Original Research Paper

Volume - 7 | Issue - 5 | May - 2017 | ISSN - 2249-555X | IF : 4.894 | IC Value : 79.96

Community Medicine

A study of sociodemographic factors in relation to degree of mental retardation among children in urban tertiary care hospital.

Dr. Aftab A. Siddiqui. (Asst. Prof, Department of Community Medicine, Seth G.S Medical College, KEM Hospital, Mumbai 400012, India.)

Dr. Mandar Sadawarte. (Asst. Prof, Department of Community Medicine, Grant Govt. Medical College & Sir JJ Group of Hospitals, Mumbai 400008, India.)

Dr. Deepika Nandanwar (Asst. Prof, Department of Community Medicine, Grant Govt. Medical College & Sir JJ Group of Hospitals, Mumbai 400008, India.)

ABSTRACT **Context:** Unavailability of cure for mental retardation necessitates the importance of its prevention. Asserting multiple predisposing factors is imperative for early interventions as well as counselling done based on aetiological factors. **Aim:** To assess and compare predisposing factors with degree of mental retardation in children at Tertiary Care Hospital.
Material & methods: A total of 258 children upto 12 years of age identified as cases of developmental disability by the team were included using non-randomized sampling technique in the study. **Results & Conclusion:** Most of the mentally retarded children were males from nuclear families with low Socio-Economic status & belonged to 0-3 years of age group. Family History of MR, Epilepsy and congenital Defects was found in 22.64% cases of Serious Retardation along with birth weight less than 2000 gm. 30.2% mothers of Seriously Retarded children had History of Spontaneous Abortion and Still births.

KEYWORDS : mental retardation, predisposing factors, prevention.

Introduction: Mental retardation is defined as a condition of arrested or incomplete development of mind of a person which is specially characterized by sub-normality of Intelligence 1. Some 5-15 % of children aged 3 to 15 years in both developing and developed countries suffer from mental handicaps 2. Nearly 75% of the people diagnosed to have retardation fall in the category of mild mental retardation, while the remaining 25% have an IQ of 50 or below are classified as moderately, severely or profoundly retarded [3].

Mentally retarded people in India could be anywhere near 26 million [4]. Most mentally retarded persons are below 15 years of age and prevalence is 30 per 1000 as per NSSO under the Dept. of Statistics, Govt. of India 5. But a vastly greater number than the retarded people themselves are affected by this condition. The total cost of the problem of mental retardation to our society runs annually into crores of Rupees and incalculable human anguish and pain. Presently there is no cure for mental retardation; hence prevention is of paramount importance.

Present hospital based study was conducted to compare various predisposing factors with degree of mental retardation to intervene effectively i.e. both medical and psychosocial services, that would offer practical opportunities for amelioration and rehabilitation.

Aim & Objectives:

1) To determine degree of retardation in children by using IQ/DQ method.

2) To study socio-economic factors associated with mental retardation in these children

3) To study relationship of various predisposing factors with degree of mental retardation in these children.

Material & Methods:

The present study is a cross sectional study carried out over 1 year in a Tertiary Care Hospital catering specialized services to mentally retarded children in Mumbai. Using a complete enumeration technique, a total of 258 children upto 12 years of age identified as cases of developmental disability by the team, during the specified time were included in the study. All new as well as old cases that were referred from various departments and came for follow-up were included.

The inclusion criterion was all the cases attending the OPD and whose parents gave consent for the study while there were no specific exclusion criteria. All children underwent a detailed evaluation with the help of multidisciplinary team comprising of paediatrician, clinical psychologist, speech-therapist, occupational therapist, social worker, cytogeneticist, biochemist and psychiatrist. Cases & parents were subjected to pretested proforma after taking written informed consent or assent & were interviewed personally.

