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Shape-color associations are mediated by stereotypicality

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ABSTRACT BOOK

2021

THE 14TH
NORDIC MEETING IN
NEUROPSYCHOLOGY

Copenhagen, Denmark
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POSTER PRESENTATIONS

Workshop: Cross-cultural neuropsychological assessment

Presenter:
T. Rune Nielsen, Senior Researcher, Danish Dementia Research Centre

Short bio:
T. Rune Nielsen has been involved in research on cross-cultural neuropsychology and dementia in minority ethnic groups for more than a decade and has several years of clinical experience from the memory clinics setting. His research has mainly focused on challenges and possible solutions in cross-cultural Neuro-psychological assessment, and more recently post-diagnostic dementia care in minority ethnic groups. He is cofounder of Nordic and European research networks on dementia in minority ethnic groups and cross-cultural neuropsychology, has published more than 40 scientific papers on the topics, and has presented his research at several national and international seminars and conferences.

Abstract: Although a certain degree of diversity has always been present in the Nordic countries, diversity levels have increased greatly over the last decades, starting with the immigration of labor workers from countries outside Europe in the 1960s and 1970s, followed by the influx of asylum seekers and refugees in more recent years. Several minority ethnic groups are at an increased risk of medical conditions that are associated with cognitive impairment, such as stroke, diabetes mellitus, and dementia. As a result, neuropsychologists in the Nordic countries will increasingly encounter patients from minority ethnic groups in their daily practice.

Several characteristics of minority ethnic groups may pose unique challenges to neuropsychologists. First, limited proficiency in the host country language is widespread among recently arrived immigrants and older people in some minority ethnic groups. Second, neuropsychologists may encounter substantial cultural barriers in their clinical practice. Third, low education levels or illiteracy are common among (older) people in various minority ethnic groups. Taking these barriers into consideration, administering a crosscultural neuropsychological assessment requires neuropsychologists to acquire culture-competent skills and knowledge.

This workshop will present and discus how language, (quality of) education, literacy, and culture may influence neuropsychological assessment based on recent research and clinical examples from the Nordic countries. Further, several newly developed cross-cultural neuropsychological tests for minority ethnic groups in Europe will be presented.

Learning goals
• Increased awareness about language, cultural and educational influences on cognition and neuropsychological test performance.
• Attained knowledge allowing for critical reflection and interpretation of neuropsychological test results in cross-cultural assessments.
• Learnt about available cross-cultural neuropsychological tests.

Workshop: Functional impairment in ADHD across the life-span; risks, resilience and treatment considerations

Presenter:

Christina Mohr Jensen, MSc Psych, Ph.D., Associate professor in clinical psychology, Psychiatry, Aalborg University Hospital/ Psychology, Aalborg University. Website: https://vbn.aau.dk/da/persons/128222

Short bio: Christina Mohr Jensen has been involved in clinical and research work related to neurodevelopmental disorders during the last decade. Her research related to ADHD has focused on the developmental trajectories associated with ADHD, and she has an ongoing interest in the treatment and support for individuals with ADHD and their families spanning pharmacological and psychological treatments, focusing on efficacy, side-effects, and treatment stability. She has participated in the development of the Danish national clinical guidelines for assessment and treatment of ADHD, she is an external board member of the Danish patient organization for ADHD, and is involved in international collaborations, including being a member of EUNETHYDIS (European Network for Hyperkinetic Disorders).

Abstract: Attention-Deficit/Hyperactivity Disoder (ADHD) affects not only cognition but a vast range of important aspects of life and across the lifespan. In treatment and assessment the core symptoms of ADHD are often in focus, but a wealth of other biological, social and psychological factors also need our attention if we wish to predict and prevent some of the adverse outcomes of ADHD. This workshop will introduce the particpants to research on the developmental outcomes of ADHD on selected topics such as crime, education, mental and physical disorders. The differential developmental trajectories will be discussed and exemplified with clinical cases focusing on bio-psycho-social aspects of risk and resilience in relation to ADHD, including a focus on treatment effects of both pharmacological and psychotherapeutic treatment (e.g. CBT). For instance, while it is well-established that pharmacological treatment may reduce symptoms of ADHD, what about other areas of importance for the patient? Potential short and longer term benefits, shortcommings and important clinical considerations related to treatment will be discussed. The aim of the workshop is to highlight the complexity and heterogeneity of ADHD, but at the same time, to inspire clinicians as well as patients to use this information to tailor interventions to the needs of the individual patient, addressing, but also going beyond ADHD symptoms.

Workshop: Fatigue management following acquired brain injury in clinical practice

Presenter(s):
Daniel Løke, Psychologist & Doctoral Research Fellow at Sunnaas Rehabilitation Hospital,
Nesodden, Norway.

Short bio:
Psychologist and doctoral research fellow with diverse experience in assessment and rehabilitation of patients with both congenital and acquired brain injuries, as well as persistent pain. Biopsychosocial approaches to understanding and treating subjective health complaints such as fatigue and pain are a particular interest and passion clinically and in my research.

Frederik Lehman Dornonville de la Cour, PhD Fellow, Department of Psychology, University of Southern Denmark Neuropsychologist, BOMI Brain Injury Rehabilitation Center Denmark

Short bio:
Frederik Lehman Dornonville de la Cour: https://portal.findresearcher.sdu.dk/en/persons/frederik-lehman-dornonville-de-la-cour
His research interests are in neurorehabilitation and neuropsychological sequelae of
brain injury, particularly assessment and treatment of fatigue. He is conducting a PhD
project with aims to validate a self-reported outcome measure of fatigue and to
evaluate treatment strategies for improving self-management of fatigue in
interdisciplinary vocational rehabilitation of brain injury.

Abstract:
Fatigue is a common complaint following acquired brain injury (ABI). Although several interventions have been evaluated, such as pharmacological treatment, cognitive behavioral therapy, and metacognitive strategies, there is currently insufficient evidence to support a gold-standard for treatment in clinical practice. This workshop covers issues to consider in fatigue rehabilitation for adult ABI populations. The participants will learn about factors that may contribute to fatigue and the interplay of fatigue with associated factors, assessment of fatigue, including patient-reported outcome measures, and differential diagnostic considerations. Further, management strategies for fatigue will be presented, including metacognitive strategies for improving problem solving and attention, and behavioral strategies of an interdisciplinary Energy Management program in vocational rehabilitation. The workshop will incorporate research findings from the scientific literature, case examples, and exercises.

WS-3

Workshop: Fatigue management following acquired brain injury in clinical practice

Workshop: Assessment of cognition in children and adults with severe speech and motor impairments

Presenter:
Kristine Stadskleiv, Associate professor/Neuropsychologist, University of Oslo, Department of Special Needs Education & Oslo University Hospital, Department of Clinical Neurosciences for Children.
Website: https://www.uv.uio.no/isp/personer/vit/krisstad/

Short bio:
Kristine Stadskleiv has a focus upon cognitive functioning in children and adults with congenital and acquired brain injuries in her research, in particular involving diagnostic groups like cerebral palsy (CP) and paediatric brain tumours, and including individuals with the most severe speech and motor impairments. She also has a special clinical and research interest in the field of Augmentative and Alternative Communication (AAC). She has been involved in the development of a systematic follow-up protocol of cognition in children with CP, the CPCog, and led the work developing a similar protocol for adults.

Abstract:

Individuals with severe speech and motor impairments are often described as "non-assessable". In studies of cognitive functioning their IQ is often assumed, not assessed. Despite the lack of assessment, their cognitive impairments are perceived as substantial. Although there is a correlation between degree of motor and cognitive impairments in many groups, drawing conclusions about cognitive function on this basis is inaccurate. On a group level, this may lead to inflated estimates of intellectual disability, whilst for the individual the consequences may be lack of appropriate interventions, limiting their possibility for autonomous communication and learning.

There are suitable methods of assessment available to neuropsychologists, which makes the view of children and adults with severe speech and motor impairments as non-assessable particularly unfortunate. These methods are applicable to individuals who may be able to voluntarily control only very limited motor movements, such as their eye-gaze or small head movements.

This workshop will focus on how assessment of cognitive functioning may be reliably performed in children and adults with severe speech and motor impairments. Quadriplegic and dyskinetic cerebral palsy, severe acquired brain injuries, severe neuromuscular disorders and progressive disorders are examples of diagnostic groups for which this is applicable. In the workshop, a framework for how response modality may be reliably adapted will be presented, along with video-examples illustrating the process. Research on adapted response modality, presentation of computer tools for assessment and relevant psychological tests, as well as a discussion about challenges and ethical dilemmas will be included.

After the workshop, the participants will have:
• Increased knowledge about cognitive functioning in children and adults with severe speech and motor impairments
• Increased knowledge about how assessments of cognition may be carried out when individuals have no speech and very severe motor impairments.
• Received practical tips about how to carry out adapted assessments

(S-1) A manual-based family intervention for families living with brain or spinal cord injuries

Presented by:
Pernille Langer Søndergaard, neuropsychologist, PhD fellow at Department of Psychology, University of Southern Denmark, Neurorehabilitation Research and Knowledge Centre, Rigshospitalet, Department of Brain and Spinal Cord Injuries, Rigshospitalet

Abstract:
Acquiring an injury to the brain (ABI) og spinal cord (SCI) constitutes a severe life change for the survivor, but also for their caregivers. The paradigm of helping the family has primarily been on psychosocial interventions targeting caregivers. However, interventions including both survivor and caregivers are essential, as the mental health of the whole family are affected. A manual-based family intervention for the whole family (≥18 years old) living with ABI or SCI is investigated in Denmark, and currently 61 families are included. The family intervention aims to improve the quality of life and decrease experienced burden. The intervention consists of eight-weekly 90-min sessions with home-assignments. In the presentation, we will introduce the manual-based family intervention, focusing on the themes of each session (making meaning, shifting focus, managing emotions, communicating effectively, finding solutions, boundary making), which will be valuable for clinical neuropsychologists working with survivors of ABI or SCI.

(S-1) A manual-based family intervention for families living with brain or spinal cord injuries

(S-1) Manual-based hypnosis in patients with long term post concussion symptoms

Presented by:

Trine Schow, Brain Injury Center -BOMI, Denmark

Abstract:

Most people recover spontaneously from a concussion. However, 22-45% experience persistent post-concussion symptoms (PCS) having a significant impact on everyday life. Recently, manual-based hypnosis (Suggestion-Based Cognitive Rehabilitation; SBCR) was found to improve working memory and reduce stress and depression symptoms in patients with brain injury and is now also used for persons suffering from PCS. During last year, BOMI rehabilitation center has offered SBCR for persons with acquired brain injury- including persons with PCS. We will present data from a multiple baseline single-caseexperiment design study, including 5 persons with PCS participating in 4 sessions of SBCR. Each person completed questionnaires each week from pre-intervention (range:7-49 days) to two week postintervention. Semi-structured interviews were conducted to explore participants' experiences and perspectives on how hypnosis may have an impact. Findings generate hypotheses on how hypnosis affect the life of people with PCS, and what factors may mediate any effects during hypnosis.

(S-1) Intervention program to improve sexuality and intimate relationships after traumatic brain injury

Presented by:

Juan Carlos Arango Lasprilla, PhD; Biocruces Bizkaia Health Research Institute, Bilbao, Spain.

Abstract:

Sexuality is defined as a person's capacity for sexual feelings and includes facets such as sexual activity, sex, gender identities, sexual orientation, pleasure, intimacy, eroticism, and reproduction. Ultimately, these are important aspects of quality of life. Many brain regions control these aspects, and individuals with TBI often experience sexuality-related difficulties after injury. It is estimated that as many as 50%-60% of individuals with TBI report sexuality problems, including inhibited sexual desire, less frequent intercourse, difficulty achieving an erection, and decreased ability to experience orgasms. Although sexual dysfunction after TBI has been well-documented in past research, sexuality continues to be under-addressed in rehabilitation medicine and there is a lack of sexuality interventions for patients who have TBI and their partners. In this presentation, we will introduce a nine-session sexuality intervention. The intervention enables clinical neuropsychologists and rehabilitation professionals to meet the needs of their patients with TBI and their partners.

(S-1) Intervention program to improve sexuality and intimate relationships after traumatic brain injury

(S-2) The case for early identification and intervention for children with ADHD and their families.

Presented by:
Anne-Mette Lange, cand.psych, MSc ClinPsy. Research Department of Child & Adolescent Psychiatry, Aarhus University Hospital – Skejby.

Abstract:
Attention-deficit hyperactivity disorder (ADHD) is a prevalent neurodevelopmental disorder which impacts on daily functioning across a range of domains. It often emerges in the preschool period and remains impairing and predictive of long-term burden to families and health, social, education and criminal justice systems. Early identification and intervention for ADHD have the potential of limiting the disorder's negative impact and altering adverse trajectories.

This talk will present up-to-date research regarding the early identification and treatment of ADHD. The clinical presentation of preschool ADHD and its persistence into later childhood and adolescence will be addressed. The consequences of untreated ADHD will be presented. Current findings from randomized controlled trials of non-pharmacological early interventions for ADHD will be outlined. The barriers to and opportunities for timely recognition and access to care for children with ADHD and their families will be discussed Presentation.

(S-2) Language abilities in children with and without Attention Deficit/Hyperactivity Disorder (ADHD)

Presented by:

Ida Bonnerup Jepsen, cand.psych., ph.d. student, Department of Psychology and Behavioral Sciences, Aarhus University

Abstract:

Much is still unknown about the association between language problems and ADHD. The overall objective of the study was to investigate language in children with ADHD by investigating (i) Narrative abilities in children with ADHD, (ii) the association between narrative abilities and executive functions, general language function and ADHD symptoms and (iii) the association between language and social and academic abilities in children with and without ADHD. Method: Cross-sectional case-control study (ongoing) comparing 100 children with ADHD to 100 typically developing children (7-11 y.o.). Results: the study is still ongoing but results from a meta-analysis (K=15) suggest that children with ADHD have problems with several areas of oral narrative production, in particular coherence, cohesion and syntactical complexity, with small to moderate mean effect sizes (Hedges' g = 0.22-0.58). Screening for problems within narrative language should be considered when assessing language and communicative abilities in children with ADHD.

(S-3) The Two-Process Model of Sleep Regulation as a Conceptual Framework for Rehabilitation

Presented by:

Ali Amidi, Ph.D., Assistant Professor, Department of Psychology and Behavioural Sciences, Aarhus University

Abstract:

Many clinical populations including patients with mild traumatic brain injuries suffer from a range of co-occurring and persistent symptoms such as insomnia, fatigue, and cognitive impairment with significant negative impact on daily activities and quality of life. The Two-Process Model offers a framework that recognises the interaction between a homeostatic and a circadian process as crucial factors in the regulation of healthy sleep and wake behaviours with implications for cognition, emotion, and conation. The neurobiological mechanisms underlying these two processes are behaviourally modifiable and should thus be considered key candidates of intervention targets in holistic neurorehabilitation. Easily implementable non-pharmacological interventions such as systematic light exposure, cognitive behavioural therapy for insomnia, and music therapy, are examples of such interventions with the potential to alleviate a range of debilitating symptoms observed in many clinical populations.

(S-3) Light Exposure and Associations with Sleep, Fatigue, and Other Symptoms

Presented by:

Lisa M. Wu, Ph.D., Associate Professor, Aarhus Institute of Advanced Studies, Aarhus University

Abstract:

Patients undergoing neurorehabilitation may experience a range of co-occurring symptoms including fatigue, sleep disturbances, depressive symptoms, and cognitive impairment. These problems can overlap with the kinds of symptoms that may be present in other patient populations, such as cancer patients. Emerging evidence suggests that disruption of circadian rhythms (CRs) may underlie such symptoms. Wu will present findings from recent studies that have examined associations between light exposure and sleep disturbances, fatigue, depressed mood and cognitive impairment in different cancer groups and in brain injured populations. Light therapy, no matter the delivery method, is a low burden intervention that is easy to deliver and inexpensive. Hence, if effective as a therapeutic tool to treat symptoms beyond its initial use in seasonal affective disorder, light therapy has the potential for application to other patient populations who experience similar symptoms.

(S-3) Cognitive-Behavioural Therapy for Insomnia: How Good is the Evidence?

Presented by:

Robert (Bobby) Zachariae, Dr. Med. Sci., Professor, Unit for Psychooncology and Health Psychology (EPoS), Dept. of Oncology, Aarhus University Hospital and Dept. of Psychology and Behavioural Sciences, Aarhus University

Abstract:

Cognitive-behavioural therapy for insomnia (CBT-I) is the general term for various combinations of non-pharmacological interventions for insomnia, including sleep restriction therapy, stimuli-control therapy, cognitive therapy, relaxation, and sleep hygiene education. While the efficacy of the individual components as stand-alone therapies varies, the available evidence has provided strong support for CBT-I, not only in comparison with passive controls but also in head-to-head comparisons with pharmacotherapy. This has led to recommending CBT-I as first-choice for treating insomnia, but the challenge remains to make it available and accessible to populations needs. Digital formats of CBT-I (eCBT-I) may be one approach to solving this challenge, and a small, but growing number of studies has shown eCBT-I to be highly efficacious in treating insomnia, not only as the primary complaint, but also comorbid insomnia, e.g., in women treated for breast cancer.

(S-3) Music as a Tool to Alleviate Insomnia Symptoms

Presented by:

Kira Vibe Jespersen, Ph,D., Center for Music in the Brain, Aarhus University

Abstract:

Many people listen to music at bedtime as a tool to improve sleep, and music has been suggested as a potential intervention to alleviate insomnia symptoms. Music may alleviate insomnia through psychological and neurophysiological mechanisms including distraction, arousal reduction and emotion regulation. In a Cochrane review we found a positive effect of music on sleep quality in various groups of people with poor sleep quality. However, the quality of the evidence was limited, and no studies included objective measures of sleep. To address these shortcomings, we conducted a randomized controlled trial evaluating the effect of bedtime music listening for improving sleep in adults with insomnia disorder. The results showed a positive effect of the music intervention on insomnia severity and quality of life, but no changes in objective sleep measures. The findings suggest that music may be most efficient as an early intervention for sleep-onset insomnia.

(S-4) Neurocognitive Development after Childhood Cancer

Presented by:

Ingrid Tonning Olsson, Neuropsychologist, PhD, Skånes universitetssjukhus, Lunds Universitet

Abstract:

This presentation includes an overview of the research field. Background: Survivors of Paediatric Brain Tumours (PBT) are at risk for cognitive decline. Associated factors are female sex, young age-atdiagnosis, hydrocephalus, and treatment with whole brain radiation therapy (WBRT). Aim: Identify factors associated with a negative neurocognitive development after PBT. Method: Retrospective neurocognitive data were extracted from medical logs for 151 survivors of PBT on verbal (Wechsler VIQ) and non-verbal reasoning (PIQ), processing speed (PSI), and short-term memory (FDI). Multilevel linear modelling was used to evaluate rate of decline. Results: A general pattern of decline of 0.6-2.5 IQ-scores per year was found. Factors associated with faster decline were placement of ventriculo-peritoneal (VP) shunt, young age-atdiagnosis, diagnosis of non-astrocytoma, and high intracranial pressure at diagnosis. Conclusion: Survivors of PBT show a decline in IQ-scores unconsidered treatment. Faster decline is associated with WBRT, VP shunt, and young age at diagnosis.

(S-4) Fatigue after childhood cancer – overview of theory and measurement

Presented by:

Elin Irestorm, Neuropsychologist, PhD, Lunds Universitet

Abstract:

Elin Irestorm will discuss cancer-related fatigue, with a particular focus on survivors of childhood cancer. Cancer-related fatigue is a type of fatigue associated with either cancer or cancer treatment, and it has consistently been found to be one of the most prevalent and distressing symptoms in survivors of childhood cancer. The development of a biopsychosocial model of cancer-related fatigue has been proposed as high-priority research, together with longitudinal studies to uncover the course of fatigue over time. Another matter of concern is the inclusion of fatigue in the psychological follow-up protocols for survivors of childhood cancer. Irestorm will give an overview of the theoretical framework behind the diagnosis cancer-related fatigue and critique against it, differential diagnostic challenges, and methods of measurements. She will also report recent studies on the relationship between fatigue and cognitive abilities in survivors of childhood cancer.

(S-4) Neurocognition before and after radiotherapy towards vulnerable brain structures

Presented by:

Helena Söderström, Neuropsychologist, PhD Student, Uppsala Akademiska Sjukhus, Uppsala Universitet

Abstract:

Aim: Describe neurocognitive changes before and after different radiotherapy (RT) modalities towards different vulnerable brain structures. Background: Survivors of childhood brain tumours are at high risk for neurocognitive sequelae, especially after radiotherapy. There is a need to enhance and better understand how different RT modalities and RT doses towards vulnerable brain structures impacts neurocognitive development. Method: 50 paediatric brain tumor survivors that have received different RT modalities (photon, proton and gamma knife). Clinical characteristics, neuropsychological function before and after treatment and RT doses towards vulnerable brain structures were collected retrospectively. Results: Neurocognitive problems were apparent already before RT and progressively aggravated over time after RT. Whole brain radiotherapy and RT towards vulnerable brain structures were negatively correlated with declines in processing speed, working memory and perceptual performance. Conclusion: Neurocognitive problems were apparent before RT. Several brain structures seem important for RT induced neurocognitive decline.

(S-4) Neurocognitive rehabilitation after cancer in childhood

Presented by:

Catherine Aaro Jonsson, Neuropsychologist, PhD, Barn och Ungdomshabiliteringen, Region Jämtland Härjedalen

Abstract:

Background: Quality of life is often compromised among survivors of brain tumours compared to other types of childhood cancer. Within a state funded project aimed to support neurocognitive rehabilitation after childhood cancer, we evaluated compliance with Swedish national guidelines in the region of Uppsala/Örebro. Method: Survey and following interview with each county. Results: We found areas of expertise but lack of formalized structure. Neuropsychologists/psychologists were understaffed and access to special educators was rare. Conclusions: Responsibility for guideline interventions needs to be defined both at a regional and a local level. Neurocognitive rehabilitation units need to be formed, as a complement to existing oncological teams. Collaboration between those units needs to be established, as well as forums for sharing knowledge. A well-defined screening of cognition and psychosocial functions should be obligatory, followed by increased individualized interventions for those in need.

