



## Research Article

### AN EMPIRICAL STUDY ON THE PREVALENCE AND CAUSES OF MENTAL RETARDATION IN MANGALORE

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#### ABSTRACT

**OBJECTIVES:** This study determines the prevalence of mental retardation among children between 5 to 18 years of age in Mangalore by sex, age, religion, and location. Distribution of severity of mental retardation and its relationship with sociodemographic variables and various causes is reported.

**MATERIALS AND METHODS:** The prevalence was obtained from the Inclusive Education Resource Centre reports of 2011. Sex age, religion and living area were evaluated for each child. Parents of the mentally retarded children were interviewed to study the probable causes. Intelligence Quotient was assessed using Binet Kamat Test, Seguin Form Board and Vineland Social Maturity Scale.

**RESULTS:** The prevalence of mental retardation was 561 (19.9%) of the total disabilities recorded. There was no significant difference in prevalence between male and female ratio in rural and urban areas. Prevalence below 15 years in rural and above 15 years in urban was significantly higher. The percentage of mild, moderate, severe and profound mental retardation was 49%, 29%, 14% and 8% respectively. The etiology was unknown in 40% of children. Timing of the causes showed prenatal in 35.7% perinatal in 7.9% and postnatal in 27.3% children.

**CONCLUSION:** The outcome of the study is that most of the causes for mental retardation are either prenatal or postnatal which can be prevented.

**Keywords:** Mental retardation, Intelligence quotient, causes, Mangalore

#### INTRODUCTION:

Mental retardation (MR) is a highly diverse disorder in terms of both cognitive and non-cognitive functions. It can be caused by any condition that impairs development of the brain before birth, during birth, or in early childhood years.<sup>1</sup> MR is a single largest neuropsychiatric disorder affecting 1-3% of the human population.<sup>2</sup> Mental retardation in general, is the onset before the age of 18 years of impaired intellectual skills, resulting in an IQ test score of less than 70 in association with functional impairment<sup>3</sup>. MR may be caused due to a wide range of factors. In about 50% of the cases despite of through investigation the etiology of MR is unknown. According to the American Association on Mental Retardation (AAMR) the causes for MR are divided into three groups by time of onset into prenatal (before birth), perinatal (during the birth process) and postnatal (after birth or during childhood) causes.<sup>4</sup>

Prenatal causes include alcohol and tobacco consumption, drug abuse and cigarette smoking, diseases and infection such as HIV/AIDS, anencephaly and spina bifida.<sup>5</sup> Maternal infections including rubella, toxoplasmosis and cytomegalovirus<sup>6</sup> are also causes of mental retardation. Perinatal causes include birth injuries due to oxygen deprivation, umbilical cord accidents, obstetrical trauma, head trauma and low birth weight.<sup>5</sup> In addition, postnatal emotional deprivation, malnutrition and infectious diseases, such as meningitis and encephalitis, child abuse and neglect, environmental toxins, and accidents may cause mental retardation.<sup>5</sup> Genetic factors are another important causative factor for MR. Genetic disorders can be divided into multifactorial, single gene and chromosomal disorders.<sup>7</sup> Higher incidence of parental consanguinity and chromosomal abnormality is reported in MR and congenital abnormality.<sup>3</sup> Prenatal, perinatal and postnatal history of the

child is essential to establish a baseline diagnosis of the child. The present study provides an overview and etiology of MR in Mangalore