The information of each child age, sex, religion, address, type of family etc. was collected. A thorough history regarding maternal illness during antenatal period (for intrauterine infection), exposure to teratogenic agents was recorded. Neonatal history included details of birth events, prematurity, asphyxia, postnatal illness (metabolic abnormalities, seizures). An elaborate questioning on attainment of developmental milestones, pedigree charting with family history of mental handicap, epilepsy and other illness, presence of behavioural abnormalities and appearance of new symptoms like deafness, visual acuity, seizures was obtained. The predisposing factors were studied in relation to degree of mental retardation in these children.

Medical examination included general examination and systemic examination (neurological examination); standard psychometric test such as Vineland Social Maturity Scale and Kamat Binet test of intelligence to assess the degree of mental retardation. The data obtained was entered in Microsoft Excel 2007 and analyzed using SPSS software 20.0.

Results & Discussion:

Table 1: Age profile & Religion of cases:

Age groups (in years)	0-3	3-6	6-9	9-12
	132 (51.16%)	55 (21.32%)	39 (15.12%)	32 (12.40%)

Religion	Hindu	Muslim	Christian	Others
	183 (70.94%)	48 (18.60%)	12 (4.66%)	15 (5.80%)

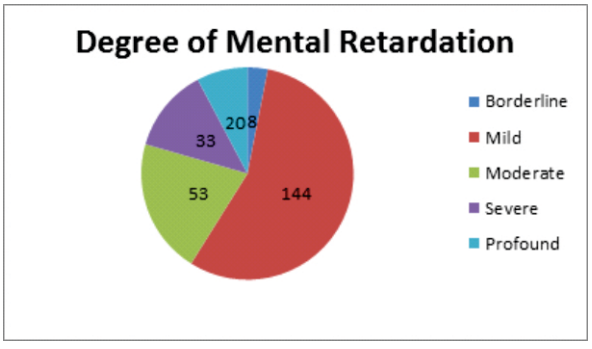
The above table shows that total number of cases was 258 & majority of the cases fall in the group of 0 to 3 years. Majority of the cases belonged to Hindu community (70.94%). Similar findings were observed in the studies by Ramanujam et al 6, Joshua 7, which could be due to significant proportion of Hindus in the community.

Table 2: Demographic profile of cases:

Sex	**Male** 150 (58.14%)	**Female** 108 (41.86%)
Type of Family	**Nuclear** 146 (56.58%)	**Joint** 112 (43.42%)

In this study, it was found that there were 58.14% male children & 41.86% female children. Somasundaram 8, Ramanujam et al 6, Joshua 7, Mudgil et al 9, Satapathy et al 10 also showed that higher prevalence was found in males. Mudgil et al 9 attributed this to the fact that parents generally tend to report mental retardation in male child as compared to female. Pai 11 attributes this to mutations in X chromosomal activity that has major impact on males. Joshua 7, Satapathy et al 10 reported majority of cases below 5 years of age. Mudgil et al 9 attributed more awareness of the problem and easy accessibility of medical facilities and early detection as a result of urban setup. 56.58% cases came from nuclear family which was like the observation made by Mudgil et al 9 which may be due to more attention given to children in nuclear families.

Picture 1: Degree of Mental Retardation as per WHO classification:



Mild Mental Retardation was most common as seen in 144 (55.82%) cases and similar observations were made by Mudgil et al 9, Kumaraswamy 12 and Zou 13. Henceforth, Moderate, Severe and Profound Mental Retardation is termed as Serious Mental Retardation for the ease of comparison.

Table 3: Maternal Education:

Maternal Education	Mild Retardation (IQ 50-70)	Serious Retardation (IQ < 50)	Total
Illiterate	34 (38.20%)	55 (61.80%)	89 (100%)
Primary	19 (33.92%)	37 (66.08%)	56 (100%)
Secondary	75 (90.36%)	8 (9.64%)	83 (100%)
Higher Secondary & Above	16 (72.72%)	6 (27.28%)	22 (100%)

p value <0.001

Here n= 250 because 8 cases were borderline mental retardation and hence were excluded from the subsequent comparisons. Significantly less number of seriously retarded children were reported by mothers who were educated as compared to illiterate mothers which were similar to the findings by Khess et al 14, Lamont et al 15, Durkin et al 16.

