infections. Population studies have shown that overall prevalence of mild to severe mental retardation from 2.5 to 5 per thousand. Genetic contribution to this group accounts for 15-30%<sup>6</sup>. Mental health services in india have shown a tremendous improvement, especially during the last two decades. However there are some isolated reports of people with mental health disorders having been exposed to a wide range of human rights violations. Several reports have identified gross inadequacies in the current mental health legislation and judicial apathy. Individuals with mental health problems or developmental disability are supervised in the community by forensic teams containing a variety of professionals, including psychiatrists, psychologists, nurses and health care workers<sup>7</sup>.

#### Material and methods

The present cross sectional study was conducted at school for mentally challenged at sangamner taluka, nasik district in rural maharashtra. The study was carried out at rural medical college, pims, loni. All the children enrolled in the school were males as per the policy of school to admit only male children in residential school. After consent from school authorities and with help from school teachers a total of 232 mentally challenged children were interviewed and examined. The intelligence quotient (IQ) level was assessed by using who<sup>8</sup> recommended latest methods protocol of the diagnostic and statistical manual of mental disorders (DSM-IV)<sup>9</sup>. Three criteria must be met for diagnosis of mental retardation i.e. An iq below 70, significant limitations in two or more areas of adaptive behavior (as measured by an adaptive behavior rating scale, i.e. Communication, self-help skills, interpersonal skills, and more), and evidence that the limitations became apparent before the age of 18 years. It is formally diagnosed by professional assessment of intelligence

and adaptive behavior. The following ranges, based on standard scores of intelligence tests, reflect the categories of the american association of mental retardation, the diagnostic & statistical manual of mental disorders-iv-tr, and the international classification of diseases-10:

Class	Intelligence Quotient
Profound mental retardation	Below 20
Severe mental retardation	20-34
Moderate mental retardation	35-49
Mild mental retardation	50-69
Borderline intellectual functioning	70-80

The data collection was done from (a) the record files in school, b) general health check-up of children and (c) interview method. The study period was from march 2008 to november 2008. All the relevant information was collected on a pre-designed and pre-tested proforma. The data was tabulated and analyzed using spss statistical software.

#### Observations

In the present cross-sectional study the age range of mentally challenged children was from 0 to 19 years. Most children were from the age group 5-9 years (68.0%) followed by age group 10-14 years (27.6%) (table-1).

**Table 1. Age wise distribution of mentally challenged children**

Age (years)	Number	Percentage (%)
0-4	4	1.72
5-9	160	68.0
10-14	64	27.6
15-19	4	1.72
<b>Total</b>	<b>232</b>	<b>100.0</b>

The intelligence quotient (IQ) of mentally retarded children as per WHO and diagnostic and statistical manual of mental disorders (DSM-IV) criteria revealed that the majority

of children (43.0%) suffered from moderate retardation, followed by mild (36.0%) and severe (21.0%) mental retardation. None had profound retardation (table-2).

**Table 2. Distribution of mentally challenged children according to intelligence quotient (IQ) as per WHO criteria**

<b>Grading (as per WHO criteria)</b>	<b>Number</b>	<b>Percentage (%)</b>
Normal (IQ >70)	0	0.0
Mild retardation (IQ 50-69)	84	36.0
Moderate retardation (IQ 35-49)	100	43.0
Severe retardation (IQ 20-34)	48	21.0
Profound (IQ <20)	0	0.0
<b>Total</b>	<b>232</b>	<b>100.0</b>

In majority of mentally challenged children (70.68%) there was no obvious clinical syndrome was present; it was followed by down's syndrome (17.23%) and fragile x syndrome (6.89%). In a good number of children amongst mentally retarded with mild (96.42%) and moderate (78.0%) without

any clinical syndrome. Down's syndrome was the most common clinical syndrome observed amongst 41.66% having severe and 18.0% moderate mental retardation. Microcephaly, autism, and hydrocephalus are observed amongst children of severe mental retardation (table-3).

**Table 3. Association of clinical syndromes and grade of mental retardation in mentally challenged children.**

Clinical syndromes	Mild Intelligence Quotient (50-70)		Moderate Intelligence Quotient (35-49)		Severe Intelligence Quotient (20-34)		Total	
	No.	%	No.	%	No.	%	No.	%
No syndrome present	81	96.42	78	78.0	5	10.42	164	70.68
Down's syndrome	2	2.38	18	18.0	20	41.66	40	17.23
Fragile X syndrome	1	1.19	2	2.0	13	27.08	16	6.89
Microcephaly	0	0.0	1	1.0	3	6.25	4	1.72
Autism	0	0.0	1	1.0	3	6.25	4	1.72
Hydrocephalus	0	0.0	0	0.0	4	8.33	4	1.72
<b>Total</b>	<b>84</b>	<b>100.0</b>	<b>100</b>	<b>100.0</b>	<b>48</b>	<b>100.0</b>	<b>232</b>	<b>100.0</b>

It observed that the 60.35% mentally challenged children were off springs of consanguineous marriages and amongst them 84.0% had moderate and 91.6% severe

mental retardation as per their iq status. The association between type of marriage and IQ status of children was statistically highly significant ( $p < 0.001$ ) (table 4).

