

treatment for memory disorders. Understanding how and what factors impact illness perception is a pivotal step in improving illness perception and ultimately narrowing the gap in health disparities and HS. Further work in a large demographically representative sample is needed on illness perception and how socioeconomic factors, ethnicity, and other mediators interact with its impact on HS for dementia-related symptoms.

**Categories:** Cognitive Neuroscience

**Keyword 1:** cognitive functioning

**Keyword 2:** memory complaints

**Keyword 3:** aging (normal)

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### 13 Money versus Feedback: Comparing Reward Types and Frequency on Cognitive Fatigue

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**Objective:** Cognitive fatigue (CF) is a common, yet poorly understood symptom in neurological disorders (e.g., multiple sclerosis, Parkinson's disease, stroke). Studies show that reward plays a central role in CF. For instance, introducing or increasing reward often improves task performance. It is less clear, however, how reward affects subjective (self-reported) CF (SCF). This study examined the effect of reward type (monetary or performance feedback) and frequency (infrequent or frequent) on SF.

**Participants and Methods:** In an online between-subjects study, 400 participants completed a computerized cognitive switching task and were randomly grouped into one of the five possible groups based on reward condition: [1] infrequent monetary reward, [2] frequent monetary reward, [3] infrequent performance-feedback reward, [4] frequent performance feedback reward, and [5] a no-reward group. SCF was assessed using the Visual Analog

Scale of Fatigue (VAS-F) during the task. Mixed effects models were used to estimate the influence of reward type and frequency on task performance and SCF.

**Results:** We found that the monetary groups were significantly faster ( $p < .001$ ) compared to the feedback and no-reward groups, and that the frequent group was faster ( $p = .05$ ) compared to the infrequent group. Reward type and frequency did not have a significant effect on VAS-F scores. However, when we looked at each reward group, we found that the monetary-infrequent reward group was associated with a decrease in VAS-F scores on average compared to the no-reward group ( $p = .04$ ).

**Conclusions:** The type and frequency of reward influence aspects of task performance (response time but not accuracy). Findings suggest that money had a greater effect on response time and may decrease SCF in cognitively healthy individuals when provided infrequently. Future studies should examine how these findings translate to clinical populations. Continued work is needed to understand how and which specific behavioral reward manipulations reduce fatigue, which could eventually lead to improved assessment and our ability to target fatigue across clinical populations.

**Categories:** Cognitive Neuroscience

**Keyword 1:** cognitive control

**Keyword 2:** cognitive neuroscience

**Keyword 3:** fatigue

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### 14 Title: Design of a neuropsychological battery for the detection of cognitive deficits in asymptomatic patients with low-grade glioma: a pilot study

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**Objective:** Gliomas are a group of CNS neoplasms arising from neuroglial cells with various degrees of aggressiveness. Resection of brain tumors is complex to perform without neurological sequelae due to the diffuse nature of the tumors. This study aimed to design a neuropsychological battery to examine pre-

surgical cognitive deficits in a case series of patients with LGG and to determine the post-surgical effects after resection.

**Participants and Methods:** 11 adult patients aged 19-65 years ( $38 \pm DS:15.5$ ) with a diagnosis of LGG without cognitive complaint were evaluated with a selection of specific neuropsychological tests to identify possible baseline cognitive deficits and their evolution after tumor resection. All participants completed a comprehensive neuropsychological evaluation assessing memory, language, attention, executive functions, visuospatial functions, social cognition, praxis, agnosias, functionality, mood, and quality of life. The neuropsychological battery design was based on a systematic review of the literature on surgical interventions in low-grade gliomas.

**Results:** Despite not reporting subjective cognitive complaints, patients showed deficits in multiple cognitive domains in the pre-surgical evaluation when comparing their performance with normative values adjusted for age, sex, and education. Deficits in executive functions and attention were observed: 36% presented failures in graphomotor speed (TMT A), 27% of subjects presented failures in attentional span (Direct Digit Span), working memory (Inverse Digit Span), and cognitive flexibility (Wisconsin Card Sorting Test) and 9% presented difficulties in processing speed (Trail Making Test A) and inhibitory capacity (Stroop Test). Memory: 18% of the patients showed deficits in immediate logical memory and 9% in delayed memory (Craft Story 21). Likewise, 18% of the patients presented compromise in immediate auditory-verbal learning and 27% in delayed auditory-verbal learning (Rey Auditory-Verbal Test). Language: 18% showed failures in naming (Boston 60) and 9% in comprehension (Token Test). Likewise, 27% of the patients presented difficulties in social cognition (Mind in the Eyes Test). Finally 41% of the patients reported symptoms of depression and/or anxiety in the neuropsychiatric questionnaires.

**Conclusions:** The results highlight the importance of strategically designed pre-surgical cognitive assessment for the detection and follow-up of cognitive and mood disorders associated with the location of the space-occupying lesion (LOE). The patients assessed in this study will be evaluated three months after surgery to document changes in baseline cognitive symptoms. Furthermore, in patients with lesions in the left hemisphere, an intraoperative evaluation will be performed to

minimize subsequent deficits, assessing these functions during surgery and emphasizing language.

**Categories:** Cognitive Neuroscience

**Keyword 1:** cognitive neuroscience

**Keyword 2:** neuropsychological assessment

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## 15 Socioeconomic Status in Association to Memory-Related Brain Activation in Middle-Aged Adults

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**Objective:** Socioeconomic status (SES) has been recognized as an important factor in psychological research within the last few decades. Past literature recognizes that having lower SES can have a negative impact on many aspects of one's health, especially in diseases related to brain aging. A recent avenue for research regarding SES and the brain-behavior relationship suggests that socioeconomic status can act as a moderator for brain activation during task performance. The hypothesis for this project was that there will be a negative correlational relationship between brain activity and SES when controlling for participants' age, sex, and performance on the episodic memory tasks, but a positive correlation between task performance and SES was expected.

**Participants and Methods:** With 100 middle-aged healthy adults from the Reference Ability Neural Network (RANN) study (53 male and 47 female, age  $M=48.0 \pm 7.55$  years), three episodic memory fMRI tasks were performed and studied in relation to SES and age. The tasks were Logical Memory, Word Order, and Pair Associates tasks that involved episodic memory for story details, order of words presented, and pairing of words, respectively. We quantified memory performance with average accuracy from performance of the three tasks. We used the FSL software to preprocess and perform voxel-wise group analysis. All brain activation analyses were corrected for multiple comparison using cluster thresholds in FSL.