CHAPTER II

REVIEW OF RELATED LITERATURE

* STUDIES RELATED TO HEREDITY AND ENVIRONMENT
* STUDIES RELATED TO INCIDENTAL FIGURES
* STUDIES RELATED TO URBAN-RURAL DIFFERENCES
* STUDIES RELATED TO DIAGNOSIS
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CHAPTER -II

REVIEW OF RELATED LITERATURE

A review is an integrated and organized discussion of the literature pertaining to a well-defined subject. It is an exalting task calling for a deep insight and clear perspective of the over all field. The review of related literature promotes a greater understanding of the problem and its crucial aspects and ensures the avoidance of unnecessary duplication. The research for reference material is time consuming but fruitful phase for investigation. A familiarity with the literature on any problem helps the researcher to discover what is already known; what others attempted to find out; what methods are attracive and disappointing and what problem remained to be solved. Here the researcher reviewed different primary and secondary sources looking through journals, reports, theses and conference proceedings, books, handbooks, dictionaries, Encyclopedias, review, bulletin, Newspaper and dissertations. Some of the comprehensive studies and related literatures are reviewed for the present study and is presented under the following heads:

- STUDIES RELATED TO HEREDITY AND ENVIRONMENT
- STUDIES RELATED TO INCIDENTAL FIGURE
- STUDIES RELATED TO URBAN-RURAL DIFFERENCES
- STUDIES RELATED TO DIAGNOSIS
- STUDIES RELATED TO TREATMENT AND EDUCATION
- STUDIES RELATED TO REHABILITATION
STUDIES RELATED TO HEREDITY AND ENVIRONMENT:

Kalikak family study conducted by Goddard (1912)\(^1\) and claimed that feeble mindedness had been transmitted by hereditary factors in the family from Martin Kalikak and a "nameless feebleminded girl" by whom he had an illegitimate child during American war. After the war Kalikak again married an intelligent girl from his own class. This time a large number of eminent and able members come from intelligent wife. Goddard traced both the lines of descendents for a number of generation and found many more feebleminded person among the descendents of the feeble minded wife than among those of intelligent wives. Goddard concluded that mental retardation (feeble mindedness) is hereditary. David Stafford and Linford Rees in (1964 and 1970)\(^2\) respectively revealed that at least 5% of babies born turn out to be mentally retarded. Linford Rees (1967)\(^3\) reported that Mongolism was first described by Langdown and he so named it Down’s Syndrome (a superfacial resemblance to oriental people). In 1959 it was found that down’s syndrome was associated with an extra chromosome and the risk of a women below 25 years of age giving to a down’s syndrome child is 1 in 23000 and 1 in 100 for women between 40 - 45 and 1 in 46 for women older than 45. About 1 in every 600 live births is Down’s syndrome. The high infant mortality of Mongolism reduces its incidence in the general population to 1 in 1000. Belmont (1971)\(^4\) expressed that Down’s syndrome children shows less psychological disturbances in comparision to other catagories of mentally retardaded. They feel more secure in home environment with warm love and affection than in an institution.

Murdock (1975)\(^5\) reported that the occurrence of phenylketonuria (PKU - damage to the brain tissue) had been found to range from 1 in every 6800 birth to 1 in every 14000 births. PKU is caused by genetic factor (recessive manner). It was first described by Folling (1934). According to Robinson and Robinson (1976)\(^6\) Down’s syndrome is probably the single most common chromosomal cause
of moderate to severe degree of mental retardation. It’s risk increase with the increase in age of the mothers. Specially after 40 years. The older the mother, the greater the chance for down’s syndrome. Shankar (1976) quoted that the percentage of the hereditary origin of mental deficiency estimated by various authorities were shown in the following table.

Table 2.1 Percentage of hereditary origin of mental deficiency.

<table>
<thead>
<tr>
<th>Year</th>
<th>Thought Percentage</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1869</td>
<td>Galton thought that it was in about 100 %</td>
<td>cases</td>
</tr>
<tr>
<td>1906</td>
<td>Woods thought that it was in about 85 %</td>
<td>cases</td>
</tr>
<tr>
<td>1912</td>
<td>Goddard thought that it was in about 77 %</td>
<td>cases</td>
</tr>
<tr>
<td>1920</td>
<td>Hollingworth thought that it was in about 90 %</td>
<td>cases</td>
</tr>
<tr>
<td>1929</td>
<td>Tredgold thought that it was in about 80 %</td>
<td>cases</td>
</tr>
<tr>
<td>1934</td>
<td>Doll thought that it was in about 33 %</td>
<td>cases</td>
</tr>
<tr>
<td>1934</td>
<td>Penrose thought that it was in about 29 %</td>
<td>cases</td>
</tr>
<tr>
<td>1935</td>
<td>Burt thought that it was in about 14 %</td>
<td>cases</td>
</tr>
</tbody>
</table>

Khaparde, s. (1987) expressed that an analysis of 470 cases of mental retardation in the clinics of the All India Institute of Medical Sciences 40.1% of the cases were found mentally retarded because of genetic and chromosomal factors.

Arnold Gassel (1940) remarked that environmental factors influence an individual's adaptive behaviour, his personality and intelligence. The best answer was given by Arnold Gassel in his book, "Wolf children and human child". The fact he narrated was that a missionary found two children in a Wolf’s den at Lucknow (1920) who were taken by wolves from their family. These children lived many years with them. They were rescued from the forest, kept in hospital.
and found that they were not better than the brutes. They were “Ramu and Kamala”. Gassel expressed that the social behaviour of Kamala bore the impress of wolfish ways and predudices.

The younger children tried to allure and entice her to play, but to no avail. She would sit aloof in a corner for hours at a strength, her back to the children, her face to the wall bestowing only forced or furtive glances on her well meaning would be companions”.