(S-5) Cognitive clusters across schizophrenia and bipolar disorder

Presented by:
Anja Vaskinn, PhD, Senior Research Psychologist, Norwegian Centre for Mental Disorders
Research, University of Oslo & Oslo University Hospital

Abstract:
Although schizophrenia and bipolar disorder are characterized by cognitive impairment, there is also great cognitive variability among individuals with these diagnoses. We investigated cognitive heterogeneity across schizophrenia and bipolar disorder using cluster analysis. Three hundred and ninetyeight individuals with schizophrenia (n = 223) or bipolar I disorder (n = 175) were assessed with clinical and neuropsychological measures. Premorbid (National Adult Reading Test) and current IQ (Wechsler Abbreviated Scale of Intelligence) estimates were subjected to hierarchical and k-means cluster analyses.
Three cognitive clusters were identified: a relatively intact group (36% of whole sample), an intermediate group with mild cognitive impairment (44%), and an impaired group with global deficits (20%). The clusters did not follow a schizophrenia versus bipolar disorder distinction: one-third of the schizophrenia group belonged to the intact cluster. The clusters, or cognitive groups, differed for clinical, functional, and neuropsychological variables, suggesting their validity. Our results highlight that precise characterization of the individual depends on neuropsychological assessment, not on psychiatric diagnostics.

(S-5) Cognitive heterogeneity in schizophrenia and bipolar spectrum disorders compared to healthy individuals: mean and dispersion differences

Presented by:

Beathe Haatveit, PhD, Post-doctoral fellow at Norwegian Centre for Mental Disorders Research, University of Oslo & Oslo University Hospital

Abstract:

Although cognitive heterogeneity is extensively documented in schizophrenia (SZ) and bipolar disorder (BD), previous studies have explicitly compared the observed inter-individual heterogeneity in patients with the average healthy population. We investigated cognitive mean and dispersion differences in SZ (905), BD (522) spectrum disorders compared to healthy controls (HC, 1170) using double general linear models. Results revealed significant group-level mean differences across 96 % of the twenty-two variables in SZ and BD compared to HC, and on 81 % of the variables in SZ compared to BD. Compared to HC, patients showed significantly larger between-subject dispersion on speeded tests, including measures of inhibitory control, fine-motor speed, and mental processing speed (both SZ and BD), and on intellectual functioning and verbal memory (only SZ). The results showed no dispersion differences in other key cognitive processes including working memory, sematic fluency and psychomotor processing speed. Interpretation of these results will be discussed.

(S-5) Long-term cognitive development in schizophrenia

Presented by:

Camilla Bärthel Flaaten, PhD candidate, Norwegian Centre for Mental Disorders Research,
University of Oslo & Oslo University Hospital

Abstract:

Schizophrenia is characterized by cognitive impairments that appear largely stable after illness-onset. There are, however, relatively few long-term studies including healthy controls. We investigated the course of cognitive functioning from baseline to 10-year follow-up in 89 participants with schizophrenia and 115 healthy controls. Participants were assessed with clinical and neuropsychological measures at baseline and follow-up and data were analyzed using repeated-measures ANOVA. The schizophrenia group scored lower on all functions at both time-points, and were most impaired in semantic fluency, psychomotor- and motor speed. Semantic fluency, cognitive control, psychomotor- and motor speed increased over time in both groups. An interaction effect on short-term memory showed stability in patients, while controls improved. In sum, patients had stable impairments compared to controls. While the most pronounced impairments were found on speeded measures, these improved over time. Our findings indicate different developmental courses for specific cognitive domains.

(S-5) Cognitive remediation in the early phase of schizophrenia: results from an RCT

Presented by:

Torill Ueland, PhD, Associate Professor, Norwegian Centre for Mental Disorders Research,
University of Oslo & Oslo University Hospital

Abstract:

Cognitive impairments are considered core symptoms of schizophrenia and have a detrimental effect on functioning. Impairments are prevalent already in the early course of illness and remain relatively stable over time. We investigated the effect of a 30-hour cognitive remediation program on cognition, symptoms and functional outcome in patients in the early phase of schizophrenia in a randomized controlled trial. Sixty participants with schizophrenia spectrum disorders with in the early course of illness (onset < 5 years) were included and randomized to cognitive remediation (N=32) or to a wait list control group (N=28). Participants were assessed on clinical, cognitive and functioning measures at baseline, post intervention and at 10-month follow up. Results from the trial will be presented and discussed.

(S-6) Danish register for young adults with acquired brain injury

Presented by:
Trine Okkerstrøm Ryttersgaard, Neuropsychologist, PhD student, Department of Neurology,
Aalborg University Hospital

Abstract:
The first talk will introduce the background for the national project as well as the organization and the elements in the study. Furthermore, the talk will describe the establishment of the Danish Clinical Quality Database "Danish register for young adults with acquired brain injury" (Danish acronym: DRUE), which comprises interdisciplinary assessments of disabilities, impairments, along with patient-reported outcomes and labour market attachment.

(S-6) Danish register for young adults with acquired brain injury

Presented by:
Trine Okkerstrøm Ryttersgaard, Neuropsychologist, PhD student, Department of Neurology,
Aalborg University Hospital

(S-6) Disability after acquired brain injury in adolescents and young adults: development and validation of a clinical prediction model

Presented by:

Maja Søndergård Worm, MD, PhD student, Department of Neurology, Rigshospitalet,
University of Copenhagen, Department of Occupational and Environmental Medicine, Bispebjerg and
Frederiksberg Hospital, University of Copenhagen

Abstract:

Numerous models to predict disability have been developed and validated for acquired brain injury (ABI) with a focus on pre-, peri-, and early post-injury factors. Nevertheless, it is essential to identify core predictors of disability from the post-acute pathway, to guide decision-making in outpatient neurorehabilitation clinics. The aim of this study was therefore to develop and validate a prognostic model for disability among young patients with ABI. Within a nationwide cohort of 446 15-30-year-old ABIpatients, we predicted disability in terms of Glasgow Outcome Scale - Extended (GOS-E) one year after baseline assessment in outpatient neurorehabilitation clinics. 22 potential predictors were chosen which covered socio-demographic and injury-related factors as well as interdisciplinary assessments and patientreported sequelae. Low GOS-E and Functional Independence Measure along with high mental fatigue predicted disability. The model showed high validity and performance and may be an effective tool in assessment of young patients in neurorehabilitation clinics.

(S-6) Disability after acquired brain injury in adolescents and young adults: development and validation of a clinical prediction model

(S-6) Depression and cognitive sequelae among Danish adolescents and young adults (15-30 years old) with moderate to severe traumatic brain injury

Presented by:
Trine Okkerstrøm Ryttersgaard, Neuropsychologist, PhD student, Department of Neurology,
Aalborg University Hospital

Abstract:
Depression and cognitive sequelae are well known sequelae after moderate to severe traumatic brain injury (TBI) but to the best of our knowledge prospective studies among adolescents and young adults are very sparse. The third talk will present results from a prospective study on depression and cognitive sequelae among Danish adolescents and young adults with an intracranial traumatic brain lesion, who were examined the first time less than a year after the injury. The aim with the study was to examine the development of depression, cognitive sequelae and global functional outcome from the first visit to control one-year later. The study reveals that young TBI survivors with depression and/or cognitive sequelae consistently had a lower global functional outcome compared to the young TBI survivors without depression and cognitive sequelae.

(S-6) Future perspectives

Presented by:
Maja Søndergård Worm, MD, PhD student, Department of Neurology, Rigshospitalet,
University of Copenhagen, Department of Occupational and Environmental Medicine, Bispebjerg and
Frederiksberg Hospital, University of Copenhagen

Abstract:
Based on our findings we round off the symposium with a series of suggestions on how
rehabilitation efforts might be developed and improved for this particularly vulnerable group of young
survivors of acquired brain injury.

(S-7) Adaptive behavior assessment in neurodevelopmental and neurological disorders

Presented by:
Riitta Hannonen, Clinical neuropsychologist, PhD, Hogrefe Psykologien Kustannus and
Kymenlaakso Social and Health Services

Abstract:
Background: Adaptive behavior and adaptive functioning are related concepts from different research traditions. Adaptive behavior is a key concept in intellectual disability (ID) research. There is also a need to evaluate adaptive functioning in other clinical groups.

Objective: The study assessed the discriminative validity of Adaptive Behavior Assessment System (ABAS-3) in patients with neurodevelopmental and neurological disorders.

Method: Patients with ID, autism, other developmental disorders, and Alzheimer's disease (n=87) were assessed with age-appropriate ABAS-3 forms, and a matched subgroup of the ABAS-3 Finnish standardization sample was used as a comparison group. Group differences were analysed with Anovas.

Results: Adaptive skill scores of the patient groups were significantly lower than those of the comparison group in all age-specific forms.

Conclusion: ABAS-3 is a valid measure for adaptive behavior and functioning in different clinical groups and ages, also in adults. The assessment of adaptive behavior helps to plan intervention and rehabilitation.

(S-7) Adaptive skills in pediatric neurodegenerative disease

Presented by:

Päivi Helenius, Clinical neuropsychologist, PhD, Division of Child Neurology, Helsinki
University Hospital

Abstract:

Information about the adaptive behavior of a child is essential for the diagnosis of intellectual disability. According to a strict criterion, both intellectual functioning and adaptive behavior should be 2 standard deviations below the mean. We assessed the adaptive skills of 21 children with aspartyyliglucosaminuria (AGU), a rare neurodegenerative disease that leads to intellectual disability. The WISC-IV full scale IQ of these 7-15-year-old children was at least in the mild to moderate intellectual disability level. The adaptive skills evaluated with ABAS-3 were also below the average. However, individual variability was high and in 7/21 children none of the three domains of adaptive functioning fell to the extremely low level. While the WISC-IV standard scores of AGU children progressively deviated from the norm with age, the adaptive scores failed to show the same trend. This suggests that the parental evaluation of age-appropriate functioning might be biased in some neurodevelopmental conditions.

(S-7) Psychosocial outcomes and their subjective appraisal after a comprehensive-holistic neurorehabilitation program in adults with traumatic brain injury

Presented by:
Jaana Sarajuuri, Clinical neuropsychologist, PhD, ProNeuron - Therapy and Medical Center
for Neurology and Psychiatry

Abstract:
Many people with traumatic brain injury (TBI) experience long-term, lifelong, and evolving impairments in cognitive, behavioral, emotional, and motor functioning that impact their overall psychosocial functioning. The effectiveness of postacute neuropsychologically oriented multidisciplinary comprehensive-holistic rehabilitation programs (CHRPs) in enhancing psychosocial functioning has been supported by several studies, but controlled studies are scarce. Recently, awareness has increased of the need to supplement outcome assessment by subjective measures. We investigated the psychosocial outcomes of an application of CHRP and the relationship between the objective outcomes and their self-appraisals in adults with TBI. The findings showed that at the end of a 2-year follow-up 89% of the 19 patients in the CHRP group were productive compared with 55% of the 20 matched controls. Moreover, the patients after a CHRP were found to be largely satisfied with the areas of wellness after CHRPs. The findings support the presumption that CHRPs facilitate achievement of a successful outcome through establishing a meaningful and satisfactory life after TBI in the face of persisting deficits.

(S-7) Assessing functioning in ICF framework

Presented by:
Petriina Munck, Clinical neuropsychologist, PhD, Neuropsychological Rehabilitation Center
Larmis and University of Helsinki

Abstract:
Background: International Classification of Function (ICF) offers a common language and concepts to describe functioning and participation. ICF aims to speak the same language despite of one's field of expertise, or the nature of patient's diagnosis. It aims to empower patient as a subject in the assessment process, as well as in the identification process of rehabilitation goals. Despite of the importance of describing functioning and adaptive behavior in everyday life, the implementation of ICF language and framework has been slow in the field of psychology in Finland.

Objective: to discuss the advantages and challenges of ICF language and framework in the assessment of functioning and adaptive behavior, as well as in rehabilitation. To discuss the link between neuropsychological assessment and functioning in everyday life.

Conclusion: ICF offers a possibility to promote patient's perspective, multi professional assessment, and common language in the assessment and rehabilitation of adaptive behaviour and functioning.

(S-7) Assessing functioning in ICF framework

(S-8) The role of cognitive reserve on outcome after mild TBI

Presented by:

Jonas Stenberg, Post Doc,Norwegian University of Science and Technology, Trondheim,
Norway

Abstract:

Cognitive reserve, commonly estimated by intelligence, has been shown to postpone the clinical expression of neurodegenerative diseases. However, it has been less studied in TBI, and especially mild TBI. In this paper, we investigated whether cognitive reserve moderated differences in cognitive test performance between patients with mild TBI (n=160), trauma controls (n=71), and community controls (n=79). Cognitive test performance was measured with several well-established tests at 2 weeks and 3 months after the injury and cognitive reserve was estimated with a vocabulary test. Linear mixed models demonstrated that group differences in cognitive test performance varied as a function of cognitive reserve (p=0.001), with the biggest differences seen among participants with low cognitive reserve. The findings support the cognitive reserve hypothesis in the mild TBI context and suggests that persons with low cognitive reserve are more vulnerable to reduced cognitive functioning if they sustain a mild TBI.

(S-8) Sleep quality modifies neurocognitive and psychological health after mild TBI

Presented by:
Simen Berg Saksvik, PhD candidate, Norwegian University of Science and Technology and St. Olafs Hospital, Trondheim, Norway

Abstract:
Patients with mild traumatic brain injury (mTBI) (n=197) and trauma controls with orthopedic injuries (n=82) were included in a prospective longitudinal study. The participants (age 16-60) completed neurocognitive tests assessing response speed and accuracy at 2 weeks and 3 months after injury. Interviews and questionnaires assessing sleep quality and psychological distress were administered at 2 weeks, 3 months and 12 months after injury. We observed a significant interaction effect between poor sleep quality and group for neurocognitive response speed, psychological distress, driven by a greater negative impact of poor sleep quality on response speed and psychological distress in the mTBI group. Our findings indicate that patients with mTBI have an increased vulnerability to poor sleep quality after injury compared to patients with orthopedic injury and that poor sleep quality may be a key contributor to outcome after mTBI.

(S-8) Does anxiety and depression modify emotional regulation after acquired brain injury?

Presented by:

Jan Stubberud, Professor, University of Oslo, Lovisenberg Diaconal Hospital, Oslo, Norway

Abstract:

Objective: To examine the relationship between self- and informant reports of emotional regulation and symptoms of anxiety and depression, in persons with acquired brain injury (ABI).

Methods: Seventy adult persons (age 19–66 years, Mage = 43, SDage = 13) with ABI in the chronic phase were included. Traumatic brain injury was the dominant cause of injury (64%), and mean time since injury was 8 years. Emotional regulation was assessed with the Brain Injury Trust Regulation of Emotions Questionnaire (BREQ), while the Hopkins Symptom Checklist 25 (HCSL-25) was employed to measure anxiety and depression symptoms.

Results: Twenty-four participants (35%) reported anxiety and depression symptoms above clinical cut-off. Furthermore, our analyses revealed a significant relationship between self-reported scores of emotional regulation (BREQ) and symptoms of anxiety and depression (HSCL-25).

Conclusion: Our results indicate that psychological distress is prevalent and co-occur among those suffering from emotional dysregulation after ABI.

(S-8) Identifying early cognitive reduction in elderly with high cognitive reserve: A case study following H.N. over 21 years with CVLT

Presented by:

Jens Egeland, University of Oslo & Vestfold Mental Health Care Trust, Norway

Abstract:

Most longitudinal studies of elderly find that premorbid low cognitive function is a risk factor for developing MCI and later dementia. Superior functioning elderly experiencing subjective memory decline could be protected from cognitive decline due to their cognitive reserve, but could also be false negative cases due to test measures that are not sufficiently sensitive to change.

The presentation describe a 21 years longitudinal evaluation of an intellectually superior-functioning patient with initial subjective memory complaints who later developed MCI and progressed into dementia.

Method: Primary memory measures, strategy- process- and reliable change-measures from 12 assessments with the California Verbal Learning Test (CVLT) were analyzed as well as experimental measures of retrieval and Recency-Ratio combining traditional recency measures with selective retrieval impairments of recency items.

Results: Recency change preceded normatively impaired memory by four years, and retention percentage by two years. Both measures remained stable over the remaining observation period. The experimental Recency Ratio measure indicated a risk for MCI conversion 13 years prior to receiving that diagnosis.

Conclusion: Recency Ratio is an interesting measure for being validated in the future as a possible early index of Alzheimer's disease in CVLT.

(S-9) Adapted neuropsychological assessment of children and adults with severe speech and motor impairments

Presented by:

Kristine Stadskleiv, Assistant Professor, University of Oslo, Norway

Abstract:

There is great variability in type and severity of cognitive impairments among individuals with CP. Individual assessments of cognition are necessary to enable interventions that are personalized and based on individual strengths and challenges. However, in the group with the most severe speech and motor impairments, cognitive functioning is often estimated rather than assessed. This approach is problematic not only for the individual, but may lead to incorrect assumptions about the frequency of cognitive impairments in population-based epidemiological studies. A framework for adapting assessments to reliably assess cognition in individuals with severe speech and motor impairments will be presented. Video examples will be used to illustrate how computerized eye-gaze technology may be used. The neuropsychological profiles of a representative, geographical cohort, where adapted assessment was used will be presented, alongside a review of the literature on cognitive functioning in children with CP.

(S-9) Visual impairments in cerebral palsy: terminology, prevalence and related clinical considerations

Presented by:

Ro J. Robotham, Assistant Professor, University of Copenhagen, Denmark

Abstract:

CP has been associated with deficits related to most aspects of visual processing. Visual impairments are common in this population, but the type and severity of impairments vary strongly. A key challenge in the literature is the lack of consistency in terminology used to describe visual impairments following atypical cerebral development or caused by early brain injury on the one hand, and following late acquired brain injury on the other hand. While terms such as Cerebral Visual Impairment or Cortical Visual Impairment are commonly used in the CP literature, they are absent in the late acquired brain injury literature. Inconsistencies in use of terminology will be discussed. Then, an overview of types of visual impairments described in the population of individuals with CP will be presented, as well as some of the consequences of such impairments. Finally, the importance of carrying out appropriate assessments of such functions will be discussed.

(S-9) Towards systematic monotoring of cognition in children and adults with cerebral palsy in the Nordic countries

Presented by:

Ann I. Alriksson-Schmidt, Associate Professor, Lund University, Sweden

Abstract:

In 2013, the Nordic CP user organization CP-Norden contacted the Swedish national registry and follow-up program for CP (CPUP) and urged inclusion of systematic assessments of cognition. According to CP-Norden, cognition significantly affects day-to-day lives but is rarely addressed. A workgroup of Scandinavian experts was convened to develop an assessment battery/schedule entitled CPCog. CPCog was introduced in Sweden and Norway in 2015. In this seminar, CPCog will be outlined, the implementation process will be discussed, and results from CPCog will be presented. Furthermore, the development of the, soon to be launched, CPCog-Adult, will be discussed. The implementation of CPCog has been relatively slow. A survey was recently performed regarding opinions of CPCog and barriers/facilitators related to implementing the program. Psychologists and habilitation managers were surveyed in both Sweden and Norway. Norway also surveyed parents of children with CP. Results from the survey will be presented.

(S-10) Mechanisms of fatigue in the first year following moderate and severe Traumatic Brain Injury (TBI)

Presented by:

Daniel Løke, Psychologist & Doctoral Research Fellow at Sunnaas Rehabilitation Hospital, Nesodden, Norway.

Abstract:

Through a prospective follow-up of patients with moderate and severe TBI at 6 and 12 months post-injury, the present study aims to investigate both prevalence, trajectories and predictors of fatigue during the first year post-injury. The study employs both neuropsychological examination and self-report measures to achieve a broad biopsychosocial overview of constructs shown to be associated with fatigue both in TBI, other medical disorders and the general population. The study aims to replicate and expand a model for fatigue following TBI by Ponsford et al. (2015), and to establish predictors of persistent fatigue during the first year post-injury, which will be the focus of two peer-reviewed articles for this doctorate project. The findings will be presented and discussed in light of implications for further research and clinical rehabilitation.

(S-10) Validation of the Danish version of the Dutch Multifactor Fatigue Scale in acquired brain injury

Presented by:

Frederik Lehman Dornonville de la Cour, PhD fellow at Department of Psychology, University of Southern Denmark & neuropsychologist at BOMI Brain Injury Rehabilitation Center.

Abstract:

The 38-item Dutch Multifactor Fatigue Scale (DMFS) was developed as a measure of fatigue following acquired brain injury (ABI) using five subscales, including Coping with Fatigue. The objective was to validate the Danish version of DMFS. Descriptive item statistics and confirmatory factor analysis was used to evaluate validity in a sample of 149 adults with ABI recruited at a stroke unit (n=49) and three outpatient rehabilitation centres (n=100). A subgroup (n=9) participated in cognitive interviewing. Coping with Fatigue demonstrated psychometric issues, α = .48, while performing better among outpatients only, α = .58. The other subscales performed satisfactorily, α range .76-.90, although some items indicated misfit in both statistical analyses and cognitive interviewing. The original five-factor model failed to converge. A four-factor model without Coping with Fatigue demonstrated fair fit, χ^2 (489)=814.19, p<.001, RMSEA=.068, TLI=.904. While DMFS holds promise for assessing post-ABI fatigue, a revision of the Danish version is recommended.

(S-10) Fatigue in children and adolescence after acquired brain injury and a possible treatment approach: Results from a metacognitive intervention study.

Presented by:
Ruth Elizabeth Hypher, Neuropsychologist, Doctoral Research Fellow at Oslo University Hospital, Rikshospitalet, Oslo, Norway.

Abstract:
Fatigue represents a set of symptoms which seem to be consistently reported across different types of pediatric acquired brain injury (pABI), with strong associations to common sequela after pABI such as reduced executive function (EF) and health-related quality of life (HRQoL). In this talk, results from a metacognitive group intervention study (pediatric Goal Management Training) will be presented, including fatigue prevalence and severity among patients (n=74) and healthy controls (n=60) reported on a multidimensional fatigue questionnaire (PedsQL-MFS), fatigue related to EF, HRQoL, emotional health and school function, as well as effects of the metacognitive intervention on fatigue.

