SOCIAL, ENVIRONMENTAL AND BIOLOGICAL DETERMINANTS OF INTELLECTUAL DISABILITIES IN INDIA

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Abstract: Intellectual disability (ID) is an international public health problem affecting up to 4.2 persons per 1000 worldwide. Compared to developed countries, developing countries tend to have higher prevalence rates of ID due to malnutrition, poverty and lack of resources. Social, environmental and biological determinants play major role in the prevalence and distribution of ID. We sought to examine the association between social, environmental and biological factors and different levels of ID [Borderline: IQ ≥ 70; Mild: IQ, 50-69; Moderate: IQ, 35-49; Severe: IQ, 20-34, and Profound: IQ < 20]. Data were analyzed on 262 persons with ID collected in one of the poorest districts of India in Madhya Pradesh. Cases were identified through door-to-door surveys in 51 villages, totaling 32,759 males and 31,030 females using a standardized ID screening checklist. Identified cases were administered two standardized diagnostic tests for ID, the Developmental Screening Test (DST) and the Vineland Social Maturity Scale (VSMS), by professionals in mental retardation. Secondary disabilities and medical conditions were diagnosed by administering appropriate tests. Demographic, medical and family history data were also obtained. A family history of mental retardation ($x^2 = 19.14, p= 0.001$) and of epilepsy ($x^2 = 39.36, p= 0.001$) were significantly associated with ID. Socioeconomic status ($x^2 = 10.13, p= 0.038$), and parental education ($x^2 = 67.42, p= 0.001$) were inversely associated with ID. Comorbid conditions including cerebral palsy ($x^2 – 152.93, p= 0.001$), communication disorders of voice, articulation and fluency ($x^2 – 70.26, p= 0.001$), epilepsy ($x^2 – 57.21, p= 0.001$) and behavior disorders ($x^2 – 13.86, p= 0.008$) were also significantly associated with ID. However, there was no association between Down syndrome ($x^2 – 6.85, p= 0.144$) or enuresis ($x^2 – 3.60, p= 0.462$) and ID. There was also no association between Down syndrome and either a family history of mental illness and ID ($x^2 = 2.40, p = 0.665$), gender ($x^2 = 1.79, p= 0.77$) or population type (tribal versus non-tribal) ($x^2 = 5.30, p= 0.25$). The results of this study are consistent with other studies in terms of the association between ID and cerebral palsy, a family history of mental retardation and of epilepsy, lower socio-economic status, and lower parental education. The associations between epilepsy and cerebral palsy and ID were also consistent with other studies. Several studies have reported associations between ID and male gender and low per capita income, but these were not found in the present study. Further studies are suggested to investigate these inconsistencies. Professionals involved in the assessment and care of individuals with ID should assess and refer cases for the comorbid conditions of cerebral palsy, epilepsy, and communication disorders of voice, articulation and fluency for diagnosis and intervention, as these conditions are strongly associated with ID.

Keywords: intellectual disability, determinants, family history, mental retardation, mental illness, epilepsy, cerebral palsy, down syndrome, communication disorders, enuresis