He remarked that Anna was an illegitimate child who was kept away from any company except her mother till five years of age when she was discovered, she was “Just bones drawn over them” expressed the police officer who discovered her. She failed to develop as human being and survived for only five more years with exceptional care. At her death at ten and half years she had the intelligence of a child of two and half years.

Goldfarb (1945)\textsuperscript{10} found positive relationship between maternal deprivation and mental deficiency.

Charles (1953)\textsuperscript{11} carried out a longitudinal study of a group of 206 individuals, all of whom, when at school had an I.Q. below 70 and had spent more than one year in “opportunity rooms” in Nebraska because of low intelligence coupled with other clinical and educational evidence of mental subnormality. Beller found among the mentally subnormal group more cases with unsatisfactory work histories than among the normal group, 41% as against 15% being in receipt of poor relief during the depression. More of them had been before the courts and their social adjustment tended to be inferior to that of the control group. Damle (1952)\textsuperscript{12} examined many socio-psychological factors that operate in the case of mentally retarded children. He held factors like order of birth, age group, education, occupation, income of parents, rates of sibbing death, mothers physical condition during pregnancy, food given in infancy etc. are closely related with mental
In an American study (1960) quoted by Barthakur, revealed that over use of vitamin could be harmful. It was found that in the U.S.A many pregnant mothers started taking vitamin D in large measures in the mistaken assumption that they would improve their health and fatal development. It was subsequently discovered that excessive vitamin D in the mothers bloodstream caused hypercalcemia (excess calcium) in the foetus, which lead to mental deficiency. Kuppuswamy (1961) conducted a survey in Mysore city, where not a single retarded child comes from the high socio-economic group. Amesur (1962) refers that poor social condition, bad nutrition, insanitary surroundings, poor parental guidance are usually associated with low economic factors and with subnormal
Study of Marfatia (1963) revealed that after birth, psychological, educational, cultural and social factors influence the developing mind. The poor living conditions or lack of adequate care of children during infancy and early childhood are important contributory causes of mental retardation. Kirk (1962) summarised different studies of the environmental effects on mentally retarded children are as follows. FIRSTLY different case studies confirmed that deprived environment is the cause of mental retardation. But the case studies are somewhat ambiguous and do not show necessarily that a change of environment changed that status of the cases perceptibly. SECONDLY the environment of mentally retarded children was changed by placing them in foster home. The result show that intellectual development of children is affected in varying degrees by the type of home in which they are placed. The THIRD approach had been the comparison of the intellectual level of children coming from different environments. But regarding findings it had no any clear conclusion. The FOURTH approach was the investigation of the effects of environmental enrichment and school programmes on the development of retarded children. The findings of the studies had been controversial. It was concluded that altering rate of development through environmental enrichment is possible while others contended that it is impossible.