(S-11) Domain specific cognitive screening in stroke with the Oxford Cognitive screen

Presented by:

Nele Demeyere, Associate Professor, University of Oxford

Abstract:

The Oxford Cognitive Screen specifically measures 5 cognitive domains with high incidences of impairment post stroke: Language, Number, Praxis, Memory, and spatial and executive Attention.

Data from several large cohorts who completed the OCS acutely post stroke are presented. (i) a graphical analysis of merged data from 1400 acute stroke survivors' OCS profiles is presented to demonstrate relationships between the different domain impairments. (ii) acute and 6 month follow up data from the Oxford based cohort is presented to provide estimates of incidence if impairment at both timepoints, including trajectories of recovery and decline for the different domains.

Results show multi-domain impairments typically co-occur, and profiling requires an understanding of both cognitive weaknesses and strengths, as well as overarching domain general impairments. With regards to 6 month follow up data, we demonstrate differential trajectories of recovery, stable impairments and decline for different domains.

(S-11) Brief Assessment of Impaired Cognition (BASIC) – validation of a new dementia case-finding instrument integrating cognitive assessment with patient and informant report

Presented by:
Kasper Jørgensen, neuropsychologist, Danish Dementia Research Centre, Rigshospitalet, Copenhagen

Abstract:
Objectives: to develop and validate a brief and accurate case-finding instrument for dementia and cognitive impairment. Based on previous research BASIC integrates cognitive tests with informant and patient report to optimize case-finding accuracy.

Methods: BASIC was prospectively validated in five Danish memory clinics. Patients referred from general practice were tested at initial visit prior to diagnosis. Control participants were primarily recruited among participants relatives. Expert clinical diagnosis constituted the gold standard for classification accuracy.

Results: A high discriminative validity (specificity .98, sensitivity .95) for dementia (n = 122) versus socio-demographically matched control participants (n = 109) was found. In comparison, the MMSE had .90 specificity and .82 sensitivity. Extending the analysis to cognitive impairment (dementia and MCI, n = 162) only slightly reduced the discriminative validity of BASIC.

Conclusions: BASIC is an efficient and valid case-finding instrument for dementia and cognitive impairment in a memory clinic setting.

(S-11) Cognitive screening in patients with depression or bipolar disorder: why, when and how?

Presented by:
Kamilla Miskowiak, professor, DMSc, DPhil, University of Copenhagen and Mental Health
Services, Capital Region of Denmark

Abstract:
Background: Cognition impairment is a new treatment target to aid functional recovery in affective disorders. However, there is no consensus on whether or how to screen for cognitive impairments in these patients.

Objective: To provide recommendations by an international expert task force for why, when and how to screen for cognitive impairments in affective disorders.

Methods: The task force discussed: (I) should cognitive screening be routinely conducted in clinical settings, (II) what screening tools are most feasible, and (III) if cognitive impairment is detected, what are the implications.

Results: Key recommendations are that clinicians: (I) screen cognition in remitted patients, (II) use brief cognition screening tools like Screen for Cognitive Impairment in Psychiatry, and (III) evaluate the impact of medication and comorbidity, refer patients for neuropsychological evaluation when clinically indicated, and encourage patients to build cognitive reserve.

Conclusions: These clinical recommendations may improve patients' functional recovery and quality of life.

(S-12) WISC-V performance differences between Finland-Swedes and the Scandinavian norms

Presented by:

Johanna Rosenqvist, PhD, University of Helsinki and Helsinki University Hospital; and Anu Haavisto, PhD, University of Helsinki, Private practice

Abstract:

So far, information on performance on WISC-V is scarce for cultural groups not included in a normative sample. We investigated the performance of a randomized sample of native Swedish-speaking Finnish 6-16-year-old children (N=195) on the Swedish WISC-V. Based on Multivariate analyses of variance, statistically significant differences in WISC-V subtest and index scores compared to the Scandinavian population norms were found. The Finland-Swedes performed higher on all subtests, except Vocabulary, but only Similarities and Arithmetic reached statistical significance. On the index level, the Finland-Swedes performed significantly higher in the Visuospatial, Fluid Reasoning, and Working Memory Indexes, as well as on Full-Scale IQ. There was a significant association between age and several linguistic and verbal memory subtests even after standardization, based on a Generalized additive model. For several of these subtests, scaled scores increased with age. The results have theoretical and clinical implications for crosscultural and minority language group assessments.

(S-12) Comparison of WPPSI-IV between Finland-Swedish 5-6-year-old children and the Scandinavian norms

Presented by:

Susanna Slama, PsM, University of Helsinki and Niilo Mäki Institute

Abstract:

We compared WPPSI-IV performance of 79 Finland-Swedish children aged 5;0-6;11 to the Scandinavian norms. Overall, the performance of this minority group differed significantly from the norms, both regarding subtests and indexes, as shown by significant main effects on MANOVAs. In most subtests, the Finnish-Swedish children on average performed higher than the Scandinavian norms, except for on some verbal subtests. Additionally, most indexes landed on average 4-7 index scores higher than the normative average of 100. However, the differences on the subtest and index levels did not reach significance. There was a significant association between age and processing speed subtests even after standardization, based on a Generalized additive model. The generally higher test performance of the Finland-Swedes should be considered in clinical assessments. The rationale behind the findings as well as theoretical and clinical implications of the results will be discussed.

(S-12) Comparison of WPPSI-IV and WISC-V cognitive profiles in 6-7-year-old Finland-Swedish children

Presented by:

Jannika Salonen, B.Soc.Sc., Åbo Akademi University and University of Helsinki

Abstract:

When assessing children aged 6;0-7;7, the clinician can choose between WPPSI-IV and WISC-V. However, information about how the tests function and differ in this overlapping age range is limited. This study compared the cognitive profiles of typically developing Finland-Swedish children aged 6;0-7;2 years, assessed with the Swedish WPPSI-IV (n=37) or WISC-V (n=23). Profile analyses were performed to investigate differences in the comparable subtests and indexes. On the subtest level, children assessed with WISC-V had significantly lower scores on the subtests Vocabulary and Matrix Reasoning compared to children assessed with WPPSI-IV. On the index level, scores for Fluid Reasoning Index, Verbal Comprehension Index, and Full-Scale IQ were significantly lower for children assessed with WISC-V. The findings indicate that WPPSI-IV and WISC-V generate partly different cognitive profiles.

(S-12) WPPSI-IV and NEPSY-II performance in mono- and bilingual 5-6-year-old Finland-Swedish children

Presented by:

Emma Korpinen, BA, Åbo Akademi University and University of Helsinki

Abstract:

This study aimed to explore the relationship between 5-6-year-old (Swedish-speaking) monolingual (n=45) and (Swedish-Finnish-speaking) simultaneous bilingual (n=34) children on cognitive performance on WPPSI-IV and NEPSY-II. Monolinguals performed significantly better than bilinguals on WPPSI-IV, as shown by main effects in the profile analyses. In pairwise comparisons, a significant monolingual advantage was found on some WPPSI-IV subtests and indexes requiring expressive vocabulary (Vocabulary, Similarities, Picture Naming, and Vocabulary Acquisition Index) and visuospatial skills (Object Assembly and Visuospatial Index). No differences were found between the groups in receptive language, visual memory, fluid intelligence, processing speed, or Full-Scale IQ. The bilinguals significantly improved their performance on the WPPSI-IV subtest Similarities, when answers in both Swedish and Finnish were accounted for. No significant differences were found between mono- and bilinguals in language and memory tasks of the NEPSY-II. These findings highlight the importance of considering the child's language background especially when assessing expressive language.

(S-13) Non-pharmacological treatment of persistent post-concussion symptoms: a systematic review and meta-analyses

Presented by:

Hana Malá, Associate Professor, PhD; Danish Concussion Centre, Copenhagen.

Abstract:

Purpose: To systematically assess and summarize evidence for effectiveness of non-pharmacological interventions for persistent post-concussive symptoms (PPCS) in adults. The interventions were provision of early information and advice, graded physical exercise, vestibular rehabilitation, manual treatment of neck and back, oculomotor vision therapy, psychological treatment, and interdisciplinary coordinated rehabilitative treatment.

Methods: We performed a systematic literature search of best available evidence covering the period from the earliest possible publication year up to 2020. We extracted data from individual studies, assessed their quality and performed meta-analyses. Only randomized controlled trials (RCTs) were included.

Results: The available evidence was limited, however, we found relevant individual RCTs for all interventions, except the oculomotor vision therapy. Meta-analyses indicated beneficial effects for selected outcome measures.

Conclusion: The evidence base for non-pharmacological treatment of PPCS is growing, although it is still limited. There is a pressing need for well-designed studies regarding non-pharmacological treatment strategies.

(S-13) Early intervention for impairing post-concussion symptoms in adolescents and young adults: results from a randomized trial.

Presented by:

Mille Møller Thastum, neuropsychologist, PhD; Hammel Neurorehabilitation and Research Centre.

Abstract:

Up to 15 % continue to experience impairing post-concussion symptoms (PCS) for more than 3 months after injury, and these individuals are at risk of developing chronic symptoms. The aim of this study was to test the efficacy of Get going After concusIoN (GAIN), an 8-week interdisciplinary intervention for young patients (15-30 years) with persistent PCS 2-6 months post-injury. Participants (n=112) were randomly assigned (1:1) to either Enhanced Usual Care (EUC) or GAIN. Self-report questionnaires were filled out at inclusion (baseline), end of intervention, and 3-month follow-up (FU). The primary outcome measure was Rivermead Post-concussion symptoms Questionnaire (RPQ). At 3-month FU, patients allocated to GAIN (n=57) reported a significantly larger reduction of PCS compared to patients allocated to EUC (n=55). Thus, GAIN may prevent long-term disability. Currently, another randomised controlled trial testing the effect of GAIN in municipality settings and in a broader age range (18-60 years) is prepared.

(S-13) Value-based Cognitive Behavioral Therapy for the Prevention of Chronic Whiplash Associated Disorders: A Randomized Controlled Trial

Presented by:

Tonny Elmose Andersen, cand. psyk., PhD; Department of Psychology, University of Southern Denmark.

Abstract:

Whiplash is a common traffic-related injury with up to 50% still experiencing symptoms one-year post-injury. Unfortunately, conservative treatments have not proven high effectiveness in preventing chronic symptomatology. The aim of this study was to test the effectiveness of an early value-based cognitive-behavioral therapeutic intervention (V-CBT) in preventing chronic symptomatology. The study was a two-armed randomized controlled trial using a cross-over design. Patients (n=91) with persistent pain and disability were randomized < 6-months post-injury to 10 sessions of V-CBT starting 1-week (group A) or 3-months (group B) post-randomization. The primary outcome was disability evaluated at baseline and at 3, 6, 9, and 12-months post-randomization. At 3-months, group A had achieved significant better effects on all outcomes compared to group B. When group B received the intervention at 6-months post-randomization, they also achieved significant effects on all outcomes. However, at 12-months group B increased their disability levels, while group A remained stable.

(S-14) Meeting the needs of increasingly diverse older populations – the advent of European cross-cultural neuropsychology

Presented by:

T. Rune Nielsen, PhD, Danish Dementia Research Centre, University of Copenhagen, Rigshospitalet, Denmark.

Abstract:

Background: During the past decade, cross-cultural neuropsychology has been established as a discipline within European neuropsychology with key contributions from the Nordic countries. Objective: This presentation will introduce some of the main challenges associated with cross-cultural neuropsychological assessment in culturally, linguistically and educationally diverse populations and present recent European advances in development of cross-cultural neuropsychological tests. Results: European cross-cultural neuropsychology initially emerged from the field of dementia and has mainly explored clinical challenges and ways to bypass these. Conventional neuropsychological tests are often biased by cultural, linguistic and/or educational factors when used in cross-cultural assessments. However, several cross-cultural tests that circumvent some of these biases have been developed and are available to neuropsychologists in the Nordic countries. Conclusion: Despite recent developments in test development and training, European cross-cultural neuropsychology needs further development and clinical implementation.

(S-14) Improving neuropsychological assessment of diverse older populations: Recent European initiatives and future perspectives

Presented by:
Sanne Franzen, MSc., Department of Neurology, Erasmus University Medical Center,
Rotterdam, the Netherlands

Abstract:
Background: Over the past decades, Europe has become increasingly diverse, and fair neuropsychological tests are needed to improve diagnosis in culturally, educationally, and linguistically diverse populations. Method: A Delphi study was conducted across nine European countries to determine the state of the field and areas of need. Results: Tests of social cognition and language, and to a lesser degree executive functioning are urgently needed, as well as initiatives aimed at improving training of clinicians and the use of interpreters. The European Consortium for Cross-Cultural Neuropsychology (ECCroN) was founded in 2019 to address some of these issues. Among other things, the members of ECCroN are involved in the development of a new cross-cultural naming test sensitive to naming impairment in Alzheimer's disease (data presented at this conference) and a new test of social cognition. Conclusion: Joint efforts should be directed at the development, validation and implementation of cross-cultural tests across Europe.

(OP-1-1) Childhood trauma and social cognition in persons with schizophrenia

Vaskinn, Anja - Author[1,2]
[1]Centre for Research and Education in Forensic Psychiatry, Oslo University Hospital, Norway, [2]Norwegian Centre for Mental Disorders Research, Institute of Clinical Medicine, University of Oslo, Norway

Background, Objective, Method, Results, Conclusion
Background Childhood trauma has been linked to a number of adverse outcomes, including an increased risk of developing psychotic disorders. Childhood trauma is also associated with reduced nonsocial cognition, both in healthy individuals and persons with psychosis. In schizophrenia, studies on the association between childhood trauma and social cognition have produced mixed results. Objective To examine the relationship between childhood trauma and social cognition, more specifically theory of mind (ToM), in adults with schizophrenia, compared to healthy controls. Method Childhood trauma and ToM was assessed in persons with schizophrenia (n = 68) and healthy controls (n = 70). We measured childhood trauma with the Childhood Trauma Questionnaire (CTQ) giving us information on physical abuse, emotional abuse, sexual abuse, physical neglect and emotional neglect. The Movie for the Assessment of Social Cognition (MASC) was used to measure ToM. This video-based test provides scores for cognitive and affective ToM and mentalizing style (overmentalizing errors, undermentalizing errors, no mentalizing errors). Statistical analyses of the association between childhood trauma and ToM were conducted in two steps: Spearman's rho correlations, followed by regression analyses of significant associations. Results The schizophrenia group had more childhood trauma and poorer ToM than healthy controls. Sexual abuse and physical neglect were significantly associated with affective ToM, in schizophrenia. Physical neglect was the strongest predictor of affective ToM. There were no significant associations between childhood trauma and ToM among healthy controls. Conclusion Our results suggest an illness-specific association between sexual abuse and physical neglect and adult social cognition in persons with schizophrenia.

Category:
General - Cognition
Population - Patients
Aetiology - Schizophrenia
Outcomes - Cognition
Cognitive domains / Behaviour - Social cognition
Methods - Quantitative

(OP-1-2) A Nation-Wide Twin Study of Social Cognition in Schizophrenia

K. Lemvigh, Cecilie - Author[1]; Glenthøj, Birte - Co-Author[1]; Fagerlund, Birgitte - Co-Author[1]
[1]Center for Clinical Intervention and Neuropsychiatric Schizophrenia Research (CINS) / Center for Neuropsychiatric Schizophrenia Research (CNSR)

Background, Objective, Method, Results, Conclusion

Background: Impaired social cognition is a well-established finding in schizophrenia (Green et al., 2015). Twin studies have demonstrated that most cognitive functions are influenced by genetics and also show genetic overlap with schizophrenia liability; however, no previous twin study has examined social cognition in schizophrenia (Besteher et al., 2020).   Objective: To examine social cognition in patients with schizophrenia, their unaffected co-twins and healthy control twins using a task assessing the detection of sarcasm. Methods: 32 complete monozygotic (MZ) and 21 complete dizygotic (DZ) twin pairs concordant or discordant for a diagnosis in the schizophrenia spectrum as well as healthy control (HC) twin pairs (29 complete MZ and 20 complete DZ pairs) were recruited through the Danish registers. Moreover, 9 twins from affected pairs participated without their sibling. The Awareness of Social Inferences Test (TASIT) was used to examine the ability to detect sarcasm, while the Wechsler Adult Intelligence Scale was used to measure intelligence (IQ). Results: Patients performed significantly worse than controls in both the simple, U=2379, p=.020, and paradoxical sarcastic conditions, U=2073, p<.001, while unaffected co-twins only differed from controls in the paradoxical condition, U=2041, p=.022. When the unaffected co-twins were split on zygosity, only MZ co-twins differed from controls. There were no significant differences between patients and unaffected co-twins. Performance in the paradoxical condition correlated with measures of IQ in the whole sample, which was driven by correlations in patients only. Conclusion: The ability to detect sarcasm is impaired in patients with schizophrenia and their unaffected co-twins, although to a lesser extent. The impairment was driven by MZ co-twins, suggesting that this may be a (genetic) vulnerability indicator of the disorder. The ability to understand sarcastic interactions was associated with measures of IQ, indicating that social cognition may in part depend on general cognitive abilities, particularly in patients.

Category:
General - Cognition
Population - Patients
Aetiology - Schizophrenia
Outcomes - Cognition
Cognitive domains / Behaviour - Social cognition
Methods - Case-control study

(OP-1-3) Novel analyses of fibre density in antipsychotic-naive first-episode schizophrenia patients reveals specific white matter alterations related to cognitive flexibility.

Kristensen, Tina - Author[1]; W Skjerbæk, Martin - Co-Author[2]; M Raghava, Jayachandra - Co-Author[3]; Syeda, Warda - Co-Author[4]; Dhollander, Thijs - Co-Author[5]; S Ambrosen, Karen - Co-Author[6]; Pantelis, Christos - Co-Author[7]; Fagerlund, Birgitte - Co-Author[8]; Glenthøj, Birte - Co-Author[9]; H Ebdrup, Bjørn - Co-Author[10]

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Background, Objective, Method, Results, Conclusion

Background: White matter alterations in patients with schizophrenia are well described, but the neurobiological underpinnings are poorly understood. A novel method called fixel-based analysis (FBA) uses higher-order diffusion models to extract specific structural measures such as fibre density (FD), fibre-bundle cross-section (FC), and fibre density and cross-section (FDC). Objective: We applied FBA to investigate group differences and associations with executive functions in antipsychotic-naïve, first-episode schizophrenia patients (SZ) compared to healthy controls (HCs). Methods: Eighty-six antipsychotic-naïve SZ patients and 112 matched HCs underwent diffusion-weighted magnetic resonance imaging. Data were processed using a pipeline for FBA in the MRtrix3 software. Executive functioning was assessed using tests from Cambridge Neuropsychological Test Automated Battery (CANTAB: SOC, problem solved in min moves (planning); IED, total errors adj. (cognitive flexibility)). Group comparisons and associations with cognition were analysed using General Linear Modelling. Results: Patients had significantly reduced FD in a large area of the body of corpus callosum compared to HCs. We found a significant group-wise interaction between FC in the corpus callosum (splenium and isthmus) and cognitive flexibility. Conclusion: This study presents specific insights on fibre characteristics of white matter alterations in first-episode schizophrenia. Alterations related to fibre cross-section may play a central role for executive functioning. Particularly fibre characteristics of corpus callosum appear disturbed and related to cognitive flexibility in antipsychotic naïve SZ patients.

Category:
General - Cognition, Imaging
Population - Patients
Aetiology - Schizophrenia
Outcomes - Cognition
Cognitive domains / Behaviour - Executive function
Methods - Cross-sectional

(OP-1-4) BDNF Val66met polymorphism moderates the effect of Attention Bias Modification on depression symptoms.

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Background, Objective, Method, Results, Conclusion

Background. There is an increasing interest in identifying biomarkers which can be used to match individuals with treatments that are most likely to show a positive response. One approach is to identify possible biomarkers based on genetics. Objective. Neuroplasticity is a plausible mechanism through which psychological interventions might work to relief symptoms. Brain-derived neurotrophic factor (BDNF) is a growth factor serving many critical functions in the CNS, like synapse formation and synaptic plasticity. The BDNF Val66Met variant potentiates stress sensitivity, but also conversely, enables adaptive plasticity compared to the homozygous BDNF val polymorphism. The main objective of this study is to investigate if carriers of the more malleable Val66Met genotype gain more from a computerized Attention Bias Modification (ABM) intervention in subjects with depression symptoms. Method. The sample consisted of 288 subjects from a preregistered randomized controlled double-blind trial of the effects of Attention Bias Modification (ABM) on depression symptoms (NCT02658662). The subjects were randomized to an active ABM condition or to a placebo condition. Depression symptoms were assessed using Hamilton Depression Rating Scale at baseline, after two weeks ABM intervention and after one-month follow-up. All subjects were genotyped and stratified into the Val66met (combined val/met and met/met) or val/val polymorphisms. Results. The results of the Mixed ANOVA revealed a significant between-subjects interaction between the ABM intervention and BDNF genotype (F(1, 284) = 4.79, p = .029, ⍰p2 = .017) on HDRS scores. Carriers of the met genotype in the ABM active condition improved significantly on symptoms, compared to met carriers in the placebo condition. This was not the case for the val/val genotype. Conclusion. BDNF polymorphisms are associated with outcome of an Attention Bias Modification intervention in subjects with depression symptoms. This finding has the potential to assist in the development of personalizing treatment..

