Department of Psychology
The University of Hong Kong
香港大學心理學系

12th Departmental Research Postgraduate Symposium

4 November, 2026 | 9:15a.m. - 1:30p.m.

11/F, The Jockey Club Tower

We are pleased to announce our 12th Departmental Research Postgraduate Symposium. Our current research postgraduate students will present for their research proposals or research projects. We would like to invite you to participate in the event and show your support.

Oral Presentations:
Social Sciences Chamber
Hybrid mode

Poster Presentations:
Room 1103-1104
Face-to-Face

Meeting ID: 956 2515 1620
Password: 286383

All are Welcome

The University of Hong Kong
Department of Psychology

12th Departmental Research Postgraduate Symposium
November 04, 2026 (Wednesday)
<Social Sciences Chamber and Room 1103-04, 11/F, Jockey Club Tower, Centennial Campus>

(A) 09:15 a.m. (Opening Remarks) <Venue: Social Sciences Chamber, 11/F >
(B) 09:25 a.m. (Oral Presentations) <Venue: Social Sciences Chamber, 11/F >

No.	Time	Name of Student	Programme/ Year	Name of Supervisor	Title of Oral Presentation	Field of Study
O1	09:25a.m.-09:45a.m.	CHEN Xi, Aurelia	PhD/ Year 2	Professor Lam, Charlene Lok-man	Patterns and Potential Explanatory Pathways of Menstrual-Related Dysregulated Eating in Women with Bulimia Nervosa or Binge-Eating Disorder: A Pilot Ecological Momentary Assessment and Passive Sensing Study	Clinical Psychology, Eating Disorders
O2	09:45a.m.-10:05a.m.	CHEN Zihan	PhD/ Year 3	Professor Li, Shirley Xin	Subjective and Objective Sleep Features, and Clinical Symptoms in Older Adults with Chronic Insomnia: A Case-Control Study	Clinical Psychology, Sleep and Circadian Science
O3	10:05a.m.-10:25a.m.	HAN Xiao, Joy	MPhil/ Year 2	Professor Hu, Xiaoqing	Modulating Voluntary Memory Control of Autobiographical Emotional Memories by 5 Hz tACS in Insomnia Sleepers: A Double-Blind, Sham-Controlled Study	Cognitive Neuroscience
O4	10:25a.m.-10:45a.m.	WANG Yue	MPhil/ Year 2	Professor Cao, Fan	Fundamental and Intermodulation Frequency EEG Networks During Dual Frequency Visual Stimulation	Cognitive Neuroscience, Visual Processing, EEG, Functional Connectivity
O5	10:45a.m.-11:05a.m.	WU Yu	PhD/ Year 4	Professor Becker, Benjamin	The Neural Representation of Social Affiliation and Its Link with Drug Addiction	Cognitive Neuroscience (Reward and Addiction)
O6	11:05a.m.-11:25a.m.	YANG Shuyue, Angela	PhD/ Year 2	Professor Shao, Robin Zhengxi	A Randomized Controlled Trial Using tDCS Effects to Reduce Risk-Taking in Chronically Stressed Adults	Neuromodulation

(C) 11:30 a.m. (Poster Presentations) <Venue: Room 1103-04, 11/F>

No	Name of Student	Programme/ Year	Name of Supervisor	Title of Poster Presentation	Field of Study
PA 01	CHEN Xinxi, Cici	MPhil/ Year 2	Professor Li, Shirley Xin	Eveningness as a Moderator of Cognitive Outcomes Following CBT-I With or Without Bright Light Therapy in Youths with Comorbid Insomnia: A Secondary Analysis of A Randomized Controlled Trial	Sleep Intervention, Cognitive Performance
PA 02	GAN Run Chen	MPhil/ Year 2	Professor Lee, Tatia Mei Chun	Brain Dynamics Underpinning the Behavioural Pathology of Attention-Deficit/Hyperactivity Disorder	Neuropychology
PA 03	GAO Chenyang	PhD/ Year 2	Professor Hu, Xiaoqing	Cross-State Bidirectional Brain-Heart Coupling Supports Emotional Memory Reactivation	Neuroscience, Brain-Body Coupling
PA 04	GIRON Cristian Geovanny	PhD/ Year 2	Professor Yao, Yuanwei	Decision-Making in the Explore-Exploit Dilemma Following Intermittent Theta Burst Stimulation Over the Left Dorsolateral Prefrontal Cortex: Preliminary Evidence with the Horizon Task	Cognitive Science, Non-Invasive Brain Stimulation
PA 05	LEE Kwok Huen, Ophelia	MPhil/ Year 2	Professor Jin, Frances Jingwen	A Question of Calibration: How Individualized Perceptual Thresholds Shape Top-Down Effects in Affective Decision-Making	Cognitive Science
PA 06	LI Lok Ching, Rachel	PhD/ Year 3	Professor Kung, Karson	Sex Differences in Early Social Communication Development	Developmental Psychology
PA 07	LIAO Dan Dan, Denise	PhD/ Year 3	Professor Li, Shirley Xin	Associations of Sleep Features with Suicidal Ideation in Youth with Depression and Eveningness	Mental Health, Sleep Research

No	Name of Student	Programme/ Year	Name of Supervisor	Title of Poster Presentation	Field of Study
PA 08	QIU Yueyi	PhD/ Year 2	Professor Cao, Hongjian	Understanding the Etiology of Social Avoidance in a Digital Era: The Predictive Role of Comparison-based Social Media Use Sequentially Through Self-Critical Rumination and Fear of Negative Evaluation	Social Media Use, Social Anxiety
PA 09	TSANG Hei Lam Michelle	PhD/ Year 2	Professor Becker, Benjamin	From Anticipation to Evaluation: Multimodal Neurophysiological Biomarkers of Social Anxiety in a Naturalistic Social-Evaluative Paradigm	Social-Cognitive Affective Neuroscience
PA 10	WONG Yuk Ching, Natalie	PhD/ Year 2	Professor Li, Shirley Xin	Predictors of CBT-I Adherence in Pregnant Women: The Role of Pregnancy-Related Stress and Treatment Format	Psychology
PA 11	XU Enshuo	MPhil/ Year 2	Professor Shao, Robin Zhengxi	Brain Functional Changes of Suicidality: A Meta-Analysis of Task-based fMRI Studies	Clinical Neuropsychology
PA 12	ZHANG Hao	MPhil/ Year 2	Professor Cheng, Cecilia	Network Intervention Analysis of A School-based Gaming Disorder Prevention Program in Hong Kong Primary School Students	Gaming Disorder

