

國家科學及技術委員會人文社會科學研究中心

補助國家科學及技術委員會跨領域研究計畫之前置規劃案結案報告

聞聲救苦：語音分析應用於認知功能障礙的辨識與介入

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摘要

目的：本規劃案計畫目的為發展跨領域整合計畫，檢視老年人在不同程度認知功能障礙程度下的語音表現與其認知功能的關係。具體目標有三：1.了解不同程度認知功能障礙與其語音表達的關係，進而發展偵測認知障礙語音特性的工具；2.了解認知功能障礙者的語音表達與生化生理、生活型態、健康照護利用、健康生活品質等跨領域的關連；3.探討失智者和家屬的語音溝通困難及家屬照顧負荷，以及提供家屬有效的溝通方式及建議。

跨領域合作方法：本規劃案以五個月為期，跨領域橫跨人文處(醫務管理)、生科處(公共衛生、神經醫學)、工程處(電機工程)的跨領域學門合作，以探討語音和認知功能障礙的問題。未來合作項目包含合併資料收集(語言與聲音分析、問卷資料、質性觀察、生物指標資料、影像等)，合併混合資料資料和支援分析，與整合發展溝通介入與偵測工具。

規劃案合作方式：報告與構想討論、邀請演講與研究諮詢、線上社群討論、撰寫報告與提出整合型計畫。

預期效益：1.辨識不同認知功能程度者的語言聲音特性，以及和生物指標、生活型態、照顧負荷、健康生活品質等之關聯，提供學理之了解。2.發展非侵入性且不需訪員的語音篩檢認知功能障礙工具。3.發展家屬和認知功能障礙者溝通的一般原則與個別建議，進而降低家屬照顧負荷，以及促進失智友善環境。

關鍵字：認知功能障礙、失智症、語音、生活型態、家庭照顧者、溝通、健康照護利用、健康生活品質

Abstract

Purpose: The purpose of this project was to develop a cross-disciplinary research to examine the relationships of speech and voice characteristics with different level cognitive impairment. The specific aims included: 1. To understand the relationships of cognitive impairment with voice and speech, and further to develop detecting tools of cognitive impairment by voice and speech. 2. To realize the associations of voice and speech of people having cognitive impairment with their biochemical, biological, lifestyle, health care utilization, and health-related quality of life. 3. To explore the communication problems of people with cognitive impairment with family caregivers and their caregiving burden, as well as to develop effective communication guidelines and suggestions for family.

Cross-disciplinary collaboration: This planning project was a 5-month project. The cross-disciplinary collaboration involves department of humanities and social sciences (medical management), department of life sciences (public health, neuroscience), and department of engineering and technologies (electronic engineering) to explore the issue of voice and speech in cognitive impairment. The collaboration of all the sub-projects includes integrated data collection (voice and speech, questionnaire, qualitative observation, biomarkers, and images), mixed data analysis and analysis support, and develop communication intervention and detection tools all together.

Planning methods: Presentation and discussion, speech invitation and research consultation, online research group discussion, writing report, and submission a 3-year integrated research project.

Expected contribution: 1. To identify voice and speech characteristics for people with different cognitive function, and the associations with biomarkers, lifestyles, caregiving burden, and health-related quality of life to add knowledge in the theories. 2. To develop non-intrusive, non-interviewer needed screening tool/method by voice and speech for cognitive impairment. 3. To develop communication guidelines and specific suggestion for family caregivers, in order to reduce caregiving burden and promote dementia-friendly environment.

Keywords: Cognitive impairment, dementia, voice and speech, lifestyle, family caregivers, communication, health care utilization, health-related quality of life