Category:
General - Intervention
Population - Adults
Aetiology - Depression
Outcomes - Mood
Cognitive domains / Behaviour - Attention
Methods - RCT

(OP-1-5) Neuropsychological and Psychosocial Markers of Adolescent Binge Drinking Predisposition: A Machine Learning Study

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Background, Objective, Method, Results, Conclusion

Adolescent Binge drinking (BD) has become an increasing health and social concern, causing several neuropsychological alterations (Carbia et al. 2018). However, psychosocial and neuropsychological profiles wich could predispose to such nefarious behavior remains poorly understood. This longitudinal study aims to identify which neuropsychological and psychosocial features, tested in multiple machine learning classifiers, better predict future BD habits. A sample of N=397 alcohol-naïve adolescents (mean age 14.6) were initially evaluated by means of self-reported neuropsychological and psychosocial questionnaires (BRIEF, BIS-11, SSS-V). Two years later, their alcohol consumption habits were measured using AUDIT questionnaire and semi-structured interview. With that information, a random subsample of N=198 was selected for feature discovery; and the remaining sample was left for training and testing steps. For feature selection, a 5-fold cross-validation procedure was used. In each fold, a lasso algorithm available in MATLAB was applied, selecting a subset of features. This subset were evaluated on 20 different classifiers (Support Vector Machine (SVM), K-Nearest Neighbors (KNN), Classification Trees, Discriminant analysis model, ensembles). In each fold, we obtained a selection of the most frequent features and classifiers performance. This procedure was repeated 50 times to obtain a 95% confidence interval for the classifier performance measures. Finally, the 5 best classifiers were selected, taking into account the F1 index (accuracy + recall combined means) and the area under the curve (AUC). Neuropsychological and psychosocial measures were able to predict those adolescents which developed BD two years later. Gaussian SVM stand out as the best classifier, with an F1=0.7722 (94% CI=[0.7366,0.8031]) and AUC=0.8053 (94% CI=[0.7334,0.8588]). Most frequent predictors were the BRIEF-SR-Inhibition, SSV-DEX, BIS-11-IMC, and SSSV-BEX subscales. These results highlight particular neuropsychological and psychosocial features as early vulnerability profiles towards the development of BD behaviors, underscoring machine learning algorithms as a useful tool in the detection of individuals at risk.

Category:

General - Assessment/test, Assistive technology, Diagnostics, eHealth
Population - Adolescents
Aetiology - Developmental disorders, Other
Outcomes - Cognition, Other
Cognitive domains / Behaviour - Executive function, Personality, Social cognition, Other
Methods - Quantitative, Qualitative, Other

(OP-1-6) Factor structure of the new Scandinavian WISC-V version: support for a five-factor model

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Background, Objective, Method, Results, Conclusion

Background: The fifth version of Wechsler Intelligence Scale for Children are designed to measure five distinct aspects of intelligence, incorporating a new Fluid Reasoning index to the four indexes of the previous fourth version. Several factor analyses, however have failed to support the fifth factor. The Scandinavian version is the only national version not showing clear superiority for the five-factor solution in the Manual. Thus, it has been suggested to limit interpretation of WISC-V to the Full Scale IQ score. This runs counter to the way neuropsychologists usually use the test to look for indications of specific impairments and relative resources. Objective:As the CFA in the Scandinavian version were not based solely on the 10 core tests, we wanted to do this, and to test it in a clinical sample similar to those that will apply the test. Method: WISC-V protocols from a clinical sample of 237 children were analyzed in six confirmatory factor analyses (CFA) testing three hierarchical-, two bifactor-, and one correlated candidate factor models. Results: The study shows that the three-factor model do not fit the data, and that all four- and five-factor models showed good fit. The four-factor bifactor model was somewhat better than the five-bifactor and hierarchical models, but the correlated five-factor model was the superior model. Conclusion: Finding support for five-factors in a clinical sample representative of those most probable to be tested with the test, strengthen the claim that also the Scandinavian version measure a distinct fluid factor, and thus that clinicians may use the index scores as their main level of analysis. Review of previous CFAs show that the choice of statistical methods for CFA, bifactor or hierarchical/correlated, influence whether second order factor models are better than g-factor models.

Category:
General - Assessment/test
Population - Children
Aetiology - Developmental disorders
Outcomes - Cognition
Cognitive domains / Behaviour - General cognition
Methods - Quantitative

(OP-2-1) Brain aging is not influenced by level of education

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Background, Objective, Method, Results, Conclusion

Education has previously been related to many advantageous lifetime outcomes, and it is highly related to what has been proposed as a cognitive reserve. Using longitudinal MRI data from cohorts across Europe (The Lifebrain consortium), the influential hypothesis that higher education translates into slower rates of brain aging was tested. The results showed that although higher education was modestly associated with regional cortical volume cross-sectionally, there was no influence on the rate of atrophy in the cortex and hippocampus (Nyberg et al., PNAS, 2021). In my talk I will adress the lack of support for the hypothesis that education slows down brain aging, and discuss the implications this study has on brain aging theories as well as societal strategies to maintain a healthy brain aging.

Category:
General - Imaging
Population - Adults
Aetiology - Other
Outcomes - Other
Cognitive domains / Behaviour - Other
Methods - Longitudinal

(OP-2-2) Global white matter integrity is linked to better cognitive functioning in individuals at ultra-high risk for psychosis

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Background, Objective, Method, Results, Conclusion

Background: Emerging evidence indicates that cognitive functions is linked to widespread alterations in cerebral white matter microstructure (WM) in a broad spectrum of psychiatric disorders, including individuals at ultra-high risk for psychosis (UHR). Although associations between WM and cognition have been established through neuroimaging studies in diverse populations, results are equivocal, and studies characterized by modest sample-sizes. Objective: Here we examine multivariate associations between regional WM and cognitive functions in a large sample of UHR-individuals compared to healthy controls (HC). Methods: 116 UHR-individuals and 49 matched HCs underwent MRI diffusion-weighted imaging and cognitive assessments at one timepoint. Group differences on whole brain WM were tested using tract-based spatial statistics. Group differences in cognitive functions were tested using univariate general linear modelling. Multivariate partial least squares correlation tested for associations between patterns of regional WM integrity and cognitive functions. Results: Univariate analyses revealed significant impairments on cognitive functions and impaired WM integrity in superior longitudinal fasciculus and cingulate gyrus in individuals at ultra-high risk for psychosis. Partial least squares correlation analysis revealed different associations between patterns of WM integrity and cognitive functions in UHR-individuals compared to HCs. Global WM integrity was associated with better cognitive functioning in individuals at ultra-high risk for psychosis, but not in the healthy controls. Conclusion: Global WM integrity was linked to better cognitive functioning in individuals at ultra-high risk for psychosis, but not in healthy controls. The result may reflect a disruption for UHR-individuals in the ability to compensate flexible for local WM alterations, which could correspond to the notion of cognitive reserve.

Category:
General - Imaging
Population - Patients
Aetiology - Psychopathology
Outcomes - Cognition
Cognitive domains / Behaviour - Other
Methods - Cross-sectional

(OP-2-3) Neuroplasticity is negatively associated with self-reported symptoms of depression and stress in healthy adults

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Background, Objective, Method, Results, Conclusion

Background Recent studies suggest that stimulus-specific response modulation (SRM) of visual evoked potentials (VEP) following high-frequent visual stimulation might index LTP-like synaptic plasticity in humans (1). There is evidence indicating that neuroplasticity is disrupted in mood disorders and stress. Synaptic plasticity is suggested to play a role in the pathophysiology of affective disorders, and impaired VEP plasticity has been demonstrated in patients with bipolar II disorder (2). Objective The objective of the current study is to (I) replicate earlier studies of visual SRM, and (II) explore the association of SRM-plasticity to symptoms of depression and stress in healthy adults. Method EEG was recorded in 109 healthy participants engaged in a visual SRM paradigm consisting of a baseline (BL) block, one high frequent stimulation (HFS) block, and five post-HFS blocks. Self-reported depressive symptoms (BDI-II) and perceived stress (PSS-10) were collected. VEP components (C1, P1, N1) were extracted and peak-to-peak P1-N1 were calculated. Modulation effects were calculated by subtracting average baseline VEP amplitudes from post-HFS amplitudes. Results Repeated measures ANOVA showed highly significant modulation effects from BL to post-HFS stimulation blocks for all (C1, P1, N1, P1-N1 peak-to-peak) components ($F=5.84$ to 38.98; all p-values <0.001). Correlation analysis showed significant negative associations between total BDI-II and PSS-10 scores and modulation of several components of the P1-N1 peak-to-peak (p: $0.002 – 0.008$). Conclusion Earlier studies displaying significant modulation of VEPs after HFS were replicated. Significant negative associations with self-reported symptoms of depression and stress strengthen the assumption that SRM-induced plasticity is implicated in the underlying mechanisms of symptoms of depression and stress, even in a non-clinical sample. Further elucidation of these associations might aid in identifying how stress and depressed mood relates to neuroplasticity. (1) Rygvold et al. (2021), European Journal of Neuroscience; 53: 1072-1085 (2) Elvsåshagen et al. (2012), Biological Psychiatry; 71: 68-74

Category:
General - Plasticity
Population - Adults
Aetiology - Depression
Outcomes - Mood
Cognitive domains / Behaviour - Vision
Methods - Quantitative

(OP-2-4) Pupil dilation while listening to speech in background noise reflects mental effort, fatigue, and motivation

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Background, Objective, Method, Results, Conclusion

Background: Mental effort is a common complaint among individuals with hearing loss, leading to persistent fatigue and social isolation. Despite its prevalence, effort is not measured in clinical practice. The pupil dilation response is sensitive to the difficulty of listening, but whether it reflects the willingness to spend effort is unclear.   Objective: We aimed to experimentally evaluate whether and how the pupil dilation reflects the willingness to spend effort when listening to speech in background noise.   Methods: In two experiments participants listened to sentences that were presented in background noise over approx. 40 minutes (fatigue induction). In Experiment 1, pre- and post- fatigue induction, participants listened to sentences that were in high and low intensity in background noise (difficult and easy listening). Monetary incentives were offered upon correct sentence repetition (high and low reward). Experiment 2 included an additional session, where the fatigue induction included or excluded (high and low fatigue) memorization during listening. Pupil size was measured during anticipation of (baseline) and while listening (dilation response) to speech.   Results: Experiment 1 and 2 showed decreasing baseline pupil size from pre- to post-fatigue. In Experiment 1 larger incentives predicted larger pupil size in anticipation of listening, particularly when listening was difficult. In Experiment 2 there was a decrease in the pupil dilation response from pre- to post-fatigue. The decrease was stronger with larger fatigue and attenuated by larger monetary incentives.   Conclusions: The decrease in baseline pupil size from pre- to post-fatigue suggests a decrease in alertness, a hallmark of fatigue. The moderation of the pupil dilation response by the magnitude of reward and fatigue suggest that the pupil dilation response may reflect listening-related effort, motivation, and fatigue. These results represent a step forward to utilizing pupillometry in the assessment of patient characteristics, hearing-aid evaluations, and clinical interventions.

Category:
General - Assessment/test
Population - Adults
Aetiology - Other
Cognitive domains / Behaviour - Auditory processing

(OP-3-1) Effectiveness of the ENGAGE intervention in reducing problem behaviors in Finnish preschoolers

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Background, Objective, Method, Results, Conclusion
Background Executive functions (EFs) are crucial for adaptive functioning in life and problems in their development should be addressed early to avoid accumulated difficulties. Yet, little is known about what kinds of interventions work best for "at-risk" preschoolers.   Objective The aim of this study was to examine the effectiveness of a novel play-based training program, Enhancing Neurobiological Gains with the Aid of Games and Exercise (ENGAGE), in reducing problem behaviors in Finnish preschoolers. Method 95 children who had parent-rated difficulties of hyperactivity and/or inattention were randomized to either the ENGAGE group (n= 55) or waitlist control group (n= 40). In the ENGAGE group families took part in the 8-week program during which they were instructed to play EF-training games at home every day at least 30 minutes. The program included 6 group sessions for parents and children and 2 individual phone calls. Parent and daycare teacher ratings of child behavior problems (i.e., hyperactivity, inattention, aggression) were obtained at pre- and post-intervention and at a 3-month follow-up.   Results At post-intervention, the ENGAGE group showed significantly greater decreases in problem behaviors than the control group across all parent-rated measures, with effect sizes mainly in the moderate category. Teacher ratings showed a significant and small group difference in impulsivity, mainly due to increased impulsivity in the control group. There was no significant change from post-intervention to follow-up in either group based on parent and teacher ratings. Conclusion In line with previous findings (Healey & Healey, 2019), these results support the effectiveness of ENGAGE and thus suggest it is a viable approach for families in need of low-threshold support. References Healey, D., & Healey, M. (2019). Randomized Controlled Trial comparing the effectiveness of structured-play (ENGAGE) and behavior management (TRIPLE P) in reducing problem behaviors in preschoolers. Scientific reports, 9(1), 1-9.

Category:
General - Intervention
Population - Children
Aetiology - Developmental disorders
Cognitive domains / Behaviour - Executive function
Methods - RCT

(OP-3-2) Executive Functions in Survivors of Pediatric Brain Tumor and Consequences for Societal Participation

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Background, Objective, Method, Results, Conclusion

Background Late effects after pediatric brain tumor (PBT) and PBT treatment may have major impacts on quality of life (QoL), and potentially reduce survivors' possibilities of participating in society. Neurocognitive impairments, especially executive dysfunction, play a special role in this respect. Objective The overall aim of this PhD study was to determine the presence of executive dysfunction in Norwegian adolescent and young adult survivors of PBT (n=162) compared to a healthy control group, and to explore the significance of executive dysfunction for long-term outcomes (i.e., adaptive functioning/psychosocial adjustment, academic and vocational achievement, and financial independence) compared to psychological problems and symptoms of fatigue. Method The study was cross-sectional, and we utilized self- and informant reports. For a subgroup of participants, neuropsychological testing was also employed. Between and within group differences and associations were investigated by univariate analyses and logistic regression. Results The findings demonstrated that young adult PBT survivors reported significantly more problems with aspects of EF compared to healthy controls (medium effect sizes [ES], r=.3), with psychological/emotional difficulties and physical fatigue less impactful. Further, the findings showed that young adult survivors are at increased risk of poor social attainment and societal participation compared to their healthy peers (medium ESs, φ=.3-.4), and this was most strongly associated with problems with EF, along with symptoms of fatigue. We demonstrated the presence of similar EF difficulties also in a group of adolescent PBT survivors, as well as a link between executive dysfunction and problems with psychosocial adjustment. Certain PBT treatment-related factors and medical late effects were of particular concern for negative long-term outcomes. Conclusion PBT survivors are at increased risk of problems with certain aspects of EF, and future rehabilitation efforts should focus more on improving EF skills in order to increase societal participation in a long-term perspective.

Category:
General - Cognition, Rehabilitation
Population - Adolescents , Adults , Children , Patients
Aetiology - Tumour
Outcomes - Cognition, Mood, Quality of life
Cognitive domains / Behaviour - Executive function, Working memory
Methods - Quantitative, Cross-sectional

(OP-3-3) Multifaceted Brain Training as part of the Curriculum in Upper Secondary School

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Background, Objective, Method, Results, Conclusion

Background: This study investigated a group-based multifaceted brain training (MBT) intervention combining physical activity with cognitive training. The training included different games and tasks primarily challenging attention and working memory. The study included 18 Danish upper secondary schools with the goal of reducing stress and increasing psychological wellbeing and academic performance amongst students. Objective: The objective of the study was to evaluate the effectiveness of MBT in an upper secondary school setting. Methods: The cluster randomized controlled trial included 2391 student (48 % women) mean age at enrolment 17.88 years (SD 2.80). MBT was compared to both active and passive control groups. The active control group obtained dual-n-back training followed by walking. The passive control group completed all assessments. Training was one hour a week for 12 weeks. Assessment was made pre-, mid- and post-training and at a later follow up. Outcomes included verbal working memory (word lists), visual working memory (matrix span), sustained attention (go/no-go), psychological wellness (WHO-5), sleep quality (Pittsburgh Sleep Quality Index), and mindset (Implicit Theories about Intelligence). Mixed linear models were used for analysing the results. Results: Pairwise comparisons were testing the following hypothesis: H0: β (treatment) = β (treatment x time) = 0. The pairwise comparisons between MBT and the active and passive control group showed no significant results for any of the outcome measures. Conclusion: The main analysis from this large-scale effectiveness study did not show significant transfer effects from MBT to cognitive tests of working memory and sustained attention, when compared to an active and a passive control group. Similarly, no significant effect was found in psychological wellness, sleep quality and mindset. Future studies should focus on mapping the specific skills and strategies learned in cognitive training.

Category:
General - Cognitive training, Intervention
Population - Adolescents
Aetiology - Other
Outcomes - Cognition, Other
Cognitive domains / Behaviour - Attention, Working memory
Methods - Quantitative, RCT

(OP-3-4) Using self-training exercises from cognitive compendium 'KOGNIKAT' is associated with an increased sense of agency in early stroke rehabilitation

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Background, Objective, Method, Results, Conclusion
Background: Early activation post-stroke might contribute to better functional outcomes. However, studies indicate that stroke patients undergoing inpatient rehabilitation often find themselves inactive and alone outside the scheduled training sessions. Lack of equipment in hospital environments and low levels of internal motivation have been proposed to limit patients' activity levels and contribute to feelings of boredom. This also applies for cognitive activities. We therefore developed a compendium 'KOGNIKAT' consisting of 270 pen-and-pencil self-training exercises, covering 5 cognitive domains and 3 degrees of difficulty. Each exercise was provided with easy-to-understand instructions and options how to use it with friends and relatives. Objective: We aimed to investigate patients' experiences with the compendium regarding its impact on their activity levels and mood. Methods: The compendium was installed at a subacute stroke unit at Bispebjerg Hospital, Denmark. We performed exploratory qualitative study using semi-structured interviews with >15 stroke patients, who had used the compendium ≥3 times. We used a combined deductive and inductive thematic analysis to analyse the data. Results: The findings indicate the following main themes: (1) Agency: patients felt often disempowered and out of place during the hospital stay, and training with KOGNIKAT led to an increased sense of agency. (2) Illness perception and recognition: the KOGNIKAT allowed patients to explore their own cognitive impairments, which was considered beneficial but it could also be perceived as confrontational and provoke feelings of frustration or sadness. (3) Activity levels and milieu: patients experienced both barriers (fatigue, ignorance, need of help) and facilitators (entertainment, distraction, accessibility) related to the use of KOGNIKAT. Conclusion: The compendium appears to be a useful tool during early inpatient rehabilitation for the subset of stroke patients who are capable of self-training and may promote enhanced levels of cognitive activity during post-stroke hospitalization.

Category:
General - Rehabilitation
Population - Adults
Aetiology - Neurology
Outcomes - Other
Cognitive domains / Behaviour - Other
Methods - Qualitative

(OP-3-5) Reconnecting after acquired brain injury. A qualitative study of couples' experience of couple intervention.

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Background, Objective, Method, Results, Conclusion

Background: When a person acquires a brain injury, it affects not only the individual, but the whole family. Therefore, in a holistic rehabilitation, it is important to focus on not only on the affected, but also the relatives. This study explores a couple intervention where one party is suffering from an acquired brain injury (ABI). Objective: This study explores couples' experience of receiving a couple intervention as an add on to existing rehabilitation in an inpatient rehabilitation center in the Northern Region of Denmark. The therapeutic intervention is based on a dyadic perspective and are conducted by a clinical psychologist alone or together with a licensed music therapist. Method: Three participants with an acquired brain injury and their partners participated in the study (N=6). The participants with an ABI, had prior to this intervention received individual therapy with the same psychologist and/or music therapist. The couple intervention took place during the ABI partners stay at the rehabilitation center. All participants were aged 40-55 years. The study was based on a phenomenological hermeneutic approach. Semi-structured interviews were conducted with the couples. All interviews were transcribed and subsequently analyzed drawing on thematic analysis (Braun & Clarke, 2006) . Results: Based on the analysis, three themes emerged related to the couple's experience of the intervention: "Being seen and heard in the rehabilitation process, by the professionals", "Room to talk to each other – the couple in focus" and "More focus on the couple– experiences of shortcomings in the intervention". Conclusion: All three couples express that the psychological intervention in the form of couple conversations was of great sup-port during the rehabilitation process, but all of them requested even more focus on their needs as a couple to support their dyadic coping.

Category:
General - Rehabilitation, Therapy
Population - Caregivers, Patients
Aetiology - Stroke /cerebrovascular, TBI (traumatic brain injury)
Outcomes - Quality of life
Methods - Interview

(PT-1) Critical factors for safe driving in young adults with Cerebral Palsy – a follow-up study

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Background, Objective, Method, Results, Conclusion

Objective Investigate medical and neuropsychological variables associated with driver's license status and driving behaviour in young adults with Cerebral Palsy (CP). Methods This retrospective follow-up cohort study included 17 young adults with CP, 3 men and 14 women, that previously had passed a multidisciplinary driving assessment prior to driver's license training at a specialized rehabilitation hospital in 2011-2013. The follow-up survey covered data from the driving training, vehicle data, self-reported driving behaviour and measures of perceived pain, fatigue and driving self-efficacy. These data were analysed in comparison with retrospective medical and neuropsychological data retrieved from the participants' journals from the driving assessment. Results Eleven participants had obtained driver's license at the time of follow-up, the majority drove a regular car and 5 participants were not in need of adaptations in the car. Both the driving and non-driving cohort portrayed some cognitive difficulties, however, impairments in visual attention, processing speed and executive function were most frequent among the non-drivers. The majority of the drivers did not report any compensatory driving behaviours. Four drivers had been involved in traffic accidents, two of these were involved in multiple accidents. Levels of pain or fatigue were not associated with driving behaviour. Almost half of the drivers reported low driving self-efficacy. Conclusion This study shows that many people with CP become safe and confident drivers, however, one third of the participants did not obtain a valid driver's license, probably due to sensory-motor and cognitive impairments. In addition, many drivers displayed reduced driving self-efficacy and had been involved in accidents. Thus, when assessing the health requirements for driving in persons with CP, clinicians need to give realistic prognostics based on a clinical assessment before the arduous and costly process that obtaining a driver's license represent. Keywords: driving, driving health requirements, cerebral palsy, cognition, traffic-accidents

Category:
General - Assessment/test
Population - Patients
Aetiology - Cerebral palsy (CP)
Outcomes - Cognition
Cognitive domains / Behaviour - General cognition
Methods – Quantitative

(PT-2) Vocabulary and Word Retrieval Test in Danish (TOSH) for Adults with Premorbid High Linguistic Proficiency and Mild Anomia

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Background, Objective, Method, Results, Conclusion

Background: Adults with brain injury in left hemisphere, word retrieval difficulties in higher peripheral areas of the active vocabulary, high education and premorbid high linguistic proficiency can be very dependent on their language. Ceiling effect is often seen on traditional word retrieval tests, even though the patient's subjective complaint is word retrieval difficulties. Objective: Developing a sufficiently difficult word retrieval test, based on vocabulary and word definition retrieval, which shows no ceiling or floor effects on normal highly educated individuals with high linguistic proficiency. TOSH-test can hopefully be used as a test and norm tool in diagnosing linguistic reduction in a patient with brain injury and anomia in the higher peripheral areas of the active vocabulary. Methods: To achieve a norm, we tested a trial group of normal high school teachers (N=94) with high education and high linguistic proficiency which is comparable to the group of patients with subjective complaints about anomia in the higher peripheral areas of the active vocabulary. Results: Neither ceiling nor floor effects were seen on the TOSH-test in the trial group of normal high school teachers. A multiple regression analysis performed on the trial group with the independent variables gender, age and category of teaching subject showed a significant effect of gender and age on test scores. The significant effect of age was due to low scores in the youngest age group (20-29 years) and high scores in the oldest group (60-69 years) with no age effect in the middle age groups (30-59 years). Therefore, the norm of the TOSH-test was based on these age groups with different norms for men and women.