No	Name of Student	Programme/ Year	Name of Supervisor	Title of Poster Presentation	Field of Study
PB 01	CHEN Si, Catherine	PhD/ Year 2	Professor Cheng, Cecilia	Digital Self-Expression in the Age of AI: A Mixed-Method Cross-Cultural Investigation	Social and Health Psychology
PB 02	JIAN Lujia	PhD/ Year 2	Professor Chang, Hue Fung Dorita	Perceptual Training of Stereoscopic Depth Perception in Mixed Reality	Neuroscience
PB 03	JIN Yujing, Fiona	PhD/ Year 4	Professor Li, Shirley Xin	Circadian Timing and Depressive Symptoms in Youths: Mediating Roles of Poor Sleep Quality and Insomnia Symptoms	Chornotype, Depression and Sleep
PB 04	LAM Kwan Yiu	MPhil/ Year 2	Professor Cheng, Cecilia	Human Obedience to AI Authority	Social Psychology
PB 05	LI Wing Yan Michelle	PhD/ Year 3	Professor Shum, Kar Man Kathy	Life Purpose, Mental Health, and Learning Motivation Among Young Adults in Hong Kong	Educational Psychology
PB 06	NAN Mu	PhD/ Year 2	Professor Luo, Andrew	Meta-Learning Enables Training Free Cross-Subject Brain Decoding	Computational Cognitive Science
PB 07	PAN Yue	PhD/ Year 2	Professor Li, Shirley Xin	Longitudinal Investigation of Arousal, Sleep, and Circadian Disturbances in Youth with Attention-Deficit/Hyperactivity Disorder (ADHD)	Clinical Psychology
PB 08	SO Shu Yuen, Leo	MPhil/ Year 2	Professor Cao, Fan	Inspecting Phonological Deficits in Developmental Dyslexia by Reading Intervention	Language Development
PA 09	WANG Jiayun	MPhil/ Year 2	Professor Yao, Yuanwei	When Is Information Enough? Belief Updating and Stopping Decisions in the Tiger Task	Computational Cognitive Neuroscience
PA 10	WANG Kaixuan, Kathy	PhD/ Year 2	Professor Lee, Tatia Mei Chun	Predicting Depression Symptom Changes Using Multimodal Passive Sensing: A Hierarchical Model Comparison Study	Digital Mental Health

No	Name of Student	Programme/ Year	Name of Supervisor	Title of Poster Presentation	Field of Study
PA 11	WONG Hei Yeung Roxanne	MPhil/ Year 2	Professor Kung, Karson	Trajectories of Empathising, Systemising and Autistic Traits in Children	Developmental Psychology

Oral Presentations Abstracts

Oral Presentation:	O1
Name of Student:	CHEN Xi, Aurelia
Name of Supervisor:	Professor Lam, Charlene Lok-man

Patterns and Potential Explanatory Pathways of Menstrual-Related Dysregulated Eating in Women with Bulimia Nervosa or Binge-Eating Disorder: A Pilot Ecological Momentary Assessment and Passive Sensing Study

Understanding menstrual-related fluctuations in dysregulated eating could help women with bulimia nervosa (BN) or binge-eating disorder (BED) anticipate periods of increased difficulty and help clinicians identify when additional support is needed and what it should target. Previous studies have found elevated binge eating (BE) and emotional eating (EE) during mid-luteal and premenstrual phase, but patterns across related eating indicators and their explanations remain unclear in clinical samples. EE, BE, overeating (OE), and loss of control (LOC) capture overlapping but distinct emotional, quantity, and control dimensions that may show different menstrual patterns. Evidence that trait negative affect interacts with ovarian hormones to predict EE, alongside reported menstrual variation in craving, body dissatisfaction, sleep, and cardiac autonomic activity, suggests several candidate pathways, but whether they would help explain menstrual-related eating patterns remains unclear. This pilot study examined menstrual-related variation in four eating indicators and their potential explanations. We hypothesized that all four eating indicators would vary across menstrual windows, potentially with different patterns, and explored whether negative affect, craving, body-image distress, sleep quality, and autonomic activity helped explain these variations.

Eighteen women with clinically diagnosed BN (N=14) or BED (N=4) completed mobile-app ecological momentary assessment (EMA) and passive sensing for 40 days. EMA included four momentary surveys daily plus morning and evening surveys assessing eating, affect, craving, body-image distress, impulsivity, sleep, and menstrual bleeding. Garmin watches provided sleep and nightly heart-rate-variability (HRV) summaries. The final dataset contained 3,009 reports (69.7% completion), a rate within the range reported in clinical EMA studies. Four calendar-estimated windows were derived from bleeding onset as day 1: mid-follicular (days 4–7; reference), perimenstrual (−3 to +2 days), mid-luteal (−9 to −5 days), and periovulatory (−15 to −12 days). Mixed-effects logistic and linear models tested within-person window differences and candidate explanatory pathways.

EE odds were significantly higher in the perimenstrual, mid-luteal, and periovulatory windows than in the mid-follicular reference window (*p*s = .023–.042) and LOC odds were higher in the perimenstrual than in the periovulatory window ($p < .05$). Negative affect was higher in all three nonreference windows (*p*s = .038–.046) and was associated with subsequent EE after accounting for menstrual window ($p = .014$). These preliminary findings support menstrual-related variation in dysregulated eating and identify negative affect as a candidate marker of vulnerability to menstrual-related EE. Clinically, cycle phase-informed psychoeducation could help patients anticipate higher-risk windows and prepare coping plans in advance (e.g., emotion-regulation and acceptance-based strategies) to help them manage transient increases in negative affect and eating urges during these periods. Larger studies across repeated, biologically verified cycles are needed to confirm these patterns and distinguish explanatory pathways.

Oral Presentation:	O2
Name of Student:	CHEN Zihan
Name of Supervisors:	Professor Li, Shirley Xin

Subjective and Objective Sleep Features, and Clinical Symptoms in Older Adults with Chronic Insomnia: A Case-Control Study

Background

Subjective-objective sleep discrepancy is often observed in insomnia, but remains underexplored in older adults. This study compared self-reported and objectively measured sleep features and clinical symptoms between older adults with chronic insomnia and healthy sleepers.