## MATERIALS AND METHODS

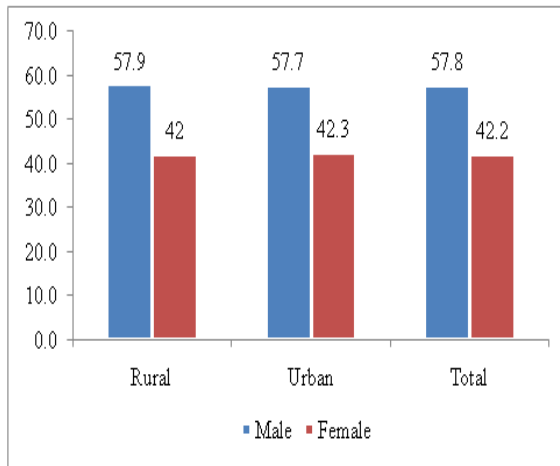
In this descriptive study, the prevalence of children with mental retardation was obtained from the official records of Inclusive education resource centre (IERC) of Mangalore during the year 2011. The IERC is a programme by the Government of India to educate children with disabilities under the Sarva Shiksha Abhiyan (Education for all movement). The study may not include children with mental retardation who are neither attending school nor registered in IERC. This study is approved by the University Ethics committee. Sex, age, and religion of each child were recorded in both rural and urban areas. The causes for mental retardation were recorded in 165 children. The parents especially the mother was informed of the study, written consent was taken, before interviewing and referring the medical records of the children. The information was documented using a structured questionnaire. Intelligence quotient (IQ) was assessed using Binet Kamat Test, Seguin Form Board and Vineland Social Maturity Scale.

All the collected data were tabulated and analyzed by SPSS version 13.0 for Windows. Findings are described in terms of percentages. Chi-square test was carried out to test the differences between proportions. A probability level of less than 0.05 is considered significant.

## RESULTS AND DISCUSSION

In Mangalore a significant burden of different disabilities (2823) in children were recognized by IERC between the age group 5 to 18 years. About 561 (19.9%) children with mental disorder were identified, with 37.3% (209) in the rural with a prevalence rate of 1 per 1000 and 62.7% (392) in the urban area having a prevalence rate of 0.5 per 1000. Some Indian studies have reported a prevalence rate of psychiatric disorders in children ranging from 2.6 to 35.6 percent.<sup>8-12</sup> Prevalence rates ranging between 1/1000 – 6/1000 are reported from Ghana<sup>13</sup>, Thailand<sup>14</sup>, and Cuba<sup>15</sup>. The prevalence of MR was higher among males than in females ( $p < 0.001$ ) which are in support with other studies,<sup>16</sup> but there was no significant difference ( $\chi^2 = 0.003$ ,  $p = 0.959$ ) in prevalence

between the male and female ratio in rural and urban areas (Fig 1). In another study on people with mental retardation no differences were observed in prevalence and behavioural disorders between the sexes.<sup>17</sup> Prevalence below 15 years of age was significantly higher in rural area and the same has been reported by Maulik<sup>16</sup>, whereas in the urban area children above 15 years was found highly significant ( $\chi^2 = 86.480$ ,  $p < 0.001$ ) (Fig 2). Among the religions Hindus and Muslims were found significantly higher in urban, whereas Christians showed high significance in rural compared to urban ( $\chi^2 = 56.393$ ,  $p < 0.001$ ) (Fig 3). Very few studies are available where data are analyzed on ethnic differences. A study in U.S. reported higher intellectual disability among African-American children,<sup>18</sup> similarly in another study in Australia higher intellectual disability was observed among Aborigines.<sup>19</sup> The distribution of children based on the severity of the disorder (IQ) was 81 mild (49%), 47 moderate (29%), 23 severe (14%) and 14 profound (8%). A study among people with mental disability in four villages of Udupi, Karnataka, India presented mild, severe, moderate and profound types of MR with 45.5%, 27.3%, 18.2% and 9.1% respectively.<sup>20</sup> The etiology was unknown in 40% of children. Timing of the causes showed prenatal in 35.7% children. Exposure to X-ray was the frequent cause (14.5%). Pregnancy related complications and maternal illness was seen in 31 cases (18.8%). Proper medication and health care during pregnancy can help avoid most of the cases of MR. The rate of consanguinity in Mangalore is low (6.53%)<sup>21</sup> and also in this study only in 2 cases parental consanguinity is observed. Low birth weight was seen in about 7.9% of children. Among the 27.3% postnatal causes severe injury during early childhood accounts for 18.8% causes. Extra care of children during early age and proper treatment during illness may reduce many cases of mental disability.



