SESSION 20 (PAPER)

UNDERSTANDING AND TREATING MEMORY LOSS AND DEMENTIA

COGNITIVE DECLINE AND ITS DETERMINANTS IN DIVERSE ETHNO-REGIONAL GROUPS: THE COSMIC COLLABORATION

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The Cohort Studies of Memory in an International Consortium (COSMIC) (BMC Neurol. 2013 Nov 6;13:165) is a consortium of population-based longitudinal studies of ageing and dementia, which currently comprises 27 studies with >50,000 participants. The main objectives of COSMIC are to harmonise shared, non-identifiable data from cohort studies in older individuals (60+ years), and perform joint or mega-analyses using combined, harmonised data sets. An earlier project applied uniform criteria to the prevalence of MCI in 11 studies, and estimate the prevalence to be 6.7% (range 3.2 to 10.8%), in contrast to the published estimates of 5.0% to 36.7% (PLoS One. 2015 Nov 5;10(11):e0142388).

The current study examined rates of cognitive decline in 14 studies from 12 countries. It showed that cognitive function declined significantly with age for nearly every study and neuropsychological test, with processing speed exhibiting the greatest median decline (0.77 IQ points per year). No consistent relationships between test type and rate of decline were observed, however. The effects of sex and apolipoprotein E gene (APOE) were inconsistent in different studies. Each extra year of education conveyed enhanced scores for the greatest median decline (0.80–2.75 IQ points). The effects of other putative risk factors are currently being analysed and will be presented. COSMIC represents a truly international collaboration to establish the epidemiology of age-related cognitive decline and dementia.

THE CINGULATE CORTEX OF OLDER ADULTS WITH EXCELLENT MEMORY CAPACITY

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Memory deterioration is the earliest and most devastating cognitive deficit in normal aging and Alzheimer’s disease. Some older adults, known as “Supernormals”, maintain excellent memory. This study examined relationships between cerebral amyloid deposition and functional connectivity (FC) within the cingulate cortex (CC) and between CC and other regions involved in memory maintenance between Supernormals, healthy controls, and those at risk for Alzheimer’s disease (amnestic mild cognitive impairment). Supernormals had significantly stronger FC between anterior CC and R-hippocampus, middle CC (MCC) and L-superior temporal gyrus, and posterior CC and R-precuneus, while weaker FC between MCC and R-middle frontal gyrus and MCC and R-thalamus than other groups. These FC were significantly related to memory and global cognition in all participants. Amyloid deposition did not differ among groups. Relationships between global cognition and FC were stronger among amyloid positive participants. Relationships between memory and FC remained regardless of amyloid level. This revealed how CC-related neural function participates in cognitive maintenance in the presence of amyloid deposition, potentially explaining excellent cognitive function among Supernormals.

MILD COGNITIVE IMPAIRMENT DETECTION BY SIMULTANEOUS USE OF SCALES: A NEURAL COMPUTING SOLUTION

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At present there is an increase in the elderly population and more persons with cognitive troubles, where dementia is a socio-sanitary challenge. Mild cognitive impairment (MCI) may be a prodromal state of Alzheimer’s disease and other dementias. It is considered an optimal target for diagnosis, likely to be highly prevalent in the future, worldwide. MCI diagnosis is principally based on cognitive and daily living functional activities assessment. However, in clinical settings, essentially primary care setting, MCI is challenging because of time, consulting restrictions and even difficulties understanding cognitive test cut-off points, mainly when diagnosis depends on two or more scales, and it is underdiagnosed.

An intelligent system to assist in MCI diagnosis, based on hybrid neural architectures, the counter-propagation network (CPN), with a wrapper approach, has been designed. The dataset includes scores of three commonly used scales, MMSE, GDS and FAQ, along with years of education and age, relative to 203 normal control subjects and 128 subjects who revealed a MCI, from ADNI database.

The efficiency of the proposed CPN-based system, with MMSE, GDS and age, was evaluated using several performance measurements and the clinical utility index (CUI). Its diagnostic performance was compared with a geriatrician, a neurologist and two family physicians. Our proposal achieved the highest score amongst all, AUC: 95,11%, Accuracy: 86,84%, Sensitivity: 90%, Specificity:84,78%, CUI: 0,715. These results were also better than optimum cut-off over each one of the tests.

Neural computing methods may be useful tools in clinical settings even when employing brief screening tests.