Methods

Older adults aged ≥60 years with DSM-5 insomnia disorder or healthy sleeper (ISI < 8) were recruited from the community. All participants completed seven days of wrist actigraphy and sleep diaries, alongside questionnaires assessing insomnia severity, sleep reactivity to stress, pre-sleep arousal, anxiety and depression, fatigue, chronotype and quality of life. Groups were compared using linear models adjusted for age and sex, and associations were tested with Spearman correlations.

Results

The analysis included 35 cases and 30 controls (mean age 67.8 ± 5.1 years; 77% female). Insomnia cases exhibited higher sleep reactivity ($g = 1.29$, $p < .001$), pre-sleep arousal ($g = 0.80$, $p = .010$), anxiety ($g = 0.84$, $p = .002$) and depressive symptoms ($g = 0.60$, $p = .013$), and lower quality of life ($g = -0.73$, $p = .011$). No significant differences were observed in fatigue ($p = .43$) and chronotype ($p = .45$). *Insomnia* cases reported shorter total sleep time than controls ($g = -1.09$, $p < .001$), lower sleep efficiency ($g = -1.49$, $p < .001$), longer time to fall asleep ($g = 1.02$, $p < .001$) and poorer sleep quality ($g = -1.89$, $p < .001$) based on sleep diary. In terms of *actigraphy-derived measures*, insomnia cases had more night wakings ($g = 0.75$, $p = .010$) but comparable total sleep time ($g = 0.39$, $p = .09$) and sleep efficiency ($g = -0.19$, $p = .53$) compared to sleepers. Compared with actigraphy, sleep diaries indicated that controls overestimated their sleep by 1.0 hour, whereas cases underestimated it by 0.7 hours ($g = -1.26$, $p < .001$). Greater underestimation was associated with higher insomnia severity ($\rho = .58$, $p < .001$) and higher sleep reactivity ($\rho = .41$, $p = .002$). Underestimation of sleep duration was significantly associated with anxiety ($\rho = .29$, $p = .035$), but not with depression ($p = .14$).

Conclusions

Older adults with chronic insomnia had more objectively-measured night wakings, but otherwise comparable sleep features compared to healthy sleepers. They tended to underestimate their sleep duration, particularly those with more severe insomnia and higher reactivity to stress. These findings suggest subjective sleep perception and stress-related arousal warrant attention in interventions for later-life insomnia.

Oral Presentation:	O3
Name of Student:	HAN Xiao, Joy
Name of Supervisor:	Professor Hu, Xiaoqing

Modulating Voluntary Memory Control of Autobiographical Emotional Memories by 5 Hz tACS in Insomnia Sleepers: A Double-Blind, Sham-Controlled Study

Insomnia is characterized by sleep disturbance and impaired regulation of negative affect, which may be linked to difficulties controlling emotional memories. Prior research has shown that theta-band activity indexes successful memory control. However, individuals with insomnia appear to exhibit deficits in theta activity during memory control. It remains unknown whether theta-band transcranial alternating current stimulation (tACS) can improve voluntary control over emotional memories in individuals with insomnia. Here, we addressed this question by applying 5 Hz tACS over the right dorsolateral prefrontal cortex (rDLPFC) during an autobiographical Think/No-Think (aTNT) paradigm: Participants repeatedly retrieved positive autobiographical memories and suppressed negative ones while receiving either active or sham stimulation. Questionnaire measures were collected at baseline (Day 1) before the Day 8 tACS, and at a one-week follow-up (Day 15), corresponding to one week after stimulation. Seventy-nine participants with self-reported elevated insomnia severity (Insomnia Severity Index $\geq$ 15) and depressive symptoms (Beck Depression Index $\geq$ 14) were recruited and randomly assigned to active 5-Hz tACS (F4; n = 40; 34 females; age = 22.73 ± 2.15 years) or sham stimulation (n = 39; 33 females; age = 22.82 ± 2.51 years). Our results found that active stimulation reduced self-reported vividness of negative autobiographical memories in the No-Think condition compared with sham ($p = .038$). Active stimulation was also associated with a greater reduction in rumination scores ($p = .018$). In an exploratory subgroup with higher baseline BDI scores, active stimulation was associated with a greater reduction in depressive symptoms (estimated between-group change difference = −7.20 points; $p = .036$), suggesting the improvement is more pronounced in the higher-depressed group. Taken together, these preliminary results suggest that concurrent theta-frequency tACS during the aTNT task may influence subjective and affective components of emotional memory control. This points to the potential of combining aTNT training with tACS stimulation as a possible intervention for insomnia.

Oral Presentation:	O4
Name of Student:	Wang Yue
Name of Supervisor:	Professor Cao, Fan

Fundamental and Intermodulation Frequency EEG Networks During Dual Frequency Visual Stimulation

Intermodulation responses in steady-state visual evoked potentials (SSVEPs) provide a potential marker of nonlinear visual integration, but their network interpretation requires robust evidence. We examined whether the 13.5 Hz sum-frequency response forms a distinguishable sensor-level network and exhibits coupling with the 6 and 7.5 Hz fundamentals in adult controls.

We analysed EEG from 30 adult controls during a 32-trial task involving real characters, pseudo-characters, faces, and Gestalt figures. After channel-level quality control, 29 participants contributed 870 trials, with 28 eligible for balanced connectivity analysis. Frequency-specific connectivity was estimated using the debiased squared weighted phase lag index. Average-reference and current-source-density analyses assessed spatial robustness. Multispectral phase coherence and squared bicoherence quantified local and cross-electrode intermodulation relationships. Participant-level permutations and false discovery rate (FDR) correction assessed group differences, supplemented by exploratory network-based statistics. Linear and bilinear models underwent leave-one-trial-out cross-validation to predict 13.5 Hz activity from fundamental-frequency responses.

