

Dysarthria in Parkinson's disease: Lusophony vs. Francophony

<https://www.neurodegenerationresearch.eu/survey/dysarthria-in-parkinsons-disease-lusophony-vs-francophony/>

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France

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Dysarthria in Parkinson's disease: Lusophony vs. Francophony

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ANR

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Research Abstract

Parkinson's disease (PD) affects between 1% and 2% of the world's population aged 60 and older; in Europe the prevalence is around 150 PD patients per 100,000 individuals. PD is classically characterized by a symptomatic triad that includes rest tremor, akinesia and hypertonia and although the motor expression of the symptoms involves mainly the limbs, the muscles implicated in speech production are also subject to specific dysfunctions. Motor speech disorders, so-called dysarthria, can thus be developed by PD patients. The main objective of our project is to evaluate the physiological parameters (acoustics), perceptual markers (intelligibility) and psychosocial impact of dysarthric speech in PD, in the context of language (French vs. Portuguese) modulations. Acoustic parameters are expected to be physiologically-based, linked

with the motoric aspects of dysarthric speech. The same degree of impairment of such parameters should be associated with the pathology and be present universally in all patients, even if they speak different languages; that should be also the case of prosodic markers, whereas impairment of speech intelligibility may participate to the psychosocial impact in communication alteration.

PD patients will be enrolled in the study in Aix-en-Provence (N = 60) and Lisbon (N = 60). Their global motor disability will be assessed with dedicated clinical rating scales, without (off) and with (on) pharmacological treatment. Two groups of 60 healthy age-matched volunteers will provide the normal reference for between-group comparisons. Along with the off and on medication clinical examinations, 6 speech tasks will be recorded:

1. Sustained vowel /a/;
2. Maximal phonation time;
3. Diadochokinesis repetition;
4. Reading of 10 words and 10 sentences;
5. Reading of a short paragraph;
6. Orientated spontaneous speech.

The total time to carry out this protocol will be 15 minutes at the most. Moreover, speech organ functions will also be assessed during the same examination. The psychosocial impact of dysarthria will be evaluated via self-questionnaires; it will be analysed a posteriori, as well as the speech intelligibility evaluation, and both will strengthen the overall speech assessments. This global investigation will represent a unique opportunity to provide the most precise and reliable description of PD patients' speech and its impacts on intelligibility and quality of life. We hypothesize that:

- Aero-phonatory parameters will be altered in PD patients similarly and independently from the language;
- Prosodic markers in controls will differ significantly according to the language and will be similar in PD patients, due to the loss of speech prosody associated with the disease;
- The impact of speech impairment on intelligibility and psychosocial state might be worse in patients speaking the language that requires the highest prosodic modulations (Portuguese) as compared with the French patients.

Challenging and interdisciplinary aspects are combined in our project, which original cross-linguistic approach involves an international collaboration definitely new in the field of motor speech disorders. This interdisciplinary project is pioneering, based in essence upon a much-needed Franco-Portuguese collaboration, and will have important impacts in the domains of neurodegenerative disorders, speech sciences, and clinical research. We believe important to mention that our project was submitted last year in the previous transnational proposal between France (ANR) and Portugal (FCT). The evaluation mainly qualified our project as 'outstanding', rising also some suggestions and comments that we took into account in the current revised version and that actually strengthened even more the pertinence of our study

Further information available at:

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