cognitive issues. Karalyn's research has important consequences for our understanding of brain conditions that affect memory; for example, Alzheimer's disease and other forms of dementia. She has also revealed the impact of the same brain disorder on the speakers of two diverse languages, English and Japanese.

Semantic dementia (SD) is a neurodegenerative condition in the spectrum of frontotemporal dementia, and considered to be one of the main varieties of primary progressive aphasia. The question in the title of this talk will be addressed from two different perspectives. The first asks whether the *pattern* of language features observed in SD varies in any principled and significant way across different languages. English and Japanese, for example, differ in almost every component of language – phonology, syntax, written form, etc; yet the profiles of language deficit in SD patients from these two language communities are virtually identical. From this perspective, therefore, the answer is no, it does not matter which language you speak. The second question asks whether the *severity* of the language disorder in SD varies in a principled and significant way across the two languages spoken by bilingual cases of SD. A high proportion of people living in India speak two or more languages. When bilingual Indian SD patients are given the same tests in their L1 and L2 languages, of course they are impaired in both, but they show a striking advantage for L1. Furthermore, and of substantial theoretical interest, the patients' correct responses to test items in L2 are a virtually perfect subset of correct responses to the same test items in L1. From this perspective, therefore, the answer is yes, it does matter which language you are speaking. These contrasting answers to the two forms of the question follow from the following pair of hypotheses: (a) the language disorder in SD is a fairly pure reflection of a disintegrating semantic system, and (b) the semantic system is fundamentally language-independent.

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Members' Platform Presentations

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MOTOR FUNCTIONAL NEUROLOGICAL DISORDER (MFND) IN A LARGE UK MENTAL HEALTH SERVICE: CLINICAL CHARACTERISTICS, MEDICATION PRESCRIPTION AND RESPONSE TO OUTPATIENT COGNITIVE BEHAVIOURAL THERAPY

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Objective Studies on motor functional neurological disorder (mfND) often originate in neurology settings and are characterised by low sample sizes, and lack control groups. There are few prescription guidelines and no gold standard

treatments. This study aims to establish mfND patients' socio-demographic and clinical characteristics, medication prescription patterns and patients' responses to outpatient cognitive behavioural therapy (CBT).

Methods This is a retrospective case-control study of mfND patients in contact with secondary mental health services in South London and Maudsley (SLaM) NHS Foundation Trust between 2006 and 2016. Data were obtained from anonymous electronic health records using the 'Clinical Records Interactive Search' (CRIS) database. Data were extracted on socio-demographic, clinical and medication variables. Control patients were a random sample of contemporaneous psychiatric patients treated within the same Trust and were matched at a ratio of 1:2. In a separate study, we employed these methods to identify mfND patients who attended an outpatient neuropsychiatry CBT clinic in SLaM, comparing therapeutic outcomes in mfND to patients with organic neuropsychiatric disorders (ONP) treated in the same clinic.

Results Our search returned 322 mfND and 644 control patients. Weakness was the most common functional symptom. mfND patients were more likely to be female, British, married, employed pre-morbidly, to have a carer and a physical health condition, but less likely to have had an inpatient psychiatric admission or to receive benefits. There was no difference in rates of childhood sexual and physical abuse between groups. A lower proportion of mfND patients received medication compared to controls (76.6% v. 83.4%, $p < 0.05$), but of medication recipients, mfND patients were prescribed a higher number and variety of agents. We identified 98 mfND and 76 ONP patients attending the outpatient CBT service. Both groups showed significant improvements in psychological functioning post-CBT (measured with the CORE-OM, HoNOS-ABI, and PHQ-9), with physical symptoms improving in 49.4% of mfND patients. A logistic regression found acceptance of psychological formulations prior to CBT ($p < 0.02$) was associated with improvement in physical functioning in mfND patients.

Conclusions mfND patients have a distinct socio-demographic profile and are prescribed a heterogeneous array of psychotropic and somatic medications. mfND patients treated in a specialist CBT clinic show similar improvements in psychological functioning to patients with organic neuropsychiatric disorders. This study establishes the socio-demographic profile of this under-studied patient group and could help guide the development of future therapeutic interventions and inform the design of a pilot RCT.

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EFFECT OF METHYLPHENIDATE ON RISK PREFERENCE IN ATTENTION DEFICIT HYPERACTIVITY DISORDER

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Introduction Methylphenidate (MPH) is one of most commonly prescribed drug to patients with Attention Deficit Hyperactivity Disorder (ADHD). While MPH has been known to improve executive functions, its effect on impulsivity, one of the cardinal symptoms in ADHD has mixed findings in part depending on baseline. Data driven computational models such as drift diffusion model utilize behavioural measures to explain subtle changes that are not sensitive to traditional

analysis. Here, we aim to analyse risk preference in ADHD and healthy controls and the effects of MPH.