Study of Marfatia (1963) revealed that after birth, psychological, educational, cultural and social factors influence the developing mind. The poor living conditions or lack of adequate care of children during infancy and early childhood are important contributory causes of mental retardation. Graham et al (1963) referred that children with a history of breathing difficulty showed more neurological abnormalities and intellectual disorder than normal controls. Due to this dysfunction of the liver in the newborn, a disease called Kernicterus occurs which also lead to mental retardation. Gunnar Dybwad (1964) on the basis of many studies concluded that socio-cultural and economic factors play a decisive role in determining the degree of mental retardation, a mild form of retardation. Seeta Sinclair (1964-65) conducted many studies on mental retardation and
concluded that biggest single cause of mental retardation is sub-cultural or familial mental retardation. Because parents with a low I.Q. can not compete for a high position or work which tend to drift to low-paid work and an environment which is culturally low and not stimulating so that the children of these parents have not only an inherited low level of intelligence but also deprive environment which further prevents any improvement in their condition. Robinson and Robinson (1965)26 stated that significant relationship exist between socio-economic class and a wide variety of variables, health, education and the general welfare suffer in the lower socio-economic classes of almost of all countries in comparison to more fortunate classes. Aims and purposes, abilities and achievements all tend to very significantly with social class. Kishore, Istiaq quoted the study result of Jaya Nagaraja (1965)27 which indicated that heavy incidence of mental retardation occured in culturally deprived population. The adverse social, economic and cultural conditions play an important role in the causation of mental retardation. Mental retardation according to her, is not a static condition but is related to the educational and social level of the community in which the individual happens to live. Karl Frankenstein (1965)28 stated that environmental causes of mental retardation are growing up under externalizing influence of extreme poverty and educational institutional care and impersonality of primary relationships under conditionig of institutional routine. Later lack of intellectual stimulation and placeness of the paternal immage, emotionally conditional blocking, regression or distortions, psychotic personality disorder and certain types of delinquent behaviour. These environmental and personality factors produce feeblemindedness entering into configuration with other specific or non-specific factors. Cultural fusion and insurity and weakness of parental guidance and stimulation also contribute to mental retardation. Ramanujan etal (1966)29 of B.M. Institute, Ahmedabad conducted survey on six Municipal Schools of Ahmedabad to determined the incidence of slow learners, the finding referred that the retardates generally belong to lower socio-economic group. The sub-cultural
environment of such children was also reported to be not very conducive and stimulating. They held socio-economic factors responsible for mental retardation. Das Gupta (1967)\textsuperscript{30} revealed that cultural deprivation is one of the important factors that contribute to mental retardation. He pointed out that mostly moderate and mild retarded group contain a large number of culturally deprived persons and their intelligence can be raised by adopting various remedial measures. Studies undertaken by Srivastava, Shankar and Pandey et. al (1967)\textsuperscript{31} expressed that in India the underdeveloped level of culture in countryside, lack of educational and technological development and the absence of demands on the individual resources generally result in the underdevelopment of the latent potentialities of the people. Hence a large number of persons in rural areas and also among the urban population remain pseudo-retarded. Puri (1967)\textsuperscript{32} conducted a study and concluded that the problem of continued maladjustment in the mentally retarded children can be avoided to a greater degree by a) understanding the particular emotional needs of the child. b) Setting up of guidance cells at many educational institutions if possible. c) discovering emotional maladjustment in the earliest stages. d) taking remedial measures. Bijou (1968)\textsuperscript{33} reported four environmental factors responsible for placing restrictions on developmental opportunity. a) Abnormal anatomical or physiological function b) Deficient reinforcement and discrimination histories c) Disadvantageous reinforcement of undesirable behaviour d) Severe aversive stimuli. The interaction of these and other process such as disruption of the mother child relationship accounts for retarding influence. Das (1968)\textsuperscript{34} held cultural deprivation as one of the factors that favours intellectual subnormality. To him cultural deprivation refers to a complex set of conditions. The conditions are contributed by an unstimulating environment, lack of verbal commence with adults, poor sensory experience and other deteriorating environmental factors generally associated with poverty. The ill effects of cultural deprivation not only affect intelligence but also in verbal communication. Kuppuswamy (1968)\textsuperscript{35} conducted a survey in Mysore city which
revealed that a relatively higher incidence of mental retardation occurred among the socio economic group. Takrani (1969)\textsuperscript{36} was of the view that sensory deprivation, motor deficit, nutritional deficiency, language difficulties, cultural deprivation etc. Contribute to mental retardation. To him cultural deprivation as represented by non-stimulating social or family environment and in adequate schooling play vital role in the field of mental retardation. Srivastava (1970)\textsuperscript{37} study report referred that the number of mentally retarded children increased with the number of sibling. It was also reported that parent child relationship plays a vital role in the adjustment of such retardates. Teja, verma and shah (1971)\textsuperscript{38} conducted a comparative study of the background factors in mentally retarded and emotionally disturbed children. They viewed that mental retardation was found to be associated positively with rural background, family history of mental retardation and organic psychosis. Mental retardation has no relation with age, sex, income, sibling, size of the family, rivalry, neurotic traits and family history of neurosis. But preponderence of male mentally retarded in the ethnic population as a whole was observed. According to Hellman and Pritchard (1971)\textsuperscript{39} 5% of the pregnancies may be accompanied by some viral infection having their dangerous effects upon the unborn during the first three months. Due to this infection, certain damaging agent get in causing measles, chicken pox, small pox, polio and rubella. Rubella is said to be one of the most acute infection leading to mental retardation. Chess, korn and Fernander (1971)\textsuperscript{40} reported that moderate mental retardation in 25% of rubella infected children and mild retardation in another 25% such as deafness, cataract and malformation of the heart. Bouer (1972)\textsuperscript{41} found that various birth and environmental hazards and infectious diseases affect more the poor class. The pregnant mothers of the poor class rarely get proper care and food. There is hence greater risk for mental retardation to their child than the affluent and rich mothers. Winick and Rosso (1972)\textsuperscript{42} viewed that malnutrition in pregnant rats results in about 15% reduction in the number of brain cells in their offspring. They also
found that malnutrition in human resulted in significantly lower birth weights in infants. Lower birth weight indicates lower brain weight and reduced intellectual ability. Niswander and Gordon (1942) reported that the death rate for low birth weight infants is 25 times greater than for normal weight infants. The rest who survive, the rate of neurological abnormality is 3 times higher than the normal weight babies. Istiaq (1973) Conducted a socio-Psychological study on mental retardation at the university of Lucknow. The finding of the study indicated that most of the mentally retarded students come from uncongenial surrounding and low socio economic class. Grossman (1973) viewed that mental retardation may cause due to psycho-social disadvantage. White and watt (1973) observed that in lower and lower middle socio economic groups, both parents used to go out to earn their living as the father's pay is not sufficient to maintain the family. Consequently when mother go out to work the responsibility of the child falls either on the servant or baby sitter or older sibling or a relative. Keeping this in mind they remarked that one result of this arrangement is that the interchanges necessary for successful parent child relationships are missing and intellectual, Social and emotional growth can be hampered. Studies Conducted by Jones et. al (1974) indicated that the use of thyroid and small pox vaccines or inoculation with anti tetanus serum may lead to neurological disorder and mental deficiency. Study conducted by Coldman, Kufman and Liebman (1974) found that out of 55 children weighting less than 3 pounds at birth and at the age of five 58% child had less than 80 I.Q. and only 30% were attending regular schools. Milkovich and Vendenberg (1974) reported about the adverse effect of minor tranquillisers such as chlordiazepine and meprobamate (Librium and Miltown). Similarly, RH in compatibility, increased age, radition, poisoning and stress in the mother also lead to subnormal mental development. Injuries prior to birth may also have adverse effects upon the foetus. Shephard (1974) found that intoxication and use of unsafe drugs may cause mental retardation. It was reported that at least 20 drugs can
produce defects in the unborn child which may lead to mental retardation. Carbon monoxide, lead, arsenic, quinine and other substances may lead to mental retardation. Thalidomide may produce limbless, eyeless retarded babies in 20% of the women. Thus the use of unsafe drugs may bring genuine damage to the unborn child in the form of mental retardation. Biswas (1975)\textsuperscript{51} Conducted a comparative study on the family background of mentally retarded and the normal children. The study revealed that more mentally retarded children come from poor family background. Borthakur (1978)\textsuperscript{52} reported that dropping of Atom bomb on Hiroshima (August 6 1945) and Nagachaki (August 9, 1945) affected the expectant Japanese women who were within a mile and a half of the explosion. The mother gave birth to babies with damaged brain and deformed skulls. This observation lead to investigation which indicated that pregnant women who received heavy doses of x rays gave birth to babies with malformed eyes. Studies conducted by Benda et al. (1983)\textsuperscript{53} which indicated that the families of the retarded were educationally backward and economically deprived.

