

# Neurodegenerative Diseases: Oral Health Care Directives

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## **ABSTRACT:**

A growing global health issue is the prevalence of neurodegenerative diseases such as Parkinson's disease, ataxia, Huntington's disease, and supranuclear palsy. The oral health of those who suffer from these disorders has not gotten as much scrutiny as the cognitive and motor impairments linked to these diseases have. This article clarifies the crucial connection between dental health care and neurodegenerative diseases, highlighting the demand for coordinated guidelines. We comment on the particular oral health issues experienced by individuals with neurodegenerative illnesses, including diminished self-care skills and increased vulnerability to oral diseases and pathology, through an extensive assessment of the literature. We outline evidence-based recommended practices in oral health care for these people based on verified data and professional opinion. We also look at the viewpoints of patients and caregivers, highlighting the value of patient-centric care in developing oral health directives. Making decisions also takes into account ethical and legal issues, providing advice to professionals and families. This book provides a useful tool for improving the quality of life for afflicted individuals by outlining the step-by-step procedure for drafting oral health care directives. We aim to stimulate future research and promote better standards of oral health management in the context of neurodegenerative diseases by listing these directions as an essential part of holistic care.

**Keywords:** neurodegenerative diseases; oral health; oral health management; oral health directives.

## **INTRODUCTION:**

The term "neurodegenerative diseases" refers to a class of chronic, progressive illnesses that predominantly affect the neurological system and cause the loss and slow degeneration of nerve cells (neurons). Alzheimer's disease, Parkinson's disease, Huntington's disease, and Amyotrophic Lateral Sclerosis (ALS) are examples of common neurodegenerative illnesses. Although these diseases mostly present neurologically, they can have a big impact on other parts of a person's health, like their oral health. Here is an outline of how dental health may be impacted by neurodegenerative diseases:

- 1) Cognitive Impairment:** Cognitive impairment is a common symptom of Alzheimer's disease and can make it difficult for patients to remember and carry out customary oral hygiene procedures like brushing and flossing. Additionally, they could neglect to brush their teeth or ingest toothpaste, which might result in dental issues. [ 1 ]
- 2) A decline in motor function:** Motor function deterioration, including tremors, rigidity, and trouble with fine motor skills, is a hallmark of Parkinson's disease. These motor difficulties might make it difficult for a person to hold a toothbrush or use dental floss correctly. [2]

- 3) **Muscle Stiffness:** People with Huntington's disease have trouble maintaining regular oral hygiene practices due to their stiff muscles and uncontrollable movements. Because of challenges with coordination and lack of control over jaw motions, dental care can be difficult. [3]
- 4) **Ingesting Difficulties:** Dysphagia (difficulty swallowing) is a symptom of several neurodegenerative illnesses, including ALS. Aspiration of food particles or liquid into the lungs can cause oral health problems and raise the risk of respiratory infections. [3]
- 5) **Xerostomia, or dry mouth:** As a side effect, medications used to treat neurodegenerative diseases can induce dry mouth. Because saliva is so important in defending teeth and gums, decreased salivation can lead to dental issues. [4]
- 6) **Nutritional Difficulties:** A person's capacity to chew and swallow food efficiently might be affected by neurodegenerative illnesses, which may necessitate dietary adjustments. A reduced diet might not contain several nutrients necessary for preserving oral health. [2]
- 7) **Behavioral Modifications:** A person's capacity to communicate dental pain or discomfort may be hampered by behavioral changes and communication problems brought on by neurodegenerative diseases.  
Dental problems could result from this that go untreated and get worse over time.
- 8) **Drug Interactions:** Neurodegenerative disease medications may interact with other medications or have an impact on dental operations. To deliver safe and efficient care, dental healthcare professionals need to be aware of these interconnections. [5]

Overall, because to their cognitive, motor, and sensory impairments, people with neurodegenerative diseases are more likely to experience oral health issues. Oral health care directives and specialized dental plans are necessary to address these issues and make sure that these people get the dental care and support they need as their conditions worsen. In order to manage oral health in people with neurodegenerative illnesses, routine dental exams and professional teamwork are essential.