Posterior-electrode summaries showed descriptively stronger fundamental-frequency responses than sum-frequency responses. Neither 13.5 Hz response differences nor local phase-coupling differences between real and pseudo-characters survived electrode-wise FDR correction (minimum $q = 0.0738$ and 0.7651, respectively). No individual connection showed an FDR-corrected frequency difference. Four network components exhibited lower connectivity at 13.5 Hz than at the fundamentals within individual contrasts, but remain exploratory pending cross-contrast correction and robustness assessment. Connectivity rankings were sensitive to spatial processing, with median Spearman correlations of approximately 0.20-0.26 between average-reference and current-source-density estimates. Both models yielded negative mean cross-validated R-squared values, and the bilinear model did not improve prediction.

These findings provide limited evidence for a reliable 13.5 Hz intermodulation network despite clearer fundamental-frequency responses. Weak sum-frequency responses and sensitivity to spatial processing constrain current mechanistic interpretation. Response validation, signal-to-noise control, and trial-preserving surrogate tests are priorities for establishing whether the observed coupling reflects neural integration.

Oral Presentation:	O5
Name of Student:	WU Yu
Name of Supervisor:	Professor Becker, Benjamin

The Neural Representation of Social Affiliation and Its Link with Drug Addiction

In humans, pair-bonding is experienced as romantic love and is among the most powerful and selective of motivational drives, whereas other affiliative bonds such as friendship subserve broader functions like non-kin cooperation. However, it is still debated whether the neural representation of romantic love can be distinguished from that of other social-affiliative bonds such as friendship. Beyond the adaptive role of romantic love in forming lasting bonds with positive effects on mental health, prior work has revealed behavioral similarities between romantic love and drug addiction, such as preoccupation, heightened salience of the target, and withdrawal-like states following separation or relationship breakdown. However, whether romantic love and drug addiction share a common neural representation remains unknown. By combining naturalistic functional MRI with predictive modelling, we established and validated a comprehensive whole-brain neurofunctional signature of the subjective experience of romantic love that accurately detects romantic love and reliably dissociates love from friendship at the whole-brain level, based on the dataset with an autobiographical memory paradigm (n = 52). Decoding analyses for the neurofunctional systems underlying the experience of love and friendship showed that both states engage core mesocorticolimbic reward regions (nucleus accumbens, medial prefrontal cortex) and posterior default mode network regions (precuneus), whereas love more strongly recruits dopaminergic regions implicated in reward and habit formation (ventral tegmental area, putamen) and regions supporting empathy and person-specific identity (anterior cingulate cortex, fusiform gyrus), while showing weaker engagement of lateral prefrontal regions involved in cognitive control than friendship. To rule out the explanation that the models of romantic love and friendship merely reflect nonspecific affective arousal, we examined our models in two fMRI data sets acquired during highly arousing positive and negative movie clips (n = 60 and n = 36, respectively), and showed that the two models were specific to positive valence. In a data set of drug-cue reactivity (n = 82), the love signature, but not the friendship signature, accurately detected drug-cue reactivity and distinguished heavy cannabis users from non-users, with accuracy comparable to a decoder trained directly on the addiction data. Taken together, these findings establish dissociable neurofunctional signatures of romantic love and friendship and demonstrate a common neural representation between romantic love and drug addiction.

Oral Presentation:	O6
Name of Student:	YANG Shuyue, Angela
Name of Supervisor:	Professor Shao, Robin Zhengxi

A Randomized Controlled Trial Using tDCS Effects to Reduce Risk-Taking in Chronically Stressed Adults

Chronic stress disrupts prefrontal top-down control while sensitizing subcortical reward and threat circuits, biasing decision-making toward emotionally reactive, reward-driven risk-taking. Given that stress shares neurobiological features with depression—for which transcranial direct current stimulation (tDCS) over the dorsolateral prefrontal cortex (DLPFC) has established efficacy—tDCS may offer a means of targeting stress-related behavioral dysregulation. However, the neural targets and mechanisms through which tDCS modulate stress-induced risktaking remain poorly characterized.

In a parallel, double-blind, sham-controlled trial (1:1:1 allocation), high-stress adults in Hong Kong (aged 18–40, right-handed; PSS-10 $\geq$ 25) were screened for psychiatric, substance-use (CAGE-AID), and gambling (SOGS) exclusions. Ninety-five eligible participants were randomized to active anodal tDCS over the right DLPFC (F4), the right orbitofrontal cortex (OFC; Fp2), or sham stimulation (20 minutes/session, 10 sessions over two weeks). Risk-taking was assessed at baseline, mid-treatment and post-treatment, and at 1-month and 3-month followups using the Choice Dilemma Questionnaire (CDQ) and a computerized Illusion-of-Control gambling task (IoC), alongside secondary measures of locus of control, reward/punishment sensitivity (BAS/BIS), impulsivity (BIS-11), and affect (CAS). Linear mixed models compared each active group with sham (N = 92 completers).

OFC stimulation produced the most robust and persistent effects, though in divergent directions across measures. Relative to sham, OFC stimulation significantly lowered CDQ scores at the 1- month ($b = -3.58$, $p = .047$) and 3-month ($b = -4.22$, $p = .018$) follow-ups, indicating increased self-reported risk-taking that strengthened over time. Paradoxically, on the gambling task OFC stimulation selectively reduced computer-chosen betting at 1-month (mean: $b = -6.85$, $p = .044$; non-bonus: $b = -7.16$, $p = .041$), suggesting attenuated risk-taking in external decision-making contexts. OFC stimulation also reduced positive affect at 1-month ($b = -4.50$, $p = .041$).

DLPFC stimulation showed only marginal increases in self-directed betting at 3-months ($b = 5.89$, $p = .069$). Higher post-treatment positive affect predicted reduced subsequent risk-taking ($\beta = 0.44$, $p < .001$), though formal mediation via BAS, BIS, or affect was non-significant.

OFC-targeted tDCS yielded counterintuitive results in modulation of risk-taking in high-stress adults, dissociating self-reported from behavioral risk propensity, whereas DLPFC effects were weak and delayed. These findings highlight the OFC as a promising but complex target for stress-related maladaptive decision-making and underscore the need to clarify the affective and motivational mechanisms underlying tDCS effects.