\section*{STUDIES RELATED TO INCIDENTAL FIGURE}

UNESCO (1955)\textsuperscript{54} had reported an estimated proportion of various grades of mentally subnormal children in a school population. According to its report 2.56 percent of children in the school population was mentally subnormal whose I.Q. was lower than 70. The following table will make it more clear.

\begin{table}[h]
\begin{tabular}{|c|c|c|c|}
\hline
Degree of mental & Terms used & Approximate I.Q.Level & Approximate percentage in the School population \\
Subnormality      &              &                       &                                        \\
\hline
Serve subnormality & idiot        & 0------19             & 0.06                                   \\
Moderate Subnormality & imbecile   & 20------49            & 0.24                                   \\
Mild Subnormality  & feeble minded & 50------59           & 2.26                                   \\
Dull-Normal        & Dull &Backward & 70------85 &90 & 10.00  \\
\hline
\end{tabular}
\end{table}

These situations lead to investigation which indicated that pregnant women who received heavy doses of x rays gave birth to babies with malformed eyes.
Indian Council of Mental Hygiene (1959) revealed that about 1% of the population is mentally retarded in India. Marfatia (1968) estimated that 30 lacks of mentally defectives are available in India. WHO (1968) reported that 1-3% of the population are being mentally retarded. Kupuswamy (1968) conducted a study at Mysore city and reported that 1.14% of the population are mentally retarded in the city. Verma (1968) Conducted a study at Nagpur which concluded that 3.01% of the population are mentally retarded. Prabhu et al (1970) Conducted a survey in Delhi and pointed out that 85% of the retarded sought advice from quacks. Further, it was noted that less than 1/5 of the parents in the survey had any real idea about the potentiality of their children. Gupta (1970) on the basis of his analysis of 300 mentally retarded cases, reported that majority of the cases were severely retarded and belonged to the age group 1-10 years. He also reported that the ratio of mental retardation between male and female was 2:1. Sethi of the department of psychiatry, Lucknow medical college, conducted a Survey (1972) in Lucknow city and neighbouring villages. He reported that 23 out of every 1000 person (2.3%) in U. P. suffer from mental deficiency. Comparing with southern states he concluded that the rate of mental deficiency is much higher in U. P. The finding of this study also revealed that boys were more prone to mental retardation than girls. It was also reported that 74.5% of the retarded belong to the age group of 1-10 years. Sethi et al. (1972) reported that 2.53% of the population of Lucknow was found mentally retarded. Shankar (1976) reported that the figures of incidence of mental retardation in India is 34,50,000 out of which idiots constitute 75000, the imbeciles 1125000 and morons 22,50,000. Rao (1979) reported that about 3% of the population may be identified as mentally retarded to some point in their lives and approximately 0.5% of pre-school children are mentally retarded. Survey conducted (1981) during the international year of Disabled in India indicated that approximately 3% of the population are mentally retarded. Among these 1% come under severely retarded category. From a child population of about 6 million
it has been calculated that approximately 2 million children are mentally retarded which means 33% of the child population are placed under mentally retarded catagory, where as 3% of the total population is in that catagory. A ten years long study was conducted at kasturba Medical colleg Hospital, Delhi by kumaraswamy et al (1976-1986) on the child upto 14 years of age. The sample of the study constitutes 1386 out of which 686 (50.63%) were found mentally retarded. Of these 38.54% had mil retardation, 22.29% had moderate retardation, 24.30% had severely retarded, 14.24% had profoundly mentally retarded and 18.51% of the retarde had behavioural problems. The family history of mental retardation was found in 5.39% cases, the male retarded 58% and female retarded 42%. The nuclear family had in incidence of 66.33%, the jont family had 33.76% and the single child family had 7%. Again the incidence in first child was 24.48%, in middle child was 36.88%, last child was 31.63%, in consangainity 23.90% among Hindu it was 75.07%, among muslim 13.99% and amongchristican 10.93%. The diagnostic break up of the Sample of 1386 patient is given below.

Table 2.3 Diagnostic break up.

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental retardation</td>
<td>686</td>
<td>50.63</td>
</tr>
<tr>
<td>Dyslexia(Specific developmental delay)</td>
<td>153</td>
<td>11.29</td>
</tr>
<tr>
<td>Epilepsy</td>
<td>166</td>
<td>12.25</td>
</tr>
<tr>
<td>Conduct disorder</td>
<td>34</td>
<td>2.51</td>
</tr>
<tr>
<td>Emotional disorder</td>
<td>135</td>
<td>9.96</td>
</tr>
<tr>
<td>Psychosis</td>
<td>29</td>
<td>2.14</td>
</tr>
<tr>
<td>Hyperkinesis</td>
<td>38</td>
<td>2.80</td>
</tr>
<tr>
<td>Neuresis</td>
<td>27</td>
<td>1.90</td>
</tr>
<tr>
<td>Organic mental disorder</td>
<td>21</td>
<td>1.55</td>
</tr>
<tr>
<td>Other</td>
<td>65</td>
<td>4.80</td>
</tr>
<tr>
<td>N.Y.D.</td>
<td>13</td>
<td>0.96</td>
</tr>
<tr>
<td>Nil Psychiatric</td>
<td>128</td>
<td>9.45</td>
</tr>
</tbody>
</table>

Total: 1386
The above study was concentrated to 686 mentally retarded cases only. Therefore, the break up of the study population of 686 M.R. Cases on degree of retardation and various Socio-demographic variables are shown as follows:

