International Journal of Medical and Health Research
ISSN: 2454-9142, Impact Factor: RJIF 5.54
www.medicalsciencejournal.com
Volume 3; Issue 1; January 2017; Page No. 19-22

A cross sectional study to assess role of medicosocial factors in relation to mental retardation of children attending special clinics of two major municipal general hospitals

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Abstract

Context: Presently there is no cure for mental retardation; hence prevention is of paramount importance. Multiple factors have to be considered in the prevention of mental retardation. So that asserting medicosocial factors & cause becomes imperative not only for early interventions but also counselling done based on aetiological factors.

Aim: To study medicosocial factors associated with mental retardation in children attending special clinics of two major municipal general hospitals.

Material & methods: A non-randomized sampling technique was used & total of 258 children upto 12 years of age identified as cases of developmental disability by the team, during the specified time period 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.

Results & Conclusion: More than half of the mentally retarded children were 0-3 years of age group. Cases were predominantly males and came from nuclear families. 55.82% were mildly retarded. 54.26% mentally retarded children belonged to lower socio-economic status. Almost one third mothers had history of taking drugs of one or the other during pregnancy. Cerebral palsy & seizures were major associated impairment in the cases. In almost 50% cases, preventable environmental factors were responsible for mental retardation. Birth asphyxia and Down's syndrome ranks as a topmost cause in environmental and genetic factors respectively.

Keywords: mental retardation, medicosocial factors, prevention, municipal general hospitals

Introduction

According to the Persons with Disabilities (Equal opportunities, Protection of rights and full Participation) Act, 1995, enacted in India, 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].

From several small scale surveys in India [4], it is generally believed that between 2-3% of population suffer from mental retardation (NIMH 2010). This implies that mentally retarded people in India could be anywhere near 26 million [5]. The majority of 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 [6].

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.

Consideration needs to be given to a wide range of handicaps involved, their diagnosis and assessment and the potential areas of intervention best suited to the problems in a given area. An understanding of the aetiology of mental retardation is also needed in order to intervene effectively, together with an understanding of the range of services, both medical and psychosocial, that would offer practical opportunities for amelioration and rehabilitation. In the light of this, present hospital based study was conducted to meet the felt needs. (The new term for Mental Retardation is Intellectual and Developmental Disabilities but for the purpose of study, the term Mental Retardation is used).

Aim

To study medicosocial factors associated with mental retardation in children attending special clinics of two major municipal general hospitals.

Objectives

1) To study socio-economic factors associated with mental retardation in children.
2) To determine degree of retardation in these children by using IQ/DQ method.
3) To study various predisposing factors and aetiological factors in these children in relation to mental retardation.

Material & Methods

The present study is cross sectional prospective study carried out in two corporation teaching hospitals catering specialized services to mentally retarded children in Mumbai over 1 year period.

A non-randomized sampling technique was used & total of 258 children up to 12 years of age identified as cases of

developmental disability by the team, during the specified time period 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 who gave consent for the study while exclusion criteria was those who did not give consent. All children underwent a detailed evaluation with the help of multidisciplinary team comprising of paediatrician, clinical psychologist, speech-therapist, occupational therapist, social worker, cytogeniticist, biochemist and psychiatrist etc. Cases were subjects to pretested proforma and parents after taking written informed consent 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.

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 were used to assess the degree of mental retardation. Children with vision, hearing or speech problems were referred to respective departments. 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* [7], Joshua [8], 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%)
Occupation of Mother	**Working** 56 (21.70%)	**Not Working** 202 (78.30%)

In this study, it was found that there were 58.14% male children & 41.86% female children. Somasundaram [9], Ramanujam *et al* [7], Joshua [8], Mudgil *et al* [10], Satapathy *et al* [11] also showed that higher prevalence was found in males. Mudgil *et al* [10] attributed this to the fact that parents generally tend to report mental retardation in male child as compared to female. Pai [12] attributes this to mutations in X chromosomal activity that has major impact on males. Joshua [8], Satapathy *et al* [11] reported majority of cases below 5 years of age. Mudgil *et al* [10] 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 similar to the observation made by Mudgil *et al* [10] which may be due to more attention given to children in nuclear families. 21.70% cases belonged to working mothers.