Poster Presentations Abstracts

Poster Presentation:	PA01
Name of Student:	CHEN Xinxi, Cici
Name of Supervisor:	Professor Li, Shirley Xin

Eveningness as a Moderator of Cognitive Outcomes Following CBT-I With or Without Bright Light Therapy in Youths with Comorbid Insomnia: A Secondary Analysis of A Randomized Controlled Trial

Introduction: Insomnia and eveningness commonly co-occur in youth, and both have been linked to cognitive impairments. Although cognitive behavioural therapy for insomnia (CBT-I) has been shown to improve subjective cognitive functioning, it remained unclear whether eveningness severity moderates cognitive outcomes following CBT-I, and whether adjunct bright light therapy (BLT), which additionally targets circadian factors, could provide additional cognitive benefit for those with more extreme eveningness. This study examined the moderating effect of eveningness on cognitive outcomes following CBT-I with or without adjunct BLT in youths with comorbid insomnia and an evening chronotype.

Methods: A total of 131 youths (mean age = 19.9 years, SD = 3.2; 53.4% female) with DSM-5 insomnia disorder and an evening chronotype (Reduced Morningness-Eveningness Questionnaire, rMEQ $\leq$ 11) were randomized to CBT-I plus BLT (CBT-I+BLT, N = 45), CBT-I with placebo BLT (CBT-I-BLT, N = 46), or waitlist control (N = 40). Participants were further classified into moderate eveningness (rMEQ 8-11, N = 98) and extreme eveningness (rMEQ 4-7, N = 33) for analysis. Cognitive performance was assessed subjectively by the Cognitive Failures Questionnaire (CFQ) and objectively using neurocognitive tests of working memory, episodic memory, and executive functioning. Moderating effects were examined using linear mixed models, controlling for age, gender, baseline depression, and time of testing.

Results: A significant Group X Time interaction was observed for cognitive flexibility as measured by the Wisconsin Card Sorting Test (perseverative error %, $F = 3.23$, $p = 0.003$), indicating that eveningness severity moderated treatment response. Specifically, both CBT-I+BLT ($d = -0.48$, $p = 0.027$) and CBT-I-BLT ($d = -0.43$, $p = 0.028$) were associated with significant reductions in perseverative errors in participants with extreme eveningness, but not among those with moderate eveningness. No significant moderating effects were found for other cognitive outcomes.

Conclusion: Baseline eveningness severity significantly moderated the treatment outcome on cognitive flexibility following CBT-I, with youths with extreme eveningness showing particular benefit from the intervention. These findings support eveningness severity as a treatment-relevant phenotype and highlight the potential value of phenotype-targeted intervention. While both interventions significantly reduced errors in the extreme-eveningness group, future studies with larger samples are needed to confirm whether BLT confers incremental cognitive benefit beyond CBT-I alone.

Poster Presentation:	PA02
Name of Student:	GAN Run Chen
Name of Supervisor:	Professor Lee, Tatia Mei Chun

Brain Dynamics Underpinning the Behavioural Pathology of Attention-Deficit/Hyperactivity Disorder

Attention-Deficit/Hyperactivity Disorder (ADHD) is characterized by difficulties in adapting behavior to changing multisensory environments, with individuals often demonstrating attentional and behavioral inflexibility. Most neuroimaging studies provide only static descriptions of brain connectivity and therefore are limited in their ability to capture the dynamic patterns that underlie such behavior. To address this research gap, we combined resting-state and naturalistic movie-watching functional magnetic resonance imaging data from the Healthy Brain Network and examined their co-activation patterns (CAP). Using data from individuals with ADHD without comorbidities and matched healthy controls, we sought to identify clinically relevant dynamic network signatures associated with the disorder. We observed that greater ADHD symptom severity was associated with reduced brain-state transitions, indicating increased rigidity in brain dynamics. This pattern provides a neural explanation for the difficulty in quieting internal mind-wandering while simultaneously struggling to engage with and cope with external task demand commonly observed in ADHD. Symptom expression was most pronounced during highly integrated brain states, particularly those involving the somatosensory, dorsal attention, and salience networks. These findings suggest that ADHD is better conceptualized as a brain state-dependent dynamic dysregulation rather than a disorder defined by a single static connectivity alteration. Future large-scale longitudinal studies could track how brain dynamics evolve from childhood through adulthood, clarifying whether this rigidity reflects a stable trait or a developmental lag that may shift towards more typical patterns through early intervention.

Poster Presentation:	PA03
Name of Student:	GAO Chenyang
Name of Supervisor:	Professor Hu, Xiaoqing

Cross-State Bidirectional Brain-Heart Coupling Supports Emotional Memory Reactivation

Emotional events are often remembered better than neutral events. This advantage may depend not only on neural encoding, but also on coordinated interactions between the brain and autonomic physiology. However, how central and autonomic processes coordinate during emotional memory formation and consolidation remains unclear. We recorded EEG and electrocardiography (ECG) during positive and neutral cue-picture sequence encoding, REM sleep targeted memory reactivation (TMR), and post-sleep retrieval. Time-varying brain-to-heart and heart-to-brain coupling was estimated using the Synthetic Data Generation model. Coupling was quantified across low- and high-frequency heart-rate variability components and four EEG frequency bands, allowing frequency-specific effects to be compared. The most stable valence effect involved brain-to-heart coupling between high-frequency heart-rate variability and alpha-band activity. Positive sequences showed stronger coupling than neutral sequences over fronto-central channels during wakeful encoding, and the same direction-frequency profile emerged over posterior channels during REM sleep. These effects were not explained by EEG power or heart-rate variability alone. Classification analyses indicated that brain-to-heart features contained information that differentiated positive from neutral conditions, whereas evidence from heart-to-brain features was weaker. Cross-state analysis showed that positive transfer within the high-frequency alpha cluster exceeded matched random-channel controls, whereas neutral transfer was not significant. This selective transfer pattern supports the reactivation of a positive-related coupling representation rather than a nonspecific similarity across states. Stronger positive transfer during sleep was also associated with stronger transfer during post-sleep retrieval. Positive transfer predicted positive-relative-to-neutral memory retention, while the sleep coupling difference predicted next-day recognition performance. Although these behavioral associations were exploratory, their direction suggests that the physiological pattern may be relevant to emotional memory. These findings suggest that a positive brain-to-heart alpha-band memory trace is reactivated during sleep and linked to later memory.

