Etiological, Physical Cognitive and Social Functional Behaviours of the Mentally Retarded

By

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Introduction

I. INTRODUCTION

"I want no pity but understanding and love"

(INFD, 1981)

In India as well as abroad mental retardation is one of the burning problems of contemporary society and the world prevalence rate is 3%. The retarded population in India would be around 30 million (WHO, 1978).

In India, at present there are about one hundred and forty two institutions serving approximately four thousand and nine hundred retardates. There are eleven states and five Union Territories in India which have no institutions for the mentally retarded persons (Guide to Mental Retardation, 1981).

Mental capabilities are an important asset in human life. Without these a person becomes a drag on society. Mental retardation is a social problem of great magnititude. It is found in families rich and poor, educated and illiterate among all castes and creed (Social Welfare, 1981).

The term "mental retardation" can be described as mental handicap" developmentally sub-normal" because of the complexity of its nature it has been very difficult to define mental retardation (Smith, 1975).

According to Ambron (1975) mental deficiency is a term which corresponds to amentia (without man's mind), hence the mentally deficient child is one whose mind has failed to reach complete development.

Shankar (1975) says mental retardation or handicapped children are characterised by low intelligence in comparison with normal children, and there are various degrees of this retardation.

Tredgold and Saddy (1970) view that it is a state of arrested or incomplete development of mind so severe that the patient is incapable of leading an independent life or guarding himself against serious exploitation.

According to Dunn (1973) retarded invididuals are said to be those "who are so deficient in general intellectual ability that their inability to care for themselves, coupled with their destructive behaviour in some cases, is so severe when, compared with their age-mates in the community. They require assistance, care and protection in excess of that which average parents can be expected to provide during their childhood or that which average communities should be able to provide during their adulthood.

Parents and other benefactors due to ignorance as well as fear of social disapproval in neglecting these retarded exhibit a tendency for over protection, which binds these children with bonds of destructive dependence, and delimits their progress, which otherwise would have been possible if given adequate training according to the potential they have. Hence a thorough evaluationof problem is necessary for all around development and social adaptation of the retarded children. Rehabilitative measures set up on a clear knowledge of the capabilities of the retarded children would foster their development beyond ones expectations (Vakeel, 1965).

Mental retardation has been viewed as a multidimensional phenomena which involve physical, psychological, medical, educational and social aspects of human functioning and behaviour.

The present study on "Etiological, physical cognitive and social functional behaviours consists of two parts. First part is to find out the etiology and parents' attitude regarding the mentally retarded children.

Second part illustrates the manner in which the mentally retarded can be assessed for physical, cognitive and social functional behaviours.

Cunningham (1982) stresses that intelligence or mental ability is not a single, given entity. IQ is made up of many skills and abilities. However the IQ still has little usefulness for planning day-to-day teaching or in diagnosing learning difficulties.

Many mental ability tests: (1) fail to provide an over all picture of a child's strength and weaknesses (2) often do not provide diagnostic information sufficient to plan teaching programmes and (3) may be in appropriate for children with special learning problems. many teachers and psychologists are beginning to use direct observation methods as well as a range of test to assess children. Thus instead of concentrating on some global and rather vague notion called intelligence, this study is trying to find out about the skills and abilities the children possess and what they will need to learn to function as an independent person.

Functional behaviour is a term referred to what the child can do and cannot do rather than measures which compare him/her with average scores which often only serve to emphasise disability or to lower our expectations, (Cunningham, 1978).

In a large proportion of cases of mental handicap the causes are not understood. The present study proposes to throw some light on the possible causes for mental retardation.

The study enables us to know the existence of a correlation between development and physical, cognitive and social functional behaviours of the mentally retarded children.

The knowledge gained from the study would be of immense value for the social workers, psychologist, parents, teachers as well as the government in the treatment and rehabilitation of retarded children.

The teacher of the handicapped child faces many challenges. To be successful one has to be even more systematic and considerate in approach than the teacher of normal children.

Review of Literature

II. REVIEW OF LITERATURE

The literature pertaining to the present investigation on "Etiological, physical, cognitive and social functional behaviours of the mentally retarded" is presented under the following headings:

A. Definitions and concept of mental retardation

B. Etiological and predisposing factors for mental retardation

C. Attitudes of the parents on mental retardation

D. Physical, cognitive and social behaviours of the mentally retarded

E. Scope of prevention of Mental Retardation

and F. Guardianship Plan for the Retarded

A. Definitions and Concept of Mental retardation

Several terms have been used to describe "Mental retardation" such as "Mental handicap", "Developmentally sub-normal" etc. Because of the complexity of its nature it has been very difficult to define mental retardation.

Some worth mentioning concepts of mental retardation are those given by the British Mental Deficiency Act of 1913, amended in 1927. "Mental retardation is a condition of arrested or incomplete development of mind, existing before the age of eighteen years, whether arising from inherent causes or induced by disease of injury (Narjalia, 1966).

In India, we still follow this Act and accept the four categories of mentally retarded i.e. the idiots, the imbeciles, the feeble-minded and the moral defectives.

The Royal Medico-Psychological Association (1954) of Britain stated that 'conditions of arrested or incomplete development of mind' may be manifested in the form of failure to develop intelligence, functions or failure to attain normal control of the emotions on failure to achieve the qualities needed for normal social behaviour.

The Mental Health Act of 1959 in England, after repeating all previous legislations dealing with lunacy, mental treatment, mental deficiency provided a single code for alitype ofmental disorder, defined as "mental illness, arrested or incomplete development of mind, psychopathic disorder or disability of mind". Arrested or incomplete development of mind is comprised of two categories - 'Severe sub-normality and 'Sub normality'.

Doll (1941), a leading American authority on mental deficiency suggested that six criteria should be considered simultaneously for defining mental retardation such as (1) social incompetence (2) due to mental sub-normality (3) which has been developmentally arrested (4) which obtains at maturity (5) is of constitutional origin, and (6) is essentially incurable.

A different view prevails in United States. The American Association of Mental Deficiency (AAMD, 1973) emphasizes the behaviour of an individual as an ultimate criterion for classification. According to their definition "Mental retardation refers to sub average general intellectual functioning which originates during the developmental period and is associated with impaired adaptive behaviour".

However, in all the definitions there seems to be a substantial agreement that the term contains three essential and inter-related concepts.

1. Marked limitations of intelligence, which is due to
2. lack of normal development and not due to mental disease or deterioration and which manifests itself in
3. Some degree of social and economic inadequacy (AAMD, 1973).

The difference between a mentally handicapped person and a normal person is only, that a mentally handicapped person would be operating at a lower level of intelligence, which manifests itself in a slower rate of development, as compared to the normal person. Many a times, because of this a mentally handicapped person is unable to protect himself or act responsibly.

A mentally handicapped individual has been perceived as a sick person, a menace, an object of pity and charity. It is however, only very recently that he has been perceived as a developing person. The concept of mental handicap is now undergoing a change. People are now realising that the mentally handicapped have potential abilities are not just disabilities. With proper education and training these abilities can be developed and the handicapped individual can become a productive and integrated member of society.

B. Etiological and predisposing factors for mental retardation

Mental retardation is neither a disease nor a medical syndrome with a specific cause. There are more than two hundred specific identified causes (Brewer and Kakaleh, 1979). Mentally retarded individuals may function sub-normally because of genetic factors (singlegene, polygenes or chromosomal abberrations). Organic deficits of environmental origin (infections, toxins, physical trauma, diet, gestational disorders, or irradiational levels) or the social and psychoconditions of their lives. Eventhough the etiologies of mental subnormality are numerous in the majority of cases the exact causes are not known. According to Reed and Palm (1954) many cases are purely environmental in origin.

Environmental causes:

Physical Trauma: Pre-natal

1. Unsuccessful attempts at abortion
2. Accidents to the pregnant mother

b. Natal

1. Complications of pregnancy such as very precipilate or prolonged delivery, breech delivery and for forceps injury (2) Excessive anesthetics during delivery.

c. Postnatal

Falls, automobile accidents and gun shot wounds (The annual incidence of significant head injuries to infants and young children is estimated to be 3.3 per cent (Cavenessa, 1970).

1. Syphilitic infection both pre and post-natal
2. Infections
3. Rubella in pregnant mothers
4. Encephalitis and Meningitos
5. Various other protozoan, bacterial and viral diseases are frequent causes of mental retardation both pre and postnatally.

d. Blood incompatibilities

1. Rh in compatibility

2. Mother-Fetus in compatibilities may be involved occasionally

e. Radio activity

Irradiation during pregnancy causes multiple defects including mental retardation

f. Toxic agents

A wide variety of toxic agents have been identified as probably having a deletrious effect on mental development both pre and post natally. These includes—

1. Tobacco

2. Alcohol

3. Various metals such as lead

4. A wide variety of drugs taken by pregnant mothers

g. Prematurity

The pre-mature fetus propelled through an unrelaxed birth canal is highly vulnerable to anoxic and traumatic injury sufficiently serious to produce a family high incidence of neurological disorders including mental retardation.

h. Asphyxia

1. Pre-natal asphyxia during the birth process may occur if the placenta separates too soon, if the umbilical cord kinks for a prolonged period, if the child aspirates excessive amniotic fluid, or if for any reason the new born does not breathe for some time after delivery.

