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Objective: Children born very preterm (VPT; <32 weeks gestation) are at increased risk for long-term neurocognitive sequelae such as behavioral problems. These problems may be caused by disrupted brain development, particularly white matter abnormalities that affect network efficiency, as shown via diffusion magnetic resonance imaging (dMRI). There is evidence that short-term interventions for pediatric clinical populations can lead to behavioral improvements as well as associated neuroplasticity. Adapted from a previous parenting intervention for families of young children with traumatic brain injury, the novel Building Better Brains and Behavior (B4) program teaches responsive parenting skills for families of children born preterm. It is hypothesized that parent-reported externalizing symptoms will improve from pre- to post-intervention and that these improvements will be mirrored by an increase in neural efficiency.
Participants and Methods: VPT children between the ages of 3-8 with documented behavioral problems were recruited to participate in a single-arm pilot clinical trial. Families began with a baseline visit in which the Child Behavior Checklist (CBCL) was administered as a measure of behavior problems, and the child underwent dMRI. Parents then participated in the 7-session intervention integrating self-guided, online learning modules with live virtual coaching sessions with a therapist. Twenty three participants enrolled, 15 of which completed the intervention and baseline MRI scan; 4 children were excluded from analysis due to not meeting eligibility criteria, leaving 11 participants for analysis of intervention effects (8 males, M_{age}=5.42). At program completion, families returned for a follow-up that entailed another CBCL questionnaire and dMRI scan. Eight children completed the post-intervention scan and five were retained for analysis (4 males, M_{age}=5.83). Imaging data was analyzed using the Brain Connectivity Toolbox, which generated graph theoretical metrics to characterize the topological organization of anatomical networks.
Results: A paired samples t-test showed significant reduction of externalizing behavior problems pre-intervention (M=61.12, SD=10.02) to post-intervention (M=55.00, SD=11.62; $t(10)=3.09$, $p=0.01$). At baseline, externalizing behavior problems were positively correlated with normalized clustering coefficient, $r(10)=0.59$, $p=0.04$, and small-worldness, $r(10)=0.64$, $p=0.03$. Change in externalizing symptoms pre- to post-intervention was positively correlated with baseline global efficiency, $r(4)=0.94$, $p=0.02$, and negatively correlated with mean local efficiency, $r(4)=-0.89$, $p=0.03$, and normalized characteristic path length, $r(4)=-0.89$, $p=0.03$.
Conclusions: Preliminary results indicate that VPT children who exhibit higher levels of externalizing symptoms show higher normalized clustering coefficient (which is expected of networks with less integration), and higher small-worldness (which is unexpected). Greater behavioral improvements were associated with higher baseline characteristic path length as expected, but lower baseline global efficiency; this may indicate that children who had lower global efficiency to begin with benefitted from the intervention the most. Due to the small sample size and lack of corrections for multiple comparisons, these results are not definitive and further research is needed to elucidate associations between structural connectivity and behavioral intervention in children born very preterm.

Categories: Connectomics
Keyword 1: pediatric neuropsychology
Keyword 2: prematurity
Keyword 3: connectomics
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29 Cultural Considerations for Neuropsychological Assessment and Cognitive Rehabilitation Planning in Patients Immigrating from China

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Objective: Research on healthcare disparities has found that racial and ethnic minority population were less likely to receive intensive and effective rehabilitation following an acquired

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brain injury compared to their White counterparts. Immigrant status and language barriers further perpetuate the disparities in access to rehabilitation care. In addition to institutional barriers such as absence of culturally and linguistically appropriate health materials as well as lack of cultural competency training for staff, patient factors such as dissonance in cultural value orientation to health care has been identified as a common culturally-mediated barrier accounting for lower healthcare utilization rate among immigrants. Cultural factors including health beliefs and values impact patient's self-appraisal of illness and have been studied as significant predictors for treatment adherence. The present case study seeks to demonstrate the role of socio-cultural factors in shaping the course of a Chinese immigrant patient's neuropsychological evaluation and cognitive rehabilitation following an aneurysm rupture and subarachnoid hemorrhage.
Participants and Methods: The patient is a 64-year-old, monolingual Mandarin-speaking female who was born and raised in mainland China, referred for neuropsychological evaluation for treatment planning following an anterior communicating artery aneurysm rupture and subarachnoid hemorrhage. Cognitive complaints included selective retrograde amnesia and difficulty with short-term episodic memory. Patient completed neuropsychological assessment, then underwent a course of time-limited cognitive remediation.
Results: Neuropsychological assessment was administered in Mandarin Chinese, and the majority of the tests utilized available norms from Mandarin-speaking Chinese population. While the patient continued to demonstrate at or above average functioning in aspects of executive function, she exhibited a pattern of "rapid forgetting" on modality-nonspecific learning and memory in addition to reductions in attention, working memory, psychomotor speed and visuo-perceptual integration. In the absence of mood symptoms, the patient demonstrated emotional resilience and strong family support system. Given reportedly minimal benefits from prior SLP intervention, barriers to treatment were examined and considered: linguistic factor, difficulty in holding on to information due to anterograde amnesia, and the lack of family involvement in the treatment process. In the context of Chinese family system and immigration history, family-centered care is imperative for the patient's rehabilitation process. Main treatment goals included improving awareness of cognitive deficits as well as reinforcing consistent use of external strategies to compensate for impaired orientation and memory. Flexibility in the use of evidenced-based interventions were emphasized. The patient's family were counselled in a culturally competent manner to further understand the aspects that matter the most for the patient and incorporate multi-sensory learning to facilitate intervention.
Conclusions: In this case study, we utilized culturally and linguistically appropriate norms and critically examined barriers to treatment from a contextual lens. This case highlights the role of culturally competent neuropsychological evaluation and incorporating a strength-based and multi-method approach in informing treatment planning for cognitive rehabilitation with immigrant population. Given the dearth in the existing cross-cultural literature, there is a clear need to conduct high-quality research in under-studied and under-represented immigrant populations to reduce the gap in service delivery and enhance treatment effectiveness.

Categories: Cross Cultural Neuropsychology/ Clinical Cultural Neuroscience
Keyword 1: cognitive rehabilitation
Keyword 2: cross-cultural issues
Keyword 3: stroke recovery
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30 Socially Responsible Neuropsychology (SRN) in Action: The Role of Neuropsychology in Migraine Care Among Bilingual Latina/o Patients

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Objective: Migraine is one of the leading causes of disability worldwide and a recognized contributor to health disparities with public health implications. Although migraine is a highly prevalent neurological condition, research on the cognitive manifestations of migraines is inconsistent. Studies have confirmed neurocognitive compromise during the presence of a migraine attack, with it's onset and

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