Category:
General - Assessment/test
Population - Adolescents
Aetiology - Neurology
Outcomes - Other
Cognitive domains / Behaviour - Language
Methods - Quantitative

(PT-3) Adaptive behavior in Alzheimer's disease and developmental disorders in adults

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Background, Objective, Method, Results, Conclusion

Background Adaptive skills describe one's ability to fulfill society's expectations according to independence and social responsibility. Assessment of adaptive behavior is typical in developmental disorders (DD). There is still a paucity of adaptive behavior assessment in many neurodegenerative diseases, such as Alzheimer's disease (AD). However, functional skills are crucial to assess when defining the need for support for those living alone or with family caregivers.   Objective This study assessed whether Adaptive Behavior Assessment System-3 (ABAS-3) differentiates adults with 1) DD and 2) AD from the healthy controls in their adaptive skills. Method The participants were grouped into DD (autism and intellectual disability, n=8), AD (n=12) and healthy controls (n=23). Patients and/or caregivers completed ABAS-3 adult form (Harrison & Oakland, 2015). All adaptive skills (Communication, Community use, Functional Academics, Home living, Health and safety, Leasure, Self care, Self direction, and Social) were standardized and transferred into four indexes (Conceptual, Social, Practical and General Adaptive Composite). ANOVA was used to analyse group differences, and post-hoc analyses were carried out using two-tailed t-tests. Results ANOVAs revealed significant interaction effects (all $p < 0.015$) between the groups and the adaptive skills and indexes. DD group had lower adaptive skills than controls in all other domains except for Self care (all $p < 0.018$). AD group had lower scores than the controls in all adaptive skills (all $p < 0.042$). No significant differences ($p < 0.05$) were found between DD and AD groups. Conclusion It is possible to differentiate adults with DD and AD from the healthy controls in their adaptive skills and thus help to identify their need for support. References Harrison, P. L., & Oakland, T. (2015). ABAS-3. Torrance: Western Psychological Services.

Category:
General - Assessment/test
Population - Adults , Geriatric
Aetiology - Neurology, Developmental disorders, Dementia / degenerative disorders
Outcomes - ADL
Methods - Quantitative

(PT-4) App for screening cognitive decline related to Covid-19 – a methodological statement

Laursen, Peter - Author[1]; Karjalainen, Tuomas - Co-Author[1]

[1]Cognitive Function Scanner Development Team

Background, Objective, Method, Results, Conclusion
The demand for time-efficient neuropsychological test batteries has recently increased due to an unexpected number of people reporting post-Covid-19 symptoms related to fatigue, attention, concentration, and memory. Aim The method must sufficiently target the relevant cognitive functions and for each tested individual indicate as to whether there is a decline in cognitive capacity. In addition it must be suitable for use in different settings and provide collection of data for further analysis. Outcome A computer-assisted test instrument with a selection of tests from the Cognitive Function Scanner Mobile Test Suite covering:
- verbal and non-verbal learning and memory
- visual perception and vigilance
- auditory continuous reaction time and vigilance
- complex coordination.

The system [Cognitive Function Scanner Mobile Test Suite] consistently handles test material, reads the stopwatch, scores and records test outcome, relates outcome to age-, sex- and education standardised 90-percentiles of representative samples of the general Danish population, generates and prints test protocols for clinicians, and generates files ready for digital archiving and subsequent statistical analysis. Duration of examination per subject is 35-45 minutes depending on subject's performance. Conclusion The system [Cognitive Function Scanner Mobile Test Suite] does the tedious work allowing the psychologist to concentrate on the subject's coping with the tests and other behavioural aspects during the examination. The system
- covers relevant cognitive functions
- provides standardised and consistent test administration and scoring
- provides instant evaluation against representative reference values
- provides data files ready for analysis by common statistical analysis systems.

The system comes as an app for Android-driven mobile devices and runs on inexpensive tablet computers (certain Samsung models with digital pencils).

Category:
General - Assessment/test
Population - Patients
Aetiology - Infectious diseases
Outcomes - Cognition
Cognitive domains / Behaviour - Attention, Executive function, General cognition, Memory
Methods - Quantitative, Qualitative, Survey

(PT-5) Cognitive reserve, early cognitive screening and predicting long-term outcome after severe traumatic brain injury

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Background, Objective, Method, Results, Conclusion

Background: There is little research on relationship between results from early screening tests in respect to long-term outcome after severe traumatic brain injury (sTBI). Cognitive reserve has been found to influence outcomes in many neurological conditions (1) and may also affect recovery after sTBI. Objective: To investigate the relationship between findings on early cognitive screening, using Barrow Institute Screen for Higher Cerebral Functions (BNIS), with long-term outcome assessed with Mayo-Portland Adaptability Index (MPAI-IV) in sTBI, considering whether this is influenced by cognitive reserve. Method: Survivors of sTBI (n=41) from 5 neurotrauma centers in Sweden were evaluated with BNIS 3 months after injury and with MPAI-IV 5-7 years after injury. Educational level was used as a proxy for cognitive reserve and dichotomized to high (>12 years), or low (<12 years). Severity of sTBI was estimated with the CRASH model. Results: Linear regression adjusting for age and severity of injury (CRASH) showed that cognition (BNIS) 3 months after injury was significantly related to the ability and participation subscales of MPAI-IV 5-7 years after injury (Eability=-.4807, p= .033, Eparticipation=-.3489, p=.021) but not to the adjustment subscale. For the adjustment subscale severity of injury was more relevant (Eadjustment=-.1829, p=.037). There was a significant difference on BNIS based on educational level (Mann-Whitney=362, p=.006). Conclusion: Results from early cognitive screening are related to long-term outcome regarding ability and participation whereas injury severity had a greater influence on adjustment. However, cognitive screening, as early as three months after a sTBI is strongly influenced by educational level and the relationship between BNIS and outcome might in part be related to cognitive reserve rather than injury-related factors.

(1). Sumowski JF, Chiaravalloti N, Krch D, Paxton J, Deluca J. Education attenuates the negative impact of traumatic brain injury on cognitive status. Arch Phys Med Rehabil 2013;94(12):2562–4.

Category:
General - Assessment/test
Population - Patients
Aetiology - TBI (traumatic brain injury)
Methods - Longitudinal

(PT-6) Reaction-time measurement with smartphones or tablet computers

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[1]Cognitive Function Scanner Development Team

Background, Objective, Method, Results, Conclusion

A short and stable reaction-time is crucial for many activities in daily life. Disorders and diseases like ADHD, Parkinsonism, etc., are shown to be associated with fluctuating or prolonged reaction-time. Reliable measurement of human reaction-time has traditionally demanded special equipment. Lately a number of reaction-time tests have come available as apps for smartphones and tablet computers showing reaction-times far longer than what is evident from scientific research. Aim To develop a hardware-independent app for mobile devices for reliable measurement of human reaction-time and its fluctuation over time. Outcome An auditory reaction-time for android-driven devices was developed. Initial trials using the touch screen technology as response medium showed measurements varying between devices. To overcome that problem another response method had to be found. Fortunately, Android-driven mobile devices sample sound at 44.1 kHz (4.41 samples/millisecond) or higher, which is enough for reliable measurement in the millisecond range (human reaction-time runs from approximately 100 milliseconds and up with a mean around 170 milliseconds), but implies that the timer must be controlled on and off exclusively by sound. Our reaction-time test includes 75 auditory stimuli plus 3 acclimatization stimuli at 440 Hz presented at varying intervals. The acclimatization section can be rerun if necessary. The timer starts running when the app 'hears' the stimulus tone and stops when it 'hears' the response. This sound borne method ensures standardised signal processing providing measurements that comply with those of dedicated equipment, thus allowing comparison of test results with existing age-, sex- and education standardised 90-percentiles of representative samples of the general Danish population. Conclusion Our reaction-time test for Android-driven mobile devices uses sound both for timer on and off rendering auditory reaction-time measurements complying with earlier dedicated and validated equipment.

Category:
General - Assessment/test
Population -Professionals
Aetiology - ADHD
Cognitive domains / Behaviour - Disorders of consciousness
Methods - Quantitative

(PT-7) Neurocognitive development from seven to 11 years of age in children at familial high risk of schizophrenia or bipolar disorder

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Background, Objective, Method, Results, Conclusion

Background: Schizophrenia and bipolar disorder are severe mental disorders associated with neurocognitive impairments that may cause lifelong functional disability. Evidence from former familial high-risk studies suggest that offspring of individuals with schizophrenia or bipolar disorder also exhibit neurocognitive impairments, but longitudinal studies are needed to examine the timing and the developmental courses of these impairments. Objective: To assess the development of distinct neurocognitive functions from age seven to age 11 in children at familial high-risk of.schizophrenia (FHR-SZ) or bipolar disorder (FHR-BP) compared to population-based controls (PBC). Method: A total of 522 7-year-old children (FHR-SZ n = 202, FHR-BP n = 120, PBC n = 200) participated in The Danish High Risk and Resilience Study - a prospective, longitudinal cohort study. At four-year follow-up, 451 children (FHR-SZ n = 170, FHR-BP n = 103, PBC n = 178) were re-assessed. At both assessment points, children were examined with identical, validated neurocognitive tests. We used multi-level mixed-effects linear regression models to assess the development of neurocognitive functions from age seven to age 11, and to assess between-groups differences at each assessment point. Results: We observed non-significantly different neurocognitive development from age seven to age 11 across the three groups. At age seven and age 11, children at FHR-SZ displayed impairments on six out of eight neurocognitive functions, including general intelligence, processing speed, visuospatial memory, verbal fluency, flexibility, and planning and working memory, compared to PBCs. Children at FHR-BP and PBCs did not differ significantly at age seven or age 11. Conclusion: Widespread neurocognitive impairments are present early in development in children at FHR-SZ and remain stable throughout childhood. Children at FHR-BP show neurocognitive functioning comparable to that of PBCs, at least until pre-adolescence. These findings indicate early, distinct developmental pathways in children at FHR-SZ and FHR-BP, despite shared predisposing genes.

Category:
General - Assessment/test, Cognition
Population - Children
Aetiology - Bipolar disorder, Schizophrenia
Outcomes - Cognition
Cognitive domains / Behaviour - Attention, Executive function, General cognition, Memory, Processing speed, Spatial cognition, Working memory
Methods - Quantitative, Case-control study, Longitudinal

(PT-8) Development in Executive Functioning in Children at Familial High Risk of Schizophrenia or Bipolar Disorder. Age 7 to Age 11

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Background, Objective, Method, Results, Conclusion

Background Studies using performance-based tests of executive functions (EF), have found children at familial high risk of schizophrenia (FHR-SZ) to display impairments in executive functions, whereas the results regarding children at familial high risk of bipolar disorder (FHR-BP) are more ambiguous. There is a lack of studies measuring EF using questionnaires, which provides a more ecologically valid alternative to performance-based tests. Objective The aim was to examine the development of everyday behavior-rated EF from seven to 11 years of age in children at FHR-SZ or FHR-BP compared to population-based controls (PBC). Method This study is part of a nationwide cohort-study of 522 Danish children, who were assessed at age seven (FHR-SZ=200, FHR-BP=117, PBC=179) and again at age 11 (FHR-SZ=174, FHR-BP=103, PBC=179). Caregivers and teachers filled out the BRIEF, a questionnaire measuring executive functions in everyday life at both time points. Using multi-level mixed-effects models, we compared the groups at each time point and investigated the development of EF from age seven to age 11. Results Caregivers and teachers reported significant global EF impairments in children at FHR-SZ at both time points compared to PBC (Cohen's d ranging from -0.4;-0.7). Children at FHR-BP had significantly lower scores at age 11, when evaluated by caregivers (d=-0.3), but not by teachers. There was no significant time x group interaction. Conclusion According to caregivers and teachers, children at FHR-SZ show EF impairments in everyday life. Children at FHR-BP display EF impairments at age 11 in their home and extracurricular settings rated by their caregivers, but not when rated by their teachers in a school setting. The development of impairments in executive functioning seems to follow the same course between groups, which supports a uniform developmental pattern of EF in children at FHR-SZ and FHR-BP, when compared to PBC in this specific stage of development.

Category:
General - Assessment/test, Cognition
Population - Children
Aetiology - Bipolar disorder, Schizophrenia
Outcomes - Cognition
Cognitive domains / Behaviour - Executive function, Working memory
Methods - Quantitative, Case-control study, Longitudinal

(PT-9) Neurocognitive Performance in First Wave COVID-19 Patients Five Months after Discharge from Hospital - a Population-Based Cohort Study

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Background, Objective, Method, Results, Conclusion

Background: Neurocognitive impairments as sequels of COVID-19 are now evident to clinical neuropsychologists, but studies with comprehensive neurocognitive assessments are still scarce. Objective: To explore neurocognitive functions in COVID-19 patients five months post-discharge through a comprehensive neurocognitive assessment, and to relate the neurocognitive performance to patient-indicators of premorbid function and disease severity.   Method: A total regional cohort of patients admitted to hospital due to Covid-19 in March-May 2020 were identified through medical records. After excluding patients with severe comorbidities (e.g., dementia, terminal illness), 433 survivors were screened by telephone interviews four months post-discharge. Patients with concerning COVID-19-related problems (n=185) were invited to a clinical evaluation including RBANS and Color Word Inference Test (CWIT). Hence, a global cognitive score and six indices: immediate memory, visuo-spatial function, language, attention, delayed memory, as well as executive function were assessed. Associations between neurocognitive test results and premorbid function, blood tests, length of hospital stay and WHO Clinical Progression Scale (CPS) were examined. Results: Mean global cognition scores in RBANS (n=138) were 82.3, with 47 (36.7%) of the patients scoring below cut-off (1.5 SD). 65% scored below cut-off in at least one of the indices. Impairments in immediate memory, delayed memory and attention were most common and affected almost 30% of the patients, respectively. Multiple linear regressions showed that higher educational level and better premorbid functioning were associated with better neurocognitive performance. However, the indicators of disease severity, blood tests and WHO CPS, were not significantly associated with neurocognitive performance. Conclusions: Substantial neurocognitive deficits five months post COVID-19 hospitalization were found with a comprehensive neurocognitive assessment among patients followed-up due to persisting COVID-19-related problems. Impairments were found in a wide range of neurocognitive functions. Findings support the idea that neurocognitive evaluation should be an integral part of follow-up after self-reported COVID-19 symptoms.

Category:
General - Assessment/test, Cognition
Population - Patients
Aetiology - Infectious diseases
Outcomes - Cognition
Cognitive domains / Behaviour - Attention, Executive function, General cognition, Language, Memory
Methods - Quantitative

(PT-10) The COGVID study: Cognitive Dysfunction after COVID-19 Infection in Adult Danish Outpatients

Foged, Eva Meldal - Author[1]
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Background, Objective, Method, Results, Conclusion

The COGVID study: Cognitive Dysfunction after COVID-19 Infection in Adult Danish Outpatients Foged, E.M.(1); Petersen, J.Z. (1), Petterson, K. (1) , Fagerlund, B (2). 1Department of Neurology, Copenhagen University Hospital, Rigshospitalet, Glostrup, Denmark 2 Department of Psychology, University of Copenhagen, Denmark Objectives Corona virus disease 2019 (COVID-19) constitutes an ongoing worldwide pandemic with millions of infected individuals since late 2019. Long-term residual symptoms lasting weeks or months after infection (long-COVID), are well-documented (Taquet et al., 2021). However, long-term cognitive symptoms have not been systematically investigated in Danish outpatients.   The objective of this study is to investigate the prevalence, profile, duration, and predictors of cognitive impairment in adult Danish outpatients with long-term cognitive complaints following COVID-19 infection. Participants are recruited from an outpatient neurological clinic in the Capital Region of Denmark, to which they have been referred by their general practitioner following cognitive complaints ≥3 months after a COVID-19 infection.   Methods We aim to include data from up to 250 outpatients. Participants are interviewed regarding subjective symptoms, course of COVID-19 infection, and demographics including age, gender, education, previous and current employment status, and previous and/or current psychiatric symptoms and diagnoses. Neuropsychological tests assessing episodic memory, processing speed, attention, visuoconstructional abilities, verbal fluency, and executive functioning are administered along with questionnaires addressing mood symptoms, cognitive complaints, quality of life, sleep quality, and pain perception. Data are collected by trained neuropsychologists from May 2021 and will be analyzed using SPSS. Preliminary results from the first participants will be presented. The COGVID study is approved by The Danish Data Protection Agency and National Committee on Health Research Ethics. Results and conclusions The findings will increase knowledge about the cognitive sequalae of COVID-19, which may contribute to a more targeted monitoring of cognition in COVID-19 and validate information about long-COVID for both patients and clinicians.

Category:
General - Assessment/test, Cognition, Diagnostics
Population - Adults, Patients
Aetiology - Neurology, Infectious diseases
Outcomes - Cognition
Cognitive domains / Behaviour - Attention, Executive function, General cognition, Memory, Processing speed, Spatial cognition, Working memory
Methods - Quantitative, Cross-sectional

(PT-11) Psychometric properties for a comprehensive cognitive screening battery, traditional cognitive tests adapted for self-administration on a digital platform

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Background, Objective, Method, Results, Conclusion

Background Cognitive impairment is a key element in most mental disorders. Its objective assessment at initial patient contact in primary care can lead to better adjusted and timely care with personalised treatment and recovery. To enable this, we designed a self-administrative cognitive screening battery (Mindmore). The battery includes 22 (sub)tests covering five cognitive domains: attention and processing speed, memory, language, visuospatial functions and executive functions. Objective Here presented are the psychometric studies so far performed on this cognitive screening: comparative validity against the traditional paper-based versions of the tests, test-retest reliability, and a large normative study. Method Normative data was collected in 720 healthy adults, representing the Swedish population in terms of age span, level of education and sex. Comparative validity, measured through Pearson's and Spearman correlations and equivalence tests, was assessed in 82 participants who were administered the tests in both digital and paper-based versions (counterbalanced) with a 4-week interval. Test-retest reliability was assessed in another 40 participants with two test occasions and a 4-week interval. All tests were administered in a controlled environment. Results Regression-based normative models were established for all tests and include linear, non-linear and interaction effects for age, years of education and sex. Significant correlations were observed between all digital and traditional paper-based tests (median r=0.53, range 0.34-0.67), score equivalence between test versions was observed for all but one of the tests. Significant intra-class correlation coefficients (ICC), indicating test-retest reliability, were observed for all tests (median ICC=0.64, range 0.28-0.78). Conclusion The presented psychometric properties allow clinicians to accurately interpret their patients' test results obtained through cognitive screening, hopefully leading to improved clinical decision making and better care for patients with cognitive impairment.

Category:
General - Assessment/test, Cognition, Diagnostics, eHealth, mHealth
Population - Adults , Healthy
Aetiology - Psychopathology, Anxiety, Dementia / degenerative disorders, Depression, Stroke /cerebrovascular, TBI (traumatic brain injury), Other
Outcomes - Cognition
Cognitive domains / Behaviour - Attention, Executive function, General cognition, Language, Memory, Processing speed, Spatial cognition, Working memory, Other
Methods - Quantitative, Cross-sectional

(PT-12) Cognitive and psycho-social consequences of epilepsy in youth: A pilot study

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Background, Objective, Method, Results, Conclusion

Background Epilepsy is the most common neurological disorder in children, adolescents and young adults and characterized by recurrent seizures. The disease is associated with cognitive and psycho-social symptoms that may have detrimental impact on education and work, social interaction, and subjective well-being. However, cognitive functioning is not regularly assessed in patients with epilepsy.   Objective The objective of the current pilot study was to provide systematic cognitive assessment and psycho-education for young people with epilepsy.   Method We included seven young patients diagnosed with epilepsy (four females (57%), aged 22-32 years). All patients underwent individual neuropsychological assessment using standardized cognitive tests followed by two consecutive psychoeducative group sessions. Subsequently, the intervention was assessed with a qualitative interview. Results Neuropsychological assessments showed minor-moderate cognitive dysfunction in all seven patients most commonly affecting executive functioning and working memory. Moreover, five of seven patients reported symptoms of mental fatigue, while four patients displayed affective symptoms including social anxiety and withdrawal.   Results of the qualitative assessment indicated that the psychoeducative intervention improved symptom insight and mastering, self-knowledge, and network support. Conclusions and perspectives Our findings support prior research suggesting that cognitive dysfunction is common among young people with epilepsy. Identifying problems with cognitive functioning and providing psychoeducation improve patients' understanding and mastering of their disease. However, the applied protocol needs to be tested in a larger cohort, and within the next two-years, we aim to include another 48 young patients in an up-coming study.

