

## The Impact of Speech Therapy on Patients with Parkinson after Surgery: A Letter to the Editor

Amir Soflou<sup>1</sup>  , Ardalan Safaie<sup>2</sup>  ,  
Leila Ghasisin<sup>3</sup>  

### Letter to Editor

#### Abstract

Deep Brain Stimulation (DBS) Implant Surgery is one of the new methods for addressing the complications and symptoms of Parkinson's disease. Parkinson's patients undergoing Deep Brain Stimulation (DBS) surgery often experience a reduction in motor symptoms; however, non-dopaminergic issues, such as speech disorders, frequently remain. These include reduced vocal intensity, monotonous speech, and decreased intelligibility of speech. These disorders can sometimes worsen after DBS and directly impact daily communication, social participation, and the patient's quality of life. While speech and language rehabilitation could play an important role in improving these issues, the scope of speech therapy intervention following DBS has not been comprehensively explored in clinical studies. Given the increasing prevalence of DBS surgery in the country and the expanding access of Parkinson's patients to this method, it is crucial to conduct domestic studies on the effectiveness of speech therapy interventions after DBS. Organizing training workshops, developing clinical guidelines, and fostering collaboration among neurologists, surgeons, and speech-language pathologists could be an important step in improving the quality of healthcare services and enhancing the speech outcomes for these patients.

**Keywords:** Parkinson; Deep brain stimulation; Speech therapy

**Citation:** Soflou A, Safaie A, Ghasisin L. **The Impact of Speech Therapy on Patients with Parkinson after Surgery: A Letter to the Editor.** J Res Rehabil Sci 2023; 19.

Received date: 30.01.2023

Accept date: 11.03.2023

Published: 04.04.2023

#### Introduction

Deep Brain Stimulation (DBS) Implant Surgery is one of the new methods for addressing the complications and symptoms of Parkinson's disease. Parkinson's patients undergoing Deep Brain Stimulation (DBS) surgery often experience a reduction in motor symptoms; however, non-dopaminergic issues, such as speech disorders, frequently remain. These include reduced vocal intensity, monotonous speech, and decreased speech intelligibility (1). These disorders can sometimes worsen after DBS and directly impact daily communication, social participation, and the patient's quality of life (2). While speech and language rehabilitation could play an important role in

improving these issues, the scope of speech therapy intervention following DBS has not been comprehensively explored in clinical studies.

Studies conducted in Europe and the United States have shown that approaches such as LSVT LOUD and SPEAK OUT! Can help improve speech and voice problems in patients after DBS. However, the effects of DBS surgery on voice components, the range of movement of speech structures, and respiratory control are complex and require specialized therapeutic planning (3). Some studies also suggest that DBS device parameters, electrode placement, and stimulation intensity can directly impact speech quality. Moreover, a mismatch between DBS settings

1- MSc Student, Student Research Committee AND Department of Speech Therapy, School of Rehabilitation Sciences, Isfahan University of Medical Sciences, Isfahan, Iran

2- Associate Professor, Musculoskeletal Research Center AND Department of Speech Therapy, School of Rehabilitation Sciences, Isfahan University of Medical Sciences, Isfahan, Iran

**Corresponding Author:** Leila Ghasisin; Associate Professor, Musculoskeletal Research Center AND Department of Speech Therapy, School of Rehabilitation Sciences, Isfahan University of Medical Sciences, Isfahan, Iran; Email: ghasisin@rehab.mui.ac.ir

and speech therapy interventions may hinder patient progress (4). Additionally, due to the varying effects of the type and placement of the implanted electrode, as well as device settings, patients may exhibit different symptoms of speech disorders (1, 5).

Despite these findings, there have been very few clinical studies in Iran on the role of speech therapy after DBS. Many patients, and even some members of the medical team, are not sufficiently aware of the need for speech evaluations and specialized rehabilitation protocols for this group of patients. Meanwhile, the experience of leading medical centers in other countries has shown that pre- and post-DBS speech evaluations, coordination of care with speech-language pathologists, and continuous patient follow-up can significantly impact surgical outcomes and reduce secondary complications or persistent speech disorders associated with Parkinson's disease or DBS (1, 2).

Given the increasing prevalence of DBS surgery in the country and the expanding access of Parkinson's patients to this method, it is crucial to conduct domestic studies on the effectiveness of speech therapy interventions after DBS. Organizing training workshops, developing clinical guidelines, and fostering collaboration among neurologists, surgeons, and speech-language pathologists could be an important step in improving the quality of healthcare services and enhancing the speech outcomes for these patients.

### Acknowledgments

We sincerely express our gratitude to the authors of the

articles cited in this paper, as well as to the staff of the Faculty of Rehabilitation Sciences, who provided the authors with adequate resources for article search.

### Authors' Contribution

Project design and conceptualization ideation: Amir Soflo, Leila Ghasisin

Project support, scientific and executive services support of the project: Leila Ghasisin

Data collection: Amir Soflo, Ardalan Safaie

Analysis and interpretation of the results: Amir Soflo, Ardalan Safaie, Leila Ghasisin

Manuscript preparation: Amir Soflo, Ardalan Safaie, Leila Ghasisin

Specialized Critical scientific evaluation of the manuscript: Amir Soflo, Ardalan Safaie, Leila Ghasisin  
Confirm-Approving the final manuscript to be submitted to the journal: Amir Soflo, Ardalan Safaie, Leila Ghasisin

Maintaining the integrity of the study process from the beginning to the publication, and responding to the reviewers' comments: Amir Soflo, Ardalan Safaie, Leila Ghasisin

### Funding

This article has not used any financial sources.

### Conflict of Interest

There is no conflict of interest in this article.

### References

1. Tripoliti E, Zrinzo L, Martinez-Torres I, Frost E, Pinto S, Foltynie T, et al. Effects of subthalamic stimulation on speech of consecutive patients with Parkinson disease. *Neurology*. 2011; 76(1): 80–6.
2. Sidtis JJ, Tagliati M, Alterman R, Sidtis D, Dhawan V, Eidelberg D. Therapeutic high-frequency stimulation of the subthalamic nucleus in Parkinson's disease produces global increases in cerebral blood flow. *J Cereb Blood Flow Metab*. 2012; 32(1): 41-9.
3. Ramig LO, Sapir S, Countryman S, Pawlas AA, O'Brien C, Hoehn M, et al. Intensive voice treatment (LSVT®) for patients with Parkinson's disease: a 2 year follow up. *J Neurol Neurosurg Psychiatry*. 2001; 71(4): 493–8.
4. Dromey C, Bjarnason S. A preliminary report on disordered speech with deep brain stimulation in individuals with Parkinson's disease. *Park Dis*. 2011; 2011(1): 796205.
1. Fenoy AJ, McHenry MA, Schiess MC. Speech changes induced by deep brain stimulation of the subthalamic nucleus in Parkinson disease: involvement of the dentatorubrothalamic tract. *J Neurosurg*. 2016; 126(6): 2017-27.