Methods Twenty-four healthy volunteers and 25 ADHD patients were tested on the 2 step sequential learning task in both MPH-ON and MPH-OFF conditions. We calculated the risk associated with each choice (variance of reward probability) and defined the choice with maximum variance as the risky one, for all 134 trials. With behavioural measures (selected choice- risky vs non-risky and response time) as inputs and risk as an independent factor, we extracted threshold (a), drift rate (v) and response bias (z) parameters using a hierarchical drift diffusion model (HDDM) for both groups during ON and OFF drug condition. Statistical analysis on the parameters was analysed using Bayesian factors.

Results Bayesian repeated measures ANOVA showed evidence for changes in response bias (z) but not in threshold and drift rate. A strong evidence for main effect of drug ($BF_{10}=6.03\times 10^{11}$), group($BF_{10}=86344$) and group by drug interaction($BF_{10}=3.65\times 10^6$) was observed. Post-hoc Bayesian independent sample t-tests showed strong evidence that the patient group had a higher preference towards the risky choice during both the ON ($BF_{10}=8.94\times 10^{14}$) and OFF ($BF_{10}=20.9$) conditions. Post-hoc Bayesian paired sample t-tests showed strong evidence for the drug to induce a preference towards the risky choice in both the HV($BF_{10}=397.1$) and ADHD($BF_{10}=1.16\times 10^{10}$) population. Behavioural results show a drug by group interaction ($F(1,0.01)=11.80$, $p=0.001$) on number of risky choices. Post-hoc analysis using paired sample t-test showed a significant increase in risky behaviour due to drug in the ADHD($t(24)=-3.5$, $p<0.005$) but not healthy subjects. No differences were found in the traditional reinforcement learning parameters between the groups.

Conclusions Using a novel analysis, we showed that ADHD subjects had a greater bias towards risk preference and further that MPH increases risk preference in both ADHD and HV with a comparatively greater effect on the patient population. Critically we observe an effect on response bias highlighting the role of *a priori* information in influencing risky decision making.

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STATE AND TRAIT INTEROCEPTION IS DISRUPTED IN FUNCTIONAL SEIZURES

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Objectives The continuity and integrity of a conscious sense of self, is proposed to be dependent upon the control of internal physiological state and its predictive representation through interoception, that is, the sensing of internal bodily changes. We investigated dissociation, interoception and their relationship, in patients with functional seizures (FS), before and after a stressor intervention.

Methods 41 participants with functional seizures (FS) and 30 age/gender matched healthy controls (HC) were assessed with the somatoform dissociation questionnaire (SDQ20),

multi-scale dissociation inventory (MDI), and the state and trait anxiety inventory (STAI). Standardized measures of interoceptive sensibility, accuracy, and awareness were acquired with the Porges Body Perception Questionnaire (PBPQ), and heartbeat discrimination (HDT), tracking (HTT) and time-tracking tasks (TTT), before and after a cold pressor test. Continuous non-invasive blood pressure monitoring was carried out before, during and after the cold pressor test. Interoceptive trait (ITPE) and state (ISPE) prediction errors, that is, the discrepancy between interoceptive accuracy and the PBPQ (trait), and trial-by-trial confidence estimates (state), were calculated before and after the cold pressor test respectively, for HTT and HDT. An autonomic prediction error (APE), or the discrepancy between the reported increase in pain and the change in blood pressure after the cold pressor, was also calculated.

Results Patients with FS differ significantly from HC for HTT, ITPE and ISPE suggesting that they are overall less interoceptively accurate and aware than HC. This is confirmed by a correlation between APE and the ISPE derived from the HDT task ($r=0.359$, $p=0.033$) in FS subjects only, after correcting for state anxiety and duration of cold pressor. Furthermore, in FS patients only, ITPE scores, adjusted for trait anxiety, correlated with SDQ-20 and MDI-depersonalization scores for both HTT ($r=0.378$, $p=0.008$; $r=0.408$, $p=0.005$) and HDT ($r=0.364$, $p=0.011$; $r=0.281$, $p=0.044$). All results survived FDR correction at a 0.05 threshold.

Conclusions These findings demonstrate that state and trait interoception are disrupted in patients with FS. The severity of the disruption in trait interoception correlates with measures of dissociation, such that the bigger the ITPE, the more severe are the dissociative traits. Similarly, the greater the ISPE, the larger the discrepancy between subjective symptoms and objective physiological changes, after a stressor intervention. Our findings suggest that the selective disruption of interoceptive processing is both a potential predisposing and precipitating factor in FS.

Members' POSTER Abstracts

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HIGH LEVELS OF ANXIETY AND DEPRESSION IN PATIENTS ATTENDING WITH HEADACHES TO A UK GENERAL NEUROLOGY CLINIC

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Objective The published literature on headache epidemiology comes from specialist headache clinics, compared to the general neurology clinic. This study set out to investigate the characteristics and diagnoses of patients with headaches attending a general neurology clinic in the UK.

Methods Data were collected retrospectively from a two-year period on 217 patients with headaches referred to a general neurology clinic at a UK district-general hospital seen by a single consultant. Clinic letters were reviewed, and information was inputted using a pre-formed Microsoft Excel spreadsheet. All data were anonymised, with no identifiable patient characteristics being recorded.

Results A total of 217 were seen in this period. The mean age was 42% and 72% were female. In 56% of cases, more than one diagnosis was made. The most frequent diagnosis