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PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.3234764>Available online at: <http://www.iajps.com>Research
Article**ASSESSMENT OF ORAL HEALTH OF INDIVIDUALS WITH
DOWN SYNDROME IN PAKISTAN**¹Muhammad Muneeb, ²Inam Basit Cheema, ³Hafiz Yasir Mahmood¹Sughra Trust Hospital, Faisalabad²Rural health Centre Kot Ladha Gujranwala³Rural Health Centre Shah Jewana Jhang

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Abstract:

Introduction: Down Syndrome (DS) is an autosomal chromosomal abnormality that results from trisomy of chromosome 21. **Aims and objectives:** The basic purpose of the study is to analyse the oral health of individuals with Down syndrome in Pakistan. **Material and methods:** This cross sectional study was conducted in Sughra Trust Hospital, Faisalabad during October 2018 to January 2019. The data was collected from 126 individuals who were suffering from Down syndrome. This data was collected for the analysis of oral health of that individuals. The data was collected through a questionnaire. This systematically designed questionnaire include all the demographic data and oral health status of participants. Habits in oral hygiene and tooth-brushing were asked in the third part. **Results:** The data was collected from 126 individuals of Down syndrome. The mean age of the participants was 16.5±6.64 years. There was no statistically significant relationship between the patient's general health status and oral and dental health status ($p>0.05$). The gender and age wise mean OHI-S score was computed and compared. The significant difference was observed in mean OIH-S with respect to gender and age, $p<0.05$. **Conclusion:** It is concluded that making a difference in the oral health of a person with Down syndrome may go slowly at first, but determination can bring positive results.

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INTRODUCTION:

Down Syndrome (DS) is an autosomal chromosomal abnormality that results from trisomy of chromosome 21. It occurs in approximately 1 out of 700-800 live births. The effects of DS include intellectual disability and several other medical conditions, which might be detected at birth or which might develop during life. Medical problems associated with DS directly affect the oral and dental health, which indirectly affect their overall quality of life [1].

DS is accompanied by physical functional problems that are highly specific for the orofacial region. These functional problems include speech, swallowing and chewing difficulties, and there also appears to be an increase in facial, skeletal and orthodontic problems [2]. Among the soft tissue characteristics of oral cavity, there exists relative macroglossia since there is a protrusive tongue with deep fissures and a smaller oral cavity due to the deformity in the mid face. More periodontal diseases and more need for periodontal treatments in individuals with DS have been reported by many studies [3].

Down syndrome is characterized by central growth deficiency with delayed mental and physical development. All individuals with DS are mentally impaired to some degree, ranging from mild to severe. There is a unique combination of facial features in DS subjects, regardless of race or ethnicity. Persons with DS are often short with a short neck and underdeveloped or hypoplastic mid-face, with outer canthus of the eye higher than the inner giving rise to slant-eyes appearance [4]. The palpebral fissure is narrow, and there is often a medial epicanthic fold. There may be speckling of the iris (Brushfield's spots), cataracts, eye infections and bi- or uni-lateral strabismus. The mid-face hypoplasia often associates with poorly developed paranasal air sinuses, giving rise to a sloping forehead and a flat face. Class III malocclusion and relatively prognathic mandible are also common observations [5].

People with Down syndrome may present with mental and physical challenges that have

implications for oral care. Before the appointment, obtain and review the patient's medical history. Consultation with physicians, family, and caregivers is essential to assembling an accurate medical history. Also, determine who can legally provide informed consent for treatment [6].

Aims and objectives

The basic purpose of the study is to analyse the oral health of individuals with Down syndrome in Pakistan.

MATERIAL AND METHODS:

This cross sectional study was conducted in Sughra Trust Hospital, Faisalabad during October 2018 to January 2019. The data was collected from 126 individuals who were suffering from Down syndrome. This data was collected for the analysis of oral health of that individuals. The data was collected through a questionnaire. This systematically designed questionnaire include all the demographic data and oral health status of participants. Habits in oral hygiene and tooth-brushing were asked in the third part. The questionnaires which were not completely filled out were not included in the study.

