



RESEARCH ARTICLE

ORAL HEALTH AMONG INTELLECTUALLY DISABLED CHILDREN IN INDIA:  
A LITERATURE REVIEW

<sup>1,\*</sup>Dr Ritu Phogat, <sup>2</sup>Dr. Manjunath, B.C., <sup>3</sup>Dr. Adarshkumar, <sup>4</sup>Dr. Radhyeshyam,  
<sup>5</sup>Dr. Saumya Singh and <sup>6</sup>Dr. Geeta Rani

<sup>1</sup>Postgraduate Student, Department of Public Health Dentistry, Postgraduate Institute of Dental Sciences, Pt. B.D Sharma University of Health Sciences, Rohtak, Haryana, India

<sup>2</sup>Senior Professor and Head, Department of Public Health Dentistry, Postgraduate Institute of Dental Sciences, Pt. B.D Sharma University of Health Sciences, Rohtak, Haryana, India

<sup>3</sup>Associate Professor, Department of Public Health Dentistry, Postgraduate Institute of Dental Sciences, Pt. B.D Sharma University of Health Sciences, Rohtak, Haryana, India

<sup>4</sup>Senior Resident, Department of Public Health Dentistry, Postgraduate Institute of Dental Sciences, Pt. B.D Sharma University of Health Sciences, Rohtak, Haryana, India

<sup>5</sup>Postgraduate Student, Department of Public Health Dentistry, Postgraduate Institute of Dental Sciences, Pt. B.D Sharma University of Health Sciences, Rohtak, Haryana, India

<sup>6</sup>Postgraduate Student, Department of Public Health Dentistry, Postgraduate Institute of Dental Sciences, Pt. B.D Sharma University of Health Sciences, Rohtak, Haryana, India

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ABSTRACT

The aim of review is to find out the oral health statuses and unmet treatment need of intellectually disabled children in India. The oral health of people with intellectual disabilities is often compromised, which has a deleterious effect on their well-being and quality of life. Dental caries and periodontal disease are among the most common secondary conditions affecting people with intellectual disabilities (ID). This literature review outlines oral health status among intellectually disabled [Mentally retarded (MR) and Down Syndrome (DS)]. The individuals with intellectual disability have poorer overall oral health and oral hygiene compared with the general population. Numerous barriers have been identified which could have profound effect on oral health of these individuals. Individuals with Down syndrome have less dental caries, but experience more extensive periodontal diseases. They have more missing, misaligned teeth and often affected with malocclusion and consequently they required more attention towards their oral health statuses. Dental caries was similar or low than general population but the prevalence of untreated caries was high. It is important for dental professionals to identify and quantify their needs and plan oral health promotion programmes for better oral function and an improved quality of life.

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INTRODUCTION

650 million people, who form around 10% of the world's population, live with some form of disability. This figure is changing and advancing through population growth dynamics, medical technology advancements and the ageing process.

\*Corresponding author: Dr Ritu Phogat,

Postgraduate Student, Department of Public Health Dentistry, Postgraduate Institute of Dental Sciences, Pt. B.D Sharma University of Health Sciences, Rohtak, Haryana, India.

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According to the UN Development Programme (UNDP) (<http://www.un.org/disabilities/convention/facts.shtml>), around 80% of people with disabilities live in developing countries. According to the National Sample Survey Organization (NSSO), there are 18.49 million persons with disabilities in India which constitutes around 1.8% of the total population (Government of India, 2003). People with disabilities may suffer more from the consequences of oral diseases than those without such disabilities or impairments. Not only can this cause physical problems, but it can potentially have a wider reaching impact as poor oral health can have a negative effect on self-esteem, quality of life and

general health (Benyamini *et al.*, 2004). Living arrangements significantly affect both general and oral health, particularly in developing countries like India. The policy of deinstitutionalization, integration and increased independence for persons with ID has been accepted in the developed countries, and no indications of a corresponding influence on oral health in individuals with could be observed (Gabre *et al.*, 2001; Glassman, 2009). The oral health of many people with ID is largely dependent on the knowledge, attitudes and practices of their family or care providers (Cumella *et al.*, 2000). There are strong recommendations that interaction between general and oral health in persons with ID should be investigated and understood (Batista *et al.*, 2009). The aim of this review is to analysis the oral health statues and unmet treatment need of intellectually disabled children in India.