Category:
General - Assessment/test, Cognition, Intervention
Population - Adults , Patients
Aetiology - Neurology
Outcomes - Cognition, Quality of life
Cognitive domains / Behaviour - Attention, Executive function, General cognition, Memory, Working memory
Methods - Quantitative, Qualitative

(PT-13) Virtual Reality Assessment and Treatment of Spatial Neglect (VR@SN)

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Background, Objective, Method, Results, Conclusion
Background Spatial neglect (SN) is a frequent impairment after stroke with a detrimental influence on recovery and independence in activities of daily living. Conventional assessment methods lack diagnostic accuracy and treatment is time-consuming and resource-intensive for sufficient treatment effect. No single assessment or treatment method fits all patients. Objective The VR@SN project aims to provide the basis for subtype assessment and individualised treatment for patients affected by SN. Method Development of a cross-platform, open-source, training game using off-the-shelf VR (i.e. HTC Vive) and eye-tracking (i.e. Pupils Labs) hardware applied to assessment and treatment of SN. Results A prototype whack-a-mole VR training game has been developed for assessment and treatment of SN. The game can present stimuli targets in the entire visual field and allows for uni- or bimanual user interaction and individual adjustable difficulty levels. A web-based therapist dashboard will facilitate data analysis on assessment and progress of treatment and allow for individual goal-setting of training. Four evidence-based neurorehabilitation techniques (prismatic shift, mirror therapy, half-field eye-patching, and constraint induced movement therapy) can be applied one at a time or in combinations as therapeutic modifications of the training game. This allows for faster and more effective combination of therapeutic methods and the tailoring of treatment to the individual patients' SN symptoms and capabilities.   Usability and feasibility of the prototype is currently being tested on SN patients at an inpatient neurorehabilitation hospital while continuously adjusting and developing the assessment and treatment capabilities. Future research on the diagnostic accuracy and treatment effects is in the planning. Conclusion The project is pioneering VR-based neurorehabilitation of SN and possibly paving the way for self-training and future tele-rehabilitation. Successful VR-based neurorehabilitation of SN should be individually tailored, combine several treatment techniques, and aim to increase specificity and intensity of the treatment.

Category:
General - Assessment/test, Cognitive training, Intervention, Rehabilitation
Population - Adolescents , Adults , Children , Patients
Aetiology -Stroke /cerebrovascular
Outcomes - Cognition
Cognitive domains / Behaviour - Attention, Spatial cognition
Methods - Quantitative, Case study/case series, Observational

(PT-14) Arachnoid cysts in children - do they affect cognitive development?

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Background, Objective, Method, Results, Conclusion

Background: Arachnoid cysts (ACs) are developmental defects and one of the most common intracranial malformations with the detection rate between 0.5-2.6% in general population. However, few studies focus on the development of children with ACs, and, based on their results, it's impossible to create a uniform picture of their cognitive functioning. There are reports of children who develop typically, children whose functioning level is below that anticipated, but also children who achieve scores well above average. Objective: The study aimed for a complex analysis of cognitive functioning, especially language, of children with ACs in brain hemispheres and searching for possible differences between children with left- and right-hemisphere cysts. Method: 65 participants aged 4-18 were examined: 33 children with ACs, and 32 children without neurological complaints. The following methods were used: Language Development Test, Right Hemisphere Language Battery, Language and Communication Battery for Children, Cattell's Culture Fair Intelligence Test (1-R and 20-R), „Triangles" and „Story completion" from Kaufman Assessment Battery for Children, 2nd Edition. Using these methods, it was possible to assess the general intellectual potential as well as language functions, traditionally linked with both – the left and the right hemisphere. Results: Children with ACs performed similarly to their healthy peers in intelligence tests. Differences were observed in certain areas of language proficiency. However, further analysis showed that those deficits only appeared in children with ACs in the right hemisphere, while those with left-hemispheric cysts achieved results comparable with the control group. Furthermore, regardless of the cyst's localization and size, children with crossed laterality showed none of those deficits. Conclusion: Based on the analysis of the collected material, presence of an AC does not determine the child's course of development, and the final picture of their functioning depends on a number of factors, i.e. localization of the malformation or laterality.

Category:
General - Assessment/test, Cognition, Plasticity
Population -Adolescents , Children , Patients
Aetiology -Neurology
Outcomes - Cognition
Cognitive domains / Behaviour - Language
Methods - Quantitative

(PT-15) Is It Just Face Blindness? Developmental Comorbidity in Individuals With Self-Reported Developmental Prosopagnosia

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Background, Objective, Method, Results, Conclusion

Objective: Developmental prosopagnosia (DP) - or 'face blindness'- is a severe deficit in face recognition that occurs in people with no known brain injury. While we know that other neurodevelopmental disorders commonly co-occur, there are to date no studies of the possible co-occurrence of DP or face recognition impairment with other neurodevelopmental disorders (excluding Autism Spectrum Disorder). The present work aimed to explore if individuals with self-reported DP report indications of other neurodevelopmental disorders, deficits, or conditions, collectively referred to as developmental comorbidity. Methods: 115 individuals with self-reported DP participated in this cross-sectional survey conducted online. Prosopagnosia was measured with the 20-item prosopagnosia index (Shah, Gaule, Sowden, Bird & Cook, 2015). Indications of difficulties with navigation, math, reading or spelling were measured with a tailored questionnaire, which also included open-ended questions about cognitive abilities and impairments. In addition to quantitative analysis of the questionnaire items, a qualitative descriptive approach was used to analyse the participants' own descriptions of their difficulties and abilities. Results: The quantitative analysis revealed that 57 % of the participants reported at least one developmental comorbidity of interest, and these included aphantasia, memory problems, synaesthesia, dyslexia, dyscalculia, attention-deficit/hyperactivity disorder, and object agnosia. An exploratory factor analysis suggested four factors, 'Developmental Prosopagnosia Symptoms', 'Navigation and Orientation', 'History of Reading/Spelling Difficulty' and 'History of Difficulties with Math'. The presence of developmental comorbidity was not associated with subjectively more severe DP. 25 % of the sample rated their navigation ability on level with clinically relevant complaints. The participants' elaborations on their difficulties and abilities provided additional insights to the potential developmental comorbidity in DP. Conclusions: More than half the sample of DPs reported some form of developmental comorbidity, suggesting that there might be more to explore in the link between DP and a wide range of neurodevelopmental disorders and deficits.

Category:
General - Cognition
Population - Adults
Aetiology - Developmental disorders
Outcomes - Other
Cognitive domains / Behaviour - Other
Methods - Quantitative, Qualitative, Cross-sectional, Survey

(PT-16) Examining the bottleneck: The influence of stimuli specific expertise on short-term memory capacity

Olsen Dall, Jonas - Author[1,2]; C.K. Chan, Raymond - Co-Author[2]; Alrik Sørensen, Thomas - Co-Author[1]
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Background, Objective, Method, Results, Conclusion
Humans have a limited visual short-term memory capacity (K), which is further reduced when processing certain stimuli (e.g., unfamiliar, visually complex, or low discriminability). To examine how these factors influence the bottleneck in attentional and short-term memory, we conducted a series of studies. Experiment 1 (Dall, Watanabe, Sørensen, 2016) examined how expertise modulate K in Japanese hiragana. Experiment 2 (Dall, Wang, Cai, Chan, Sørensen, 2021) divided Chinese characters into four groups based on frequency of use (high vs. low) and stroke count (high vs. low) and how attention is influenced by number of features and stimuli specific expertise. Experiment 3 (Dall, Chan, Sørensen, in review) used colours to examine how stimuli specific expertise influence contentious categories. We extracted attentional components by varying the exposure duration and modelling the data with the Theory of Visual Attention in all three experiments, measuring K and processing speed (C). All three papers showed that stimuli specific expertise improved the K. This increase was unrelated to both stimulus complexity (Experiment 2) and precision of the memory (Experiment 3). Nor did visually complexity influence C of even complex and infrequently Chinese characters (e.g., 麕), whereas C was modulated by familiarity (Experiment 2). This seems to suggest that the bottleneck in VSTM is influenced by stimuli specific expertise and that this increase cannot be explained as increasing the precision of the stored items.

Category:
General - Cognition
Population - Adults
Aetiology - Other
Outcomes - Cognition
Cognitive domains / Behaviour - Working memory
Methods - Experimental

(PT-17) Social functioning deficits in schizophrenia are associated to abnormal frontal activities: Evidence by EEG-recording with a social context decision-making task.

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Background, Objective, Method, Results, Conclusion

Background: Social cognition and decision-making deficits such as the jumping to conclusion (JTC) phenomenon are frequent in schizophrenia (Andreou, 2018). Cognitive remediation programs such as the Social Cognition and Interation Training (SCIT) target this decision disorder. Social cognition troubles are also linked with abnormalities in the P300 and N170 electroencephalographic (EEG) waves known to be respectively implicated in decision-making and emotion processes. However, the link between cerebral activities underlying JTC and social functioning impairments was few studied in schizophrenia. Yet, social cognitive deficits have a strong functional impact and cognitive remediation only have a moderate effect on them. Studying the associated abnormalities in cerebral activity could help improving therapeutic strategies (Seccomandi, 2020). To our knowledge, there was no experimental paradigm to study the JTC phenomenon in social contexts. Objective and Method: This study aims at identifying differences between schizophrenia and control subjects in decision-making, context adapted actions and frontal activities measured using EEG-recording in an innovative decision-making task comparing initiated actions in social and non-social contexts. Results: The preliminary results comparing 20 patients to 20 control subjects show that patients: 1) orient their information seeking on non-relevant emotional stimuli before making decision; 2) tend to take less pertinent decisions and 3) to engage in fewer social context action compared to control subjects. Moreover, the EEG results show relevant differences in the frontal cortex activity. Unlike control subjects, patients did not show differences in the N170 and >P300 waves between social and non-social contexts. However, early frontal activities (<N170) were observed in patients for all contexts. Conclusion: Altogether, these results allowed highlighting abnormal early activities in frontal cortex of schizophrenia patients, in line with the abnormal patients' emotional information seeking, neglecting relevant information for decision, which lead them to initiate less action in social context.

Category:
General - Cognition
Population - Adults
Aetiology - Schizophrenia
Outcomes - Psychiatric symptoms
Cognitive domains / Behaviour - Social cognition
Methods - Quantitative

(PT-18) Theory of mind and social responsiveness in schizophrenia or bipolar disorder offspring – a four-year follow-up study

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Background, Objective, Method, Results, Conclusion

BACKGROUND Schizophrenia and bipolar disorder are severe mental disorders with a high heritability and partly shared genetic susceptibility. Social cognition and different social abilities has been suggested as vulnerability markers especially for schizophrenia with abnormal development emerging in childhood and adolescence. Additionally, it is not revealed whether these potential vulnerability markers are shared between children at familial high-risk of schizophrenia (FHR-SZ) or bipolar disorder (FHR-BP). OBJECTIVE To examine the development of theory of mind (ToM) and social responsiveness from age seven to age 11 in FHR-SZ, FHR-BP and population-based controls. METHOD This study is part of the Danish High Risk and Resilience Study – a longitudinal cohort study examining 522 children at FHR-SZ (n=202) or FHR-BP (n=118) and controls (N=200) at age seven. At age 11, 465 children participated (n=179 FHR SZ, n=105 FHR-BP, n=181 controls). ToM was assessed with the Animated Triangles Task. Social responsiveness was measured with the Social Responsiveness Scale completed by a teacher at both ages, and by a primary caregiver at age 11. RESULTS Preliminary results imply that children at FHR-SZ display significant impairments in social responsiveness at both ages compared to controls. At age seven, children at FHR-BP display significant impairments compared to controls, but at age 11, significant impairments were only reported by primary caregivers. We found no significant differences regarding ToM, and no significant time x group interactions were found on any measures. CONCLUSIONS The preliminary findings indicate persistent impairments in social responsiveness from age seven to age 11 in children at FHR-SZ. According to teachers, children at FHR-BP might improve from baseline to follow-up, while ratings by primary caregivers suggest impairments in social responsiveness at age 11. The development of social responsiveness and ToM do not seem to differentiate significantly between any groups suggesting uniform developmental patterns at this point.

Category:
General - Cognition
Population - Children
Aetiology - Bipolar disorder, Schizophrenia
Outcomes - Cognition, Other
Cognitive domains / Behaviour - Social cognition
Methods - Quantitative, Case-control study, Longitudinal

(PT-19) Strategies that shape perception

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Background, Objective, Method, Results, Conclusion

In recent years there has been an increased focus on individual differences. Such differences have been observed in conditions where people display performance deficits, such as developmental prosopagnosia (McConachie, 1976), in conditions where subjects demonstrate enhanced skills, such as synesthesia (Terhune et al., 2013), as well as in neurotypical individuals, for instance, in the form of subtle individual differences in visual perception (Zelazny & Sørensen, 2020). Our interaction with the environment during brain maturation shapes how perceptual strategies are formed and prioritized. One of the principal tasks for the brain during this stage is to establish templates and context frames in long-term memory. These templates and context frames serve as the basis for various perceptual strategies used to interpret sensory information. Over time, these templates are updated in light of both sensory evidence and the perceptual strategies that have proven advantageous. Successful strategies thus have a greater likelihood of being used in the future, hence shaping our perceptual strategic preferences. In the well-known case of AB, who was afflicted with developmental prosopagnosia (McConachie, 1976), there is evidence to suggest that she prioritized peoples' clothing as a strategy for recognition over the more common one of relying on facial features. Similarly, grapheme-color synesthesia may develop as a strategy for learning the alphabet. Here, a common strategy may be to associate the abstract letter shapes with previously established color categories in an attempt to aid letter recognition (Brogaard & Sørensen, in press). If this particular strategy is sufficiently prioritized, this may result in grapheme-color synesthesia (cf. Mannix & Sørensen, in press). Here, we argue that individual variability in visual perception reflects differences in perceptual strategies. An interesting consequence of this thesis is that perceptual experience is likely to vary considerably more across individuals than hitherto assumed.

Category:
General - Cognition
Population - Healthy
Aetiology - Other
Outcomes - Cognition
Cognitive domains / Behaviour - Other
Methods - Other

(PT-20) Trajectories from Mild Cognitive Impairment to Alzheimer's Disease: A machine learning approach in the context of precision medicine

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Background, Objective, Method, Results, Conclusion

Background: Mild Cognitive Impairment (MCI) is a diagnostic entity including a heterogeneous group of patients. For some, MCI represents a trajectory towards a neurodegenerative disease, while others will remain stable or improve over time. Early identification of a neurodegenerative process is essential to provide treatment before the disease is well established in the brain. Objective: To investigate if a trajectory from MCI to Alzheimer's Disease (AD) can be predicted from a set of baseline clinical data. Methods: The patients were selected from the Alzheimer's Disease Neuroimaging Initiative. All included patients were defined with an amnestic type MCI (aMCI) at a baseline examination, and followed for around five years. One group remained stable over time (sMCI, n = 381) and one converted to Alzheimer's disease during (cAD, n = 327). Variables, selected to represent a proxy to a clinical examination of MCI, included Rey Auditory Verbal Memory Test (RAVLT), Trail Making Test (TMT) A and B, Category Fluency Test, the Geriatric Depression Sale, ANART, hippocampus volume and ApoE genotype. After exploring data at baseline, the data were put into a Random Forest (RF) based machine-learning framework to evaluate their predictive value. Results: The groups were significantly different at baseline, with the sMCI group showing better performance on RAVLT subtests and TMT B, larger volume of hippocampus and fewer ApoE-e4 positive subjects. After being trained on a subset of the data, the RF model showed a classification accuracy of 68.3% in a separate test set. Computations of feature importance indicated immediate and delayed memory, hippocampus volume and TMT-B to be most important for this prediction, and partial dependency plots showed cut-off values for increasing risk of conversion to AD. Conclusions: The results are important both from a clinical, theoretical, and analytic perspective, and highly relevant in the context of precision medicine.

Category:
General - Cognition
Population - Patients
Aetiology - Dementia / degenerative disorders
 Outcomes - Cognition
Cognitive domains / Behaviour - Attention
Methods - Quantitative

(PT-21) Severity of gastrointestinal symptoms, personality, emotional and cognitive function in patients with irritable Bowl Syndrome (IBS).

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Background, Objective, Method, Results, Conclusion

Background: Irritable Bowel Syndrome (IBS) is a functional gastrointestinal (GI) disorder characterized by a set of GI symptoms and mental health problems like anxiety and depression. Furthermore, it has been shown that personality traits may play a role in the severity of the disorder. Less is known about cognitive function in this group of patients. Objective: To investigate associations between severity of GI symptoms and anxiety/depression, cognitive function, and personality in a group of IBS patients. Methods: The study included patients with IBS (n = 53) and a group of healthy controls (n = 34) participating in an ongoing Bergen Brain-Gut-Microbiota project. Core IBS symptoms were assessed by the IBS-SSS questionnaire, anxiety and depression by HADS, cognitive function by BRIEF-A and RBANS, and personality by NEO-FFI-3. Statistical analysis, data processing and visualisation were conducted using Python and Jupyter notebooks. Code will be available on Github. Results: Compared to healthy controls, the IBS patients reported more severe symptoms of anxiety and depression and higher scores on the neuroticism subscale from NEO-FFI-3. RBANS revealed significantly lower scores on the two memory indexes (immediate and delayed) and all BRIEF-A indexes were significantly higher in the group of IBS patients. The IBS severity measure was positively correlated with symptoms of anxiety and depression, the severity of neuroticism and the emotional control and working memory indexes from BRIEF-A. The correlations were only significantly correlated (negatively) with the delayed memory index from RBANS. Conclusion: The results suggest that temperamental, emotional, and cognitive characteristics should be assessed and considered when selecting treatment approaches for a patient with IBS.

Category:
General - Cognition
 Population - Patients
Aetiology - Other
Outcomes - Cognition, Mood
Cognitive domains / Behaviour - Personality
Methods - Quantitative

(PT-22) Cognitive deficits and neurocognitive profiles in major depression – Clinical Perspectives, targets for Treatment, Prevention, and Potential Consequences for Aging

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Background, Objective, Method, Results, Conclusion

Background: Increasingly, studies have investigated cognitive functioning from the acute state- to remitted phases of Major Depressive Disorder (MDD). Some cognitive deficits persist in remission as traits or scars and increase risk for neurodegenerative disorders. The origin and consequences of the neurocognitive profiles reported in the literature remain unclear. Deficits could influence the association between MDD and neurodegenerative disorders and, could thus be of particular clinical consequence. Objective: The aim of this poster is to outline the clinical neuropsychological profile in MDD and how research from the last decade relate it to cognitive deficits as states, traits, or scars. Method: This review with a clinical perspective investigates research from the past decade on cognitive functioning in MDD in a long-term perspective. We focus on the clinical manifestation of deficits, and the potential neurodegenerative consequences of the neurocognitive profile in MDD. Searches in Medline, PsycINFO and Embase were conducted targeting articles published between 2010-2020. Examination of the evidence for long-lasting neurocognitive deficits in major depression in Memory, Executive Functions, Attention, and Processing Speed was conducted, and interpreted in the context of the State, Scar and Trait hypotheses. Results: It is evident that the long-term neurocognitive profile in depression was explained by different profiles for different aspects of cognitive functions, and this could have consequences for risk of developing neurodegenerative disorders. Conclusion: Defining the neurocognitive profiles in MDD will have consequences for personalized evaluation and treatment of residual cognitive symptoms, and etiological understanding of mood disorders, and treatments could potentially reduce or delay the development of neurodegenerative disorders.

Category:
General - Cognition
Population - Patients
Aetiology - Depression
Outcomes - Cognition
Cognitive domains / Behaviour - General cognition
Methods - Systematic review

(PT-23) Differential effects of age and intelligence on specific cognitive functions in adult and early onset schizophrenia and other psychoses

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Background, Objective, Method, Results, Conclusion

Background The severity of cognitive deficits in schizophrenia and other psychoses may be related to the timing of illness onset and cognitive maturational processes, such as increased differentiation and specialization of specific cognitive functions. Objective To examine the impact of age and intelligence (IQ) on specific cognitive functions in schizophrenia and other psychoses. Method Patients with first episode adult or early onset schizophrenia or other psychoses (N=251) and matched healthy controls (N=305) between age 9 and 42 years were included. Measures from Cambridge Neuropsychological Test Automated Battery (CANTAB) assessed cognitive functions, and included: Reaction time (RTI), Rapid Visual Information Processing (RVP), Spatial Span (SSP), Spatial Working Memory (SWM), and Intra-extradimensional set shifting (IED). IQ was estimated using sub-scores from age-appropriate Weschler Intelligence scales. Multivariate analysis of covariance (MANCOVA) was used to examine the effects of age and intelligence on cognitive scores and interactions by group, with sex and parental socioeconomic status as covariates. Results Significant impairments were found in patients across all cognitive domains, with z-scores ranging from -1 to -2 SD (all p<0.001). The main MANCOVA showed significant overall group interaction and main effects of age and IQ on cognition. Significant group by age interactions were seen on SWM, IED, and RTI (p: 0.003 – 0.04), indicating lower performance with increased age. Significant group by IQ interactions were found on SWM and RTI tasks (p: 0.005 – 0.01), indicating stronger associations in both adolescent and adult patients across the IQ spectrum. Conclusion The results indicate increased spatial working memory deficits and a slowing of reaction times with increased age in first episode patients. The stronger association between intelligence and spatial working memory and reaction times in patients may suggest a sub-optimal maturational differentiation of cognitive functions in patients compared to healthy controls.

Category:
General - Cognition
Population - Adolescents , Adults , Children
Aetiology - Developmental disorders, Schizophrenia
Outcomes - Cognition
Cognitive domains / Behaviour - Attention, Executive function, Processing speed, Working memory, Other
Methods - Case-control study

(PT-24) Lateralization of word and face processing in developmental dyslexia and developmental prosopagnosia

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Background, Objective, Method, Results, Conclusion

Background: In right-handed adults, face processing is lateralized to the right hemisphere and visual word processing to the left hemisphere. According to the many-to-many account (MTMA) of functional cerebral organization this lateralization pattern is partly dependent on the acquisition of literacy. Hence, the MTMA predicts that: (i) processing of both words and faces should show no or at least less lateralization in individuals with developmental dyslexia compared with controls, and (ii) lateralization in word processing should be normal in individuals with developmental prosopagnosia whereas lateralization in face processing should be absent. Objective/Method: To test these hypotheses, 21 right-handed adults with developmental dyslexia and 21 right-handed adults with developmental prosopagnosia performed a divided visual field paradigm with delayed matching of faces, words and cars. Conclusion: Contrary to the predictions, we find that lateralization effects in face processing are within the normal range for both developmental dyslexics and prosopagnosics. Moreover, the group with developmental dyslexia showed right hemisphere lateralization for word processing. We argue that these findings are incompatible with the specific predictions of the MTMA but do support its key assumption regarding word and face processing being mediated by bilaterally distributed systems.