2. Post-natal: Any time the brain is deprived of oxygen for more than a few minutes there is considerable danger of irreversible brain damage. One of the most frequent incidences of brain injury from asphyxia in children is from partial drowning.

i. Diet

1. In specific instances such as iodine deficiency producing cretinism and high levels of phenylalanine in the diet of a phenl keton uric (PKU) child, the role of diet is critical in producing retardation.

2. Severe protein and some specific vitamin deficiencies seem to produce mental retardation.

3. The role of general nutritional level in affecting mental level is uncertain. While general nutritional status correlates positively with children's IQ, the correlation largely disappears when socio economic status is controlled (Jones, 1966). However, the study of a fairly

socio economically homogenous group of children living close to subsistence level in a slum area found a positive correlation between nutritional status and mental level (Honlan, 1940).

j. Hereditary

There are many causes of feeble-mindedness and a large number of cases are the result of the interaction of two or more contributory factors. Family and twin studies however, indicate that heredity is the outstanding causes. From 50 to 75 per cent of mental defectives come from families having a history of feeble-mindedness or borderline intelligence (Hopwood, Kirk Kaiser and Penrose, 1975).

Where heredity is constant, as with identical twins it is rare to find one twin normal and fraternal twins selected on the basis that one member each pair was a mental defective. Juder (1953) found that both co-twins were mentally defective in 91 per cent of the identical and in 33 per cent of the fraternal twin pairs. The high percentage of concordance between the identical twins is good evidence of a strong genetic basis for many of the cases of mental retardation.

Two mentally defective parents will produce only mentally defective off-spring. This is the first law of inheritance of mental ability (Davenport,1911).

k. Other causes

Brain abnormalities associated with birth injuries, infections disease, endocrine imbalances epilepsy and other neurophysiological disorders account for about 25 per cent of cases.

There is no scientific basis for the prevalent belief that alcoholic parents are prone to give birth to feeble minded children. The intelligence of the children of alcoholic parents is determined by the intelligence of the parents. Mentally retarded alcoholic parents frequently have dull children, but intelligent alcoholic parents usually have intelligent children (Telford, 1979).

Consanguinity is a second alleged causes of amentia that is frequently exaggerated, children resulting from the mating of cousins or other close relatives run an increased risk of being mentally defective only when defective recessive characters responsible for various forms of amentia are present in the family stock. When the family stock is sound, the off spring of consanguinous matings suffer no deleterious mental effects.

1. [redacted]

Research studies over the past forty years have documented quite extensively that intellectual level and educational achievement are influenced by a wide variety of familial, social class and ethnic variables (Hopwood, 1979).

Richardson (1972) has listed some of the ecological factors and these are mothers intellectual status and educational background, her attitude, her capabilities including verbal ability, child rearing practices, acceptance of new ideas and her aspiration for the child, family characteristics such as stability of the family, social relations between family friends and neighbourers, the child's relationship with peer group, community and his activities in the school etc.

Low mentality is due to the absence of some factor, and if this factor that determines, normal development is lacking in both parents it will be lacking in all of their off-spring (Davenport, 1911).

Joshua (1974) conducted a pilot study of etiological factors causing mental retardation in 303 South Indian children attending the pediatric centre of a hospital. It was shown that genetic factors alone operated in 47 per cent of the cases and in 33 per cent mental retardation was

due to acquired factors. Genetic and environmental factors acting can jointly formed another 20 per cent. Close parent consanguinity was present in 38 per cent of the total cases and another 12 per cent were related but less closely.

A study conducted by Manju Biswas (1975) revealed that majority of mentally retarded children were found in the community of businessmen having low-socio economic standards. The total number of retarded children taken for interview was 75 and it was found that out of 75 cases, 53 belonged to families which fall in the income group of Rs.100-400 per month. Hence it was concluded that there is an inverse relationship between socio-economic class and mental retardations.

Ishtiaq (1976) studied three hundred children belonging to various institutions and special schools for the retarded. An interview schedule was completed on these subjects. The results showed that broken homes, brutal discipline, low socio-economic status and faulty relationship with parents may contribute to mental retardation.

Kamat (1938), Surya et al., (1964) and Sethi et al., (1967) in their general population surveys of urban families found mental retardation is one of the significant mental morbidities.

C. Attitudes of the parents on Mental retardation

In a study by Gunz et al.,(1972) on "Comparative parental perceptions of a mentally retarded", parents of 50 retarded children were assessed according to Parson and R.Bales instrumental expressive role frame work. The results revealed that there was a tendency for the fathers to perceive their child more instrumentally than the mothers. Mother's perceptions were more expressive.

Another study was conducted by Sakurai and Yashura (1973) to study the attitudes and consciousness of parents and inhabitants and the institutions for mentally retarded. Attitudes of 648 parents of mentally retarded individuals, 333 inhabitans around institutions for the retarded and 195 staff members were surveyed. It was seen that staff members and parents had similar understanding, attitudes and mostly perceived the mentally retarded individual to be positive. The retarded viewed themselves as the objects of pity and philanthropy. A gap was observed between the attitudes of parents, staff and the retarded themselves. Problems developing from educational and welfare policies werevtewed as influency staff attitudes.

Vurdelja et al., (1974) studied the attitude bhaviour toward retardation of 418 mothers of retarded and

non-retarded children in United States, Israel and Yugoslavia. The attitude-behaviour scale-mental retardation (ABS-MR) was used for the study. It was concluded that attitudes of the mothers towards the retarded were more positive in the under developed nations. Mothers of retarded children were more positive than mothers of non-retarded children.

A study was conducted by Woljensberger and et al., (1974) on the use of various labels of related to retardation by the parents of retarded children. Check lists containing 57 terms used to describe mentally retarded persons were used on 105 parents of retarded children. Parents reactions and their familiarity with the labels were assessed. Results revealed that parents had considerable difficulty in accepting any label for their own children, even if the terms were relatively free of negative imagery. All parents were familiar with the term mental retardation. 93 per cent indicated that the term is appropriate for the retarded in general and only 42 per cent thought it appropriate for their own children. Findings also indicated that the social desirability of a given term and the context in which the parents were asked to judge a label, influenced parental reactions to terms related to retardation.

A unique study was conducted by Cotthob, Jay (1974) on the attitudes of Norwegian and American children towards

mildly retarded children in special classes. Attitudes of 285 Norwegian and 251 American children ranging from 10-14 years of age were investigated. It was hypothesized that Norwegian children could express more favourable attitudes than American children as they had more opportunity for social interaction with educable mentally retarded children and also because the Norwegian retarded children were less deviant. Findings based on the effect of social contact on attitudes towards the retarded, perceptions towards the educable mentally retarded, in relation to perceived deviance and methodological difficulties in cross-national sampling techniques revealed that contrary to the prediction, American children had a significantly more favourable attitudes than the Norwegian children.

Cummings and Thomas (1976) conducted a study of the fathers of mentally retarded and chronically ill children. Feelings of parental adequacy and attitudes towards handicapped and normal children were studied. The sample comprised of 240 fathers of mentally retarded, chronically physically ill, neurotic and healthy children of 4-13 years. Results indicated that fathers of mentally retarded and chronically physically ill children experienced significant stress associated with their fathering a handicapped child. Some fathers of mentally retarded children had a pattern of neurotic like constriction.

A preliminary survey was conducted in Ghana by Danquah (1978) to study the beliefs about severely retarded children. Results revealed that both educated and uneducated parents believed that severe retardation is associated with misfortune and is due to the curse of a supernatural being. Responses from 306 parents of mentally retarded children indicated that only 5 per cent of the educated urban parents attributed the cause to genetic, biological and metabolic disorders and felt that the severely retarded needed hospital treatment.

An experimental study was conducted by Spreen (1977) to study the attitudes and attitude change towards mental retardation. The attitudes of 40 students towards mental retardation were studied. Results confirmed that initially, mental retardation was judged more negatively than mental illness but a significant positive change was observed after the students completed the course.

Kennon et al., (1978) examined the attitudes of teachers towards the educable mentally retarded. Multi-dimentional attitude scales from 60 experienced teachers of educable mentally retarded class and normal class revealed that teachers of both the classes as group did not differ in their attitudes towards retarded pupils. Ethnic group differences in certain areas of attitudes within the regular

class and the educable mentally retarded were observed. Regular class teachers who had previous experience with the retarded were more positive towards the retarded than the teachers with little contact with the educable mentally retarded children and adults.