Table 4: Paternal Education:

Paternal Education	Mild Retardation (IQ 50-70)	Serious Retardation (IQ < 50)	Total
Illiterate	21 (46.67%)	24 (53.33%)	45 (100%)
Primary	23 (60.52%)	15 (39.48%)	38 (100%)
Secondary	63 (59.44%)	43 (40.56%)	106 (100%)
Higher Secondary & Above	32 (62.74%)	19 (37.26%)	51 (100%)

p value >0.05

Here n= 240 because 8 cases were borderline mental retardation while in 10 cases fathers' education was not known and hence were excluded from the subsequent comparisons. Though less number of seriously retarded children were reported by fathers who were educated as compared to illiterate fathers, the findings were not significant.

Table 5: Occupation of Mother:

Occupation of Mother	Mild Retardation (IQ 50-70)	Serious Retardation (IQ < 50)
Working	14 (9.72%)	42 (39.62%)
Not Working	130 (90.28%)	64 (60.38%)
Total	144 (100%)	106 (100%)

p value <0.001

Here n= 250 because 8 cases were borderline mental retardation and hence were excluded from the subsequent comparisons. Working mothers in the seriously retarded cases were found to be significantly more than the working mothers in the mildly retarded cases. Shah 2, Rantakallio 17 attributed this to deprivation of both infants and young children of stimulation for normal development in case of working mothers.

Table 6: Socio-Economic Factors:

Socio-Economic Factors	Mild Retardation (IQ 50-70)	Serious Retardation (IQ < 50)	Total
Class I (Upper)	1 (5.26%)	18 (94.74%)	19 (100%)
Class II (Upper middle)	10 (43.48%)	13 (56.52%)	23 (100%)
Class III (Lower middle)	54 (75%)	18 (25%)	72 (100%)
Class IV (Upper Lower)	60 (56.60%)	46 (43.40%)	106 (100%)
Class V (Lower)	19 (63.34%)	11 (36.66%)	30 (100%)

p value <0.001

Here n= 250 because 8 cases were borderline mental retardation and hence were excluded from the subsequent comparisons. The socio-economic classification was done according to Modified Kuppuswamy's classification 18. Low Socio-Economic status was significantly associated with Mild Retardation as compared to Serious Retardation. Similar findings were observed in studies by Rantakallio 17 and Islam et al 19.

Table 7: Associated factors with degree of Mental Retardation:

Factors	Mild Retardation (IQ 50-70)	Serious Retardation (IQ < 50)	p value	
History of Consanguinity	Positive	27 (18.75%)	58 (54.72%)	<0.001
	Negative	117 (81.25%)	48 (45.28%)	
	Total	144 (100%)	106 (100%)	
Family History of MR, Epilepsy, Congenital Defects	Positive	13 (9.02%)	24 (22.64%)	<0.005
	Negative	131 (90.98%)	82 (77.36%)	
	Total	144 (100%)	106 (100%)	
History of Spontaneous Abortion and Still births in mothers	Positive	24 (16.70%)	32 (30.20%)	<0.05
	Negative	120 (83.30%)	74 (69.80%)	
	Total	144 (100%)	106 (100%)	

Here n= 250 because 8 cases were borderline mental retardation and hence were excluded from the subsequent comparisons. In this study 54.72% seriously retarded children had History of Consanguinity in parents as compared to 18.75% mildly retarded children. Similar observations were made by Joshua 7, Stein et al 20. Family History of MR, Epilepsy and congenital Defects was found in 22.64% cases of Serious Retardation as compared to only 9.02% in Mild Retardation. 30.2% mothers of Seriously Retarded children had History of Spontaneous Abortion and Still births as compared to only 16.7% mothers of mildly Retarded children.