Table 2.4 Distribution on Socio-demographic Variables

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1 yr. 11 months</td>
<td>16</td>
<td>11</td>
<td>9</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>2-5 yrs. 11 months</td>
<td>54</td>
<td>27</td>
<td>34</td>
<td>22</td>
<td>11</td>
</tr>
<tr>
<td>5-9 yrs. 11 months</td>
<td>114</td>
<td>68</td>
<td>53</td>
<td>41</td>
<td>9</td>
</tr>
<tr>
<td>10 yrs. &amp; over</td>
<td>65</td>
<td>42</td>
<td>61</td>
<td>28</td>
<td>15</td>
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<table>
<thead>
<tr>
<th>SEX</th>
<th></th>
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<tbody>
<tr>
<td>Male</td>
<td>151</td>
<td>76</td>
<td>96</td>
<td>51</td>
<td>28</td>
</tr>
<tr>
<td>Female</td>
<td>98</td>
<td>72</td>
<td>61</td>
<td>41</td>
<td>15</td>
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<table>
<thead>
<tr>
<th>RELIGION</th>
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<tbody>
<tr>
<td>Hindu</td>
<td>184</td>
<td>115</td>
<td>115</td>
<td>70</td>
<td>31</td>
</tr>
<tr>
<td>Muslim</td>
<td>36</td>
<td>23</td>
<td>19</td>
<td>13</td>
<td>5</td>
</tr>
<tr>
<td>Christian</td>
<td>29</td>
<td>10</td>
<td>23</td>
<td>9</td>
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<table>
<thead>
<tr>
<th>TYPE OF FAMILY</th>
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<tbody>
<tr>
<td>Nuclear</td>
<td>163</td>
<td>98</td>
<td>98</td>
<td>67</td>
<td>29</td>
</tr>
<tr>
<td>Joint</td>
<td>86</td>
<td>50</td>
<td>59</td>
<td>25</td>
<td>11</td>
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<table>
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<th>BIRTH ORDER</th>
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<tr>
<td>Only child</td>
<td>19</td>
<td>7</td>
<td>12</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>First child</td>
<td>69</td>
<td>36</td>
<td>36</td>
<td>19</td>
<td>8</td>
</tr>
<tr>
<td>Middle child</td>
<td>80</td>
<td>54</td>
<td>74</td>
<td>29</td>
<td>16</td>
</tr>
<tr>
<td>Last child</td>
<td>81</td>
<td>51</td>
<td>35</td>
<td>37</td>
<td>13</td>
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<table>
<thead>
<tr>
<th>CONSANGINIVITY</th>
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<tbody>
<tr>
<td>Absent</td>
<td>195</td>
<td>112</td>
<td>121</td>
<td>66</td>
<td>28</td>
</tr>
<tr>
<td>Present</td>
<td>54</td>
<td>36</td>
<td>36</td>
<td>26</td>
<td>12</td>
</tr>
</tbody>
</table>

National Policy on Mental Handicap (1988) stated that the number of mentally handicapped persons in the country is nearly 16 million of which 2.5
to 3 million individuals would be with moderate to severe degrees of mental handicap. It has been found to be slightly higher in the rural than in the urban areas. Swaminadhan (1994) reported that according to WHO around 2-3% of the population in India is mentally retarded which means about 20 million people come under this category.

### STUDIES RELATED TO URBAN RURAL DIFFERENCES

Schemidt (1938) followed up the graduates of a rural school near Berlin and found that the people who had higher grades in school were the ones who generally gravitated toward the metropolis, while those ranking lower in grades stayed in the countryside. Brugger (1939) and Sarason (1959) also found a similar tendency in four districts in Switzerland. Studies conducted by Smith (1942-1943) on the University of Kansas freshmen; Nelson (1942) on State College of Washington freshmen and Hyde Kingsley (1944) on draftees from the Boston area. The findings of the studies conformed that urban children do better in intelligence test than rural children especially on verbal items. Both children and adult who lived in cities are more "intelligent" than those who live in rural areas. The findings were based on three kinds of data, test results on school children, entrance test for college students and rejection rates for draftees in college students and draftees in both world wars. Ginzberg and Bray (1953) conducted studies based on World War II and Korean War data. They concluded that at least in the United States, regional differences in intelligence correspond rather closely to regional differences in urban areas. The rural urban differences witnessed generally in terms of regional level. Shankar (1958) reported that mentally retarded children come both from the urban and rural areas and there is no certainty whether mental deficiency is more prevalent in the countryside or in cities it still a controversial issue. According to Sarason and Ladwin (1959) three explanation could be given in support of the above phenomena. (1) the ability of the cities with a more concentrated tax base...
and more children available as students to build better schools, attract better teachers and assign students to classes all of whose members have approximately equal level of performance. (2) Selective migration which meant that the more capable people in rural areas or small towns motivated to have resources and moved to city to improve their status, leaving their duller fellows behind. (3) The city, through the stimulation and competition induced by a larger number of interpersonal relationships and through the wider range of experience available, provides a better opportunity to develop the skills important for an intelligence test. Cassel (1973) reported that the incidence of mental retardation is consistently higher in poor urban areas, however from this observation alone it can not be concluded that economically deprive children are prone to mental retardation. Khaparde (1987) reported by indicating research studies from different parts of the country that mental retardation is as common in India as it is elsewhere and it is equally common in rural and urban areas. A member of planning commission, swainadhan (1994) reported that ironically 80% of the mentally retarded come from rural areas.

**STUDIES RELATED TO DIAGNOSIS**

Diagnosis indicates identification of the problem of mental retardation. I. Q. level and general intellectual functioning, the level of adaptive behaviour and develop mental milestones are some of the important Criteria to identify mentally retarded children for their treatment and education. Doll (1941) reported that the concept of "Social Competence" is the valid criteria for detection of mental retardation. Penrose (1949) remarked that social criteria are not only changeable but they are relative and not absolute. Hence to make a diagnostic inference of mental retardation solely on the basis of a finding of social incompetence in a particular environment at a particular time in unjustifiable since the same person might well be found competent is a different environment or to different standards. In support of this argument Arthur (1950) cited actual cases in which application of the criterion of social competence would place a person in the
awkward position of having to consider a mentally retarded in one situation but not in another. Tredgold (1952) rejected both educational achievement and performance on standardized intelligence tests as satisfactory criteria of mental retardation. He considered that social competence was "not only the most logical and scientific concept of mental deficiency, but the only criteria which the community can justify."