Poster Presentation:	PA04
Name of Student:	GIRON Cristian Geovanny
Name of Supervisor:	Professor Yao, Yuanwei

Decision-Making in the Explore-Exploit Dilemma Following Intermittent Theta Burst Stimulation Over the Left Dorsolateral Prefrontal Cortex: Preliminary Evidence with the Horizon Task

Background

Decision-making under uncertainty is central to adaptive behavior and is disrupted in mental health conditions, such as depression and addiction. The explore-exploit dilemma is a well-characterized instance of this process, requiring individuals to choose between exploiting a known, higher-valued option and exploring a more uncertain, informative option. The Horizon Task quantifies this trade-off by manipulating decision horizon and uncertainty to dissociate directed information-seeking exploration from random exploration. This study investigated whether intermittent theta burst stimulation (iTBS) over the left dorsolateral prefrontal cortex (lDLPFC) alters exploration under uncertainty. The lDLPFC is a common therapeutic neuromodulation target implicated in value-based decision-making and emotion regulation, processes relevant to the explore-exploit dilemma. We hypothesized that iTBS-lDLPFC would selectively increase information-seeking compared with iTBS-vertex.

Methods

Healthy participants who passed TMS safety screening completed counterbalanced iTBS-lDLPFC and iTBS-vertex sessions in a within-subjects design. A 600-pulse iTBS protocol was delivered at 70% resting motor threshold. After stimulation, participants completed self-report measures of state anxiety and behavioral initiation apathy, then the Horizon Task. In the task, directed exploration was measured as choosing the more informative option, and random exploration was measured as choosing the lower-mean option when options were equally informative. Trial-level data were analyzed using separate logistic mixed-effects models predicting directed and random exploration choices. Both models tested the effects of horizon, stimulation site, and their interaction, with participant-level random effects and covariates for session order and task variables. Computational model parameters were analyzed using linear mixed-effects models. Post-stimulation self-report measures were compared between stimulation conditions using paired-samples t tests.

Results

Twenty-four participants completed both stimulation sessions. Trial-level logistic mixed-effects models showed strong horizon effects for directed exploration (OR=5.77, 95% CI [2.62, 12.7], $p<0.001$) and random exploration (OR=3.25, [2.01, 5.23], $p<0.001$). The horizon-by-site interaction was not significant for directed exploration (OR=1.25, [0.84, 1.87], p=0.273), but was significant for random exploration (OR=1.66, [1.03, 2.68], p=0.037), indicating a larger trial-level horizon-related increase in random exploration after lDLPFC-iTBS. However, participant-level paired comparisons did not confirm this effect. Computational modeling showed significant horizon effects on information bonus and decision noise parameters, but no significant stimulation-site effects or horizon-by-site interactions. Self-report state anxiety and behavioral initiation apathy did not significantly differ between stimulation conditions.

Conclusions

The Horizon Task reliably detected horizon-dependent increases in directed and random exploration, but acute stimulation effects were null or inconsistent. These preliminary findings suggest that single-session iTBS-lDLPFC may not alter exploration in the Horizon Task.

Poster Presentation:	PA05
Name of Student:	LEE Kwok Huen, Ophelia
Name of Supervisor:	Professor Jin, Frances Jingwen

A Question of Calibration: How Individualized Perceptual Thresholds Shape Top-Down Effects in Affective Decision-Making

Images of facial expressions are extensively used to examine how top-down information influences perceptual decisions about emotional content. In studying the effect of top-down processing on perceptual-decision making tasks, prestimulus cues can establish an attentional or perceptual set without predicting the expression of the upcoming face. However, interpreting cue-related effects requires considering the bottom-up sensory evidence available during target discrimination. The present study examines whether the procedure used to select target contrast affects the observed pattern of cue-guided discrimination of fearful and neutral faces. Fixed-contrast presentation standardizes physical contrast, but a common contrast level may produce unequal baseline discrimination performance across observers, potentially placing some near floor or ceiling. Such differences may complicate the interpretation of both significant and null cue effects because the opportunity to detect changes in performance may conflate with baseline difficulty. Participant-specific calibration on the other hand adjusts contrast to target a predefined accuracy criterion. Comparing these approaches can therefore assess whether the pattern of cue-related effects differs when stimuli are presented at a common physical contrast versus contrasts selected to achieve approximately matched baseline performance.

In our design, participants will complete two sessions on separate days, with session order counterbalanced. In the fixed-contrast session, fearful and neutral targets will be presented at a predetermined contrast value. In the calibrated session, an adaptive psychophysical procedure will determine participant-specific target contrasts corresponding to 75% accuracy per each expression. Each trial will begin with an F or N cue, indicating that participants should make a fear/not-fear or neutral/not-neutral decision, respectively. Fearful and neutral faces will occur with equal probability following either cue. The cues therefore specify the expression relevant to the subsequent decision without providing information about the probability of that expression.

The primary analysis will examine whether the difference in perceptual sensitivity between fear-cued and neutral-cued decisions varies between contrast-setting protocols. Decision criterion will also be examined to distinguish changes in discrimination sensitivity from changes in response tendency. The study tests whether cue effects' magnitude or pattern depends on the target's physical presentation. Because calibration is accompanied by differences in task exposure and session context, observed between-session differences will not be attributed exclusively to contrast calibration. The findings will inform the interpretation of top-down cue effects in affective perceptual decision-making by examining whether conclusions differ under physically standardized versus performance-calibrated presentation. This comparison addresses the methodological question of whether matching physical contrast is sufficient for the intended inference, or whether differences in baseline discrimination performance must also be considered when interpreting cue-related outcomes.

Poster Presentation:	PA06
Name of Student:	LI Lok Ching, Rachel
Name of Supervisor:	Professor Kung, Karson

Sex Differences in Early Social Communication Development

Human infants generally show an affinity for social stimuli and communicative cues. Over the first three years of life, social communication develops rapidly as children acquire verbal and nonverbal skills and attain important social communication milestones. This early period lays the foundation for later social communication development. Delays or non-typical patterns in these milestones may indicate risk for developmental challenges.

Average sex differences in social communication have been observed in both neurodiverse and general populations. Neurodevelopmental conditions involving social communication difficulties are more often diagnosed in males than in females. For instance, autism is diagnosed more frequently and at an earlier age in males than in females. In non-clinical populations, males tend to score higher than do females on measures of autistic traits. Average sex differences in social communication have been found not only in broad measures but also in narrow constructs. Eye contact, a foundational aspect of social communication, shows early sex differences, with studies suggesting that girls on average engage in longer and more frequent eye contact than do boys starting from infancy. Similarly, girls on average have a larger expressive vocabulary than do boys during the first few years of life.