Penibton et al., (1979) studied parental influence on maladaptive behaviour of mentally retarded children in the class room. The degree of parental influence on maladaptive behaviour of 35 educable mentally retarded children with chronological age of 9-65 years was determined. Data was collected through sociometric questionnaires from the parents and through maladaptive. Checklists from the teachers of the retarded. Results indicated that parents level of education, number of persons in the home, socio-economic status and parental attitudes towards their retarded children significantly correlated with the children's maladaptive behaviour in the class room.

A semantic differential investigation was conducted by Wilkins et al., (1980) to study children's attitudes towards 3 stigmatized groups. The study was based on the assumption that negative attitudes towards stigmatized groups are learnt in early childhood. Ten boys and 10 girls each from grades three to six were assessed according to four semantic differential scales, evaluation, understandability, activity and potency scales. Attitudes towards normal, crippled, mentally retarded and mentally ill children were rated most negatively on both evaluation and

understandability scales, but they were rated comparably to normal children as activity and potency scales. Both mentally retarded and crippled children were rated less positively than normal children on evaluation scale but not so negatively as the mentally ill children. It was also found that the grade in which respondent was studying had no influence on the attitudes towards the three stigmatised groups.

Prabhu (1970) conducted a study with the parents to find out the needs for institutional facilities for mentally retarded children. They were interviewed and were asked whether they would like to keep the child at home and train him, send him to special school or would prefer to institutionalised him. 40 parents could not express their opinions, 20 per cent felt sending him to any special school was harmful, 27 per cent preferred day schools, 13 per cent preferred full time. Institutionalise severely sub-normal children and were keen to absorb the mildly retarded within the family.

In a study by Nesurdar and Prabhu (1972) on "Mental retardation" parents perception of the problem" parents of 34 mentally retarded children were given questionnaires. The results revealed that the parents of mentally retarded children were eager to cooperative with the professional

personnel engaged in training the retardness and those doing research in the field of retardation. They were perceptive to the efforts put in by the professional people. The two main aspects about which the parents of the retardates were worried about were regarding the provision of vocational training to the retardates and for making the special education to get an individual orientation so that each retardates may get what he requires depending on his personal assets and defects.

One interesting study titled "Is the concept of mental retardation apt?" was conducted by Jayaram (1975). Concept of mental retardation and the usual assumptions that mental retardation involves inadequately developed intelligence, is derived from an inherited constitutional defect and is essentially incurable have been rejected on the basis of lack of evidence. Association of social incompetence with mental retardation has been discussed as unacceptably ambigious. It is proposed that child retardates should not be motivated to learn discrimination through selective scanning of their environments which make them experience reinforcement histories different from natural children. It was suggested that alterable limited repertoire of behaviours of the retarded should replace that of an inherently limited mentality.

Vakeel and Sheril (1977) reported case studies of 6 children of profound retardation who were under observation and training, for 2, 5 and 10 years at a school for children in need of special care. These children came to the institution having been completely rejected at home, ridiculed by the neighbours and not taken in schools for mentally retarded. It took months and years to get any response from them. The training began with just giving them love and kindness, which they had not received during their life. Besides, environmental effects like companionship and music played a large part. Gradually they improved and training was started with instructions to do simple tasks with emphasis on self-care and manners. When the stage of mixing in a group, running and playing game, progress was faster and the children were happier. Following regular routine and meticulous habit training, the children gradually got into a disciplined routine life and through that channel gradually improved to get integrated into daily social life.

A study was conducted by Wig, et al.,(1960) to study the attitudes towards mental disorders in rural areas of Sudan, Northern India and an urban areas of Phillipines. The sample comprised of 50, 56 and 90 key informants respectively. Interviewes with them revealed that in all three areas, mental retardation was frequently identified. In

Sudan and Phillipines alcohol and drug related problem were identified and in India acute psychosis was identified. It was also indicated that in all the areas people were more likely to seek help from traditional healers for psychological symptoms. More negative and pessimistic attitude were found in India than in other two countries.

D. Physical, cognitive and social behaviours of the mentally retarded

1. Physical behaviours

Physical growth is a reflection of child's physical, environmental, social and nutritional status. It was therefore, an important area to be explored.

No two mental defectives have precisely the same personality, but individual differences appear to be less pronounced than among the general population. Among the feeble-minded, it is rare to find persons who might be described as dynamic, charming, forceful, vicious, obnoxious or otherwise outstanding. The great majority of defectives are colorless, treetable individual. As a group, they tend to be submissive and easily influenced. In temperament, they are usually stable and apathetic, but a fair number are unstable and emitable (Tredgold, 1979).

According to Sirhin (1980) the mentally retarded children suffer from a general structural and functional inferiority of the entire organism. They learn to walk and talk at a much later age than average children, and they rarely gain proficiency in these simple functions.

Their speech is often defective and they tend to walk with a shuffling gait. Sensory discrimination is less acute than in normal individuals. Visual and auditory defects are common at all levels. The lower grade defective appear to be relatively insensitive to pain, obnoxious odors, and disagreeable tastes (Tredgold, 1980).

Physically the great majority are under sized unhealthy looking, and afflicted with a high incidence of anatomical and physical defects. They possess for less strength and endurance than the average person. Their resistance to physical diseases is low, and their mortality rate is much higher than that for the general population. The organismic inferiority is roughly proportional to the degree of mental deficiency (Hollingworth, 1978).

Several investigations have shown that the mentally retarded children are below normal in heights and weights. Others however found that the heights and weights they recorded for mentally retarded children were in the normal range (WHO, 1978).

In cerebral palsy of perinatal origin he found that the growth disturbance affecting equally the height and skeletal maturation.

Study which attempted to consider only one type of mental retardation, measurements of the children showed that 84 per cent were below the average in weight.

According to Carr (1970) a constant finding from infant development scales in that Down's syndrome infants are retard in motor development.

Penrose (1963) state that the brain of Down's syndrome individuals are characterised by disproportionally poor cerebellum and hence they are likely to have poor performance in and learning of motor skills.

Kermalin and Venables (1964) found that Down's syndrome children had long reaction times to auditory stimuli which these investigators attributed to the possible slow development of a motor skills.

Semmel (1960) compared the teacher ratings of 59 matched pairs of moderately retarded children half Down's syndrome and half brain damaged conditions on coordination and motor skills he found the two groups to be remarkably similar in motor skills though those with Down's syndrome to scatter more.

Most of the findings reviewed above agree on a common statement that mentally retarded are inferior with regard to their physical capabilities.

3. Cognitive behaviours

Intelligence is a complex function that has been defined as the ability to learn use information and skills, adapt to new problems and conditions of life, profit from past experiences, engage in abstract and creative thinking employ critical judgement, avoid errors, surmount difficulties and exercise foresight. The feeble-minded are markedly deficient is all these attributes.

Kaufman (1963) compared the formation of learning set between institutionalised and non-institutionalised group had a significantly higher mean number of correct responses than the institutionalised one.

An important point emerging from Clark et al., (1970) study is that there is a greater difficulty in concept shifting in retardates as compared with normals.

Murphy (1956) compared 30 brain injured, 40 institutionalised familial retardates, 40 institutionalised Mongoloid retardates (matched for CA and IQ) on measure of verbal skills (Stand ford Binet Scale) and performance ability.

(Goodenough to draw a man test) and indicated that the Mongoloid resemble brain injured retarded individuals in their quantity of ability and familiar retardates in the quality of their ability. Range of abilities among subjects in the Mongoiloid groups was narrower than in the other groups.

Berkson (1960) compared twelve institutionalised adult Mongoloids and three groups of undifferentiated retarded subjects on four reaction time tasks and found Mongoloid subjects to be significantly slower and all tasks than the severely normal groups.

In terms of learning characteristics castor and Giradeau (1938) found that Down's Syndrome children did not differ significantly from other children of the same mental age. Therefore appears no justification for grouping children with Down's syndrome homogeneously for instructional purposes.

The other retardates also range from moderate to severe retardation with regard to their degree of intellectual functioning. As Jordan (1961) states, brain injured children probably because of greater frustrating and non-rewarding experiences, have less motivation towards achievement. They show less desire to compete with a standard of excellence and feel less impelled to associate with other retardates.

Satter and Caisal (1955) reported that brain damaged children made greater errors in their localisations, than children whose retardation was psychogenical or due to familial causes.

Dodd (1976) studied on the recognition and reproduction of words by Down's syndrome and non-Down's syndrome retardates and found that the Down's syndrome children performed better an auditory motor tasks than an auditory vocal tasks.

3. Social Behaviours

Fregola (1952) agreed that social competence is the most logical and scientific concept of mental deficiency.

Edgerton (1967) has observed that it is frequently the social incompetence of the mentally sub-normal which causes them to come to our attention in the first place.

