

Comprehensive Dental Care for the Visually Impaired: A Review

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ABSTRACT

In the present century, impaired, disabled and handicapped individuals are no longer sidelined due to their disability. They are encouraged to be side by side with the normal people and lead a normal life. So for the general well being of the individual, maintenance of the oral and overall health is very essential. This narrative literature review helps to enumerate the various management treatment and preventive modalities to promote the oral health of visually impaired individuals and also highlights the perceived barriers to oral care in reference to the visually impaired population.

KEYWORDS: Visually impaired, Oral Health, Health education, Barrier, Attitude, Dental professionals

INTRODUCTION

Human happiness and well-being had always been centered in and around health. As healthy populations live longer, are more productive, and save more, it also makes an important contribution to economic progress and financial stability of a country.¹

Since health itself is a dynamic process, achieving an average healthy state and maintaining it is a continuous ongoing process, which is determined by the health care knowledge and practices as well as personal strategies and organized interventions to improve health. Personal health depends partially on the active, passive, and assisted cues people observe and adopt to maintain their health. Individuals can also incorporate customized personal activities to improve their health or to minimize the effects of diseases or chronic conditions. These comprehensive health care activities should include day to day practices for improving personal hygiene such as brushing of teeth and maintenance of proper oral hygiene, bathing regularly, washing hands with soap, hygienic sanitation facilities, provision for safe food etc. The social life of a person also affects the personal health of an individual. Positive mental health can also be attributed to strong social relationships, volunteering, and other social activities.²

The oral cavity is a 'window or mirror' to the overall health of the body, and often successfully reveals the early signs and symptoms of systemic diseases. Indeed, this phrase has been used to illustrate the wealth of information that can be derived from examining oral tissues. Proper oral care and maintenance require some amount of quality time and a certain level of skill-set by the individual. Variable access to dental care, inadequate oral hygiene, and disability-related factors may account for the differences in the skill set and this quality time

which can affect the quality of oral health maintenance and finally the oral health status.

The specially abled population had always been an under-privileged and sidelined population. Roth have explained that the difference in the social construct between the disabled and the able-bodied individuals have a more significant role than the biological difference between the disabled and the able-bodied population. Though the words impairment, disability, and handicap have been used interchangeably all the three terms vary in their meaning and definition.

According to WHO, In the context of health experience, an impairment is any loss / abnormality of psychological, physiological or anatomical structure or function. For example - Loss of teeth due to diseases. Impairment is concerned with individual functions of the parts of the body; as such it tends to be a somewhat idealistic notion, reflecting potential in absolute terms.³ Disability, according to WHO, in the context of health experience, is any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being. For example, Inability to talk or pronounce certain words clearly. It may be due to the loss of teeth. Disability represents a departure from the norm in terms of performance of the individual, as opposed to that of the organ or mechanism. Handicap, as defined by WHO, is a disadvantage for a given individual, resulting from an impairment or disability that limits or prevents the fulfillment of a role that is normal (depending on age, sex, social and cultural factors) for that individual. For example, Teacher loose job and becomes unemployed. It may be due to the inability to talk or pronounce certain words clearly.⁴ Handicap is characterized by a discordance between the individual's performance or status and the expectations of the particular group of which he is a member.

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Though in the earlier centuries the specially-abled individuals were regarded as a 'curse or ill omen,' and debarred and separated from the mainstream of the society, the present scenario is different. Modern man, with his vast ocean of knowledge and exposure, usually recognizes a development disorder as it is and are able to accept this population with compassion and empathy. The phrases like 'disabled,' 'handicapped' and 'impaired' itself have very truthfully been replaced by the phrase 'specially-abled.' This proves the warm welcome to the concept of 'normalization' wherein the 'tag of disability' will disappear from the mindsets of the specially-abled, their families, their dears and nears and the society.

Oral health of disabled individuals requires particular attention as the disability can affect their routine oral care. But, since they started fulfilling their normal social life and coming into the main-stream of the society, it has become integral to maintain or to provide proper oral care as the oral health status of an individual can affect the performance level and quality of life of any individual.

Visually impaired population forms a significant proportion of this underprivileged population. Visual Impairment has an impact on oral health through physical, social, or informational barriers related to impairment, attendant medical condition (and associated medical disorders), or a lack of customized information.⁵ A vast amount of literature is present proving the comparatively poor oral health status of the visually impaired individual.