**Directives for oral health care are essential for controlling oral hygiene for people with neurodegenerative disorders. These instructions are necessary for a number of reasons:**

- 1) **Maintaining Oral Health:** Neurodegenerative disorders can seriously hinder a person's capacity to practice good oral hygiene. By giving caregivers and medical professionals guidelines and instructions on how to handle the particular difficulties caused by these disorders, oral health care directives assist in maintaining oral health. [1]
- 2) **Preventing Dental Issues:** Cavities, gum disease, and oral infections are among the dental issues that people with neurodegenerative illnesses are more likely to experience. Oral health care guidelines place a strong emphasis on preventative methods to lower the likelihood of these problems, such as routine dental exams, specialized dental care, and customized oral hygiene routines. [1]
- 3) **Maintaining Quality of Life:** The relationship between oral health and general quality of life is strong. Painful and uncomfortable dental issues can include toothaches and mouth infections. People with neurodegenerative disorders can benefit from prompt dental care to relieve pain and discomfort and improve their general wellbeing by having clear guidelines in place. [6]
- 4) **Preventing Aspiration Pneumonia:** Many neurological disorders are accompanied by dysphagia, or difficulty swallowing. Poor oral hygiene can increase the risk of aspiration pneumonia by allowing

food particles or bacteria to enter the lungs. dental health care guidelines emphasize how crucial it is to practice good dental hygiene in order to avoid such issues. [3]

- 5) **Providing Consistent Care:** A steady deterioration in cognitive and motor function is a common feature of neurodegenerative illnesses. As the person's abilities decline, it becomes increasingly important to have written directives in place to guarantee that dental care is consistently and appropriately provided, even when the person is no longer able to adequately explain their needs. [4]
- 6) **Educating and Empowering Healthcare Professionals:** Healthcare workers and caregivers may not always be aware of the unique oral health issues linked to neurodegenerative disorders. Oral health care directives are educational tools that give healthcare providers the information and direction they need to deliver the best possible care. [6]
- 7) **Legal and Ethical Considerations:** Protecting the rights and interests of people with neurodegenerative disorders can be done by having legally binding oral health care directives. It makes sure that when decisions are made about dental treatment, their preferences and best interests are respected. [7]
- 8) **Enhancing Communication:** Communication skills diminish as neurodegenerative disorders get worse. Even when vocal communication is no longer possible, oral health care directives can include communication aids and tactics to help people convey their dental requirements and concerns. [7]
- 9) **Creating Individualized Care Plans:** Every person's experience with a neurodegenerative disease is different. Oral health care directives allow for the customization of care plans to the unique requirements, preferences, and disease development of the patient.

In conclusion, orofacial health care guidelines are crucial instruments for maintaining oral hygiene in people with neurodegenerative illnesses. They offer a methodical framework for managing the complicated oral health issues brought on by these disorders, thereby enhancing the affected people's quality of life and lowering their chance of developing dental problems.

This study uses a thorough survey-based methodology to examine how well-known, followed, and effective oral health care recommendations are among people with neurodegenerative diseases. We want to improve the overall care and dignity of people with neurodegenerative diseases by shedding light on the condition of oral health care practices today, the challenges they confront, and the possible advantages of structured directives.

## METHODOLOGY:

### Ethical statement

At the Jugruti recovery facility in Ghaziabad, Uttar Pradesh, the survey was carried out. The Center was asked for permission to conduct the survey. The study's aim was made abundantly known to the participants in, their parents or caregivers, and the facility staffs. Participants who met the requirements for inclusion were included in only after getting the participant's informed agreement to the survey their guardians or caretakers because they were less able to be consented. Literate people read the consent request themselves. However, data collectors read for individuals who couldn't read and secured their approval by getting their signature or finger print. Code numbers were changed to safeguard participants' confidentiality. No names or other personal information were included in the written report questionnaires.

**Area**

A center-based study was carried out at the Jugruti Recovery Center in Ghaziabad, Uttar Pradesh, India. This facility was selected since it is the sole facility offering mental service for senior citizens in this area.