Clark (1969) however, pointed out that social adjustment can hardly be precisely identified, so that in practice, particularly at the higher levels subnormality, wide differences in interpretation of definitions become imperative.

The child is socialized because of his attachment to a regarding and nurturant parent (Mowrer, 1950).

Mussen (1967) parental warmth, love and acceptance would increase the effectiveness of this process in socialising the child.

Moore et al.,(1968) compared Mongoloid and other retardates on socially adaptive behaviours patterns and found Mongoloids to show significantly less maladaptive behaviour on fourteen of the twenty one behaviours this confirming the generally held belief that Mongoloids usually are better adjusted than other types of retarded individuals.

Scholtzman and Anderson (1975) compared twelve children with Down's syndrome with twelve other retarded children living in an institution. Based on the observational study of these children in dyadic interaction in free play situations they found that these two groups of approximately twelve year old children were most noticably different in several social behaviour categories. The Mongoloid children were more sociable and more gregarious and the male Mongoloids showed the greatest social superiority. From these he concluded that children with Down's syndrome are about as likely as normal children to have such disorders than other retarded children.

Weber (1956) also employed a five-point rating system to obtain an index of the social position of high, average and low IQ children. He observed that the decremental

effect of low IQ on social status scores was more than 2½ times as great as the incremental effect of high IQ. Children of low IQ are at a greater disadvantage in terms of their social status than children of high IQ are at an advantage.

Johnson and Kirk (1950) found that the retarded were rejected significantly more often with anti-social behaviours most often cited as the reason for the rejection.

B. Scope of prevention of mental retardation

The most logical way of considering prevention is by means of a cumulative programme both biomedical and social, for individual development from conception onwards in conjunction with the parental education and mobilisation of environmental facilities.

Techniques for primary prevention of all the known pathological conditions leading to mental retardation are by no means complete. Nevertheless quite a few pathological conditions data are known to be amenable to preventive measures, some of which would be applicable by and large in Indian settings as well.

1. Avoidance of late pregnancy

It has been calculated that if no children were born after maternal age 35, the incidence of Down's syndrome

would have been halved. This preventive measures as such, is not an expensive one, it needs proper counselling and education of the parents, and this is the need of the hour. Early completion of families would thus be a pre-requisite. The marriageable age for girls has been raised to 18 years recently in India. This would imply that the raising of family may be completed around the maternal age of 30 or so with appropriate spacing between one or two children. Parents need to be dissuaded from having children after maternal age of 35.

2. Genetic counselling

This is becoming increasingly popular in the Western Countries linked with this is the possibility of pre-natal detection of Down's Syndrome through aminocentesis if the diagnosis is positive medical termination of pregnancy would be desirable. Similarly Rubella Vaccination might have a significant impact in reducing the number of severely handicapped children who would be born.

These measures, however cannot straightaway be implemented in India today at a national level because of sophistication of techniques involved as also expenditure for this. This has however, a distinct possibility for the future. Whenever a congenial situation exists this facility can be started in some big cities on experimental basis.

3. Immunisation programme

The increased use of immunisation techniques for the common childhood illness such as measles, mumps and whooping cough which can have a significant impact in reducing incidence of pathological conditions. Clarke and Clarke (1974) have reported that a method of immunising rhesus - negative mothers have been developed to prevent Rh sensitisation by rhesus - positive foetuses, thus protective subsequent pregnancies.

India has been successful in complete eradication of some dreadful disease like small pox with the help of WHO. Other immunisation facilities may also be brought into effect compulsory testing of blood group of the child at birth may also be effected.

4. Proper health care

Better ante-natal and obstetric care would have an impact on the incidence of mental deficiency. Regular medical check-up with the onset of pregnancy along with the provision of milk and other nutrients like multi-vitamins may be made for those who cannot afford themselves, and this would be a national investment in the long run.

5. Obstetric complications

Several studies have shown that severe complications of labour and delivery appear to be associated with neurological defects, which in turn may cause mental retardation. Kaplan (1972) found a correlation between obstretric complications and the nturition of the mother in her own childhood. Better nutrition in childhood, therefore will diminish these obstetic complications.

In India, hospital facilities for child delivery are not so readily available in rural areas. Care should be taken that if hospitalisation is not possible, services of trained personnel is made available during the birth of each child even in the remotest part of India.

6. Consanguinity

Consanguineous marriage are common in some communities. However, a recent study by Narayanan et al., (1973) had indicated that parental consanguinity often produces mental retardation in the off-spring. Nevertheless, it needs to be corroborated by further research. Incidentally, a recent lecture by Dr. Welinshi from Poland pointed out at high infantile mortality rate due to in breeding in comparison to cross-breeding. If it is proved beyond doubt that retardation is caused by marriage of closely related individuals,

a law needs to be enacted as suggested by Justice Hedge (1977) prohibiting marriage within certain degrees of blood relationship. Until such time at least counselling of individuals in certain communities could be started against those traditionally sanctioned preferential pattern of marital relationship between close relatives.

7. Nutrition

Poor nutrition whether during the reproductive cycle or after birth, can impair intelligence some times by causing irreversible effect upon brain growth and behaviour. Kaplan (1978) commented that although a causal connection has not been directly demonstrated, malnutrition is a contributing factor in the incidence of mental retardation.

Das and Pivato (1976) also discussed the effect of protein-caloric malnutrition (PCM). They pointed out that even when adequate protein is available in the child's diet, it may not be readily absorbed. The cultural peculiarities of a community might also indulge in producing malnutrition.

There are many communities in India who subsist on a strict vegetarian diet. Some rich community may have a low-protein diet while the poor from another sub-culture might take cheap food, rich in protein. However, as observed by Prabhu (1975) it cannot be said that incidence of intellectual backwardness is more common in the communities who

live on low-protein vegetarian diet. The complexity of the relationship between malnutrition and mental retardation becomes apparent from Indian instances. Clarke (1974) has also pointed out that difficulty of establishing the effect of malnutrition on man, so malnutrition being a part of a generally adverse situation, seldom exists in isolation. The unstimulation social context might also have a reflection on malnourishment.

In general poverty seems to be a constant companion of malnutrition. Das (1976) has reported that as for as income goes, the families in which clinical malnutrition has occured, have an income around Rs.200 per month. He also estimated that a family of three would need Rs.800/- in groceries for proper nutritional value which is four times more than the total income of the family.

The literacy percentage in India is very low most of the retarded live in the community even without being identified as being retarded. Respective families consider it a problem only when it is a severe case and then seek for outside agencies help for management the number of such institution is also lamentably poor in India.

The unholy trinity of illiteracy, malnutrition and poverty contributed to disadvantage in the intellectual and social development of the growing child in the rural

areas. Poverty also forces the offspring of the poor to have very limited sphere of experience.

Muthayya (1976) suggested a programme oriented to improvement of the nutritional and health conditions of every household, development of better and more educational opportunities for rural children and control of birth rate in rural families particularly in lower socio-economic strata.

The role of stimulating environment on the development of intellectual and social competence has been the object of research since the day of Itard (1976) often the disadvantages of the rural children when compared with his urban poor seems to be insurmountable. The need for enriching the environment of poor children has also been highlighted by Shanmugam (1978) in his presidential address in the IPA Golden Jubilee Conference on 'the disadvantaged child' held in Madras.

The conference has made specific recommendations for providing extra facilities which are meant to compensate for the improvised environment of the children. Implementation of these recommendations would amount to a precautionary measure against incidence of mental retardation alongwith social problems.

F. Guardianship plan for the retarded

At the III Asian Conference on Mental Retardation on November 1977 at Bangalore, Dr.K.K.Baliga presented he following on guardianship plan:

Every parent of the retarded child is always haunted by the fear and uncertainity as to how the child will look after himself when the parents are no more, who will give the financial support, guidance and above all the love the child requires.

Under the law, parents are 'natural' guardians of their children. The law assumes that when the child attains the age of majority (18 years) he is capable of managing his own affairs. If an adult is incapable of managing his own affairs the court can appoint a guardian for him. Such a guardian can take the responsibility for the care of the person and/or the property. The same person may be the guardian of the person and of the property, or there may be two different guardians. The guardians may be some close relations, family friends of some lawyer, banker etc. The important thing is to have as a guardian some one who has a personal interest in the retarded child, some one who is capable of guiding and supervising the child and who can see that the affairs of the child are managed with care.

Even when the parents are alive it is advisable to designate in their will some one who should act as the guardian of the retarded child, the extent of property the retarded child should have and the manner in which the child should have to be looked after. It is necessary that the Federation for the welfare of the mentally retarded and its affiliated societies should have legal aid cells consisting of a lawyer, a tax expert and an expert on the institutional care of retarded, so that appropriate provisions can be made.