## Overview of Intellectual Disability

**Definition:** There are a number of ways of defining and classifying intellectual disability and they are all open to different interpretations. The terms learning disability, intellectual disability, and mental retardation have been defined and understood differently in different countries and even within various regions of the same country. Different countries use different terminologies to describe the same group of people. The term 'learning disability' itself can be confusing and it has had many different labels over time, and continues to be referred to by different terms such as; 'mental retardation', 'special needs', 'mental handicap' and 'intellectual impairment or disability' (Kelly, 2002). The United Kingdom is the only country that uses the term 'learning disability' whereas an increasing number of international organizations and countries use the term 'intellectual disability' instead. This term has recently replaced the term 'mental retardation' as the term to be used by academics and clinicians in the US and a number of other countries such as Canada and Australia (Reid, 1997). The current accepted international terms include 'intellectual disability' or 'developmental disability'. Other terms such as 'mental handicap', 'learning difficulty' and 'mental retardation' have been used in the past and are still acceptable in some places but may cause offence in others. The term 'intellectual disability' should be considered interchangeable with the UK term 'learning disability' which has been defined by the World Health Organization as "a developmental disability that first appears in children under the age of 18, with an intellectual functioning level (as measured by standard tests for intelligent quotient, IQ) that is well below average and significant limitations in daily living skills (adaptive functioning)" (WHO, 1996). This definition encompasses people with a broad range of disabilities, which can include for example, Down Syndrome, Attention Deficit/Hyperactivity Disorder, Cerebral Palsy or Autistic Spectrum Disorder.

**Severity of intellectual disabilities:** Severity of intellectual disabilities differs according to the level of IQ of the individual;

**Mild:** Approximate IQ ranges from 50 to 69 (in adults, mental age from 9 to under 12 years). Many adults will be able to work and maintain good social relationships, and contribute to society; however, this results in some learning difficulties.

**Moderate:** Approximate IQ ranges from 35 to 49 (in adults, mental age from 6 to under 9 years).

Likely to result in marked developmental delays in childhood, but most can learn to develop some degree of independence in self-care and acquire adequate communication and academic skills. Adults will need varying degrees of support to live and work in the community

**Severe:** Approximate IQ ranges from 20 to 34 (in adults, mental age from 3 to under 6 years), and it is likely to result in continuous need for on-going support throughout life.

**Profound:** In individuals with an IQ that is under 20 (in adults, mental age below 3 years). This results in severe limitation in self-care, communication and mobility (WHO, 1996).

**Causes of intellectual disabilities:** Intellectual disability is caused by problems during brain development before, during or after birth.

**Before birth:** Damage to central nervous system e.g.: accident or illness of mother while pregnant (malnutrition, drugs, alcohol, diseases) or genetic syndromes (Down Syndrome; Fragile X Syndrome)

**During Birth:** For example in cases of premature birth, not enough oxygen during birth/hypoxia, birth difficulties or infections in the womb

**After birth:** That occurs in cases of illness or accident during early childhood (head injury, epilepsy, meningitis), or because of the effect of environmental factors (lead/mercury poisoning, malnutrition, social deprivation). Aetiology of intellectual disabilities can be outlined in a more complex and integrated. The American Association of Intellectual and Developmental disabilities (AAIDD, 2010) described how many factors (Biomedical, social, behavioural, and educational) could interact across time resulting in an intellectual disability.