The fifteenth report (1968) of the Expert committee on Mental Health stressed the limitations of I.Q. and the concept of social competence as sole criteria of mental retardation. It has emphasized the legal and social definitions and classification of retardation in the culture. According to British Psychiatrist linford Rees (1967) following landmarks helps for recognising mental retardation among infant and children. By comparing the development of suspected subnormal cases with the normal developmental milestones mentally retarded children can be identified.

Table - 2.5 Developmental milestone and age level

<table>
<thead>
<tr>
<th>DEVELOPMENTAL MILESTONE</th>
<th>NORMAL AGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smiling in response to the mothers overtures</td>
<td>6 weeks</td>
</tr>
<tr>
<td>Grasping an object</td>
<td>3 months</td>
</tr>
<tr>
<td>Ability to go for an object and get it</td>
<td>5 months</td>
</tr>
<tr>
<td>Ability of lift head from the supine</td>
<td>6 months</td>
</tr>
<tr>
<td>When Lying on a firm surface</td>
<td>9-10 months</td>
</tr>
<tr>
<td>Walking when held with hands</td>
<td>13-15 months</td>
</tr>
<tr>
<td>Walking without support</td>
<td></td>
</tr>
<tr>
<td>SPH C DEVELOPMENT</td>
<td>NORMAL AGE</td>
</tr>
<tr>
<td>Able to say 'Mum, mum'</td>
<td>6 months</td>
</tr>
<tr>
<td>Able to say 'Da Da' Ma, Ma, Ma</td>
<td>8-9 months</td>
</tr>
<tr>
<td>Able to say one or two words with meaning</td>
<td>10-11 months</td>
</tr>
<tr>
<td>OTHER USEFUL POINTERS</td>
<td>NORMAL AGE</td>
</tr>
<tr>
<td>Turning head to a sound</td>
<td>3 months</td>
</tr>
<tr>
<td>chewing</td>
<td>6 months</td>
</tr>
<tr>
<td>playing games</td>
<td>6 months</td>
</tr>
<tr>
<td>Imitate parents coughing, putting tongue and knocking on table</td>
<td>6-9 months</td>
</tr>
<tr>
<td>wave hand and say 'good bye'</td>
<td>10 months</td>
</tr>
<tr>
<td>Feeding self with a cup and placing it back on the table without help</td>
<td>15 months</td>
</tr>
</tbody>
</table>
Shankar (1976)\textsuperscript{84} stated that a scientific diagnosis of mental retardation have four approaches (a) Medical examination by the pediatrician (b) Psychological or psychometric examination (c) Achievement or diagnostic tests in school subjects or school report if the child has some schooling (d) developmental history of the child from birth onwards. Rao (1979)\textsuperscript{85} was of the view that the peak period for recognition of mental retardation is between 6 years to 16 years of age when formal schooling seems to be started. Gore (1980)\textsuperscript{86} viewed that mental retardation can be measure on I. Q. range. The average I. Q. range is between 84 to 116. If the I.Q. of a child is below it that will be a mentally retarded case. Children with borderline mental retardation are generally not distinguishable from normal children except for the fact that they can not study beyond matriculation and seem to be exceptionally dull. The voluntary Health Association of India (1989)\textsuperscript{81} remarked that Developmental Milestones of mentally retarded child is delayed. He does not grow at the same rate as normal children grow. Parents must be concerned if a child is not able to do some particular activities meant for him even by the time given in the second column in the following table.

The Association has given some of the common milestones of development that can help to identify the normal behaviour of the child.

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* Developmental Milestones indicated that all children grow step by step. These steps are like milestones on a road which tell how much of the road is still left. Children are able to do a particular activity by a particular period. These steps are called Milestones of Development.
Mangal (1994)\textsuperscript{89} stated that mentally retarded children can be detected by foetus examination, urine or blood test, assessment of intellectual
functioning and adaptive behaviour. Adaptive behaviour can be observed and assessed by Adaptive Behaviour scale and Minnesota Developmental programming system.

**STUDIES RELATED TO TREATMENT AND EDUCATION**

Kraft (1961) remarked that seguines optimism to the curability of idiots assumed a great driving force behind the establishment of special schools for the mentally defectives in the first half of nineteenth century. Kirk (1962) conducted a longitudinal study on the effects of pre-school education on the development of educable mentally retarded children. The study findings were:

1. Per school training tended to increase the developmental rate of retarded children.
2. Children from psychologically deprived homes tended to retain their rate of development or increase the rate during and after the pre-school period while those who did not receive pre-school experience tended to drop or remain the same in rate of development.
3. Children in the institution who received training at the preschool level showed remarkable gains in rate of growth while those who were not given pre-school experience and remained on the wards tended to drop in rate of growth.
4. Children placed in foster homes and also in the pre-school changed markedly in rate of growth.
5. Children from relatively adequate homes, not given pre-school experience tended to hold their rate of growth during the pre-school period but increased their rate when they entered school at the age of 6. This indicated that the age of 6 is not too late for increasing developmental rate, provided the children come from relatively adequate homes. In reference to the effect of early schooling, Kirk concluded that "the evidence presented indicates that, with reference to mental development, either (a) the deprivation of the children in this experiment displaced their inherent rate of growth one level downward and school experience restored it lower, or (b) the first diagnosis represents the inherent rate of growth, and the school experience dis-placed this rate of growth one level
It would appear that although the upper limits of development for an individual is genetically or organically determined, the functional level or rate of development may be accelerated or depressed within the limits set by the organism. Somato psychological factors and the cultural milieu (including schooling) are capable of influencing the functional level within these limits. Philips (1965) stated that the methods of Seguine were introduced in the special education of mentally defectives in Italy by Maria Montessori and later on used by her in the education of normal children. The Montessori and kindergarten methods are very close to the techniques developed by Itard to treat the savage of Aveyron. A study conducted by St. Xavier (1969) revealed that the number of mentally subnormal children in greater Bombay is 4031 out of which only 17.1% were in special schools. Bandura (1969) conducted research on learning by imitation, showing that it has been possible to teach moderately and severely retarded subject the basic skills of using the telephone through observational Learning. Gardner (1970) referred that many professionals believed that behavioural methods have been the most effective form of treatment for the problem of the mentally retarded person. Kirk (1972) emphasising the service of special classes for TMR has remarked that it relieves the parents of retarded children of some responsibility and helps them to see their children disabilities more realistically. He further viewed that the effects of special classes on TMR children are hard to assess. He said “invariably, the children improved from year to year, but whether this improvement stemmed from the programmes or from maturation was hard to know.” Dunn (1973) expressed, “It is unfortunate that in many cases TMR children becomes a failure from the special education in the sense, they learn nothing more than what they would have learnt at home. Robinson and Robinson (1976) Supported the normalisation of education for mentally retarded children. They viewed that the special classroom is an isolating experience and the children from special classes