Category:
General - Cognition
Population - Adults
Aetiology - Developmental disorders
Cognitive domains / Behaviour - Vision
Methods - Quantitative

(PT-25) Effects of prenatal nutrient supplementation and early life exposures on neurodevelopment at age 10 – a randomized controlled trial.

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Background, Objective, Method, Results, Conclusion

Abstract Introduction: Nutrient deficiency and immune- and inflammatory disturbances in early life may compromise neurodevelopment and be implicated in the etiology of psychiatric disorders. However, current evidence is limited by its predominantly observational nature. COPSYCH is a research alliance between Copenhagen Prospective Studies on Asthma in Childhood (COPSAC) and Center for Clinical Intervention and Neuropsychiatric Schizophrenia Research (CINS) with the overall aim to investigate effects of prenatal and early life exposures on neurodevelopment at 10 years. COPSYCH will investigate the impact of prenatal n-3 long-chain polyunsaturated fatty acids (n-3 LCPUFA) and high-dose vitamin D supplementation on neurodevelopment reflected by brain development, neurocognition, and psychopathology. Moreover, the neurodevelopmental impact of early life exposures such as infections, low grade inflammation, and the gut microbiome will be scrutinized. Methods and analysis: COPSYCH is based on the prospective and ongoing COPSAC2010 birth cohort of 700 mother-child pairs. Randomized controlled trials (RCTs) of supplementation with n-3 LCPUFA and/or high-dose vitamin D or placebo in the third trimester were embedded in a factorial 2x2 design. This unique cohort provides deep phenotyping data from 14 previous clinical follow-up visits and exposure assessments since birth. The ongoing 10-year visit is a 2-day visit. Day 1 includes a comprehensive neurocognitive examination, and assessment of psychopathological dimensions, and assessment of categorical psychopathology. Day 2 includes acquisition of brain structural, diffusion, and functional sequences using 3 Tesla magnetic resonance imaging (MRI). Study outcomes are neurocognitive, psychopathological, and MRI measures. Ethics and dissemination: This study has been approved by the Danish National Committee on Health Research Ethics and The Danish Data Protection Agency. The study is conducted in accordance with the guiding principles of the Declaration of Helsinki. Parents gave written informed consent before enrolment.

Category:
General - Cognition
Population - Children
Aetiology - Psychopathology
Outcomes - Psychiatric symptoms
Cognitive domains / Behaviour - Memory
Methods - Interview

(PT-26) Shape-color associations are mediated by stereotypicality

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Background, Objective, Method, Results, Conclusion

In 1912, Kandinsky proposed a fundamental link between shapes and colors, where circles are associated with blue, triangles with yellow, and squares with red. These associations could not however be replicated in the general population, nor did yield any priming effect. Instead, other tendencies emerged; with the circles being yellow, triangles red, and squares blue. Albertazzi et al. (2013), widened up the number of color answers from 3 to 40 color chips, and found that Italian observers would tend to associate the circle with red and yellow, the triangle with yellow, and the square with both red and blue. Using a similar paradigm, comparable tendencies appeared in Japanese observers (red circles, yellow triangles and blue square). While some hypothesized these associations are due to environmental influences (yellow sun or triangular red traffic sign), others explored whether those shape-color associations were mediated by perceived temperature in shapes and colors. We investigate shape-color association in a novel population (i.e., Danish individuals) using a full color wheel, allowing free associations from observers. Our results reveal a significant association of the circle to red, yellow, and white; the triangle to green and yellow; the square to blue; and both the pentagon and hexagon to pink and purple. Children and teenagers seem to also associate the square to red. Overall, the most stereotypical shapes (circle, triangle and square) are associated to stereotypical colors (red, blue, green, yellow), while the non-stereotypical shapes are associated to non-stereotypical colors. Shape-color associations seem therefore mediate at the conceptual level, through stereotypicality. Our data suggest that this mediation process in already present at an early age.

Category:
General - Cognition
Population - Healthy
Aetiology - Other
Outcomes - Cognition
Cognitive domains / Behaviour - Sensory
Methods - Quantitative

(PT-27) Borderline personality disorder differ from schizotypal personality disorder in the identification of emotional facial expressions

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Background, Objective, Method, Results, Conclusion

Individuals with borderline personality disorder (BPD) and schizotypal personality disorder (SPD) show impairments in interpersonal functioning. However, while BPD is associated with unstable social relationships and emotional turmoil, SPD is characterized by social isolation and affect flattening. Reciprocal social interaction is dependent on reading the mental states in the face of others, and evidence suggests that people with BPD or SPD tend to misidentify emotional cues such as facial expressions. However, it remains unclear whether individuals with BPD and SPD read facial expressions differently. To address this question, the present study used a novel adaptive face emotion task to examine identification of emotional facial expressions in 29 individuals with BPD, 17 with SPD, and 15 with comorbid SPD and BPD (SBPD) compared to a community sample of 84 matched controls. We further explored whether face emotion identification was coupled to self-reported personality functioning on the Level of Personality Functioning-Scale (LPFS) and pathological traits on the Personality Inventory for DSM-5 (PID-5). Results showed that compared to controls, SPD and SBPD participants, individuals with BPD identified face emotions less accurately, mainly driven by reduced identification of fear. Across all participants, whole-group analyses showed that lowered ability to identify face emotions was associated with increased PID-5 Negative Affectivity and decreased level of personality functioning, while lowered ability to identify fear was associated with increased PID-5 Detachment and decreased level of personality functioning. Individuals with only SPD displayed a heightened negativity bias, while a similar trend was observed in subjects with BPD and SBPD. Whole-group analyses revealed that a higher negativity bias was coupled to increased PID-5 Psychoticism across all participants. Our findings suggest that BPD and SPD differ from each other in the identification of emotional facial expressions, which appears to be coupled with individual variations in personality functioning and pathological personality traits.

Category:
General - Cognition
Population - Patients
Aetiology - Psychopathology
Outcomes - Cognition
Cognitive domains / Behaviour - Personality, Social cognition
Methods - Cross-sectional

(PT-28) Atypical semantic memory in schizotypal personality disorder is associated with eccentric speech and thinking

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Background, Objective, Method, Results, Conclusion

Eccentric/odd speech and thinking are diagnostic criteria of schizotypal personality disorder (SPD), characterized by vague, overly detailed, metaphorical, and stereotyped language. Increased schizotypal traits have been associated with atypical semantic memory in community samples. However, no studies have yet examined whether people with a clinical diagnosis of SPD display atypical semantic memory and whether differences in semantic memory are coupled to the eccentric speech and thinking that characterize SPD. In this study, we examined verbal fluency and recall for the categories of fruits and animals in 17 individuals diagnosed with SPD, 29 with borderline personality disorder (BPD), and 15 with comorbid SPD and BPD (SBPD) compared to a community sample of 84 matched controls. We hypothesized that compared to controls and BPD participants, individuals with SPD would name more atypical category words on a verbal fluency task and recall fewer category words relative to unrelated words on a novel verbal memory test. We expected increased atypical fluency and recall for categories to be associated with the Eccentricity facet of the Personality Inventory for DSM-5 (PID-5) and the Odd Speech scale on the Schizotypal Personality Questionnaire (SPQ). Our hypothesis was partially confirmed. Individuals with only SPD displayed similar category fluency as controls and the groups with BPD and SBPD, but remembered less category words relative to unrelated words on the first immediate recall trial, though not on later recall trials. Whole-group analyses across all participants showed that reduced memory for category words relative to unrelated words was associated with increased self-reported Eccentricity on the PID-5. The decreased recall for semantically related words in some individuals with SPD suggests that they initially have trouble with implicit but not explicit use of semantic-guided strategies.

Category:
General - Cognition
Population - Patients
Aetiology - Psychopathology
Outcomes - Cognition
Cognitive domains / Behaviour - Memory, Personality
Methods - Cross-sectional

(PT-29) Color perception deficits after posterior stroke: Not so rare after all?

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Background, Objective, Method, Results, Conclusion

Background: Despite years of research on acquired deficits in color perception (cerebral achromatopsia/dyschromatopsia), there is still limited knowledge regarding the expression and prevalence of these deficits, although they are generally considered to be rare. Investigating patients with achromatopsia can provide important insights into the cortical areas involved in color perception, including the respective roles of the two hemispheres. Objective: The aim of this study was to explore color perception deficits in a large group of patients with stroke in the back of the brain. Method: The data presented are from the Back of the Brain project (BoB), a study assessing visual perception in a large group of stroke patients, recruited based on lesion location in the areas supplied by the posterior cerebral artery. 63 stroke patients as well as 44 matched controls were tested with the Farnsworth D-15 Dichotomous Color Blindness Test to assess color perception. Abnormality of performance was determined using single case statistics. In patients with abnormal performance, the lateralization of the lesions was examined and a qualitative analysis of the patterns of the patients' color difficulties was performed. Results: 27% of the patients (17/63) showed significant problems with color discrimination. Of the total patient sample, 44% of patients with bilateral lesions, 34% with left hemisphere lesions and 10% with right hemisphere lesions had significant color discrimination impairments. There was a great diversity in both the patterns and severity of the impairments. Conclusions: The results suggest that, rather than being a rare occurrence, color perception difficulties after a PCA stroke are actually rather common, and that difficulties with perceiving colors after stroke vary greatly in expression and severity. The findings also point towards a left hemispheric domination in color processing, contradicting previous reports suggesting a possible right hemispheric specialization.

Category:
General - Cognition
Population - Patients
Aetiology - Stroke /cerebrovascular

(PT-30) Cognitive functions in adults with cerebral palsy: A review

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Background, Objective, Method, Results, Conclusion

Background: Cerebral palsy (CP) is a non-progressive disorder of movement that occurs in the developing fetal or infant brain. This is often accompanied by disturbances of e.g. sensation, perception and cognition. Research has traditionally focused on the movement aspect of CP, but there is a growing interest in investigating cognitive functions. Although CP is considered a pediatric disorder, most people with CP are adults. It is well-established that cognitive functions develop and mature into adulthood, but there is little knowledge on cognitive functions in adults with CP. Objectives: To conduct a systematic review of the literature on cognitive functions in adults with cerebral palsy. Methods: We searched the Psycinfo and PubMed for literature on neuropsychological assessment and cognitive functions in adults with CP. Results: The literature search revealed a very limited amount of literature on cognitive functions in adults with CP. In general, most studies suffer from methodological limitations related to test selection, use of norms, and reporting of results. Some studies include both adults and children, but do not differentiate between the age groups in the results section. Conclusion: There is a very limited amount of knowledge on cognitive profiles of adults with CP. Ideas for future directions in research will be presented.

Category:
General - Cognition
Population - Adults
Aetiology - Cerebral palsy (CP)
Outcomes - Cognition
Cognitive domains / Behaviour - General cognition

(PT-31) A 12-week intensive cognitive training program for young adults with acquired brain injury: A pilot study.

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Background, Objective, Method, Results, Conclusion
Background: Impairments in attention and memory are a frequently reported sequelae after acquired brain injury (ABI) in adults. A number of cognitive interventions are used in Denmark and internationally, but there is still a dearth of comprehensive, standardised training programmes for attention and memory. One program which has been shown to achieve significant gains in children with ABI, is the Amsterdam Memory and Attention Training for Children (AMAT-C). AMAT-C is a 20-week, manual based training program which systematically trains attentional and memory functions.   Objective: To test a modified version of AMAT-C for adults with attention and memory deficits following acquired brain injury (ABI). The aim of this pilot study is twofold: (1) to establish whether the program is tolerable for young adults with ABI ("proof of concept" study) (2) preliminary investigate any gains in cognitive functioning after training in the small pilot group. Method: A group of 4-6 adults with ABI, aged 18 to 35 years, will participate in the AMAT-Adult (AMAT-A) intervention 5 days a week, for 12 weeks. The intervention group will be compared to a matched control group, who will not receive cognitive training in this period. Both groups will be assessed with a comprehensive neuropsychological test battery and questionnaires prior to the commencement of intervention and approximately three months later (immediately after the intervention for the treatment group).   Results: The primary outcome will be any changes in attention and memory functions (as assessed with both the neuropsychological test battery and questionnaires) in the intervention group, compared to the control group. Conclusion: The aim of this pilot study is to provide initial data on whether AMAT-A is a well-tolerated training program, whether the chosen measures of cognition are suited as progression measures, and the extent to which the program can be further improved.

Category:
General - Cognitive training
 Population - Adults
Aetiology - Neurology
Outcomes - Cognition
Cognitive domains / Behaviour - Other
Methods - Case-control study

(PT-32) TgF344-AD Rat Model: Cognitive Impairment and Hippocampal Neuropathology at age 10 months

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Background, Objective, Method, Results, Conclusion

Alzheimer's Disease is an untreatable progressive neurodegenerative disease, affecting a growing number of people as expected lifespans increase. Animal models allow for examination of the disease in vivo, thereby facilitating learning about disease etiology and testing of potential treatments. One animal model, the TgF344-AD rat model (Cohen et al., 2013), is particularly promising as these rats display more features of Alzheimer's Disease than most other animal models currently used. The TgF344-AD model seems healthy at 6 months of age but displays cognitively impairment at 15 months and neuropathological signs at 16 months. The aim of the current study was to examine spatial learning and memory and the presence of β-amyloid in the hippocampus at age 10 months, to provide a more detailed understanding of the disease development. 8 transgenic, homozygous rats (4 male, 4 female) and 8 healthy, matched wildtype controls were used in the study. Spatial learning and memory were assessed using the Barnes Maze (1979), and hippocampal sections were examined using immunohistochemical staining. No gender differences were found. No significant differences were found between the genotypes with regards to learning assessed on day 1 and 2, nor with regards to memory assessed on day 3. On day 10 the transgenic rats showed significantly impaired spatial memory. Moreover, the transgenic model had a significantly higher β-amyloid plaque load in the hippocampus than the controls. However, no significant association between the amount of β-amyloid and memory impairment was found in the study. Additionally, post-hoc tests suggested a possibility of anxiety in the transgenic rats, relative to the wildtype rats. The results add support to the utility of the TgF344-AD model as and Alzheimer's Disease model, suggesting that the rats are at a middle stage of the disease course at age 10 months.

Category:
General - Cognition, Diagnostics, mHealth , Rehabilitation
Population - Patients , Other
Aetiology - Dementia / degenerative disorders, Depression, Infectious diseases, Stroke /cerebrovascular, TBI (traumatic brain injury), Other
Outcomes - Cognition
 Cognitive domains / Behaviour - Executive function, General cognition, Memory, Processing speed, Spatial cognition, Working memory, Other
 Methods - Cross-sectional, Experimental, Survey

(PT-33) The Danish Neuropsychological Study of the adverse effects of ECT: DANSECT

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Background, Objective, Method, Results, Conclusion

Background ECT is the most efficacious treatment for patients with severe depression . Transient cognitive deficits are observed across cognitive domains after ECT treatment, resolving within two weeks after treatment completion, and some patients even exhibit improved cognitive functioning compared to pre-treatment . However, in an unknown number of individual cases, the cognitive disturbances, including autobiographical memory deficits in particular, can persist for longer periods of time, and even become permanent. It is not known why this occurs, which the current study will seek to illuminate.   Objective The aim of DANSECT is to investigate the adverse cognitive effects of ECT. Specifically, the research project aims to examine: 1. Prevalence, extent and persistence of adverse cognitive effects following ECT. 2.   Prediction of adverse effects of ECT by combining sensitive neuropsychological tests, cutting edge structural and functional neuroimaging (MRI) and other neurobiological measures. 3.   Associations between neuroimaging findings and clinical and cognitive effects. 4.   Short- and long-term mood symptoms and their association with objective and subjective cognitive effects of ECT. Method WP1 is a prospective study with the aim of examining why cognitive side-effects of ECT occur and potentially find predictors for whom they may affect by investigating the ECT-associated cognitive disturbances, structural and functional brain changes and clinical outcomes. WP1 comprises an ECT-group (n = 45) and a clinical control group (n = 45). The examinations will take place before, immediately after ECT/just before discharge, and 6 months after. WP2 is a cross sectional study with the aim of investigating the prevalence and severity of cognitive disturbances in an ECT-treated population of patients with depression (n = 200), 6 months after the treatment. WP2 additionally aims to evaluate the validity of the objective and subjective cognitive disturbances by examining the associations between cognition measured by neuropsychological tests and self-rating questionnaires.

Category:
General - Cognition, Imaging, Intervention
Population - Patients
 Aetiology - Depression
Outcomes - ADL, Cognition, Mood, Quality of life, Psychiatric symptoms
Cognitive domains / Behaviour - Attention, Executive function, Memory, Processing speed, Spatial cognition, Working memory
Methods - Quantitative, Cross-sectional, Experimental, Longitudinal

(PT-34) Psycho-social risk factors for post-stroke depression

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Background, Objective, Method, Results, Conclusion

Psycho-social risk factors for Post-Stroke Depression Introduction: Post-stroke depression (PSD) is a common complication that appears in 33% of stroke patients. PSD has negative impact on rehabilitation and quality of life, as well as increasing mortality and number of life years lost to disability. Factors contributing to under-diagnosis and insufficient treatment of PSD may include insufficient attention and inadequate screening procedures.   Objective: The objective of this rapid systematic review is to identify psycho-social risk factors for PSD with clinically relevant effect sizes, that can be used in screening for risk of PSD.   Methods: A systematic literature search in PsycInfo, Medline and Embase located 971 studies. Of these, 14 prospective cohort studies were included in the review, based on pre-specified criteria. Results extracted from individual studies was synthesized in six tables, narratively and in eight random-effects meta-analyses of ef¬fect sizes, using Prometa3 software. Risk of bias was assessed with the Newcastle-Ottawa Quality Scale for cohort studies. Level of evidence of this review was assessed with Oxford Center for Evidence Based Medicine Levels of Evidence table. Results: A total of 9 psycho-social risk factors were identified across the 14 studies. The meta-analysis indicated that negative social circumstances (ES: 0.43; 95 % CI: 0.04;0.81) and degree of physical disability (ES: 0.28; 95 % CI: 0.07;0.49) at baseline may predict PSD 3 months after stroke. There was a high level of heterogeneity between studies in methods of measurement.   Conclusion: Social circumstances should be included in screening for risk of PSD, and could be a target of prevention in patients at risk for PSD. Routinely assessed physical disability in stroke patients could be included in screening for risk of PSD. Future studies should use uniform and validated instruments for measurement and screening for risk factors for PSD.

Category:

General - Diagnostics
Population - Adults
Aetiology - Stroke /cerebrovascular
Outcomes - Psychiatric symptoms
Methods - Meta-analysis, Systematic review

(PT-35) PA self-guided online intervention for adults with ADHD

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Background, Objective, Method, Results, Conclusion

Background: There is high demand for supplementary psychological treatment options among adults with ADHD. Still, access to these treatments continue to be low. Self-guided online interventions could thus be an accessible and low-cost treatment option for this group of adults. Objective: To investigate adherence and clinical effects of a self-guided online intervention for adults with ADHD. Method: A total of 109 adults with ADHD were included in the study and given access to a self-guided online intervention consisting of seven modules focusing on breathing, inhibition, emotion regulation, planning, organization, and self-acceptance strategies. The participants completed questionnaires assessing symptoms of inattention, hyperactivity, stress, and quality of life at pre, post and three-month follow-up. Mixed linear models were used to analyze the data. Results: The mean number of completed modules was 4.6, where 74.3% participants (n = 81) completed at least three modules, and 47.7% participants (n = 52) completed all seven modules. Intention to treat-analysis showed a decrease from pre- to follow-up in self-reported levels of inattention, hyperactivity, and stress, as well improved quality of life, with moderate within-group effect sizes. Conclusion: The results supported that a self-guided online intervention serves as an effective psychological treatment option for adults with ADHD. Yet, the feasibility of the intervention is challenged by lack of sustained adherence and a high rate of dropouts. Therefore, an important step moving forward will be to examine ways to improve engagement, as this will be crucial for self-guided online interventions to be considered as a viable supplementary treatment option for adults with ADHD.

Category:
General - eHealth
Population - Adults
Aetiology - ADHD
Outcomes - Quality of life, Psychiatric symptoms
Cognitive domains / Behaviour - Attention
Methods - Quantitative

(PT-36) ADAPTIVE BEHAVIOR ASSESSMENT IN CHILDREN WITH LOW INTELLECTUAL PERFORMANCE

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Background, Objective, Method, Results, Conclusion

Background Currently, there are no standardized tests in Finland for assessing adaptive behavior when diagnosing children with intellectual disability (ID) or autism spectrum disorder (ASD) combined with intellectual disability. However, in the diagnostic process of ID measuring adaptive behavior is just as significant as assessing intellectual performance (Tassé et al., 2016). Objective The objective of the study was to determine, whether the adaptive behavior of Finnish children with ID or ASD+ID differs from developmentally normal children if the assessment is made by a parent-administered Adaptive Behavior Assessment System, 3. Edition (ABAS-3).   Method The clinical group (n=28) consisted of children between the ages of 6-18 years with diagnosed ID or ASD+ID. A selected sample of 6-18-year-old typically developed children served as a control group (n=44). Adaptive behavior was assessed using the ABAS-3 Parent form for school-aged children. All adaptive behavior measures (Communication, Community Use, Functional Academics, Home Living, Health and Safety, Leisure, Self-Care, Self-Direction, Social) were standardized and transferred into four indexes (Conceptual, Social, Practical, General Adaptive Composite). An independent-samples t-test was conducted to reveal significant differences between the subject groups. Results The scores for all four indexes (Conceptual, Social, Practical, General Adaptive Composite) were significantly lower in the clinical group than in the control group (p<0.001). Conclusion These results suggest that lower adaptive behavior of children with a clinical diagnosis of ID or ASD+ID becomes evident in parent ratings using ABAS-3. On this basis, ABAS-3 is an important assessment method for diagnosing adaptive behavior in ID and ASD in childhood. References Tassé, M. J., Luckasson, R. & Schalock, R. L. (2016). The relation between intellectual functioning and adaptive behavior in the diagnosis of intellectual disability. Intellectual Developmental Disabilities, 54, 381-390. doi: 10.1352/1934-9556-54.6.381.