**Participants**

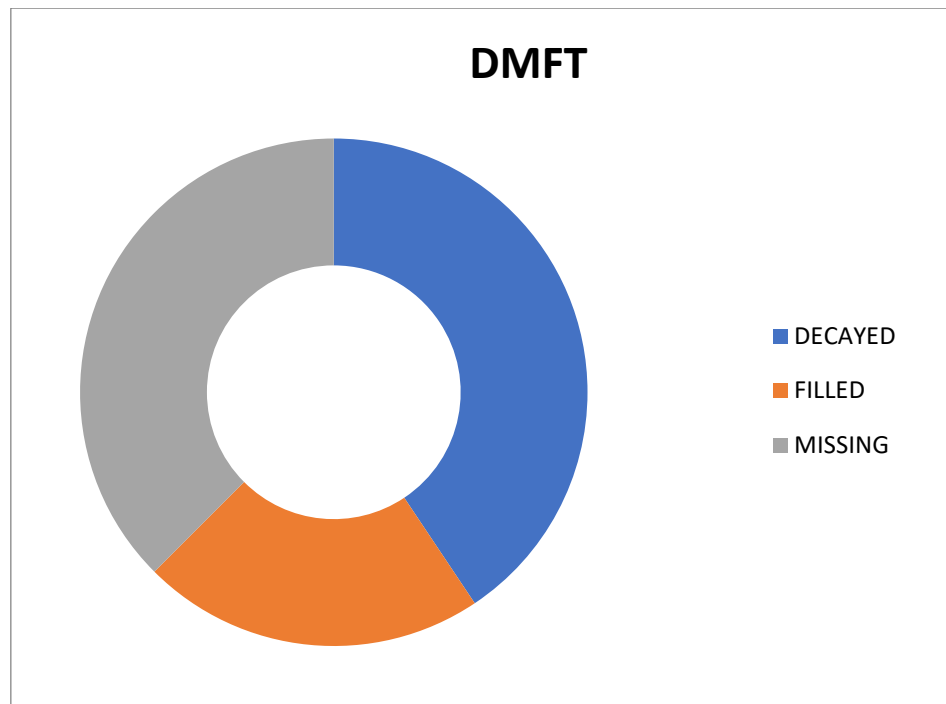
Participants Patients with Parkinson's disease, ataxia, dementia, and Huntington's disease as their principal diagnoses were included in the study. These same individuals, as well as those with alcohol or substance use disorders, brain injuries, intellectual disabilities, and aggressive tendencies, were excluded because their diseases were assessed to be so significant that they impaired their ability to participate. By assuming that 50% of the patients will have oral health issues, the sample size was calculated using a single population proportion calculation in order to achieve the maximum sample size with a 95% confidence level and a 5% level of significance. 120 people made up the entire sample. 12 of the eligible study participants were unwell or belligerent enough to refuse the survey after being contacted, and 10 steadfastly refused to take part. 98 people made up the final study group as a result.

**Measurements**

A well-trained healthcare professional used a pre-tested, structured questionnaire that was created based on the main goal of the study to gather survey data. The questionnaire was written in English, translated into the target languages, and then, in order to ensure consistency, translated back into English. According to a WHO procedure, a skilled dentist performed the dental examination [8]. The skilled dentists read, comprehended, and standardized her way of operation in order to reduce error and have data that could be replicated. Professionals in the field of mental health made the diagnosis. Following the patient's diagnosis, we then acquired information from medical histories.

**Results:**

The survey participants' DMFT scores varied from 0 to 16. There were 0 to 13 teeth that were decayed. Only seven of the participants received restorations; the majority of the subjects had between 0 and 6 filled teeth. There were zero to twelve missing teeth. Only around a quarter of the study participants had a normal DMFT score of 0. Twenty four of the statistically significant ones. Males are more likely than females to have dental caries with DMFT scores greater than 2, and as age grows, so does DMFT score. Study participants in the age ranges of 45 to 55 and 55 to 65 were shown to have statistically significant higher odds of having a DMFT score more than 2, which indicates a higher amount of dental caries, compared to study participants in the age range of 35 to 45.