When the child is about to attain the age maturity the parents should move the court to appoint a guardian for the child. Ordinarily the courts will appoint a parents as guardians unless the parent themselves are unable to be so. Even then it is necessary for the parents to designate to testamentary guardian, that is, some one designated in their will as the guardian of the retarded child after their own demise.

In many countries, national association for the welfare of the retarded have been able to introduce a trusteeship scheme in cooperation with some insurance companies to provide care and comfort to the mentally handicapped child after the death of the parents. For example, the national Association for the mentally handicapped of

Ireland operates a Trusteeship scheme with the Irish Life Assurance Co.Ltd. A parent wishing for joining the scheme has to take an insurance on his life for 500 pounds and assign the policy to the NAMHI. After the death of the insured person, the NAMHI arranges for regular visits by a properly qualified visitor who would report to the NAMHI on the general welfare and need of the retarded person, and provide him gifts on birth days, services and extra comforts. The Trusteeship plan is financed by the Trust built up through the insurance policies realised, gift donations endowments etc.

The National Association for Retarded Citizens in U.S.A. has devised a NARC Protection Plan (NARL, 1975) based on a group life insurance programme of its members at very low cost.

In countries such as Sweden or the U.K. the various services required for the mentally retarded are provided by the setting up of the facilities. In such countries even if a parent is not in a position to leave behind him an ample legacy for the retarded child, there is some assurance that the facilities set up by the country councils etc. from state grants will provide the necessary care and supervision after the parent demise.

In India the FWMR has initiated action for devising a Trust-cum-Insurance-Scheme (FWMR, 1976) combining the idea of an insurance with the provision of required facilities. Discussion are currently under way with the Life Insurance Corporation of India and it is hoped that the FWMR will be able to introduce the scheme very shortly.

Experimental Procedure

III. EXPERIMENTAL PROCEDURE

The experimental procedure for the present investigation entitled on "Etiological, physical Cognitive and Social functional behaviours of the mentally retarded" is given under the following headings:

A. Selection of the Area

B. Selection of the Sample

C. Selection of the Method

D. Collection of data

and E. Analysis of data

A. Selection of the Area

The following schools for mentally retarded children situated in Coimbatore were contacted:

1. Families for children - Special Care Centre, Podanur
2. Kovai Rehabilitation and information service for the handicapped - Sivanandha Colony
3. St.Ann's Rehabilitation Centre, Singanallur and
4. Orthopaedic and Rehabilitation Centre, Mettupalayam Road, Coimbatore

These were selected because of the availability of the samples and also due to the cooperation extended by the authorities for conducting the study.

B. Selection of the sample

As the study was aimed to find out the etiological physical, cognitive and social functional behaviours of the mentally retarded. The subjects selected for the study were 50 mentally retarded children in the age rangeof 9-15 years, who were attending the special schools. Among the 50 selected retardates, the Down's syndrome children were 10, and the other 40 who were mentally defective due to some of the known as well as unknown etiologies. Fifty mothers of the selected sample were also included in order to find the required data for the study.

C. Selection of the Method

1. General Information about the sample

As the study was aimed to find out etiology of mental retardation, the general information about the family background of the children was considered important and an interview schedule was devised to collect personal and family background information of the selected samples (Appendix I). The questionnaire included the general details such as family history, history of mental retardation, child's personal history, physical appearance, development, home conditions and attitudes of parents.

2. Physical, cognitive and social [illegible] behaviours of the mentally retarded children

a. Physical functional behaviour

Physical functional behaviour was viewed under three headings.

1. Height and weight [illegible] of children

The anthropometry which evaluates the height and weight measurements of the selected children.

2. Gross muscular skills

To assess the gross muscular skills Plumber (1980) used Wechler's test (1958) and the test was slightly modified to suit the conditions of the selected children. The tests included

walking on a straight line
object assembling
climbing and jumping from a junglegym

3. Fine muscular skills

The tests of determining the ability of fine muscular skills were

bead threading
Joining dots
Fixing the pegs

b. Cognitive functional behaviour

To find out the cognitive functional behaviour of selected children the following tests were used

Identification test

Puzzle assembling

Vocabulary test

Command acceptance test

c. Social functional behaviour

To determine the social functional behaviour of the children, 5 point rating scale (Appendix IV) was used. The teachers were consulted as appropriate person to rate the children as they had more chance for observing them and hence with their help the social behaviour was assessed.

A pilot study was undertaken in order to check whether the tests could be carried on with the selected children. In the light of the results of the pilot study the tools of final investigation were modified and accepted as valid for the purpose of the study (Appendix II, III and IV).

D. Collection of data

1. General information about the sample

The investigator secured permission from the school authorities for the purpose of selecting the sample and collectionof data regarding the study was undertaken. Personal interview was conducted using the interview schedule (Appendix I) to collect some necessary information from the parents, regarding their children's birth process, history of mental retardation, health condition of the children and attitudes of parents regarding mental retardation. After finding parents convenient time the investigator approached and collected required data. Before interviewing the parents, they were informed about the purpose of the study and assurence was given for them to keep the information confidential. In case of doubts the clarifications were given and the data was collected.

2. Physical Cognitive and social functional behaviours of the mentally retarded children

(a) The physical functional behaviour

(i) Anthropometry

Height

To assess height of a non-stretchable fibre glass tape was used for height measurement. It was fitted vertically on a wall and the subjects were made to stand on the floor, bare footed with the feet parallel and with heals buttocks,

shoulders and back of the head touching the wall. The head was held erect comfortably with the arm hanging at the sides in a natural manner. A wooden scale was placed gently over the head perpendicular to the wall and the height was measured from the tape correct to 0.1cm.

Weight

A bath room scale weighing balance was used for this purpose. The subject was made to stand bare footed on the centre of the platform without touching or holding on to any object. The weight was measured correct to 0.1kg. The subject was wearing minimum clothing. The accuracy of the balance was checked after every five measurements, using a standard weight.

(ii) Gross muscular skills

Walking on a straight line

Each subject was asked to walk on a straight line 2 inches broad measuring 8 feet, drawn on the floor with one's feet pointing along the line and resting upon it at each step taken, the heel of the advancing foot is set down so as to touch the toe of the other foot on which one is standing. The maximum score was 8 marks 1 mark reduced for each slip (Figure 1).

WALKING ON A STRAIGHT LINE

Figure 1

Object assembling

Five same objects were placed in equal distance covering a distance of 25 feet. Each subject was asked to run from one end to the other covering the above mentioned distance picking up the objects while running and putting each in a basket and run back to the starting point. The time allotted is 2 minutes and 1 mark for each object assembling (Figure 2).

Climbing and jumping from a [illegible]

The children were asked to climb the junglegym and jumpdown from the fifth bar. Time allotment of 1 minute and 1 mark will be awarded for each bar covered.

(iii) Fine muscular skills

The tests conducted for assessing the ability in fine muscular skills were:

Bead threading

Five same colour beads are to be threaded on a twine. The maximum time allotment is 1 minute and 1 mark is given for each bead threading (Figure 3).

OBJECT ASSEMBLING

Figure 2

Joining dots

The selected subject was asked to drew a circle joining the five red dots presented to them. The time fixed for the task is 1 minute and 1 mark awarded for each dot joining.

Fixing the pegs

The children were asked to fix five pegs on the respective holes horizontally. The maximum marks were five and the time fixed 1 minute.

These tests were also scored according to the subjects performance within the fixed time. The maximum score each sub-test was 5, the total maximum scoare being 15 marks. Sub test for determining the physical functional behaviours are given in Appendix II (Figure 4).

C. The Cognitive functional behaviours

This was assessed using the following four sub-tests.

i. Identification test

Five coloured squares red, blue, yellow, green and white were used for this test. Among these squares, the children were asked to identify different colours. For

e.g. "Show me red". The maximum time allotment was 1 minute and 1 mark was given for each successful attempt.

ii. Puzzle assembling test

The children were asked to assemble a five piece puzzle of square within a fixed time of 2 minutes 1 mark was given for each correct placement (Fig.3).

iii. Vocabulary test

The subject were shown five flash cards on which there were 15 familiar pictures of different objects such as people, body parts, household objects fruits and vegetables. The children were asked to identify the pictures. For each correct answer, 1 mark was given with maximum time of 1 minute for each flash card.

iv. Command acceptance test

The children were asked to take a book and pen from among many things on the table and place it on a shelf on the other end and to bring back another book and pencil from there. The maximum marks are 5 and time allotment 2 minutes.

These tests were also scored according to the subjects successful performance within the fixed allotment of time. The maximum score on each sub test was five, the total maximum score amount to 20 marks. Sub tests are given in (Appendix III).

PUZZLE ASSEMBLING

Figure 5

Before administering the test the investigator worked with the children one week to make herself familiar to them and also established a good rapport among the children and teachers. The administration of the tests for determining the gross and fine muscular skills and also the cognitive functional behaviours of the subjects were done on an individual basis and these tests during the free play situation on the class days and also morning before starting the classes. During this time children performed activities without tension and much distractions, so it was considered suitable time to conduct test for the children. With the cooperation of teachers the social functional behaviours of the group were evaluated.