Category:

General - Diagnostics
Population - Children
Aetiology - Developmental disorders
Outcomes - ADL
Cognitive domains / Behaviour - Other
Methods - Quantitative

(PT-37) Right-left asymmetry in corticospinal tract microstructure and dexterity are uncoupled in late adulthood

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Background, Objective, Method, Results, Conclusion

Background: Ageing leads to a decline in white matter microstructure and dexterous function of the hand. In adolescents, it has previously been shown that the degree of right-left asymmetry in the corticospinal tract (CST) is linearly related with right-left asymmetry in dexterity. Objective: Here, we tested whether this association is also expressed in older adults. Method: Participants completed a simple circle drawing task with their right and left hand as a measure of dexterity and underwent whole-brain diffusion weighted imaging at 3 Tesla (n = 199; aged 60 – 72 years). Fractional anisotropy and mean diffusivity of right and left CST were extracted from a manually defined region-of-interest. Linear regression analyses were computed to replicate the analyses in adolescents. Frequentist analyses were complemented with a Bayesian analytical framework. Outcome measures were compared with those previously reported in adolescents (aged 11-16 years). Results: Asymmetries in white matter microstructure of the CST were evident and comparable to the degree of lateralisation observed in adolescence. Similarly, asymmetries in dexterity were evident, but to a lesser degree than in adolescents. Unlike in adolescents, we found no evidence of a linear relationship between asymmetries in CST microstructure and dexterity. Complementary Bayesian regression analysis provided moderate evidence in favour of the null hypothesis, pointing towards a lack of association between the structural and functional measures of right-left asymmetry. Conclusion: Our findings are compatible with the notion that, by late adulthood, a diverging impact of age on white matter structure and dexterous hand function dilutes the structure-function relationship between CST microstructure and manual proficiency that has been reported in adolescents.

Category:
General - Imaging
Population - Geriatric
Aetiology - Other
Outcomes - Other
Cognitive domains / Behaviour - Motor
 Methods - Cross-sectional

(PT-38) The disconnected brain: Structural disconnectivity underlie post stroke cognitive impairment

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Background, Objective, Method, Results, Conclusion

Background: The potential devastating cognitive sequalae following a stroke calls for sensitive measures predicting post stroke cognitive impairment (PSCI). As location and size of focal lesions are only moderately predictive of the diverse cognitive outcome after stroke, recent work show promise in associating PSCI with perturbations of structural brain networks supporting cognitive functioning (de Schotten, Foulon, & Nachev, 2020; Salvalaggio, De Filippo De Grazia, Zorzi, Thiebaut de Schotten, & Corbetta, 2020). Objective: Assessing the utility of whole brain structural disconnectivity-maps and association with post stroke cognitive impairment. Methods: For 102 included stroke survivors, we estimated individual whole-brain structural disconnectivity probability maps, based on individual lesions. Cognitive performance was assessed for all participants using MoCA, and a more comprehensive neuropsychological assessment was performed on a subset (n=72). Common variance between disconnectivity-maps and cognitive performance was assessed using a multivariate approach, utilizing Partial Least Squares. Results Our findings indicated that degree of disconnectivity in right insular and frontal operculum, as well as right inferior frontal gyrus and the frontal orbital cortex was associated with poorer outcome across multiple cognitive domains. Conclusion Our results demonstrate that investigation of global structural disconnectivity induced by stroke provides a novel and sensitive measure when investigating post stroke cognitive impairment, complementing current practice. References: de Schotten, M. T., Foulon, C., & Nachev, P. (2020). Brain disconnections link structural connectivity with function and behaviour. bioRxiv, 2020.2002.2027.967570. doi:10.1101/2020.02.27.967570 Salvalaggio, A., De Filippo De Grazia, M., Zorzi, M., Thiebaut de Schotten, M., & Corbetta, M. (2020). Post-stroke deficit prediction from lesion and indirect structural and functional disconnection. Brain, 143(7), 2173-2188. doi:10.1093/brain/awaa156

Category:
General - Imaging
Population - Patients
Aetiology - Stroke /cerebrovascular
Outcomes - Cognition
Cognitive domains / Behaviour - General cognition
Methods - Quantitative, Cross-sectional

(PT-39) Evidence-based cognitive rehabilitation – investigation of clinically meaningful self-reported change after a standardized rehabilitation program, methodological challenges and clinical implications

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Background, Objective, Method, Results, Conclusion

Objective The objective of the study was to investigate treatment outcomes after a 5-week holistic cognitive rehabilitation program for patients with acquired brain injury (ABI) and explore factors associated with determination of change. Research supports holistic rehabilitation, however, the rehabilitation context influence treatment outcome and should be evaluated in the clinical context it is provided.   Method The present study was a prospective 6 months follow-up study and included 74 participants, 45 men and 29 women, 36 with stroke, 29 with traumatic brain injury and 9 with tumor. The participants completed a 5-week multidisciplinary standardized treatment program based on the ACRM Cognitive Rehabilitation Manual, including 1-week follow-up after 6 months. Outcome measures included Cognitive Failures Questionnaire (CFQ), Hopkins Symptom Checklist (HSCL-25), Rosenberg's Self-Esteem Scale (RSES) and Life Satisfaction Questionnaire (LiSat-9), administered pre-intervention and at follow-up, including significant others' ratings of the participants' awareness of illness levels (impaired vs. intact). Results No significant changes on the total scores on the measures from pre-intervention to follow-up were observed. However, significant improvements were found on 2 questionnaire items on LiSat-9; "life as a whole" (p=0.011) and "spare time" (p=0.003), 3 items on the HSCL-25 depression scale; "difficulty sleeping", "feeling hopeless towards the future" and "feeling depressed" and 5 items on the CFQ. Significant others rated awareness of illness as increased after rehabilitation. Conclusion The current study investigates treatment outcomes after a cognitive rehabilitation program and explores multiple factors associated with change. The current study highlights the importance of evaluating rehabilitation outcome in the context it is provided; bringing support to areas of effectiveness while giving attention to areas of improvements. This includes ratings of cognitive functioning, mental health, quality of life and awareness of illness, key factors in brain injury adaption. The evaluation has provided valuable information and clinical implications are described accordingly.

Category:
General - Intervention
 Population - Adults
Aetiology - Neurology
Outcomes - Quality of life
Cognitive domains / Behaviour - General cognition
Methods - Quantitative

(PT-40) Predictors of caregiver burden in caregivers of patients with traumatic or non-traumatic brain injury: a scoping review

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Background, Objective, Method, Results, Conclusion

Background: Caregivers of patients with traumatic (TBI) or non-traumatic brain injury (nTBI) are at risk of experiencing a substantial burden in social, psychological, physical, economic and emotional domains as a result of the caregiving role. To enable early identification of caregivers at risk of high burden, it is crucial to examine predictors of caregiver burden and consequently target the most vulnerable caregivers for interventions. Objective: The objective of the scoping review was to examine predictors of caregiver burden in caregivers of patients with TBI or nTBI in order to establish the relationship between caregiver burden and related factors. Method: Electronic searches were conducted in the databases PubMed, EMBASE (Ovid), and APA PsycInfo (EBSCO) up until March 2021. Studies were included if they: 1) were written in English, 2) were published later than 2000, 3) were conducted in a Western population, 4) had a quantitative research design, 5) investigated factors related to caregiver burden in caregivers of patients with TBI or nTBI. A total of 20 studies met the eligibility criteria. Results: Identified factors consistently associated with higher caregiver burden across studies included behavioral changes in the patient, patients' poor mental health, more time spent caregiving, caregiver anxiety, inadequate coping strategies, low self-efficacy, lack of social support, unmet needs, less relationship satisfaction and consensus, caregivers' substance abuse, and a low sense of coherence. Inconsistent evidence was reported regarding patient age, gender, injury severity, functional status, caregiver age, gender, marital status, depression, duration of care period, nature of the caregiver-patient relation, length of relationship, and caregiver-patient cohabitation. Conclusion: This scoping review contributes with novel knowledge about factors associated with caregiver burden. This knowledge will enable clinicians to identify vulnerable caregivers, which can guide the development of effective interventions aiming at reducing caregiver burden in caregivers of patients with TBI or nTBI.

Category:
General - Intervention, Rehabilitation
Population - Caregivers
Aetiology - MTBI (mild traumatic brain injury), Stroke /cerebrovascular, TBI (traumatic brain injury), Tumour

(PT-41) Principles and implementation of a new Danish web-app to support rehabilitation of aphasia

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Background, Objective, Method, Results, Conclusion

Background: A sufficient number of sessions with a speech therapist are usually not available. Additional computer-administered therapy might be indicated. Objective: To develop a web-based aphasia rehabilitation support system for Danish language with the following requirements: 1) content and type of training should be modifiable for each patient by the therapist; 2) a selection of ready-made content should be available to reduce the amount of time used by the therapist to prepare the training; 3) the system should adapt to the progress of the patient; 4) the therapist should be able to monitor the progress on-line; 5) training principles should be based on the scientific literature, 6) learning should be enhanced by immediate feedback during training and by repetition until mastery. Methods: In the 90s a comprehensive system ("Afasi-assistent") was developed for windows with the described requirements except the on-line requirement. A single case study of 3 patients showed an effect on anomia, specific for the trained words (1). The new system was based on this with some important improvements in addition to the on-line features, e.g.: semantic and phonemic tasks for a word could be presented in immediate succession, and a verbal response could be recorded and evaluated by the computer. Results: A beta-test was conducted from Oct. 20 to Jan. 21. 45 speech therapists participated, and numerous improvements were implemented. Examples are a semantic feature analysis and team functions letting therapists share training tasks. Conclusion: We succeeded in producing an improved online version of a system that has been in use in Denmark since the 1990s. The system is now in production. Because of the on-line nature it can be – and is indeed – continuously further developed. 1: Pedersen, Vinter & Olsen: Improvement of oral naming by unsupervised computerised rehabilitation, Aphasiology 15, 2001; 151-169

Category:
General - Rehabilitation
Population - Adults
Aetiology - Stroke /cerebrovascular
 Outcomes - Other
Cognitive domains / Behaviour - Language
Methods - Other

(PT-42) The perceived needs of primary caregivers of patients with severe acquired brain injury: A qualitative study during sub-acute neurorehabilitation

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Background, Objective, Method, Results, Conclusion

Background: Acquired brain injury (ABI) can dramatically alter the life not only of the patient with ABI but also the primary caregiver who becomes an integral part of the patient's recovery process. Consequently, it is important to understand the challenges and perceived needs of the primary caregivers. Previous research has shed light on the needs of primary caregivers throughout the neurorehabilitation process. However, the needs, especially in the sub-acute phase, are only sparsely elucidated by qualitative research and often only examined long after the patient's discharge.   Objective: The purpose of this qualitative study was to investigate the experiences and perceived needs of primary caregivers of patients with severe ABI during the sub-acute phase of neurorehabilitation.   Method: Two individual semi-structured interviews were conducted with primary caregivers of patients with severe ABI who had recently been discharged from the sub-acute phase of neurorehabilitation. These interviews were analysed using Interpretative Phenomenological Analysis (IPA) given the specific focus on the individual's subjective experience and personal understanding of their needs as a primary caregiver.   Results: The primary caregivers expressed how ABI was an unexpected and traumatic experience resulting in feelings of loss and uncertainty. They identified the needs for emotional and practical support from family and friends, information from health professionals, involvement in the patients' rehabilitation, and breaks from their caregiving role. Visitation restrictions and staff shortages caused by the Covid-19 pandemic were found to have exacerbated their feelings of loneliness and emotional distress.   Conclusion: These findings will enable clinicians to identify and meet the needs of caregivers of patients with ABI in the sub-acute phase of neurorehabilitation, including the importance of providing caregivers with emotional, informational and practical support as a means of coping with their new and unexpected caregiving role.   Keywords: acquired brain injury, primary caregiver, needs, sub-acute phase, neurorehabilitation, qualitative study

Category:
General - Rehabilitation
Population - Adults , Caregivers, Patients
Aetiology - Neurology, Stroke /cerebrovascular, TBI (traumatic brain injury)
Cognitive domains / Behaviour - Disorders of consciousness
Methods - Qualitative, Interview

(PT-43) Needs and treatment options in chronic traumatic brain injury – the "TBI community" randomized controlled trial

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Background, Objective, Method, Results, Conclusion
Background: Long-term consequences of traumatic brain injury (TBI) in areas of physical, cognitive, emotional, social, and vocational functioning have been documented extensively, and TBI is now thought of as a chronic health condition. Studies suggest many individuals experience unmet needs for health care services in the chronic phase of TBI. Goal-based rehabilitation is thought to be an optimized rehabilitation approach for these patients, as it increases patient-centeredness and allows for tailored interventions necessitated by the heterogenous sequela expected post-TBI. However, there is a need for high-quality studies of goal-oriented rehabilitation approaches in chronic TBI. Objective: Evaluation of a goal-oriented, home-based intervention for patients living with TBI-related sequela. Method: A two-group randomized controlled trial (n=120) was conducted at Oslo University Hospital, Norway. Participants had to have radiologically verified intracranial injuries in the acute phase, be ≥2 years post-injury, live at home and experience TBI-related difficulties in their everyday life. Family members could co-participate. 60 individuals were randomized to each group. The intervention group received a goal-based intervention tailored to their current TBI-related difficulties. Goal attainment was measured using Goal Attainment Scaling. Results: 59 participants completed the intervention. 154 individual goals were set among these participants relating to physical, cognitive, emotional, or social difficulties. Goal attainment was found to be high, and not dependent on functional domain. Evaluation of the overall effectiveness of the intervention is pending final data collection in December 2021. Conclusion: Individuals with TBI might need prolonged follow-up from specialized health care services, but methodologically rigorous studies of effective treatment options are still lacking. The rationale for this randomized controlled trial will be presented at the conference, as well as clinical examples from the intervention group and their goal attainment results.

Category:
General - Rehabilitation
Population - Adults
Aetiology - TBI (traumatic brain injury)
Outcomes - Other
Methods - RCT

(PT-44) BackUp! – a manual based psychotherapeutic intervention for adults with acquired brain injuries.

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Background, Objective, Method, Results, Conclusion

Background: Brain injury survivors are more likely to suffer from emotional difficulties related to or resulting from the life changing ABI. These consequences may be underpinned and maintained by high self-criticism and shame alongside an inability to self-soothe. Thus, we developed BackUp© which is a manual based short term psychological intervention for adults with acquired brain injuries. It combines elements from Compassion Focused Therapy, Cognitive Behavioral Therapy, Mindfulness and Narrative perspectives adjusted to the ABI population. Objective: This pilot study seeks to explore the feasibility and clinical potential of BackUp though a case study. Methods: This study employed a multiple baseline single case design with self-report measures. One client with moderate or severe ABI received psychological intervention according to the BackUp© programme (12 sessions). Self-report measures of depression, anxiety, quality of life, agency and self-compassion were collected pre and post intervention and at 7 months follow up and analyzed using visual inspections of descriptive analysis. A semi structured interview was conducted during the follow-up, investigating the inside perspective of the client, and his experience of the intervention. Results: Preliminary results reveal among other things decrease in symptoms of depression and increased agency at follow up. The client expressed the intervention being an important part of his rehabilitation.

Category:
General - Rehabilitation, Therapy
Population - Patients
Aetiology - Stroke /cerebrovascular
Methods - Case study/case series

(PT-45) Cognitive impairment in vascular dementia - a systematic review

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Background, Objective, Method, Results, Conclusion

Keywords: Vascular dementia, cognitive impairment, alzheimerization. Background: Vascular dementia (VaD) is the second most prevalent form of dementia with an increasing incidence. Due to the heterogeneity of the syndrome, no widely agreed-upon diagnostic criteria for VaD currently exist, with great debate and disagreements affecting the field. The neuropsychological task of uncovering cognitive impairment attributable to cerebrovascular disease is complicated by this. Objective: An exploration of the extent to which cognitive impairment, as uncovered through neuropsychological assessment, is relevant in diagnosing VaD is needed. This review set out to perform exactly such an exploration in order to provide more clarity for the clinical neuropsychologist. Method: A systematic literature search of studies performing cognitive assessment in patients with VaD was conducted via the PubMED, PsychINFO and Web of Science databases. The PRISMA guidelines were applied in searching for, extracting data from, and analysing the findings of the studies. 1274 studies excluding duplicates were initially screened, of which 35 fulfilled the predefined inclusion criteria. Results: The systematic review highlights the importance of neuropsychological assessment in diagnosing VaD. Due to the heterogeneity of the syndrome, patients with VaD are, overall, impaired in all assessed cognitive domains making it difficult to identify which cognitive domains are the most relevant to assess. Possible circular reasoning concerning memory impairment and the probable low prevalence of a pure VaD syndrome are problematic aspects affecting the research field. The review is limited by quality concerns affecting the included studies as well as a probable lack of external validity. Conclusion: VaD is a very heterogeneous syndrome which to this day is not fully understood. Cognitive impairment, as uncovered through neuropsychological assessment, is highly relevant in diagnosing VaD. References: Wiederkehr, Simard, Fortin & van Reekum (2008); Paul, Garrett & Cohen (2003)

Category:

General - Assessment/test, Cognition, Diagnostics
Population - Adults , Geriatric, Patients
Aetiology - Neurology, Dementia / degenerative disorders, Stroke /cerebrovascular
Outcomes - Cognition
Cognitive domains / Behaviour - Attention, Auditory processing, Executive function, Language, Memory, Processing speed, Spatial cognition, Working memory
Methods - Qualitative, Systematic review

(PT-46) Cerebellar Cognitive Affective Syndrome in Children with Acute Postinfectious Cerebellar Ataxia

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Background, Objective, Method, Results, Conclusion

Background Acute post-infectious cerebellar ataxia is the most common cause of acute ataxia in childhood. A previous case study has suggested that acute post-infectious cerebellar ataxia may be comorbid with the cerebellar cognitive affective syndrome. Methods Children aged three to 15 years with a confirmed diagnosis of acute post-infectious cerebellar ataxia were invited to participate. Three patients were included and assessed by a pediatrician, neuropsychologist, and logopedist at the subacute stage (less than 14 days post-onset) and after six months and one year of follow-up. Results All three children complied with the diagnostic criteria of cerebellar cognitive affective syndrome. The severity of cognitive and affective cerebellar symptoms seem to correspond to the severity of the cerebellar motor symptoms. The cognitive and affective symptoms persisted longer than the motor symptoms. Child A (girl, aged three years and eight months) was most severely affected with slow progression of motor cerebellar symptom; the cerebellar cognitive affective symptoms had not entirely remitted at one-year follow-up. Child B (boy, aged four years and four months) had more subtle motor cerebellar symptoms that swiftly remitted within the first week; the cerebellar cognitive affective symptoms were also more subtle. Child C (boy, aged seven years and eleven months) was considerably affected by motor cerebellar symptoms but showed marked improvement within the first month; the cerebellar cognitive affective symptoms had not entirely remitted at one-year follow-up.   Conclusion The cognitive affective cerebellar syndrome may be an overlooked complication of acute post-infectious cerebellar ataxia. The severity of cerebellar cognitive affective symptoms seemed to correspond to the severity of the cerebellar motor symptoms, but the improvement was remarkably slower. No single assessment method can undercover all symptoms of the cerebellar cognitive affective syndrome. A combination of objective and subjective multidisciplinary methods are needed to fully assess the cerebellar cognitive affective syndrome.

Category:
General - Assessment/test, Cognition, Diagnostics
Population - Children , Patients
Aetiology - Neurology, Infectious diseases
Outcomes – Cognition
Cognitive domains / Behaviour - Executive function, Language, Motor, Personality, Social cognition, Spatial cognition
Methods - Quantitative, Qualitative, Case study/case series, Interview, Longitudinal, Observational

(PT-47) The brain serotonin transporter is associated with cognitive affective biases in healthy individuals

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Background, Objective, Method, Results, Conclusion

Background: Affective biases describe the tendency to allocate more cognitive resources to either negative information (negative bias) or positive information (positive bias) over the other, and might be modulated by brain serotonin (5-HT). The 5-HT transporter (5-HTT) regulates 5-HT, and inhibiting the 5-HTT acutely remediates negative biases, while putatively leading to an increase in extracellular 5-HT. We here evaluate the association between the 5-HTT radiotracer, [11C]DASB, and affective biases in healthy individuals, hypothesising that higher [11C]DASB is associated with a more negative bias. Methods: Ninety-nine healthy individuals (75 females; mean age=25 years, range:18-45 years) underwent a [11C]DASB PET scan to quantify regional 5-HTT binding potential (BPND), using the MRTM2 with cerebellum as reference. Affective bias was estimated using The Emotional Identification Task subtracting the percent hit rate for sad faces from the percent hit rate for happy faces (EFIT-AB). We evaluated the association between [11C]DASB BPND and EFIT-AB in a linear latent variable model (LVM), in which a latent variable (5-HTT-LV) was modelled from [11C]DASB BPND in regions relevant for affective processing (i.e. frontal cortex, putamen, caudate, anterior cingulate cortex, amygdala). Covariates included sex, age, BMI, IQ, depression score, 5-HTTLPR, daylight minutes at PET-scan, weight-adjusted injected masse of [11C]DASB, MR-scanner and group (healthy vs remitted SAD individuals). Results: On average, the participants displayed a positive bias (EFIT-AB mean: 14%, range: -22% to 46%). We found an inverse association between 5-HTT-LV and EFIT-AB (β = -7.5% EFIT-AB per unit 5-HTTLV, CI= -12.7% to -2.0%, p<0.01). Conclusion: We found that in healthy individuals affective biases can be coupled to in-vivo 5-HTT availability in the brain. In particular, higher 5-HTT availability was associated with a more negative bias, suggesting that negative biases are associated with lower extracellular 5-HT. It should be investigated whether affective biases are related to 5-HTT in depressed populations too.

Category:
General - Cognition, Imaging
Population - Adults , Healthy
Aetiology - Other
 Outcomes - Cognition
Cognitive domains / Behaviour - Attention, Other
Methods - Quantitative