BARRIERS OF CARE

Provision of care for visually impaired individuals still faces many hurdles among which attitude of the patient, care takers and providers is still the main barrier. Difficulties in transportation, lack of services, inadequate resources or financial considerations, lack of social awareness, or lack of education and training of service provider difficulties in rendering proper care and knowledge for the patients during the dental treatment procedure, etc. are the other barriers in treating visually impaired.^{6,7}

PARENTAL ATTITUDES

The attitudes of parents of physically or mentally impaired children often present a substantial barrier to dental treatment.⁸ The phenomenon of chronic sorrow aptly describes a condition many parents with defective children suffer throughout life.⁹

Historically, people have attributed disability and illness to some wrong doings, the reason for blindness is believed to be one of evil. In ancient Judeo-Christian cultures, illness and physical defects marked the patient as a sinner. These beliefs still seem prevalent as evidenced in a study of attitudes of parents of blind children where four attitudes towards blindness were differentiated:

- Blindness as a form of punishment for previous bad deeds.

- The apprehension of being suspected of having a social disease.
- Feelings of guilt due to the violation of a moral or social code.
- Feelings of people disgrace by the parents due to blindness.¹⁰

Parents attitude towards dentistry and dental care will be reflected either directly to the disabled child or indirectly to the provider. Parents may hold what is described as fatalistic or futile attitudes toward illness, including dental disease. An attitude of futility act further as a barrier to dental care if parents feel that their own teeth or those of their children are so bad as to be considered hopeless.⁸

If a parent believes in maintaining good oral care, he/she will tend to believe it is good for the child - disabled or not. But many intervening variables lie between belief in good dental care and provision for it. For the handicapped child, one intervening variable will be the degree of disability. Parents with children with a high degree of disability may feel that dental care is low on the list of priorities. The value of preventive dental care may not immediately be apparent to the parent, which may result in a total lack of care. The age of the child is another variable. The value of maintaining primary teeth is unknown to many parents.⁸

Another variable which may defer a disabled child from obtaining optimal care is the presence of normal siblings. Parents might have a feeling that, it will be more useful and important to provide dental care for the normal siblings who must go to school, seek jobs, and maintain social activities. Another important variable is the availability of finances. Usually a lot of funds would have been already spending on the disabled child for medical and rehabilitative purposes, which may prevent them from providing dental care to the disabled child, which they may feel is not 'essential'.⁸

PATIENT ATTITUDES

Young handicapped patients will not have many roles in seeking care for themselves if their parents or guardians do not seek for them. Patients who are in school or other training programs can be influenced by the teachers. They can be an important ally, along with dental professionals, in the battle for dental care and oral health for the disabled who attend classes.⁸

PROVIDER ATTITUDES

The private practitioner is often reluctant to provide dental care to the disabled population. When the established routine must be changed to accommodate special patients, the provider may form negative attitudes towards these patients which can may result in the reluctance to care for them.^{11,12}

Several reasons were formulated as causes of these negative attitudes.⁸

- lack of education, preparation and experience in the treatment of these patients.
- Fear of the patients
- Lack of understanding of the patient's physical condition
- Inability to develop satisfactory interpersonal relations
- Feeling of incompetence in successfully treating the often difficult and special dental problems that are present.
- Physical repulsion for the patient
- Unwillingness to accept substandard fees.⁸

Effect of provider behavior on patient: If the attitude of the provider towards the negative one or if they feel that providing this care presents a burden to the practitioner, the patient will avoid securing dental health care.^{8,4}

Attitude modification: One of the discouraging facts of life that public health practitioners face is that it is extremely difficult to change people's attitudes rapidly. For a more significant stride towards attitude change, it will be necessary to change the orientation of education for the general public.⁸ But some authors have concluded that it is not enough to bring the blind and sighted together. The sighted must know how to deal with the blind individuals and learn to overcome their own awkwardness and ambiguity, or their undesirable attitudes may be reinforced.¹³ It will take an organized effort if their medical, dental and social needs are to be adequately met by society at large.⁸

An important aspect in delivering dental healthcare to the handicapped is an understanding of the psychological problems which occur as an adjunct to the conditions. The attitude towards disabled is one component of behavior that both dentists and disabled patient bring to the dental environment. The provider must be able to customize the care according to the patient.⁸