5. Analysis of data

The collected data on the personal and family background, physical, cognitive and social functional behaviours of the subjects under study were consolidated and subjected to statistical analysis.

Results and Discussion

IV. RESULTS AND DISCUSSION

The findings of the present study are discussed under the following headings:

A. General information of the selected samples

B. Causes for mental retardation

and C. Physical, cognitive and social functional behaviours

A. General information of the selected sample

1. Type of family

Among the selected samples, 80 percentage constitute the nuclear family whereas the 20 percentage were from joint family.

2. Area of living

Area of living considered to be an influencing factor for mental retardation. Hence the deistribution of children according to their area of living denotes 60 per cent residing in rural area while the rest 40 per cent were in urban area.

According to Sethil et al., (1972) mental retardation was more common in rural than in the urban population.

3. Size of the family

The family with four and more children is considered as large family. The study reveals that seventy per cent of the children were belongint to the large family and the 30 percentage to small family. As per Zajanic and Marks (1975) explanation there is some effect on intellectual performance because of family size.

4. Income of the family

According to Tamil Nadu Housing Board (TNHB, 1982) low income group includes the income below Rs.650 per month, middle income ranges Rs.650 to 2000 per month.

Hence the income of the selected children's families was categorised and Table I shows the details.

TABLE I

FAMILY INCOME OF THE SELECTED CHILDREN

Income	Number of respondents	Percentage
Low income	25	50
Middle income	19	38
High income	6	12

It reveals from the above table that 50 per cent of the children were belonging to low-income group while 38 per cent were to the middle income and only 12 per cent were to high income. According to Varghese (1972) there is higher prevalence of mental retardation in low-socio economic groups. These findings were subsequently supported by the studies conducted by Nandi (1975).

5. Educational level of parents

Educational level of the parents contributes to cognitive and social development of the growing child (ICMR, 1978). The educational level of the parents is presented in Table II.

TABLE II

EDUCATIONAL LEVEL OF THE PARENTS

Level of Education	Mother		Father	
	Number	Percentage	Number	Percentage
Illiterate	15	30	••	••
Primary	15	30	10	20
Middle school	7	14	12	24
High school	8	16	10	20
Graduate	5	10	10	20
Post-Graduate/ Professional	••	••	8	16

It shows clearly from the above Table that thirty per cent of the mothers were illiterates. Thirty per cent of mothers and 20 per cent of fathers had primary education. Thirty eight per cent of the fathers and very few per cent of mothers had higher education.

6. Occupation of families

Occupational level of the respondents can be seen in Table III.

TABLE III

OCCUPATIONAL LEVEL OF THE PARENTS

Occupational categories	Mother		Father	
	Number	Percentage	Number	Percentage
Housewife	37	74	**	**
Skilled workers	5	10	15	30
Clerical	**	**	10	20
Teacher	8	16	2	4
Business	**	**	11	22
Administrative	**	**	6	12
Professional	**	**	6	12

The fathers of the mentally retarded children were mostly (30%) in the skilled workers category and mothers

(74%) were housewives. The next major number was occupied by fathers (22%) in the business category and mothers (16%) in the teachers category.

7. Conditions of the mentally retarded

Distribution of reported conditions of the selected samples is presented in Table IV.

TABLE IV

REPORTED CONDITIONS OF THE SELECTED SAMPLES

S.No.	Reported conditions	Number of children	Percentage
1.	Mentally retarded	20	40
2.	Down's syndrome	10	20
3.	Cretinism	5	10
4.	Microcephalic	5	10
5.	Brain damaged	5	10
6.	Hydrocephalic	2	4
7.	Epilepsy	2	4
8.	RH Factor incompatibility	1	2

The above Table indicates that majority of selected children were reported as mentally retarded (40%) whose condition could be attributed to various unknown etiologies. Based on the Heber - AAMD (1973) definition, not more than

6% of the retarded conditions have known etiologies while 94% are classified as unknown. Most highest percentage Down's syndrome, a chromosome disorder which is also known as Mongolism have certain features in common. Cretinism 10 per centage is easily identified by his stunted physique coarse, thick skin, loss of hair and other physical characteristics. The thyroid deficiency has been established as the cause of cretinism.

The microcephalic which is characterised by a small head. The microcephalic condition results from environmental factors such as increased x-ray radiations of the pregnant mother leading to severe retardation in the child. There were 10 per cent of the children who had microcephalic conditions.

Among the selected samples there were 10 percentage of brain damaged who were recognised by their behaviour characteristics such as hyper-activity, lack of coordination and perceptual disorders.

4 percentage of the children were Hydrocephalic who had a very large skull and an excessive accumulation of cerebrospinal fluid in the brain.

Mental retardation is often associated with seizures 4 percentage falls in this group.

Only two percentage of the cases were Rh factor incompatibility. The first born is not usually affected by this condition, since it takes time for the mother to develop sufficient antibodies (Joan, 1974).

8. Marriage between the spouses

Recent study by Narayanan et al.,(1978) had indicated that parental consanguinity often produces mental retardation in the off-spring. Hence the following Table V depicts the consanguineous marriage between the spouses.

TABLE V

CONSANGUINEOUS MARRIAGE BETWEEN THE SPOUSES

S.No.	Consanguinity	Number of parents stated	Percentage
1.	Uncle	10	20
2.	Cousins	18	36
3.	Not related	22	44

From the above Table it is clear that 56 per cent of the parents stated that their marriages were between uncle and cousins. Remaining 44 per cent were not related before marriage. This finding reveals that consanguinity

is one of the causes for offsprings mental retardation. Study by Tredgold (1973) also stresses that consanguinity is a second alleged cause that is from the mating of cousins or other close relatives give increased chance for the risk of producing mentally defective children.

9. Ordinal position of children

The ordinal position is considered to be a significant contributory factor leading to mental retardation. Hence, the distribution of children according to their ordinal position is reported in Table VII. VI.

TABLE VI

DISTRIBUTION OF CHILDREN ACCORDING TO THEIR ORDINAL POSITION

S.No.	Ordinal position	Number of children	Percentage
1.	Eldest	18	36
2.	Middle	8	16
3.	Youngest	24	48

In the present study, it is interesting to note that the last borns were counted more often (48%) than the others. The next higher number (36%) belong to the first borns. The Scottish Council for Research in Education (1979) clearly indicates that "IQ decreases as number of

sibilings increases". Some studies have indicated an increased risk with the first (Masland, 1958).

B. Causes for mental retardation

To find out the causes of mental retardation personal history was considered important factor and the collected data reveals the following:

1. Health of mother during pregnancy

Ten per cent of mothers health was affected by the fever during pregnancy. Only a small percentage were affected by chest pain, general weakness and exposure to X-ray during the early part of the pregnancy. Kirk (1974) point out that irradiation during pregnancy causes multiple defects including mental retardation.

A high percentage (70) of the children were born in the hospital and only 30 per cent were born at home.

2. Drugs taken

There were 50 per cent of the mothers who took drugs during the pregnancy prescribed by the doctor while 20 per cent of the mothers took drugs by themselves to abort the child. There were 30 per cent of the mothers who were not taking drugs during their pregnancy.

3. Duration of pregnancy

A highest percentage (90%) of the children were born after completion of nine full months. On the other hand only 10 percentage of the children were born before the time. According to Weber (1974) among the various causes the most frequent perinatal causes leading to mental retardation is premature birth.

Table given below indicates the nature of delivery of the selected children.

TABLE VII

NATURE OF DELIVERY OF THE SELECTED CHILDREN

S.No.	Nature of delivery	Number of children	Percentage
1.	Natural	26	52
2.	Prolonged	12	24
3.	Forceps	7	14
4.	Breech birth	5	10

Above Table indicates that 52 per cent of the children had natural birth. Remaining 48 per cent of the children had difficulties such as forceps, breech and prolonged delivery. Telford (1981) prolonged and difficult labour are the causes for mental retardation.

4. Condition of child at birth

Perinatal causes leading to mental retardation are Anoxia or insufficient supply of oxygen to the brain (Bell, 1941). The data with regard to the condition of the child at birth reveal that a high percentage of (60%) were in the normal condition at birth and 20 percentage of the children's birth cry was delayed and 20 percentage were blue babies.

5. Feeding

Among the selected sample 50 per cent of children had breast feeding and 35% had combination of both breast and bottle feeding while 15 per cent of them had only bottle feeding.

40 per cent of the children's feeding was regulated by demand on the other thand 40 per cent of children's feeding was regulated by schedule and demand feeding.