**Table 4. Association of type of marriage of parents and grade of mental retardation in mentally challenged children**

Type of marriage of parents of children	Mild Intelligence Quotient (50-70)		Moderate Intelligence Quotient (35-49)		Severe Intelligence Quotient (20-34)		Total	
	No.	%	No.	%	No.	%	No.	%
Consanguineous	12	14.28	84	84.0	44	91.6	140	60.35
Non-consanguineous	64	85.72	16	16.0	4	8.4	92	39.65
<b>Total</b>	<b>84</b>	<b>100.0</b>	<b>100</b>	<b>100.0</b>	<b>48</b>	<b>100.0</b>	<b>232</b>	<b>100.0</b>

Chi-square test;  $p = 0.000$  (highly significant)

In 63.8% children causes for mental retardation were unknown or idiopathic and majority (91.0%) had mild retardation. In 29.3% children, genetic factors were

responsible for mental retardation and majority (42.0%) of them had severe mental retardation (table 5).

**Table 5. Distribution of mentally challenged children according to etiological factors and grade of mental retardation**

Etiological factor	Mild Intelligence Quotient (50-70)		Moderate Intelligence Quotient (35-49)		Severe Intelligence Quotient (20-34)		Total	
	No.	%	No.	%	No.	%	No.	%
Idiopathic	76	91.0	56	56.0	16	34.0	148	63.8
Genetic	8	9.0	40	40.0	20	42.0	68	29.31
Drugs	0	0.0	0	0.0	4	8.0	4	1.72
Rh incompatibility	0	0.0	0	0.0	4	8.0	4	1.72
Pre-term	0	0.0	4	4.0	0	0.0	4	1.72
Head injury	0	0.0	0	0.0	4	8.0	4	1.72
<b>Total</b>	<b>84</b>	<b>100.0</b>	<b>100</b>	<b>100.0</b>	<b>48</b>	<b>100.0</b>	<b>232</b>	<b>100.0</b>

chi-square test;  $p = 0.000$  (highly significant)

## Discussion

In the present study of mentally retarded children in school for mentally challenged in rural population of maharashtra, majority of children (68.0%) were in the age group 5-9 years. In recent times there has been an increasing focus on gender differences in studying the prevalence, causation and course of mental and behavioural disorders. Eyman RK et al<sup>10</sup> in his study revealed that the overall prevalence of mental and behavioural disorders was not different between men and women<sup>10</sup>.

Majority of children had moderate (43.0%) retardation, followed by mild (36.0%) and severe (21.0%) retardation. Most children with mild retardation were free from any neurological complications, CNS malformations, and dysmorphisms. In most mentally challenged children (70.68%) no clinical syndrome was present, followed by down's syndrome (17.23%) and fragile x syndrome (6.89%). The number of associated disorders appears to increase with increase in severity of mental retardation. Among mentally challenged children the prenatal causes include congenital infections such as cytomegalovirus, toxoplasmosis, rubella and chromosomal anomalies like down's syndrome<sup>11</sup>. Chromosomal aberrations and simple mendelian traits account for about 20%, polygenic traits for 10%, environmental factors contribute only 5% and remaining 65% are either controversial or unknown<sup>12</sup>.

The findings of the present study showed that the 60.35% mentally challenged children were off springs of consanguineous marriages and amongst them 91.6 % children had severe, 84.0% moderate and 14.28% mild mental retardation. It clearly shows that there is a significant association between consanguineous marriages of parents and increasing severity of mental retardation in children. Also the association between type of marriage and severity of mental retardation was statistically highly significant on applying chi-square test of significance ( $p < 0.001$ ). Similar findings of marriage pattern was also observed in studies among many scientists of pakistan<sup>13</sup> and showed

significant association of consanguinity and mental retardation<sup>13</sup>. The consanguineous marriages are also associated with increased risk of birth defects and infant mortality<sup>14</sup>. In the study of Phalke et al<sup>15</sup> in Sangli District of western Maharashtra reported that the consanguinity was present in 20.14% cases among institutionalized mentally challenged children. The findings of the present study showed that causes for mental retardation in majority children were idiopathic (63.8%) majority (91.0%) of them had mild mental retardation. While in 29.3% children where genetic factors were responsible for mental retardation and majority (42.0%) of them had severe mental retardation. Similar findings were reported by McLaren and Bryson<sup>16</sup> that the 30 to 40% mentally retarded children where the causes for mental retardation was unknown or idiopathic.