Statistical analysis

The data was collected and analysed using SPSS version 20.0. All the values were expressed in mean and standard deviation.

RESULTS:

The data was collected from 126 individuals of Down syndrome. The mean age of the participants was 16.5 ± 6.64 years. There was no statistically significant relationship between the patient's general health status and oral and dental health status ($p > 0.05$). The gender and age wise mean OHI-S score was computed and compared. The significant difference was observed in mean OIH-S with respect to gender and age, $p < 0.05$. The majority had good hygiene status (53.1%), 27.7% had fair hygiene status and 21% had poor hygiene status. Stratification with respect to gender and age was done for oral hygiene status, the relationship was found as statistically significant ($p < 0.05$).

Table 01: Gender and age wise distribution of OHI-S score and Oral hygiene status

Variables	OHI-S	Oral Hygiene Status		
	(Mean±SD)	Good (n=61)	Fair (n=33)	Poor (n=25)
Gender				
Male	1.92±1.60	39(63.9%)	16(48.5%)	21(84%)
Female	1.58±1.03	22(36.1%)	17(51.5%)	4(16%)
P-value	0.001	0.021		
Age Groups				
5-10 years	1.30±1.79	21(34.4%)	3(9.1%)	8(32%)
11-15 years	1.28±1.03	25(41%)	7(21.2%)	4(16%)
16-20 years	2.21±1.30	15(24.6%)	23(69.7%)	13(52%)
P-value	0.008	0.002		

DISCUSSION:

The oral disease is the most common problem among individuals with physical and mental disabilities. The frequency and severity of oral disease is high among people with disabilities as compared to normal population. The findings may be associated to less physical abilities and consequent difficulties in tooth brushing among them [7]. Oral well-being might be influenced by several factors such as restricted comprehension on the significance of oral health management, anticonvulsant medicines that effect upon gum health, troubles in imparting oral health needs, and a dread of oral health procedures. General anaesthesia and physical restraints are usually used to treat adults with disabilities who have dread and correspondence troubles associated to oral health [8].

Although many studies have suggested that tooth decay rates are lower in individuals with DS than in individuals without DS, periodontal disease is the most significant oral health problem in people with DS [9]. Although a study reported that 90% of individuals with DS needed periodontal treatment another research reported that all people with DS needed periodontal treatment. Among the recruited families in our study 53% stated that their children regularly brushed their teeth at least once every day [10]. This rate was 18% and 59.4% in the other studies. The low oral hygiene index scores are the basis of periodontal problems. In addition, individuals with DS also have some specific motor

disabilities. Sometimes, manual dexterity problems might cause oral hygiene problems. This may cause accumulation of plaque and debris on the teeth. This situation leads to the development of gingivitis and other periodontal diseases. Studies reported that 50% of young children and 23% of older children with DS could apply efficient brushing. Special training, adaptation and practice are required to use the toothbrush most effectively [5]. Our study found that most of the children used a manual toothbrush and that almost half of them did not receive help from their families. In this situation, effective oral hygiene control is not achieved at the desired level, and the problems that arise in these individuals, who are more prone to periodontal problems, are progressing faster. In a study which evaluated the effectiveness of supervised tooth-brushing and oral health education in children and young adults with DS, it was reported that the mean dental plaque score decreased from 1.93 to 0.95 at the end of the 3-month supervised tooth-brushing programme ($p<0.001$) [2]. Therefore, parents supervising their children during tooth-brushing would help to achieve better oral health. Parents who have been trained in this subject would have less difficulty in brushing their young children's teeth. However, since adolescents and young adults want to brush their teeth by themselves, this would adversely affect their oral hygiene [11].

CONCLUSION:

It is concluded that making a difference in the oral health of a person with Down syndrome may go

slowly at first, but determination can bring positive results.

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