6. Health condition after birth

Majority of the children (30%) were affected by fits and there were children who had cold, whooping cough and Jaundice during the childhood years 30 per cent and 10 per cent respectivaly. Hedge's (1974) finding reveals that the common childhood illness such as measles, mumps and whooping

cough which can have neurological consequences leading to pathological types of mental sub normality.

7. Weight of children at birth

In order to know how for the weight of the children is related to mental retardation, the data on weight measurement was collected and Table VIII shows the details.

TABLE VIII

WEIGHT OF THE SELECTED CHILDREN AT BIRTH

S.No.	Weight in kg.	Number of children	Percentage
1.	2-2.5	9	18
2.	2.5-3	25	50
3.	3-3.5	16	32

Above Table reveals that about 66 percentage of children having the weight of below 3 kg. The researches prove that the average birth weight of Indian child is 3.25kg and below that they are considered underweight (WHO, 1978).

The following Table drawn to show the distribution of attitudes of parents with regard to their handicapped children.

TABLE IX

ATTITUDES OF PARENTS

S.No.	Attitudes	Number of respondents	Percentage
1.	Love	5	10
2.	Sympathy	7	10
3.	Acceptance	5	10
4.	Tolerent	5	10
5.	Indifferent	10	20
6.	Over protected	7	14
7.	Intolerence	10	20
8.	Disgusted	10	20
9.	Burden on the family	13	26

There were about 40 per cent of the parents who had positive attitudes such as love sympathy tolerent and acceptance for the mentally retarded children. Other attitudes like indifferent over protection, intolerence, disgust of feelings and burden were expressed by the parents with regard to their attitudes. It is striking to note that most of the parents had negative attitudes for their retarded children.

C. Physical, cognitive and social functional behaviours

1. Physical functional behaviour

The selected mentally retarded children's height and weight measurements and other physical functional behaviours are discussed below.

a. Height and weight measurements

A comparison of mean and standard deviations of the height and weight measurements of both boys and girls are presented in Table X. The height is measured in inches and the weight in kgs. The 't' value is computed to find the significance of difference between the two groups.

TABLE X

COMPARISON OF HEIGHT AND WEIGHT MEASUREMENTS OF BOYS AND GIRLS

Variables	Boys		Girls		't' value	Level of significance
	Mean	S.D.	Mean	S.D.		
Height	127.65	28.864	131.445	8.898	0.643	Not significant
Weight	34.583	27.125	27.125	5.447	15.34	1% level of significant

Table X indicates that there was no significant difference between girls and boys as far as height was concerned. Whereas, there was a highly significant difference in their bgweight. In the light of the above

findings it may be concluded that the difference in the weight measurements of the two groups may be attributed to environmental forces.

b. Correlation Analysis

Correlation analysis was carried out for the following:

1. Between height and weight for both sexes
2. Development with physical, cognitive and social functional behaviours

1. Correlation analysis between height and weight of boys and girls resulted in significant correlation with coefficients r = 0.251 and r = 0.465 respectively. Several investigations have shown that the mentally retarded children are below normal in heights and weights (WHO, 1978).

Table XI gives the correlation between development and physical cognitive and social functional behaviours of the mentally retarded children.

TABLE XI

CORRELATION BETWEEN RELATED PARAMETERS AND PHYSICAL COGNITIVE AND SOCIAL FUNCTIONAL BEHAVIOURS OF THE MENTALLY RETARDED CHILDREN

S.No.	Parameters	Physical	Cognitive	Social
1.	Head control	r =-0.8607**	r =-0.766**	r =-.828**
		y =-0.537+3.627x	y =-.420+5.788x	y=-.391+6.29x
2.	Recognising mother	r =-.672**	r= . 0435	r =.1021
		y =-.589+6.5581x	y =.00684+3.542x	.0196+3.954x
3.	Lying on the stomach	r =-.131*	y=-.103*	r =-.527**
		y =-.711+12.589x	y=-.216+9.501x	y =.365+7.798x
4.	Sitting	r =- . 764**	r=-.814**	r=-.127*
		y =-.280+7.018x	y=-.469+9.368x	y=-.0684+11.617x
5.	Standing	r =-.657**	r=-.833**	r=-.342*
		y =-.767+22.294x	y=-.142+6.588x	y=-.296+17.255x
6.	Walking	r =- 0.659**	r=-. 568**	r=-.230*
		y =-0.854+32.820x	y=-.070+5.481x	y=-1.859+52.146x
7.	Respond to familiar word	r =-0.455	r=-.0642	r=-.0646
		y =-0.347+8.743x	y=-0031+4.325x	y=-.002+4.5252
8.	Talking first word	r =-.0.757**	r=-.122*	r=-0.706**
		y =-0.587+19.102x	y=- . 00868+4.205x	y=-0.549+18.915x

**Significant at 1% level
* Signfi cant at 5% level

y = functional behaviours
x = parameters

Table XI indicates that the correlation between head control and physical (r=-.8607**), cognitive (r=-.765**) social (r=838**) functional behaviours, were highly significant and negative. This is strengthened by May wood's finding (1966) that there are relationships between phases of neural growth and the periods during which early experience produces its differential effects on later behaviour.

Negative correlation existed between recognising mother and physical, functional behaviours were highly significant at 1% level. Though positive but not significant correlation was found between recognising mother and cognitive and social functional behaviours. This is supported by (Tapp, 1966). Different levels and qualities of early experience might influence the intellectual development of children differently as a function of social class.

Table XI clearly reveals that negative correlation occurs between lying on the stomach and physical (r=-.131*), cognitive r=-.103) and social (r=-.527**) functional behaviours. Physical and cognitive functional behaviours were not significant whereas the social functional behaviour was significant at 1% level.

It is evident from the above Table that negative correlation was found between sitting and physical (=-.764**)

cognitive (r=-.814**) functional behaviours were significant at 1% level. On the other hand social (r=-.127*) functional behaviour was significant at 5% level. According to Haywood (1964) physiological growth, particularly the rate of consolidation of the neural system that regulate the specific forms of behaviour involved.

In the light of this evidence it can be inferred that negative correlation existed between standing and physical (r=-.657**) and cognitive (r=-.833**) functional behaviours were highly significant at 1% level whereas the social (r= -.342*) functional behaviour was highly significant at 5% level. Musoen (1967) study proves that "parental warmth, love and acceptance would increase the effectiveness of the process in socialising the child.

Negative correlation was found between walking and physical (r=-.659*), cognitive (r=-.868**) and social (r=-0.230*) functional behaviours. The degree of correlation between each other differ. Physical and cognitive functional behaviours were significant at 1% level whereas the social functional behaviour was significant at 5% level. This is supported by Smart (1971) that similarity in growth patterns suggests a close connection between physical growth and mental growth.

It is clearly evident from the Table that negative correlation existed between responding to familiar words and physical (r=-0.455**), cognitive (r=-.0642) and social (r=-.0446) functional behaviours. Physical functional behaviour was significant at 1% level whereas the cognitive and social functional behaviours were not significant.

Negative correlation existed between talking first word and physical (r=-.757**), cognitive (r=-122*) and social (r=-.706**) functional behaviours. The former two were significant at 1% level whereas the latter significant at 5% level.

Summary and Conclusion

V. SUMMARY AND CONCLUSION

The present study has been undertaken to find out the "Aetiological, physical, cognitive and social functional behaviours of the mentally retarded children". The sample for the study constitute 50 mentally retarded children from both sexes ranging from 9 to 15 years. Tests were conducted to find out the correlation between the development and physical, cognitive and social functional behaviours. Fifty mothers of the selected samples were interviewed and information were gathered concerning etiology of mental retardation.

The findings of the study are given below

1. Majority (80%) of the samples were from nuclear family and from rural area (60%).

2. Majority (70%) of the children belonged to large family.

3. Among the selected children 50 per cent of them were from the low income group and the remaining families were from the middle-income group.

4. Thirty per cent of the mothers were illiterate and very few percentage of the mothers had college education while there were 36 per cent of the fathers had college education.

5. Majority of the mothers (74%) were housewives and the rest were skilled workers and teachers. Thirty per cent of the fathers were skilled workers and 22 per cent were business men and rest of them were teachers.

6. Among the selected samples 40 per cent of the mentally retarded were not categorised and the other 60 per cent were categorised as follows:

Down's syndrome	..	20 per cent
Cretinism	..	10 per cent
Micro cephalic	..	10 per cent
Brain damaged	..	10 per cent
Hydrocephalic	..	4 per cent
Epilepsy	..	4 per cent
Rh factor incompatibility	..	2 per cent

7. Forty six per cent of the selected sample's parents' marriages were consanguinious and 54 per cent were not related.

8. Majority of the last born children (48%) and 36 per cent of the first born children were mentally retarded.

9. Ten per cent of the mothers health condition was affected during pregnancy and twenty per cent of the mothers took drugs by themselves in order to abort the child. This may be one of the causes for mental retardation.