* TMR indicates trainable Mentally Retarded.

* EMR indicates Educable Mentally Retarded.
within regular public schools are avoided by other pupils and often feel lonely, unwanted and negatively valued. On the contrary in the normalisation approach, EMR children play with their normal peers and classmates and feel that they are one among the entire group. It was also viewed that EMR children are “better able to achieve socially and academically if they are exposed to models than their own”.

Ardhapurkar (1976) stated that the first organised programme for the mentally retarded were started in 1837 by a French psychiatrist named Seguine. The first school of such children was opened in Massachusetts in 1848, followed shortly by another school in New York and then in Pennsylvania. The first professional organisation known as American Association of Mental Deficiency was started by Medical officers of institutions in 1876. In India the first institution began functioning in 1941 at Mankhurd in Bombay. Ankoliv (1980) conducted a survey in Maharashtra. The study revealed that the maximum number of schools are 31 in Maharashtra out of a total 81 in the whole country. Out of 31 institute of the state 22 were located in Bombay alone. Shortage of trained teachers were also highlighted in the survey where only 35% of the teachers in special schools for M.R. were trained. Mahanty (1984) reported that in 1975 the number of mentally retarded institution in India was 160. She also stated that in recent years behavioural modification by reward and punishment has proved to be a very effective technique in treating the mentally retarded persons. Regarding the treatment of M.R. children she expressed that in Russia Individual contain educational programmes for mentally retarded are arranged at the institute of Defectology in Moscow. A child is first diagnosed as a mentally retarded by the age of 16 month and till the onset of puberty the individualised programmes are prepared from multidisciplinary points of view and implemented for the child, which enable to over come the problem of mental retardation with the onset of puberty.

* EMR indicates Educable Mentally Retarded.
Khaparde (1987) remarked that the research studies from different parts of the country have shown that with the latest methods of treatment and prevention available in modern health care, the chronicity and disability can be avoided in about 80% of the cases. Complete and lasting recovery is possible in 60% of the cases. In a report “National policy on Mental Handicap” (1988) it was revealed that there are little more than 200 institutions in India with a facility of or care of about 10,000 mentally retarded individuals. The inadequacy of services is clear as the current services do not cover even 1% of the mentally handicapped persons, only a few of them are residential and others provide only day care facilities. Recently subsidy is given to mentally handicapped to travel by train. The meager services currently available are unevenly distributed in the various parts of the country. The majority of the institutions are in big cities and some bigger towns. Nearly 60-70% of the major towns do not have any facilities. Another service lacuna is the Lack of facilities for those above the age of 18 years. Research in special Education ‘A Trend Report’ Jangira & Mukhapadhyay (1988) reported that 19 studies have been conducted so far in mental retardation. It represents almost 1/3 of the total research studies reported in special education. The maximum number of researches appeared during 1975-79. Eleven studies involved survey of one kind or another.

Table 2.8 DISTRIBUTION OF STUDIES IN MENTAL RETARDATION NATURE

<table>
<thead>
<tr>
<th>PERIOD</th>
<th>Ph.D</th>
<th>Institutional</th>
<th>Survey Teacher.Trg.</th>
<th>Test &amp; Material Development</th>
<th>Inter Vention</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1965-69</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>2</td>
</tr>
<tr>
<td>1970-74</td>
<td>2</td>
<td>—</td>
<td>2</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>2</td>
</tr>
<tr>
<td>1975-79</td>
<td>7</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>—</td>
<td>—</td>
<td>8</td>
</tr>
<tr>
<td>1980-84</td>
<td>3</td>
<td>—</td>
<td>3</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>3</td>
</tr>
<tr>
<td>1985-87</td>
<td>4</td>
<td>—</td>
<td>1</td>
<td>—</td>
<td>3</td>
<td>—</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>2</td>
<td>11</td>
<td>5</td>
<td>3</td>
<td>—</td>
<td>19</td>
</tr>
</tbody>
</table>
Mundy (1957) conducted a study in Britain and reported that the stimulation provided by community living resulted in more intellectual gain than residence in an institution for the mentally retarded. Linford (1967) reported the research findings in England had shown that young medium grade subnormal children who were cared for in small groups which tried to provide a substitute family environment, developed social and verbal ability more rapidly than a comparable group of children who remained in a village ward of mental deficiency hospital. Recent studies of learning disabilities of adult imbeciles shown that some of them attained the standards necessary for employment in open industry and others become self-supporting in sheltered work shops. Many such patient can live at home or in hostels and travel to work each day. Zaetz (1969) conducted an occupational training programme for mentally retarded children and found that there had been a potential link between recreation programme and participation in the sheltered workshop. Mitchell and smeriglio (1970) on the basis of their study concluded that moderately and severely retarded children, when institutionalised in an environment providing only routine nursing care, failed to make any noticeable progress in over all absolute level of social competence during the first three years of institutionalisation. They did not lose skills brought from home, but they failed to learn any new eating and dressing routines and they did not develop in constructive play, work habits, social co-operativeness and communication skills, as they would have under better circumstances. Worse yet, as they advanced in locomotion and general self-help at the expected rate, their impoverishment in other areas gave them a typical pattern which might make them even less comprehensible and thus

Choudhary (1994) reported that there are 1000 special schools at the national level where 50,000 students are enrolled. There are 23 Special employment exchanges and 55 special cells in India.