While seeking access to dental care, patients with the visual impairment may also encounter several potential barriers. Choosing a dentist is sometimes complicated by the inability to read the pages of the phone book, locate transportation, pay for care or get release time from work. Persons who use guide dogs can experience problems in relation to negative attitudes about transporting the dog or allowing it to stay in the dental office. Since the majority of the visually impaired people are elderly, multiply handicapped or medically compromised, various physical aspects of the dental office may also prove to be barriers. A long flight of steps, poorly lighted halls, loose rugs, directions are written in small prints, unwieldy doors, slippery floors and sudden changes in surface texture may all prove to be hazardous to the visually impaired individual.¹³

Majority of these issues can be avoided by providing directions to and a description of the office, elimination of potential physical barriers in the office, and discussion among the dental staff regarding issues such as guide dogs. Patient information that is generally acquired by

written questionnaire can be handled by telling the patient what information is needed for the first appointment and scheduling additional time during the first appointment for a verbal interview.¹³

Dental management considerations depend upon:

- Degree of visual impairment
- Age of onset
- Presence of other handicapping conditions
- Degree of independence
- Patient attitude and behavior
- Parental attitude and behavior¹³

The blind or visually impaired children, could benefit from visiting the dental office prior to an appointment like normal children. The introduction of oral hygiene measures and parental counseling can also begin at this appointment.¹⁴ The dental professionals should have knowledge regarding the degree of visual impairment of the patient so that treatment can be tailored accordingly. For example, dark safety glasses should be provided to those individuals who are acutely sensitive to the operative light.¹⁵

For making the dental visit as effective and pleasant as possible the whole dental staff must work together as a team. Regarding the visually impaired young children, the parents should be encouraged to instill positive attitudes in them towards the dentists and the staff. The dentist may need to talk to the parents before the appointment to make sure they use suitable dental terminology while addressing the child and avoid making detrimental statements about the upcoming event.¹⁶

Meeting the patient: Visually impaired individuals, should be familiarized with the clinical environment by the dentist or any auxiliaries, either with the help of verbal instructions or physical assistance. Parents of the visually impaired children procedure may be allowed to remain in the clinic during the treatment procedure to assist in the communication with the patient and to relieve anxiety.¹³ Before the patient is treated, he/she should be introduced to the working personnel in the clinic, so that he/she can identify the voices. Care should be taken that a single person carries out the conversation with the patient to avoid confusion. Since the patient cannot visually define the voices relevant to the particular moment, excess noise such as loud music, prolonged suction, ultrasonic cleaners, or other distractions should be minimized.¹³ The behavior expected from the patient for the successful completion of the treatment has to be outlined vaguely before the commencement of the treatment procedure.

Dental treatment: Treatment should be commenced with short appointments till an adequate rapport is established between the patient and the operating personnel. A 'tell, feel, do' technique can be used instead of the 'tell, show, do' technique to demonstrate the ongoing procedures to the patient. After the patient becomes familiarized with the sounds, tastes, and smells, only verbal guidance is

required. The patient has to be informed prior, if the operating personnel is moving away from his chair.

Sudden jerky movements, of the chair or of the operating personnel or of the instruments should be avoided. In essence, the dental team member must maintain a running conversation that vividly paints a mental picture of appointment for the patient.¹³ In-order to ensure that the patient is not surprised by an unexpected feeling, sound or taste, a clear ongoing description on what they will feel, hear, taste and smell has to be given without fail.¹⁵

Prevention of dental diseases: The focus towards treatment has to be redirected towards prevention to compensate the heavily burdened treatment needs of the visually impaired population with that of the limited resources.

Diet counseling: Proper diet counseling, pointing out where the diet is adequate, excess or deficient, to the patient and the care-takers is very essential. Particular attention should be given to the sugar intake and its association with dental caries has to be explained. Alternative foods and healthy diet supplements have to be suggested. Diet counseling session should not end in a single appointment; it is an ongoing process that has to be carried out in all scheduled appointments.

Preventive measures: Dental health education and preventive procedures will probably require certain modifications. Suggestions for home care and preventive procedures should be offered along with the opportunity for the blind or visually impaired person to modify the suggestion to his or her level.¹³ Jain et al in 2013, suggested that it is the role of the dental health educator (dentist, hygienist or assistant) to find ways to help the impaired individuals to practically carry out these instructions.⁵ The dentist, therefore, must carefully evaluate the patient's disabilities as well as his abilities so that an effective plan can be developed. This evaluation also must include the affected person's environment, including people with whom he lives.⁸

Plaque removal techniques: Brushing instruction should begin with the patient demonstrating his / her current brushing technique, which can further be refined and corrected by physical and verbal guidance.^{13,8} Both Fone's method and Modified Bass method of tooth brushing were found to be very effective in improving the oral hygiene of visually impaired individuals by Joybell C et al. in 2015.¹⁷ But, for most handicapped people, the horizontal scrub method seems to offer results superior to other techniques due to its ease of application.