Although existing evidence indicates that sex differences in social communication emerge early in life, research examining sex-specific longitudinal developmental patterns remains limited. The current research project is a longitudinal investigation of social communication development with two primary aims. First, it examines the potential sex-specific developmental trajectories of social communication. Second, it adopts a biosocial approach to identify sex-related factors contributing to social communication development, specifically considering postnatal testosterone and parental input.

This project recruited and followed 472 children from age 1–3 months to age 36 months across 4 time points. Saliva samples were collected at 1–3 months of age, the presumed critical period known as “mini-puberty”, for testosterone assays. Using both parent reports and laboratory observations, outcomes related to social communication, including autistic traits, eye contact, and expressive vocabulary, were repeatedly measured at 12, 24, and 36 months of age. Parental input was also assessed longitudinally. Findings from this project will advance understanding of how early social communication develops, the factors that contribute to it, and the role of sex in these processes.

Poster Presentation:	PA07
Name of Student:	LIAO Dan Dan, Denise
Name of Supervisor:	Professor Li, Shirley Xin

Associations of Sleep Features with Suicidal Ideation in Youth with Depression and Eveningness

Background: Increased eveningness and sleep disruption are commonly observed in youth with depression. Despite their co-occurrence, how specific sleep and circadian features are related to suicidal risk in this population remains unclear. Most previous clinical studies have relied on retrospective, single-point surveys, leaving uncertainty about whether prospective daily sleep diaries offer additional or distinct insight into suicidal risk. The present study evaluated the associations of questionnaire-derived and diary-based sleep parameters with suicidal ideation in depressed youth with an evening chronotype.

Methods: We analyzed baseline data from a randomized controlled trial involving 166 youth with depression and eveningness (mean age: 19.43 years, 75.3% female). Participants completed self-report questionnaires, including the Beck Scale for Suicide Ideation (BSSI), Beck Depression Inventory (BDI), and Hospital Anxiety and Depression Scale (HADS). Sleep characteristics were measured by the Pediatric Daytime Sleepiness Scale (PDSS), Pre-sleep Arousal Scale (PSAS), Pittsburgh Sleep Quality Index (PSQI), and Insomnia Severity Index (ISI). Subjective and objective sleep parameters were assessed prospectively over 7 consecutive days using a sleep diary and wrist actigraphy, respectively. Bivariate correlation analyses were used to explore the relationship between sleep features and suicidal ideation (BSSI scores). A hierarchical regression model was further used to evaluate the association of sleep parameters with suicidal ideation, controlling for age, sex, and overall depressive symptoms (BDI total score excluding the suicidality item).

Results: Higher BSSI scores were correlated with greater pre-sleep cognitive arousal (PSAS_C: $r = 0.190$, $p = 0.015$), higher daytime sleepiness (PDSS: $r = 0.165$, $p = 0.034$), poorer overall sleep quality (PSQI: $r = 0.327$, $p < .001$), lower retrospectively assessed sleep efficiency (PSQI sleep efficiency: $r = -0.278$, $p < .001$), and later sleep diary-derived bedtime ($r = 0.189$, $p = 0.015$). In the regression model controlling for covariates, both daytime sleepiness (PDSS: $\beta = 0.206$, $p = 0.025$) and later sleep diary-derived bedtime ($\beta = 0.176$, $p = 0.042$) remained significant factors associated with suicidal ideation.

Conclusion: In depressed youths with an evening chronotype, both greater daytime sleepiness and later bedtime are uniquely associated with greater suicidal ideation, independent of overall depression severity. These findings suggest that sleep timing and daytime sleepiness may serve as potential modifiable targets for suicide prevention in depressed youth. Future research may explore whether advancing sleep schedule and alleviating daytime sleepiness could improve clinical outcomes in this population.

Poster Presentation:	PA08
Name of Student:	QIU Yueyi
Name of Supervisor:	Professor Cao, Hongjian

Understanding the Etiology of Social Avoidance in a Digital Era: The Predictive Role of Comparison-based Social Media Use Sequentially Through Self-Critical Rumination and Fear of Negative Evaluation

Social avoidance and distress is a key affective-behavioral component of social anxiety. In the digital era, social media use in general has been widely examined as an antecedent to social avoidance and distress, but findings still remain equivocal and the proximal mechanisms underlying this association are poorly understood. This study moved beyond social media use as a broad construct to specifically focus on the role of comparison-based social media use (ComSMU) in predicting subsequent social avoidance and distress symptoms, with self-critical rumination and fear of negative evaluation tested as sequential mediators. Four-wave longitudinal survey data were collected from 201 Chinese young adults (80.1% women; Mage = 23.49 years, SDage = 3.294). Results of path model analyses indicated that ComSMU at Time 1 was indirectly associated with greater social avoidance and distress to new and to general peers or situations at Time 4 sequentially through firstly greater self-critical rumination at Time 2 and then greater fear of negative evaluation at Time 3 (to new peers or situations: B = .016, 95% CI [.003, .037], β = .028; to general peers or situations: B = .008, 95% CI [.001, .024], β = .013). Further, such sequential indirect effect was stronger for social avoidance and distress to new peers or situations than to general peers or situations. Notably, all effects were identified after controlling for the baseline levels of mediators and outcomes. Our findings extend a classical cognitive-behavioral model of social anxiety to the digital context by clarifying how and why ComSMU may be a specific and salient form of social media use that could contribute to the development of social avoidance and distress symptoms over time. The identified proximal cognitive processes might be targeted in educational and clinical practices aimed at addressing young adults' social withdrawal in the digital era.

Poster Presentation:	PA09
Name of Student:	TSANG Hei Lam Michelle
Name of Supervisor:	Professor Becker, Benjamin

From Anticipation to Evaluation: Multimodal Neurophysiological Biomarkers of Social Anxiety in a Naturalistic Social-Evaluative Paradigm

Social anxiety disorder, characterized by persistent fear of negative social evaluation, is among the most common and debilitating anxiety disorders, yet nearly half of affected individuals do not respond to first-line treatments. A further challenge is the substantial heterogeneity across individuals in emotion regulation, threat appraisal, and autonomic arousal — processes that unfold dynamically in day-to-day situations but remain undercharacterized and insufficiently addressed by current therapeutic approaches. Addressing this gap could benefit from precise, objective biomarkers capturing individual differences in social anxiety mechanisms in ecologically valid contexts, which could refine existing therapeutic approaches and support the development of novel technology-based tools for monitoring and intervention.