BIDDING THE MEDICAL MODEL “GOODBYE!” NEW WAYS OF THINKING ABOUT DEMENTIA

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Although dementia is a medical diagnosis, there are currently no disease-modifying therapies and health services have little to offer people who receive a dementia diagnosis. However, the Medical Model exerts a powerful grip on thinking about dementia, limiting the exploration of other models and approaches that may be of benefit. This opportunistic study explored the ease at which alternate models from other areas of health and disability could be explained to and understood by a range of health professionals. Data were captured from 40 staff in a psychiatric hospital during an interactive Grand Rounds session. A true case scenario was used with phased presentation of four different theoretical models: Medical Model, Recovery, Self-Management and Rights-Based. The session concluded with a video of the individual describing his life after adopting technology. Understanding was assessed through written answers regarding benefits and limitations of each approach to the case scenario and a final question asking which approach best explained his experience. The results suggested that conveying conceptual alternatives to the Medical Model is possible in a simple and accessible way. The written answers conveyed understanding of the three alternate models and their application to the case scenario. Fewer than 10% of respondents proposed that the Medical Model best explained the experience of the participant “loving every minute” of his life. This suggests the time has come to explore alternate models and lessons learnt from other fields to enable people to live well with dementia.

INTERVENTIONS FOR THE TREATMENT OF BEHAVIOURAL AND PSYCHOLOGICAL SYMPTOMS OF DEMENTIA: AN OVERVIEW

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Behavioural and psychological symptoms of dementia (BPSD) are common amongst people with dementia and can have a large impact on public health by potentially reducing quality of life, increasing caregiver impact and increasing costs associated with dementia care. The objective of this study was to synthesize the findings of systematic reviews of randomised controlled trials of interventions for the treatment of BPSD (PROSPERO CRD42016039477). A systematic search of The Cochrane Database of Systematic Reviews, DARE, Medline, EMBASE and PsycINFO retrieved 3467 citations. Systematic reviews of randomised controlled trials of interventions aimed at treating BPSD in patients with dementia of any type including Alzheimer’s disease or Alzheimer’s disease only were included. The most comprehensive and up-to-date reviews for acetylcholinesterase inhibitors, antipsychotics, antidepressants, benzodiazepines, mood stabilisers, melatonin, caregiver interventions, exercise, music therapy, cognitive stimulation and psychological interventions were included. For the majority of the interventions, included reviews were of moderate to high quality according to the AMSTAR checklist and the evidence was of low to moderate quality as rated using GRADE criteria. Reported effect sizes for atypical antipsychotics on global BPSD measures were very small (SMD 0.17, 95%CI 0.08 to 0.25; moderate quality evidence). Cognitive enhancers also had very small effects; reviews reported non-significant trends in favour of donepezil or memantine (4 and 2 studies, respectively) and a small but significant effect for galantamine based on high quality evidence from two studies. Effect sizes have been compared across interventions and interpreted in light of the severity of dementia in study populations.

SESSION 25 (SYMPOSIUM)

PROMOTING HEALTHY AGING IN DIVERSE OLDER COMMUNITIES THROUGH ACADEMIC-COMMUNITY RESEARCH

Chair: N.M. Giunta, Hunter College, New York, New York

As global aging brings increased diversity in race/ethnicity, language and culture, ability, sexual orientation, gender identity, and access to economic and other resources, supporting the health and well-being of older adults and their communities is complicated by cultural and geographic diversity, and growing structural inequities. Community-based scholarship plays an essential role in understanding and addressing the needs that emerge from disparities and intersectionalities that shape the lives of older adults in multicultural communities. This symposium highlights innovative research and describes the challenges and rewards of academic-community relations that build knowledge and promote healthy aging through community-based inquiry. First, we present a study exploring long-term and advanced care planning among multicultural members of an urban LGBTQ senior center. Second, preliminary findings are shared from a community-based initiative to address knowledge and service-utilization gaps regarding Alzheimer’s disease among urban Latino elders. Third, we describe a university-community collaboration using social network analysis to improve provider knowledge and support for caregivers of individuals with dementia. Fourth, results are shared from a study of intergenerational transmission of cultural identity among older Pacific Islanders in Hawai‘i. Finally, we present an ethnographic study of academic-community relationships in a rural U.S. college town, and perceptions of multiple stakeholders who influence the aging experience in their community. Through a variety of methods, these studies share a commitment to community-based research that aims to support collaboration, empower communities, and ultimately transform practice and policy to better meet the diverse needs of urban and rural older adults around the globe.

LONG-TERM CARE PLANNING AND THE CHANGING LANDSCAPE OF LGBTQ AGING


Older LGBTQ adults are twice as likely to grow old without a spouse or adult child and more often act as caregivers...