Table 3: Degree of Mental Retardation and Socio-economic status of cases

Degree of Mental Retardation	**Borderline**	**Mild**	**Moderate**	**Severe**	**Profound**
	8 (3.10%)	144 (55.82%)	53 (20.54%)	33 (12.79%)	20 (7.75%)
Socio-economic status	**Class I (Upper)**	**Class II (Upper middle)**	**Class III (Lower middle)**	**Class IV (Upper Lower)**	**Class V (Lower)**
	20 (7.76%)	23 (8.92%)	75 (29.06%)	108 (41.86%)	32 (12.40%)

Mild Mental Retardation was most common as seen in 55.82% cases and similar observations were made by Mudgil *et al* [10], Kumaraswamy [13] and Zou [14]. According to Modified Kuppuswamy's classification [15], almost 54.26% cases belong to Upper Lower and Lower Socio-economic class which was similar to findings in Satapathy *et al* [11], Rai [16], Khess *et al* [17].

Table 4: Associated Factors

Factors	Positive	Negative
History of Consanguinity	85 (32.94%)	173 (67.06%)
Family History of MR, Epilepsy, Congenital Defects	38 (14.72%)	220 (85.28%)
History of Spontaneous Abortion and Still births in mothers	56 (21.70%)	202 (78.30%)

In this study History of Consanguinity was found in 32.94% cases. Various studies like Sinclair [18], Joshua [8], Narayanan [19], Madhavan [20] etc have reported consanguinity from 8.3% to 70% in parents of retarded children. A Positive Family History of MR, Epilepsy and Congenital Defects was found in 14.72% cases while Girimaji *et al* [21] found Positive Family History in 18.9% cases. A Positive History of Spontaneous Abortion and Still births in was found in 21.70% mothers which could be due to chromosomal abnormality.

Table 5: Mother's age in years at time of birth

Mother's age in years at time of birth	Total Cases
< 30 years	144 (55.82%)
> 30 years	110 (42.64%)
Unknown	4 (1.54%)

There are substantially more number of cases born to mothers less than 30 years of age which is similar to findings by Deshpande *et al* [22] and Kumar *et al* [23] and could be attributed to early marriages and usual child bearing age in society.

Table 6: History of drug intake and Associated Impairments

Factors	Positive	Negative
Drugs taken by mother during pregnancy	76 (29.46%)	182 (70.54%)
Associated Impairments	(42.25%)	149 (57.75%)

In our study, 29.46% mothers answered positively to history of drug intake during pregnancy while in the study by Mehta *et al* [24] it was found to be around 50%. Anti-hypertensives were taken by 21 (8.14%) mothers, both antibiotics and for bleeding PV by 9 (3.48%); Anti-asthamatics by 7 (2.72%), Anti-diabetics, Steroids and Drugs for Abortion by 2 (0.78%) each, while 24 (9.30%) mothers had history of other drug intake. It was found that almost 42.25% cases had associated conditions like Cerebral palsy: 41 (15.89%), seizures: 36 (13.95%), Visual problems: 12 (4.65%), hearing and speech problems 7 (2.72%) each, behavioural problems in 6 (2.32%). Joshua [8], Girimaji *et al* [21], Parikshit Gogate *et al* [25] have also reported Associated Impairments with predominance of Cerebral palsy, seizures and visual problems.

Table 7: Birth Order and Type of Delivery

Birth Order	1st	2nd	3rd	4th	5th
	99 (38.38%)	94 (36.44%)	36 (13.96%)	14 (5.42%)	15 (5.80%)
Type of Delivery	**Normal delivery**	**Caesarean Section**	**Forceps**	**Breech**	**Spontaneous & Vacuum**
	212 (82.17%)	31 (12.01%)	8 (3.10%)	3 (1.16%)	4 (1.56%)

Majority of the cases are 1st born (38.38%) and 2nd born (36.44%). This is similar to the findings by Deshpande *et al* [22], Girimaji *et al* [21] and Kumar *et al* [23] and can be attributed to youth of mother, malnutrition, delivery complications. 17.83% mothers reported instrumental intervention during delivery. In the study by Ramanujam *et al* [7], instrumental intervention during delivery was found in 12.24% mothers.

Table 8: Distribution of cases according to aetiological factors

Factors	Total cases
Genetic Factors	55 (21.32%)
Environmental (Prenatal) Factors	20 (7.76%)
Environmental (Perinatal) Factors	65 (25.2%)
Environmental (Post natal) Factors	29 (11.24%)

In the present study, aetiology could be pinpointed in 169 (65.52%) cases while in the remaining 34.48% cases no certain cause could be ascertained. In genetic factors, Down's syndrome was most common followed by CNS Malformations. Various studies have been able to pin-point the aetiology in 52-73% cases with genetic factors to be responsible in 20 to 47% cases [8, 18, 4, 26]. In Environmental factors – prenatal factors, maternal illnesses and infections were most common. In perinatal factors, birth asphyxia and Prematurity and LBW was most common causes while in postnatal factors epilepsy was the most common cause.