10. Ten per cent of the children were pre-mature babies. Fifty two per cent had difficult delivery such as forceps, breech birth and prolonged delivery.

11. The birth conditions of the children revealed that 60 per cent of children were in normal condition at birth. 20 per cent had delayed birth cry and there were 20 per cent blue babies.

12. Thirty per cent of the children were affected by fits, 30 per cent by cold, whooping cough and 10 per cent by jaundice during their childhood years.

13. Above 60 per cent of the children were below 2kg. at birth. Kaplan (1978) commented that although a casual connection has not been directly demonstrated, malnutrition is a contributing factor in the incidence of mental retardation.

14. With regard to the parents attitudes 50 per cent had negative attitudes and 40 per cent had positive attitude towards their children.

15. There was no significant difference between girls and boys as for the height was concerned. But there was a highly significant difference in the weight between girls and boys.

16. Negative correlation existed between development with physical, cognitive and social functional behaviours of the mentally retarded children.

Positive correlation was found between the children's recognition of the mother and the cognitive and social functional behaviours but not significant.

17. Negative correlation existed between physical development (sitting, standing, walking) and physical cognitive functional behaviours at 1% level whereas above parameters and physical functional behaviours were significant at 5% level.

18. Correlation between lying on the stomach and physical and cognitive functional behaviours were not significant whereas the social functional behaviour was significant at 1% level.

19. Correlation between responding to familiar words and physical functional behaviour was significant at 1% level on the other hand cognitive and social functional behaviours were not significant.

20. Correlation existed between talking first word and physical and cognitive functional behaviours were significant at 1% level whereas the social functional behaviour was significant at 5% level. So the study concluded with Hurlock (1978) findings "All development trend are interrelated".

Based on the findings of the study the following recommendations are emerged:

1. Incidence of mental retardation can be reduced through better social and health services which include better immunisation facilities against common diseases during infancy early detection in correlation of in-born error in metabolism family planning, better ante-natal and post-natal care and counselling on genetic compatability.

2. Counselling services must be made available to parents and guardians in order to change their negative attitudes.

3. The younger generation, especially the students in the colleges must be enlightened on the subject on etiology of mental retardation so as to reduce the occurance of the mental retardation in future.

4. In the light of the rapidly increasing population measures must be taken to control the situation as well as to meet the current demand of subsequent increase in the incidence of mental retardation by encouraging more institutions and services.

5. An analysis of the personal problems of the mentally retarded persons could help to discover their strong and weak points. This would help in giving direction to the rehabilitation programmes.

6. The mentally retarded person may not be totally handicapped. He may still have some un impaired areas which could be developed to the maximum. These areas need to be discovered. Newer tests can be prepared for this purpose. Families need help to cope withthe problem, they requires the help of social work surveys and researches are needed and enlighten the public so as to elicit their support.

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Appendices

APPENDIX I

QUESTIONNAIRE TO ELICIT THE ETIOLOGY OF MENTAL RETARDATION

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1. Name of the child: Date:

   Age and sex: CA

   Reported condition of the child:

I. 2. Family History:

   1. Type of family: Nuclear/Joing, small/large, Rural/Urban - Caste Religion

   2. Father

      Mother Date of marriage:

   3. Mother tongue: " Father

      Mother

   4. Are the parents related before marriage?

      How?

No.	Name	Relationship to the child	Age in yrs	Sex	Qualification	Occupation	Monthly income	Marital status

II. 5. History of mental retardation:

Paternal → Father	Maternal → Grand Father
Paternal → Mother	Mathernal → Grandmother
Uncles	Uncles
Aunts	Aunts

III. Child's personal history:

A. 1. Health of mother during pregnancy: Accident/ illness/X-ray expos (specify the time)

2. Child born at: Home/Hospital

3. Duration of pregnance: Full term/premature If premature, No.of month of pregnancy

4. Drugs taken during pregnancy? Yes/No

5. If yes, prescribed by doctor or taken by yourself.

6. Nature of deliver/. Natural/forceps/caesarian/ abnormal.

7. Condition of child at birth: Birth cry/blue baby/normal

8. Weight at birth_____kg

9. Was the child breast fed? Yes/No How long?

10. Was the child bottle fed? Yes/No How long?

11. Feeding regulated by: Demand/Schdule/Combination.

12. Child's health after birth: Jaundice/Fits etc.

When? How long? Frequency:

Treatment: Hospital inpatient/outpatient

B. Physical appearance:

Head: Eyes: Ears:

Arms: Legs: Skin:

C. Development

1. Head control:

2. Recognised mother at:

3. Lie on the stomach at:

4. Sat up at:

5. Stood at:

6. Walked at:

7. Understood words at:

8. Talked at:

IV. Home conditions

Type of locality:

Type of house: Bath: W.C.

Cleanliness:

Sleeping arrangement

Financial position:

Attitude of parents:

Any peculiar behaviour pattern: in the child as seen by the parents:

When the child's difficulties were first noticed?

By whom? Member of family/Teacher/Doctor/Relatives/ Others/Specify

Whether any offence was committed? alone; or with a partner or in a group

Mention the names and number of persons:

Whether parents are cognisant or connected with this offence:

Juvenile's reasons for committing the offence.

Reasons why institutional care is necessary?

Will temporary admission be helpful??

In the words of parents the nature of child's previous difficulties and present problems.

The parents' expectations and goals for their child

Doctors remark about the child.

APPENDIX II

PHYSICAL FUNCTIONAL BEHAVIOUR TESTS

1. Tests for assessing the gross muscular skills

a. walking on a straight line

Each subject was asked to walk on a straight line 2 inches broad measuring 8 feet with balance. The maximum score was 5 marks 1 mark reduced for each slip.

b. Object assembling

Five same objects were placed in equal distant covering a distance of 25 feet. Each subject was asked to run from one end to the other covering the above mentioned distance picking up the objects while running and putting each in a bag and run back to the starting point. The time allotted is 2 minutes and 1 mark for each subject assembled.

c. Climbing and jumping from a junglegym

The children were asked to climb the junglegym and jump down from the fifth bar. Time allotment of 1 minute and 1 mark was awarded for each bar covered.

ii. Tests for assessing the fine muscular skills

a. Bead threading

Five same coloured beads were to be threaded on a twine. The maximum time allotment was ½ minute and ½ mark was given for each bead threaded.

b. Joining dots

The selected subject were asked to drav a circle joining the five dots presented to them. The time fixed for the task was ½ minute and ½ mark each awarded for each dot joined.

c. Fixing the pegs

The children were asked to fix the pegs on the respective holes horisontally. The maximum marks were 5 and the time fixed ½ minute.

Scoring sheet for gross muscular tests

No.	Walking on a straight line	Object assembling	Climbing and jumping from a junglegym
Subject 1			
subject 2			
Subject 3			
Subject 4			
Subject 5			
Total			

Scoring sheet for fine muscular tests

No.	Beadthreading	Joining dots	Fixing the pegs
Subject 1			
Subject 2			
Subject 3			
Subject 4			
Subject 5			
Total			

APPENDIX XII

COGNITIVE FUNCTIONAL BEHAVIOUR TESTS

a. Identification test

Five coloured squares red, blue, yellow and green and white were used for this test. From among those squares, the children were asked to identify different colours for e.g. "show me red". The maximum time allotment was 1 minute and 1 mark was given for each successful attempt.

b. Puzzle assembling test

The children were asked to assemble a five piece puzzle of square within a fixed time of 2 minutes 1 mark was given for each correct placement.

c. Vocabulary test

The subject were shown five flash card on which there were fifteen familiar pictures of different objects people, body parts, household objects fruits and vegetables. The children were asked to identify the pictures. For each correct ones 1 mark will be given with maximum time of 1 minute for each flash card.

d. Command acceptance test

The children were asked to take a book and pen from amongst many things on the table and place it on a shelf

on the other end and to bring back another book and pencil from there. The maximum marks were five and time allotment 2 minutes

Scoring sheet for cognitive functional test:

No.	Identification test	Puzzle test	Vocabulary	Command acceptance
Subject 1				
Subject 2				
Subject 3				
Subject 4				
Subject 5				
Total				

APPENDIX IV

RATING SCALE ON THE SOCIAL FUNCTIONAL BEHAVIOUR

Name of the child:

Retardation

Social functional behaviours	5	4	3	2	1
1. Does he/she have many friends					
2. Does he/she enjoy playing in a group?					
3. Does he/she respond to teachers direction?					
a. In the class room?					
b. In the play situation.					
4. Does he/she show response to peers?					
5. Does he/she exhibit independent behaviour?					
6. Is he/she willing to share teachers attention?					
7. Does he/she show cooperative behaviour?					
8. Is he/she ready to help others in needed situations?					
9. Does he/she exhibit responsible behaviour?					
10. Does he/she respect authority?					