Table 8: Birth Weight:

Birth Weight	Mild Retardation (IQ 50-70)	Serious Retardation (IQ < 50)	Total
<2000 gms	8 (19.04%)	34 (80.96%)	42 (100%)
>2000 gms	136 (65.38%)	72 (34.62%)	208 (100%)

p value <0.01

Here n= 250 because 8 cases were borderline mental retardation and hence were excluded from the subsequent comparisons. Majority of Serious Retarded children (80.90%) had birth weight less than 2000 gm as compared to only 34.60% of more than 2000 gms. Hottinger 21, Holst et al 22, Merwis et al 23 also reported similar findings.

Table 9: Associated Impairments:

Associated Impairments	Mild Retardation (IQ 50-70)	Serious Retardation (IQ < 50)
Cerebral palsy	10 (38.60%)	31 (37.40%)
Seizures	9 (34.60%)	27 (32.60%)
Visual Problems	3 (11.60%)	9 (10.80%)
Hearing Problems	1 (3.80%)	6 (7.20%)
Speech Problems	1 (3.80%)	6 (7.20%)
Behavioural Problems	2 (7.60%)	4 (4.80%)
Total	26 (100%)	83 (100%)

p value >0.05

Here n= 109, as all the cases did not have associated impairments. According to above data, 37-38% of total cases in both, mild and serious retardation groups had condition of cerebral palsy followed by seizures, visual problems. Almost all the associated impaired conditions in both the groups were almost similar and the difference was not statistically significant.

Conclusions:

1) Majority of the children with mental retardation were males in the age group of 0 to 3 years. 70.94% of them belonged to Hindu religion and most were from nuclear families.

2) Mild mental retardation was the commonest (55.82%) followed by moderate (20.54%), severe (12.70%), profound (7.75%) and borderline mental retardation (3.1%).

3) Significantly less number of seriously retarded children were reported by mothers who were educated (36.92%) as compared to illiterate mothers. Though less number of seriously retarded children were reported by fathers who were educated as compared to illiterate fathers, the findings were not significant.

4) Working mothers in the seriously retarded cases (60.38%) were found to be significantly more than the working mothers in the mildly retarded cases.

5) Low Socio-Economic status was significantly associated with Mild Retardation (79 cases) as compared to Serious Retardation.

6) In this study, 54.72% seriously retarded children had History of Consanguinity in parents as compared to 18.75% mildly retarded children.

7) Family History of MR, Epilepsy and congenital Defects was found in 22.64% cases of Serious Retardation as compared to only 9.02% in Mild Retardation.

8) 30.2% mothers of Seriously Retarded children had History of Spontaneous Abortion and Still births as compared to only 16.7% mothers of mildly Retarded children.

9) Majority of Serious Retarded children (80.96%) had birth weight less than 2000 gm as compared to only 34.62% of more than 2000 gms.
10) 37-38% of total cases in both, mild and serious retardation groups had condition of cerebral palsy followed by seizures, visual problems. Almost all the impaired conditions in both the groups were almost similar and the difference was not statistically significant.

Recommendations:

1) Prevention of mental retardation is of utmost importance. Strengthening of ANC services, early detection and treatment of mothers at risk along with imparting of knowledge regarding family planning is important.

2) Strengthening routine immunization services against vaccine preventable diseases along with adequate care of infants and children is important.

3) Optimal utilization of existing ICDS program, National supplementation program; training of ASHAs, Dais & other primary health workers for early detection of cases and prompt referrals need to be undertaken.

4) Facilities for mentally retarded children are inadequate and need to be strengthened; a multidisciplinary approach consisting of clinicians, psychologists and rehabilitative team along with an Early Intervention clinic is the need of the hour.

5) Training of school teachers to identify these problems in school children is important. School Health Services should address problems caused by associated chronic disabilities and should offer vocational training to such children for independent living. Part time speech therapist, Psychotherapist, Clinical Psychologist, Social Worker should be appointed in schools to address these problems.

