

health measures in an in-patient rehabilitation population in Scotland. Results are compared to national averages and clinical guidelines with the aims to a) benchmark physical health in this population and b) where possible improve physical health.

**Methods.** Physical health data including observations, blood tests, and investigations was collected ahead of detailed structured interviews and physical exams performed by a post-foundation doctor. These results were compared to recommendations for physical health monitoring from numerous national and government guidelines (SIGN, NICE, Scottish Government, Maudsley). Data were collected in 4 domains, 1) Indicators of physical health, 2) Engagement with physical health, 3) Concordance with guidelines and 4) Outcomes of reviews.

**Results.** Data were collected from 57 of all 62 in-patients. 34 reported being generally happy with their health vs 15 unhappy. 42% were obese (compared to 28% of the general population), 84% were smokers (vs 16% in the local population) 16% were hypertensive, 22% had raised HbA1c, 50% had raised cholesterol, 47% had QRISK >10%. 68% agreed to a full physical health review, 65% agreed to flu vaccination. Completed cancer screening uptake compared to the Scottish population was low; Cervical (30% vs 71%), Bowel (8% vs 59%), Breast (23% vs 72%), AAA (0% vs 84%). Patients were generally up to date in terms of recorded weight (100%), BP (98.2%), HR (98.2%) and lipids (89.4%), but not ECG's (61.4%) and Diabetes screening (59.6%). 17 referrals were made to medics/surgeons, 29 to MDT's, 24 medications started, 9 stopped and 27 changed, most commonly statins (12 patients), vitamin D (8 patients) and hypoglycemics (5 patients).

**Conclusion.** Cardiovascular disease indicators were notably raised, uptake of screening was very poor and there were areas where the service didn't meet national guidelines. The number of referrals and medication changes suggest an unmet need within such services. The findings, if generalisable across similar populations, suggest that more can be done to address ongoing poor physical health in populations with SMI and indeed patient readiness to comply with physical health screening. Screening for key physical health parameters needs to be augmented by working to engage patients and following up with management plans for abnormalities found.

### Impaired Grid-Like Representations at Theta Frequency in Schizophrenia

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**Aims.** Schizophrenia is a chronic brain disorder characterised by distortion of thoughts and perception. Several studies have shown a key role of the hippocampal formation in the pathophysiology of schizophrenia. Patients show impaired theta coherence between medial temporal lobe and medial prefrontal cortex (mPFC), and impairment of knowledge structuring and inferential processes. Both the hippocampal formation and mPFC contain hexadirectional modulation of activity, indicative of grid cell populations. Grid cells play an important role in mapping the environment and are believed to represent the transition structure between

task states. With other cell populations in the hippocampal formation, they play a fundamental role in inference, episodic memory, and spatial navigation. Here, we investigate whether schizophrenia is associated with disrupted grid firing patterns.

**Methods.** To test this hypothesis, we asked 18 participants with diagnoses of schizophrenia and 26 controls (matched for age, sex and IQ) to perform a spatial memory task in magnetoencephalography (MEG), while navigating a virtual reality environment. We first analysed theta (4–10 Hz) power during movement onset compared to stationary periods. We then source-localised the signal and looked for the hexadirectional modulation of theta band oscillatory activity by heading direction during movement onset. We also controlled for other symmetries in theta frequencies (four, five, and eight fold) and hexadirectional modulation in other frequencies. The same participants performed an inference task outside MEG, which we used for correlation analysis.

**Results.** The peak of theta power during movement onset was stronger in controls compared to patients ( $p < 0.05$ ). In the control group, we found hexadirectional modulation of theta power by movement direction in the right entorhinal cortex ( $p < 0.005$ ). This effect was absent in patients with a significant difference between groups ( $p < 0.05$ ), suggesting that their entorhinal grid firing patterns may be disrupted. No other symmetry modulated theta power significantly in controls or patients, and hexadirectional modulation during movement onset was found only in theta frequencies in controls. Performance in the inference task was significantly impaired in schizophrenic patients, and spatial memory performance in both controls and patients was positively correlated with their performance in the inference task.

**Conclusion.** These results are consistent with the hypothesis that impairments in knowledge structuring and inference associated with schizophrenia may arise from disrupted grid firing patterns in entorhinal cortex. Although further work is needed to better understand the role of grid cells in health and disease, this work provides new insights into dysfunction of the hippocampal formation in schizophrenia.

### Autonomic Dysregulation in Individuals With Psychiatric Disorders and Healthy Controls: Results From the CAP-MEM Observational Cohort

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**Aims.** Psychiatric disorders are associated with fatigue and with impairment to a range of cognitive domains, including executive functioning, learning, memory and complex attention. Similar impairments are seen in autonomic nervous system (ANS) dysfunction. The aetiopathogenic significance of this for psychiatric disorders is unknown. The main aim of the cap-mem study was to characterize the relationships between ANS and cognitive function in a sample of none-clinical controls and people with mental health, neurodevelopmental and neurodegenerative disorders. The potentially confounding role of medication was included within this analysis.

**Methods.** The sample was recruited via secondary care mental health trusts. ANS function was assessed using self-report measures of ANS dysfunction symptoms (COMPASS-31) and fatigue (VAFS). Cognitive ability in various domains was measured using

a validated, computerised assessment tool (THINC-IT). Psychiatric status and medication status were self-reported, and where possible, disorder severity measured using a rating scale (CGI-S).