$\chi^2 = 0.003, p = 0.959$

Figure 1: Percentage distribution of subjects with mental retardation in according to sex

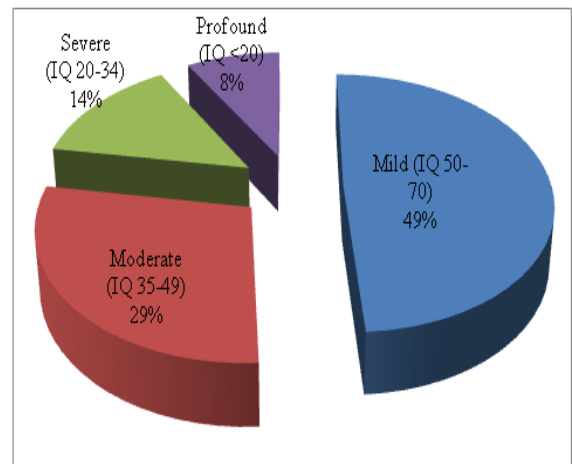
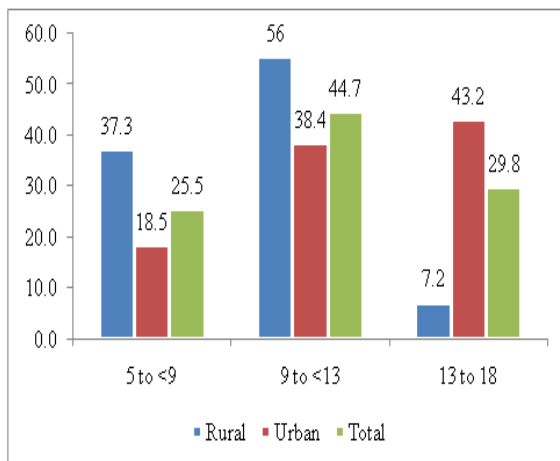


Figure 4: Percentage distribution of subjects with mental retardation according to intelligence quotient (IQ)



$\chi^2 = 86.480, p < 0.001$

Figure 2: Percentage distribution of subjects with mental retardation in according to age

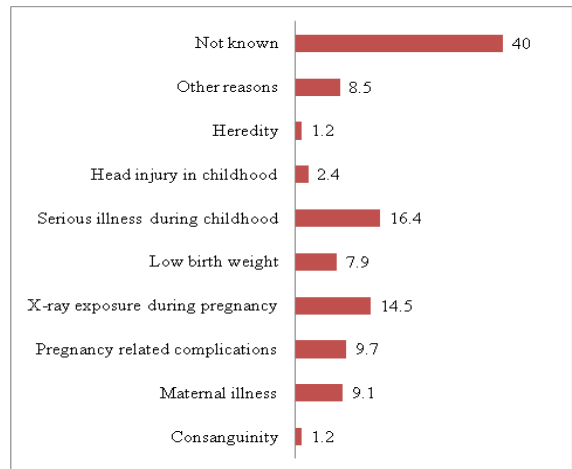
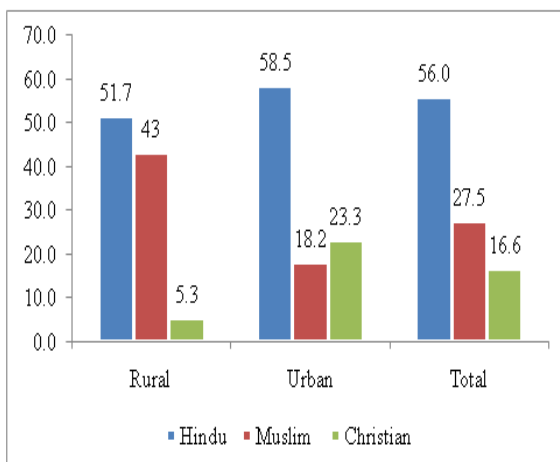


Figure 5: Percentage distribution of subjects with mental retardation according to etiology



$\chi^2 = 56.393, p < 0.001$

Figure 3: Percentage distribution of subjects with mental retardation in according to religion

## CONCLUSION

A study on the prevalence of mentally disabled children in Mangalore was carried out. Among the studied causes for MR high percentage was observed during prenatal and perinatal time. Most of these causes can be avoided by talking various preventive measures during pregnancy, birth and early infancy and childhood. This study provides a frame to assess the burden and plan for measures to be taken for prevention of mental disability in children.

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