6) Retrospective Genetic counselling should be imparted to parents with history of mentally retarded child while health education which is one of the most important tools, should be given to all the couples while planning for their first child.

References:

1) The Persons with Disabilities (Equal opportunities, Protection of rights and full Participation) Act, 1995. (http://www.disabilityindia.org/pwdact.cf) (Cited on 10/1/2015).
2) Shah P. M.: Prevention of mental handicaps in children in primary health care. Bulletin of WHO. 69 (6): 779-89, 1991.
3) Bhalwar Rajiv, WHO & AFMC's Textbook of Public Health & Community Medicine. 1st Edition. Dept. of Community Medicine, AFMC, Pune; 2009. Pg. no. 569.
4) CBR Manual: Concept & extent of disability in India.
5) Mental Retardation- Rehabilitation Council of India. http://www.rehabcouncil.nic.in/writereaddata/mr.pdf (cited on 12/1/2015).
6) Ramanujam B. K., David S.: A clinical study of 100 cases of mentally retarded children seen in a clinic for the mentally retarded. Indian Paediatrics. 6 (3): 118-31, 1969.
7) Joshua G. E.: Mental Retardation in children. An etiological study of 303 cases. Indian Paediatrics. 11 (1): 118-31, 1969.
8) Somasundaram O.: Some etiological problems in MR., solved & unsolved. Indian Paediatrics. 5 (12): 558-63, 1968.
9) Mudgil A, Singh S. B., Shrivastava J. R.: An etiological and psychological study of mentally retarded children. Indian Paediatrics. 19 (8): 968-93, 1982.
10) Satapathy R. K., Ghosh J. M., Sarangi B.: Survey of mentally retarded persons. Indian Paediatrics. 22 (11): 825-8, 1985.
11) Pai G. S.: Diagnostic approach to a child with mental retardation. Indian Paediatrics. 31 (7): 879-90, 1994.
12) Kumaraswamy N.: A profile of mentally retarded persons seen in child guidance clinic of a teaching hospital. Ind. Jour. of Clin. Pyscho. 18 (2): 45-8, 1991.
13) Zou Q. H., Lei Z. W., Zhang Z. X.: An epidemiological study on aetiology of MR. Chinese Med. Jour. 74 (3): 134-7, 1994.
14) Khess C. R. J., Bhattacharya P.: Referral pattern in mentally retarded children. Ind. Jour. of Psychia. 39: 57, 1997.
15) Lamont M. A. & Dennis N. R..: Etiology of MMR. Arch. of Dis. in childhood. 63: 1032-8, 1988.
16) Durkin M. S., Hasan Z. M., Hasan K. Z.: Prevalence & correlates of MR among children in Karachi, Pakistan. 147 (3): 281-88, 1988.
17) Rantakallio P.: Social class differences in MR and subnormality. Scand. Jour. of Social Med. 15 (2): 63-6, 1987.
18) Kuppuswamy's Socio-economic status scale: Indian Jour. of Pediatrics. (March 2012). 79(3): 395-6.
19) Islam S., Durkin M. S., Zaman S. S.: Socioeconomic status and prevalence of MR in Bangladesh. Mental Retardation. 31 (6): 412-7, 1993.
20) Stein Z., Belmonte L., Durkin M.: MMR & SMR compared. Experiences in eight less developed countries. Upsala Jour. of Med. Scien. Supplement 44: 89-96, 1987.
21) Hottinger A.: Late consequences of perinatal troubles. Ind. Jour. of Peds. 38 (278): 119-24, 1971.
22) Holst K., Anderson E., Philip J., Heningsen I.: Antenatal and perinatl conditions correlated to handicap among 4 year children. Amer. Jour. of Perinatology. 6 (2): 258-67, 1989.
23) Merwis D. A., Decoufle P., Murphy C. C., Yeargin M.: LBW and risk of MR later in childhood. Pediatric and Perinatal Epid. 9(4): 455-68, 1995.