Ideally soft bristled, multi-tufted nylon brushes with rounded tips are indicated. The size of the brush should be appropriate for the individual's mouth.⁸ The effectiveness of brushing method depends on a great extent on each tooth being brushed for an adequate amount of time. Children who brush for as long as three minutes are more effective in removing plaque than children who brushed for a shorter duration.¹⁸ The

electric toothbrush may also aid the visually impaired people compared with its manual counterpart.⁸

A specific sequence of brushing should be established to assure that all areas of the mouth are brushed adequately. Musical jingles or audiotapes are available to teach such a sequence to children with visual impairment¹ as visually impaired depend much more on noise, speech, and touch for proper orientation.¹⁹

The use of floss for plaque removal is usually recommended, if the caretaker is performing the flossing.^{20,21} Flossing can be made easier if a floss holder is used. The tactile sensation can be used for the placement of the brush or floss in the correct position inside the oral cavity.⁸

Audio Tactile Performance Technique: A study done by Ganapathi AK et al. proved that, if taught with special customized methods like multisensory approach, along with the creative use of other senses, blind children could maintain an acceptable level of oral hygiene.⁴ 'Audio-tactile performance technique' (ATP), a multisensory health education method that is specially designed, is a very effective communication tool to educate the visually impaired children regarding oral hygiene maintenance.¹⁷

Mainly three components namely, Audio, Tactile, and Performance are incorporated in the ATP technique. First the children have to be verbally informed about the importance of teeth and proper methods of brushing (AUDIO component). A large sized model should be used so that the children can feel the teeth on it (TACTILE component). Assistance have to be provided so that the children can practice proper brushing in this model. The children should be asked to feel their teeth with the help of their tongue to identify the presence of any hard deposits or irregularities. The children should be asked to brush their own teeth in the prescribed manner under adequate supervision. (PERFORMANCE).¹⁷

'Audio-tactile performance technique' (ATP), is an effective tool in educating the visually impaired children for maintaining good oral hygiene. The development of language & perception is affected by the motor activities. The study done by Joybell C et al. in 2015 revealed that the effectiveness of manual tooth-brushes can be improved by the introduction of the ATP technique.¹⁷

Frequency and timing: Frequency and timing of oral hygiene procedures are two important variables. The timing of the procedure should be determined by the life-style of the visually impaired person and his family and the care-taker. Brushing following the last snack or meal in the evening when adequate time can be devoted to the procedure is preferred. It is also important to brush before sleeping as the reduced salivary flow that accompanies sleep appears to contribute further to plaque growth, increasing its detrimental effects. For those who can independently carry out their oral hygiene practices, more frequent brushing, especially after meals is desirable and should be encouraged.⁸ Topical fluoride application is

also a desirable method to reduce the burden of caries. Occlusal sealants are also a valuable adjunct to preventive dentistry for preventing pit and fissure caries in visually impaired individuals.

Dental health education: Self-modeling can be used efficiently to provide dental health instructions¹³, the but individual's level of impairment has to be considered and the modeling should be customized accordingly.¹⁵ Prior to instruction, the patient should wash his or her hands and then be assisted in exploring all structures inside the mouth. Models, audiotapes, magnifying aids, large print materials, raised label markers,¹³ Braille scripts, bold scripts⁶, etc. can be used as instructional aids. Positive reinforcement of the information provided is a very important factor in building a strong foundation, especially in the case of visually impaired children. The importance of positive reinforcement in improving the oral health status was suggested by Hebbal et al. in 2012,²² from his study.

CONCLUSION

The key to successful oral hygiene programs with visually impaired persons involves creating adaptations and routines that allow them to be totally independent in oral hygiene care and develop pride in their achievements. This includes purchasing oral hygiene materials, labeling or storing materials so that they won't be lost, brushing all areas effectively, and determining whether they have been performing adequately.

The goal of the dentist or hygienist should be to train and encourage the blind individuals to accomplish these tasks independently. Self-reliance is an extremely important and sometimes sensitive aspect of the blind person's life. Achievements, both small and large, have a positive impact on the individual's self-esteem.

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