**Prevalence of intellectual disabilities:** Due to differences in definitions and methods of data collection used in studies aimed at measuring the prevalence of individuals with intellectual disabilities, differences in estimates across studies also exist. In the few studies conducted so far, rates of about 2% have often been found. Other studies, especially those employing registries or hospital records, have more often reported rates from below 1% to 1.5% of the total general population (Harris, 2006). One relatively recent meta-analysis of all literature on the estimate of intellectual disabilities at a population level and published between 1980 and 2009 showed that the prevalence of intellectual disability across studies included in the meta-analysis was 10.37/1000 population (Maulik *et al.*, 2011). The finding revealed that the prevalence is higher among studies based on children/adolescents, compared to those on adults.

**Oral health differences between the general population and people with intellectual disabilities:** Jain (2009) conducted a study with the aim of the study was to determine the oral health status and investigate the association of oral health status with various socio-demographic (age, gender, parent's education, income) and clinical variables (aetiology for mental disability and IQ level) among mentally disabled subjects. Caries status, oral hygiene status and periodontal status were assessed by DMFT Index, Simplified Oral Hygiene Index (OHI-S) of Greene and Vermillion and Community

Periodontal Index, respectively. They found out that the oldest age group had the highest scores for all the indices measured. Having Down's syndrome, parents with lower educational status and low I.Q. were the most important predictors for poor oral health status. Bharathi M. Purohit *et al.* (2011) conducted a study to describe the Oral health status and treatment need of children attending special schools in South India. The aim of that study was to assess and compare oral health status and treatment needs of children with special healthcare needs (SHCN) between the ages of 5 and 15, with a matched group of healthy children, in Udupi District of South India. They found out significantly higher prevalence of caries (89.1%), malocclusion, and poorer periodontal status among children with SHCN compared to the healthy control group. Michael J. Hughe *et al.* (2013) conducted a study to evaluate the relationship between income and oral health among people with intellectual disabilities on a global perspective. The scientific literature cites wide health disparities for people with intellectual disabilities compared to the general population. This study seeks to gain an understanding of the effects of income status on oral health in a global population of people with intellectual disabilities. Study participants from upper middle, lower middle, and low-income countries had higher odds of mouth pain and untreated decay, yet lower odds of missing teeth, injury, and gingivitis, than participants from high-income countries. Overall, a great number of individuals from every income group required maintenance or urgent care. Oral health problems are not exclusive to low-income study participants. Unexpectedly high odds of missing teeth, injury, and gingivitis in high-income countries may be attributed to the high proportion of participants from the United States, which is considered a high-income country but has large income disparities.

Health-determining circumstances in low-income countries provide some protection from the hypothesized gradient of oral health for all measured outcomes. Mahesh, (2013) conducted a study on 5 years and 12 years school going children in Chennai city to know the oral health status of them. India, a developing country, faces many challenges in rendering oral health needs. The majority of Indian population resides in rural areas of which more than 40% constitute children. The purpose of this study was to assess the oral health status of 5 years and 12 years school going children in Chennai city. The study population consisted of 1200 school children of both the sexes (600 private and 600 corporation school children) in 30 schools, which had been selected randomly. The survey is based on WHO, 1999 Oral Health Assessment, which has been modified by including gingival assessment, enamel opacities/hypoplasia for 5 years. Evaluation of the oral health status of these children revealed, dental caries is the most prevalent disease affecting permanent teeth, more than primary teeth and more in corporation than in private schools, thereby, correlating with the socioeconomic status. It may be concluded that the greatest need of dental health education is at an early age including proper instruction of oral hygiene practices and school based preventive programs, which would help in improving preventive dental behaviour and attitude which is beneficial for life time.

## Conclusion

The review highlighted the poor oral health status of children with special healthcare needs in terms of higher calculus deposition, more caries prevalence and higher prevalence in

malocclusion. The review also reveals the need for preventive treatment for intellectually disabled children. There is need of timely dental services in children with disabilities because of the higher prevalence of periodontal diseases; dental caries and unmet needs among these children compared to the healthy general population. There needs to be a provision of primary dental health care for all children. The dental team should give priorities and plan on providing comprehensive school-based programmes, including oral health education and help children develop skills, provide fluoride supplements and sealants, offer dietary counselling.

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