**Results.** Participants with depression had a significantly higher COMPASS-31 and VAFS scores (higher being more severe), with effect sizes being medium to large. Medication did not fully explain the associations observed. Overall, participants with mental health disorders, when compared to healthy controls, had significantly higher levels of cognitive impairment. Levels of ANS dysfunction significantly and positively correlated with cognitive impairment. The severity of the psychiatric disorder significantly correlated with both ANS dysfunction ( $p < 0.001$ ) and cognitive impairment. These results were found across all cognitive tests ( $p < 0.05$ ), other than reaction times in the N-back test, a measure of working memory.

**Conclusion.** Our results show significant association between ANS dysfunction, psychiatric disorders and cognitive impairments. This is consistent with previously published data. There is now a need to understand the underlying mechanisms and the directionality of the associations. If these mechanisms are shared and relate to autonomic dysfunction, targeted treatments addressing this directly could be helpful with mental health disorders and associated burdensome symptoms, such as cognitive impairments and fatigue. This study is part of a wider project assessing cognitive ability and autonomic functioning in psychiatric populations, and investigating treatments that directly address autonomic dysfunction in psychiatric samples, such as non-invasive transauricular vagus nerve stimulation (taVNS).

## Mind and Spirit. Chaplaincy and Spiritual Care in Inpatient Psychiatry – a Qualitative Study

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**Aims.** Introduction. Despite society's secularisation, as of 2019 only 38.4% of the population of England and Wales identified as "No Religion". The integration of chaplaincy and spiritual care teams into health services varies widely and we undertook this qualitative research to better understand the spiritual needs on psychiatric wards.

**Methods.** Between October 2021 and January 2022, we carried out semi-structured interviews with 10 patients and 10 staff-members, convenience sampled from acute General Adult Wards. The interviews were approximately 10–15 minutes long, documented in shorthand, compiled, and analysed thematically.

**Results. Themes (P = patient, S = staff member)**

### 1. Religion and belief, or lack of it, defies categorisation

P1 (36M) identified as Christian but didn't really believe, whilst S2 (Nurse Clinical Team Leader) professed no religion but prayed that her sister would be healed. P7 (59F) was brought up Christian but thought religion was a fantasy. P2(21M) identified as Wiccan but thought all religions hold truth.

### 2. An incarnational, embodied service

P9 (33F) wished chaplains wandered around the wards and S10 (F1 Junior Doctor) praised their presence in general hospitals. P1 wanted a "prayer circle" and S5 (Student Nurse) suggested weekly worship services.

### 3. Space to "be"

S10 liked an empty chapel to think in and P4 (29M) said he was Lacking space for reflection and meditation.

### 4. Unmet needs

P9 felt abandoned by God during the admission and her vicar had recently died. She wanted someone to sit, pray with her and point her to helpful scriptures but was not aware of the existence of chaplaincy. Of the patients, only P3 knew how to contact the service and S8 said it was rarely discussed by the MDT.

### 5. Caution, ignorance and suspicion

S1 and S8 said chaplaincy visits are sometimes distressing for patients preoccupied with devils and demons and P5 (26M) was worried they'd judge him.

### 6. Links with wider faith communities

P6 (46F) would like to attend church with her family, P4(29M) would like to know where he could go to worship and S2 was also curious of what's available outside hospital.

## Conclusion. Discussion and clinical implications

Despite limitations of small size and recruitment bias, the themes emphasise the complexity of understanding someone's spirituality. It highlights a call for a more visible presence and thoughtful consideration of what a spiritual need is and how it can be met.

Ward visits should be prioritised, having recently been limited by COVID-19 restrictions. Patient information and staff education regarding chaplaincy and spiritual care is urgently needed on psychiatric inpatient wards.

## Examining the Levels of Violence in Mental Health Trusts

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**Aims.** A recent NICE report stated that there were 68,683 assaults reported by NHS staff between 2013 and 2014. 69% of these were in the mental health or learning disability setting. We sought to explore the number of violent incidents within mental health trusts across England and to understand whether the levels of violence against staff have increased, decreased, or remained the same between the years 2014 to 2019. We also looked at whether a change in bed numbers correlated with the levels of violence experienced.

**Methods.** Mental Health Trusts in England were identified, and Freedom of Information requests were sent to them. We asked for the numbers of sexual and physical violence between the years 2014 and 2020, broken down by outpatient and inpatient setting. Using bed data from NHS England we looked at whether there was a correlation with violence.

**Results.** Out of the 53 trusts we approached with freedom of information requests, 43 returned responses with data that could be used for analysis. Data sets were often incomplete, especially for the earlier years requested. The total number of violent incidents from the 43 trusts was 24,393, in the year 2014. There was an increase to 37,907 by the year 2019, which may, in part, be explained by more complete data. Over the same time period, there was a decrease in bed numbers. Average number of episodes of violence per bed increased over 2014 to 2019 from 2 to 2.5, but the increase was not statistically significant. From our data, a correlation between the decrease in bed numbers and increase in rates of violence cannot be drawn.

**Conclusion.** The high number of violent incidents within the mental health setting remain troubling, particularly when taking into account that this analysis represented only a partial data