### Forensic aspects of child mental retardation

Clinical psychological practitioners conduct evaluations based on referrals regarding clinical as well as legal questions. There are many similarities between the clinical and forensic psychological evaluation of a child. In both types of evaluations, the neuropsychological test findings are interpreted in light of multiple. Children with mental retardation may exhibit behavior that shows a persistent disregard for the norms and rules of society. Conduct disorder is one of the most frequently seen mental disorders in adolescents. Because the symptoms are closely tied to socially unacceptable or violent behavior, many people confuse this illness with either juvenile delinquency or the turmoil of the teen years. Children who have demonstrated at least three of the following behaviors over six months should be evaluated for possible conduct disorder:

1. Stealing
2. Constantly lying
3. Deliberately setting fires
4. Skipping school
5. Breaking into homes, offices, or cars
6. Deliberately destroying others' property

7. Displaying physical cruelty to animals or humans
8. Forcing others into sexual activity
9. Often starting fights
10. Using weapons in fights

The results of Frize M et al<sup>17</sup> showed that those with an intellectual disability (ID) were found to have a higher risk of re-offending than those without an ID. Those with an ID were also more likely to be younger and indigenous. This study provided evidence that indigenous status may play a significant role in the relationship between id and offending in juvenile offenders on community orders. These findings have clear implications for the 'risk', 'needs' and 'responsivity' principles of offender classification for treatment. Emphasis is placed on the requirement for addressing the needs of indigenous juvenile offenders with an id.

### Conclusion

Mental retardation or intellectual disability (ID) is among the most difficult categories of childhood disabilities to document epidemiologically, because its causes are multi-factorial. In less developed countries, the difficulties of documenting the causes of mental retardation are compounded by lack of diagnostic services and health data. Thus, primary prevention of cognitive disabilities will require prevention of the prenatal, natal and postnatal factors, along with limitation of consanguineous marriages in our society. This study also emphasizes the role of forensic psychiatry in mental health.

### References

1. Manjunatha K.R., Chetan G.K., Arathi R, Bhaskara Rao G.V., Latha P, et al. Frequency, association and genetic implications of chromosomal fragile sites in mental retardation. *Int j. Health Geogr.* 2002; 2: 33-9.
2. Who (1985), searo; mch paper no. 5, New Delhi.
3. Donna K, Holly H, Grace E. Identification and evaluation of mental retardation. *Am FAM Physician* 2000; 61.

4. Kiely M..the prevalence of mental retardation. *Epidemiol Rev* 1998; 9:194-218.
5. Stein Z, Belmont L, Durkin M. Mild and severe mental retardation compared: experiences in eight less developed countries. *UPS J Med Sci. Suppl*, 1987; 44: 89-96.
6. Stein ZA, Susser MW. The epidemiology of mental retardation. Bristol: Wright; 1984; 21-46.
7. Current opinion in psychiatry: september 2009 - volume 22 - issue 5 - p 482-487.
8. Who (1985). Tech. Rep. Ser; Mentally Handicapped.
9. Badano, Jose L.; Norimasa Mitsuma, Phil L. Beales, nicholas katsanis. *Annual review of genomics and human genetics*; 2006; 7: 125-148.
10. Eyman RK, Grossman HJ, Chaney RH. The life expectancy of profoundly handicapped people with mental retardation. *N Engl J Med* 1990; 323:584-9.
11. Richmond JB, Butler JA, Stenmark S. 1983. Reducing childhood disability. *Hosp commun psych* 1985; 34:507-14.
12. Desai NG, Isaac M. Mental health in south-eastasia: reaching out to the community: regionalhealth forum, who south-east asia region 2001; 5.
13. Darr A, Modell B. The frequency of consanguineous marriage among british pakistanis. *J Med Genet* 1988; 25:186-90.
14. Shami SA, Schmitt LH, Bittles AH. Consanguinity related prenatal and postnatal mortality of populations of seven pakistani Punjab cities. *J. Med Genet*1989; 26:267-71.
15. D. Phalke, "study of health status of children attending school for mentally retarded in sangli district, MD Dissertation,1992, page 65-75.
16. McLaren J, Bryson SE. Review of recent epidemiological studies in mental retardation: prevalence, associated disorders, and etiology. *Am J Mental Retard* 1987; 92: 243-54.
17. Frize M, Kenny D, Lennings C. The relationshiP between intellectual disability, indigenousstatus and risk of reoffending in juvenile offenders on community orders. *J Intellect Disabil Res.* 2008 Jun; 52(pt 6):510-9. Epub 2008. Apr 14.