STUDIES RELATED TO REHABILITATION

Mundy (1957) conducted a study in Britain and reported that the stimulation provided by community living resulted in more intellectual gain than residence in an institution for the mentally retarded. Linford (1967) reported the research findings in England had shown that young medium grade subnormal children who were cared for in small groups which tried to provide a substitute family environment, developed social and verbal ability more rapidly than a comparable group of children who remained in a village ward of mental deficiency hospital. Recent studies of learning disabilities of adult imbeciles shown that some of them attained the standards necessary for employment in open industry and others become self-supporting in sheltered work shops. Many such patient can live at home or in hostels and travel to work each day. Zaetz (1969) conducted an occupational training programme for mentally retarded children and found that there had been a potential link between recreation programme and participation in the sheltered workshop. Mitchell and smeriglio (1970) on the basis of their study concluded that moderately and severely retarded children, when institutionalised in an environment providing only routine nursing care, failed to make any noticeable progress in over all absolute level of social competence during the first three years of institutionalisation. They did not lose skills brought from home, but they failed to learn any new eating and dressing routines and they did not develop in constructive play, work habits, social co-operativeness and communication skills, as they would have under better circumstances. Worse yet, as they advanced in locomotion and general self-help at the expected rate, their impoverishment in other areas gave them a typical pattern which might make them even less comprehensible and thus
less acceptable at home. They found that cognitive development proceeded at the appropriate rate, in institutionalised mentally retarded individuals who were enrolled in academic school programmes. However, Children in the same institution and with the same initial I. Q. who did not attend academic school programmes shown a significant mean drop in I.Q. They concluded that institutionalisation of mentally retarded should be recommended only when it is certain that specialized teaching programmes administered by non-attendent personnel, will actually be received by the child from the movement he is admitted to the institution. Balla Butterfield and Zigler (1974) reported that institutionalisation have positive effect on MR children. The effects of institutionalisation varied with the individuals pre institutinoal life experiences, the environment of the particular institution and the diagnostic skills of the investigator. One alternative to residential treatment is the ‘group home’. It is a type of boarding house in which a fixed number of retarded people stay together with some professional staff who look after them. They learn some vocational tasks taking part in group therapy. The group home is much better than the large institutions and it has many of the facilities of real home for the retarded person. Pratibha (1979) remarked that mentally retarded children are not totally useless to themself and society. They can not do certain things while they can do certain others, all of which depend upon the degree and severity of mental retardation. Ganguly (1993) extensively reviewed the various projects of UNICEF and commented that NGO’s and funding agencies have tended to have a project bound approach in which the implementing agency “does CBR” often inadvertently leading to a dependency on the outside agent which is, in fact, the opposite of what has been aimed at. A UNICEF report (1994) revealed that 40 rehabilitation projects (supported by it) was evaluated, while appreciating the innovativeness and commitment of NGO’s have raised few concerns relating to CBR approach. (a) The NGO projects tend to remain as pilot projects covering limited population (b) The NGOs which receive fund from UNICEF for a limited period tend to depend soley
on UNICEF funds resulting in inability to continue the Project. (c) The monitoring of the projects and the innovative strategies and process was weak and poor (d) In implementing innovative projects NGO's had to operate and function in isolation with child related and welfare project implemented or supported by government or local bodies (e) Most of the NGO's work concentrated in higher age group instead of 0-6 years age group (f) The most effective way is that the NGO's had to work in conjunction with the primary health care to intervene childhood disability (g) In some areas the operational programmes of NGO's were overlapping and duplicating where several NGO's existed (h) In some backward area where the problem is severe, there is no NGO's to undertake any programme (i) NGO's are not enthusiastic to participate in any government programme like District Rehabilitation centre scheme. A who sponsored seminar (1994) on “the role of voluntary organisation for prevention of Mental Retardation and Mental illness Through CBR Approach” reported that the GOI started (1985) CBR project for the rural areas in collaboration with different departments and the NGO's working in the field of rehabilitation. GOI has set up 11 DRC's Covering 198 blocks with a total population of 39.9 million. Four RRC's are providing training at various levels including Anganwadi workers. At the district level there would be a medical officer trained in rehabilitation with a fully equipped van for organizing field services. Roughly it would cover 10 to 15 lakh population. It was also reported that the institute of management of the DRC evaluated the project after 4 years of its functioning which showed that in general DRC has made considerable impact, of course there were many areas of deficiencies. One major deficiency was that it established itself, as bureaucratic structure failing in effective co-ordination involving the community and in networking

* NGO refers to Non-governmental organisation.
* CBR refers to Community Based Rehabilitation.
* GOI refers to Government of India.
* DRC refers to District Rehabilitation Centre.
* RRC refers to Regional Rehabilitation Centre.
with available sources. The report also mentioned few NGO's who have done outstanding contribution in the field of rehabilitation. These are samadhan (New Delhi) seva-in Action (Bangalore), CBR Project run by THPI (Hyderabad). The UNICEF founded projects are Action Aid (Bengalure), THPI Sponsored, RCBR centre for mentally retarded (Lalacheruvu).

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* THPI refers to Thakur Hariprashad institute of Research and Rehabilitation for Mentally Handicapped
* RCBR refers to Rural Community Based Rehabilitation


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