## DISCUSSION:

In this study, efforts were made to evaluate the oral health status of elderly neurodegenerative patients at the Jugruti rehabilitation facility. Two restrictions applied to the study. First, physical (dental) examination was employed to determine dental caries rather than X-ray imaging, despite the latter's increased likelihood of detecting dental caries and the need for treatment. The second was a lack of national-level literature on the issue for purposes of comparison and discussion. With the help of the indicator DMFT score, oral health status was evaluated. In contrast to the results of Jovanovic et al. [9], the mean DMFT score in our study was 1.6, which was higher than the mean DMFT of the overall population of Ethiopian immigrants to Israel, which was 1.4. Along with the severity of the mental illness, poor tooth brushing habits, and sugar consumption, the mean DMFT score also rose. Additionally, Kumar et al [10] and Jovanovic et al [9] revealed a correlation between DMFT scores and the length of a mental illness. This study showed a statistical link between dental caries and using antipsychotic and antidepressant medications. According to a study conducted in Serbia [9], antidepressant therapy has a correlation with depression. This may be as a result of anti-psychotropic and anti-depressant drugs, which cause decreased saliva and dry mouth in research participants [11], which increases their risk of developing dental caries. This study found a relationship between smoking and dental caries, and the findings are consistent with those of studies by Millar et al. and Ravald et al. [12,13]. Sex, marital status, and educational attainment were linked with DMFT status, according to a multinomial logistic regression study. The results of Jovanovic et al. [9] showed, in contrast, that it was associated with sex but not with marital status. Female subjects in this study had superior dental health, which may be related to the culture and social norms that forbid smoking among women.

In conclusion, the oral health of our patients with neurodegenerative diseases is subpar. Therefore, psychiatric patients should get health education about dental hygiene to prevent high and frequent sugar intake, smoking, and horizontal teeth brushing. When antidepressants are prescribed, the treatment's impact should be considered, and patients may be suggested to a dental clinic for prophylactic measures.

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### The potential for these guidelines to be improved

1. **Oral Hygiene neglect:** Research has repeatedly shown that patients with neurodegenerative diseases often neglect their oral hygiene due to memory loss, cognitive disorders, and motor difficulties make it difficult for them to maintain regular oral health care. [14]
2. **Increased Dental decay risk:** Due to reduced oral hygiene efforts, neurodegenerative patients are at a higher risk of caries. [14]
3. **Periodontal Problems:** Studies have shown an increased prevalence of gum problems in individuals with neurodegenerative diseases. [15]
4. **Behavioural restrictions:** Patients may deny dental care, exhibit irritation during dental visits, or refuse treatment from caregivers due to fear or confusion. [16]
5. **Communication barrier:** Patients may have difficulty expressing dental pain or discomfort, making it challenging for caregivers and dental professionals to identify the problem. [17]
6. **Caregiver's Burden:** Managing the oral health of neurodegenerative patients adds an extra burden to Caregivers. They often face challenges in providing appropriate oral care.[16]
7. **Lack of Guidelines:** There is a big need for more disease-oriented oral health care guidelines for various diseases like Alzheimer's, Parkinson's, and ALS. These diseases have different challenges that may require a directed approach to oral care. [16]
8. **Lack of Awareness:** caregivers and healthcare providers may not be fully aware of the connection between neurodegenerative diseases on oral health, leading to sub standardization of oral care in these patients.
9. **Caregiver Education & counselling:** Caregivers play a major role in oral care for patients with neurodegenerative diseases. They need proper education and training on oral care techniques. [16,17]
10. **Legalities:** There's a need for listed legal guidelines in the provision of oral health care for individuals with advanced neurodegenerative diseases, as in many situations they may not be able to give consent form. [16]
11. **Protocols standardisation:** creating standardized protocols for oral care in neurodegenerative diseases can help achieve consistency across healthcare settings.

For those who suffer from neurodegenerative diseases, these obstacles are crucial. The outcomes of oral health care can be improved, along with general wellbeing and the possibility of systemic health issues. The moment is right to think about these gaps, which call for cooperation between researchers and healthcare providers, as well as to raise the bar for oral health care. Furthermore, it's a good idea to study more recent studies for the most up-to-date knowledge in this area.

**Facilitation And Improvement of Oral Health Treatment for Neurodegenerative Patients:**

Brushing themselves: To overcome the difficulties and barriers associated with self-tooth brushing. Patients suffering from neurodegenerative illnesses experience difficulties with physical dexterity and the concept of thorough brushing.