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. 21.7% of cases belonged to working mothers and around 54.26% of the cases belonged to upper lower and lower socio-economic class.
4. History of consanguinity was found in 32.94% of cases while 14.7% of cases had positive family history of MR, epilepsy and congenital defects.
5. History of spontaneous abortion and still births was found in 21.70% cases while 29.46% mothers had positive history of drug intake.
6. Instrumental intervention during delivery was in 17.82% mothers and majority of the cases were 1st born (38.38%) and 2nd born (36.44%).
7. Almost 42.23% of cases had associated impairments while aetiological factors could be ascertained in 65.52% of cases of which environmental (preventable) factors accounted for 44.2% cases while genetic factors were responsible for 21.32% cases.

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 etc. 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 PM. Prevention of mental handicaps in children in primary health care. Bulletin of WHO. 1991; 69(6):779-89.
3. Bhalwar Rajiv, WHO, AFMC's. Textbook of Public Health & Community Medicine. 1st Edition. Dept. of Community Medicine, AFMC, Pune. 2009, 569.
4. Kumta NB. Proceedings of the 11th Annual International Symposium on MR. Mumbai. 1980,69-80.
5. CBR Manual: Concept & extent of disability in India.
6. Mental Retardation- Rehabilitation Council of India. http://www.rehabcouncil.nic.in/writereaddata/mr.pdf (cited on 12/1/2015).
7. Ramanujam BK, David S. A clinical study of 100 cases of mentally retarded children seen in a clinic for the mentally retarded. Indian Paediatrics. 1969; 6(3):118-31.
8. Joshua GE. Mental Retardation in children. An etiological study of 303 cases. Indian Paediatrics. 1969; 11(1):118-31.
9. Somasundaram O. Some etiological problems in MR., solved & unsolved. Indian Paediatrics. 1968; 5(12):558-63.
10. Mudgil A, Singh SB, Shrivastava JR. An etiological and psychological study of mentally retarded children. Indian Paediatrics. 1982; 19(8):968-93.
11. Satapathy RK, Ghosh JM, Sarangi B. Survey of mentally retarded persons. Indian Paediatrics. 1985; 22(11):825-8.
12. Pai GS. Diagnostic approach to a child with mental retardation. Indian Paediatrics. 1994; 31(7):879-90.
13. Kumaraswamy N. A profile of mentally retarded persons seen in child guidance clinic of a teaching hospital. Ind. Jour. of Clin. Pyscho. 1991; 18(2):45-8.
14. Zou QH, Lei ZW, Zhang ZX. An epidemiological study on etiology of MR. Chinese Med. Jour. 1994; 74(3):134-7.
15. Kuppuswamy's Socio-economic status scale: Indian Jour. of Pediatrics. 2012. 79(3):395-6.
16. Rai GC. A study of discrimination, generalization of DL of mentally retarded. Jour. of Personality & Clinical studies. 1988; 4(1):11-5.
17. Khess CRJ, Bhattacharya P. Referral pattern in mentally retarded children. Ind. Jour. of Psychia. 1997; 39:57.
18. Sinclair S. Etiological factors in MR. A study of 470 cases. Indian Paediatrics. 1972; 9(7):391-6.
19. Narayanan HS. Observation of mentally retarded cases with special reference to consanguinity. NIMHANS Jour. 1987; 5(2):121-3.
20. Madhavan T, Narayan J. Consanguinity & MR. Jour. of Ment. Def. Research. 1991; 35(2):133-9.
21. Girimaji SR, Srinath S, Seshadri SP. A clinical study of infants presenting to MR clinic. Ind. Jour. of Pedia. 1994; 61(4):373-8.
22. Deshpande SE. Factors in MR. Ind. Jour. of Disab and Rehab, 1990; 4(2):51-7.
23. Kumar R, Nanda S, Ray TP. Rate of MR as a function of birth orders & maternal age. Ind. Jour. of Ment. Health & Disab. 1996; 1(1):15-7.
24. Mehta JB, Gupta BM. Clinical study of Mongols. Indian Paediatrics. 1969; 6:278.
25. Parikshit Gogate *et al*, ocular diagnosis in children in special schools of Pune, Ind J Opthalm, 2011; 59(3):223-228.
26. Parikh AP, Bahnumati B, Bannerji I. Etiologic factors in MR. Role of Genetic in Mental Retardation. 1998, 34-67.