Electric tooth brushes  
Tooth brushes with special handles made for improved dexterity  
Toothbrush timer  
Water floss  
Ultrasonic toothbrush  
Floss picks

Brushing and oral hygiene measures taken by Caregiver or a dentist

Mouth rest/mouth prop  
Three-sided toothbrush  
Patient positioning  
Prescription toothpaste  
Silver diamine fluoride  
Plaque Disclosing Tablet

**CONCLUSION:**

In conclusion, those with neurodegenerative diseases must have oral health care directives. These instructions are essential for making sure that these patients receive the right dental care and practice good oral hygiene. Implementing these recommendations not only enhances patients' overall dental health, but also aids in averting oral issues that could cause excruciating discomfort and jeopardize their general health. Oral health care directives greatly improve the quality of life for people with neurodegenerative diseases by offering clear recommendations and techniques for dental practitioners and carers. To guarantee that these vulnerable groups receive complete care, it is crucial that these guidelines be acknowledged and efficiently carried out.

**REFERENCES:**

1. Lamster I.B. Northridge M.E. Improving oral health for the elderly. Springer, New York 2008  
Crossref Google Scholar
2. The Impact of Gross Motor Function on the Oral Health-Related Quality of Life in Young Adults with Cerebral Palsy in Saudi Arabi ,Sharat Chandra Pani, Saja Fahad AlEidan, Rawan Nasser AlMutairi, AlJawharah Ali AlAbsi, Dalal Nasser AlMuhaidib, Hessa Faisal AlSulaiman, and Najd Waleed AlFraih (pubmed)
3. Monitoring of changes in masticatory muscle stiffness after gum chewing using shear wave elastography C Olchowyc, K Grzech-Leśniak, J Hadzik... - Journal of Clinical ..., 2021 (MDPI.COM)
4. Influence of xerostomia on oral health-related quality of life in the elderly: a 5-year longitudinal study K Enoki, K Matsuda, K Ikebe, S Murai... - Oral surgery, oral ..., 2014 – Elsevier ( google scholar)
5. Oral health and nutrition GW Pla - Primary Care: Clinics in Office Practice, 1994 – Elsevier 9 (google scholar)
6. Oral health and care for elderly people with Alzheimer's disease SS Gao, CH Chu, FYF Young - ... environmental research and public health, 2020 – (mdpi.com)
7. Human rights and ethical considerations in oral health research. RP Ellen, R Singleton - Journal of the Canadian Dental Association, 2008 – (cda-adc.ca)
8. WHO (1997) Oral health surveys. Basic methods, 4th ed. Washington: DC
9. Jovanovic´ S, Milovanovic´ SD, Gajic´ I, Mandic´ J, Latas M, et al (2010) Oral Health Status of Psychiatric in-patients in Serbia and implications for their dental care. Croat Med J. 51: 443–450.
10. Kumar M, Chandu GN, Shafiulla MD (2006) Oral health status and treatment needs in institutionalized psychiatric patients: One year descriptive cross sectional study. Indian J Dent Res 17: 171–177.
11. Rekha R, Hiremath SS, Bharath S (2002) Oral health status and treatment requirements of hospitalized psychiatric patients in Bangalore city: a comparative study. J Indian Soc Pedod Prev Dent 20: 63–67
12. Millar WJ, Locker D (2007) Smoking and oral health status. J Can Dent Assoc 73: 2, [www.cda-adc.ca/jcda/vol-73/issue-2/155.html](http://www.cda-adc.ca/jcda/vol-73/issue-2/155.html).
13. Ravald N, Starkhammar Johansson C (2011) Tooth loss in periodontally treated patients. Along-term study of periodontal disease and root caries. J Clin Periodontol, doi:10.1111/j.1600-051X.2011.01811.x.



14. Oral hygiene care for residents with dementia: a literature review J Chalmers, A Pearson - Journal of advanced nursing, 2005 – (Wiley Online Library)
15. Association between periodontal disease and dementia: A literature review P Pazos, Y Leira, C Domínguez... - Neurología (English ...), 2018 – (Elsevier)
16. Ethics and dementia: mapping the literature by bibliometric analysis C Baldwin, J Hughes, T Hope... - ... journal of geriatric ..., 2003 – (Wiley Online Library)
17. Clinical desires to catch signals of human expression-assisting communication of severely disabled patients with neurodegenerative disorders Y Narita, M Kato, N Nishii, R Maki... - ... on Affective Science ..., 2018 – (jstage.jst.go.jp)