The present project aims to develop a multimodal approach to identifying candidate neural and physiological biomarkers of social anxiety using a naturalistic paradigm, combining functional near-infrared spectroscopy (fNIRS) with peripheral biosignals, including electrocardiography-derived heart rate and heart rate variability measures, respiration, and electrodermal activity. The study will compare individuals with high and low trait social anxiety through a social-evaluative paradigm conducted in a simulated live video-conference interview setting, aimed at capturing neurophysiological correlates of social anxiety as it unfolds across successive phases of social-evaluative threat.

Sixty healthy individuals will undergo a novel paradigm adapted to increasingly digital interactions, consisting of a speech presentation followed by a modified rating task and an additional evaluation component. The paradigm progresses from anticipatory concerns centered on self-performance, then positively- and negatively-valenced feedback on performance-related statements, and ends with direct feedback designed to evoke further negative evaluation. This design enables examination of anticipatory, self-evaluative, and socially mediated components of social anxiety, and allows use of concurrent neural and physiological signals to identify group-level patterns and individual-specific patterns associated with subjective anxiety.

This project is expected to yield candidate multimodal biomarkers that capture social anxiety in close-to-real-life social situations. Identification and subsequent validation of objective, ecologically grounded biomarkers would provide a foundation for translational applications, including real-time anxiety monitoring in naturalistic settings and personalized interventions such as neurofeedback training optimized to individual neurophysiological patterns. Ultimately, these findings could inform the future development of neuroscience-informed treatments for social anxiety disorder.

Poster Presentation:	PA10
Name of Student:	WONG Yuk Ching, Natalie
Name of Supervisor:	Professor Li, Shirley Xin

Predictors of CBT-I Adherence in Pregnant Women: The Role of Pregnancy-Related Stress and Treatment Format

Introduction: Pregnant women represent a unique population with vulnerabilities to mood disturbances, insomnia and stress (Palagini et al., 2019). Past research has shown that more severe mood and insomnia symptoms at baseline predicted poorer treatment adherence in cognitive behavioural therapy for insomnia (CBT-I) (Manber et al., 2011). However, research on treatment adherence in pregnant women remains limited. This study aimed to examine whether mood, insomnia, stress and treatment format could predict adherence in pregnant women receiving CBT-I.

Methods: 73 pregnant women with DSM-5 insomnia disorder and ISI score ≥ 8 participated in a 6-session CBT-I programme delivered either in a group-based (age: 34.9± 3.23 years, gestation week: 25.7 ± 4.53) or App (age: 34.3 ± 3.23 years, mean gestation week: 25.7 ±5.58) format. They completed questionnaires assessing perinatal stress (Pregnancy Stress Rating Scale, PSRS), perinatal depression (Edinburgh Postnatal Depression Scale, EPDS), and insomnia severity (Insomnia Severity Index, ISI) at baseline. Adherence was evaluated using the Treatment Components Adherence Scale. Linear regression models were conducted for each adherence outcome, with EPDS, ISI, PSRS as independent variables and age as a covariate.

Results: Improvement in insomnia symptoms was significantly associated with overall treatment adherence, the model for cognitive adherence showed a significant overall fit ($R = 0.401$, $R^2 = .161$, $F(5,67) = 2.56$, $p = 0.035$). Higher pregnancy-related stress was associated with poorer adherence to cognitive elements ($\beta = -0.01$, $p = 0.013$); compared to App, group CBT-I was associated with better cognitive adherence (β=0.39, p=0.037). The model for behavioural adherence was not statistically significant ($R = 0.319$, $R^2 = 0.102$, $F(5,67) = 1.52$, $p = 0.195$).

Conclusions: The findings suggest that both the format of therapy and pregnancy-related stress may influence adherence to the cognitive elements of CBT-I in pregnant women. Elevated pregnancy-specific stress may amplify worries that hinder engagement in sleep-related cognitive restructuring. Future research may explore the potential effects of tailoring sleep intervention to address pregnancy-specific stress and whether such adaptations could enhance treatment adherence and improve clinical outcomes.

Poster Presentation:	PA11
Name of Student:	XU Enshuo
Name of Supervisor:	Professor Shao, Robin Zhengxi

Brain Functional Changes of Suicidality: A Meta-Analysis of Task-based fMRI Studies

Suicidal ideation and behaviour represent major mental health concerns and are associated with substantial mortality. Although accumulating evidence has identified alterations in brain function associated with suicidality, their neural underpinnings remain unclear, possibly due to substantial methodological heterogeneity across studies. Therefore, we conducted a preregistered meta-analysis of 22 task-based functional magnetic resonance imaging (fMRI) studies comparing individuals with suicidality (N = 459, 63.83% female) with non-suicidal psychiatric controls (N = 681, 52.72% female). Separate analyses were conducted in the emotion and non-emotion task domains. Subgroup and meta-regression analyses were further performed to address methodological heterogeneity, including psychiatric diagnosis, suicidal phenotype (ideation vs. behaviour), and task type. During emotion-processing tasks, general suicidality and suicide behaviours were specifically associated with greater activation in the left sensorimotor cortices and hippocampal/parahippocampal regions, together with reduced activation in the bilateral visual cortices. However, only reduced activation in visual regions was consistently replicated across all subgroup analyses. During non-emotion tasks, both general suicidality and suicidal behaviours were associated with greater activation in the left precentral gyrus and right middle temporal gyrus, and these findings were consistently replicated across all subgroup analyses. Meta-regression analyses further indicated greater suicidality-associated functional alterations in frontotemporal regions among studies with higher proportions of female participants, as well as greater alterations in hippocampal and temporal regions among studies with older participants. Collectively, these findings suggest that blunted perceptual emotion processing and heightened motor-system reactivity may represent key neural features of suicidality, which may inform the potential neural targets for interventions on suicidal individuals.

Poster Presentation:	PA12
Name of Student:	ZHANG Hao
Name of Supervisor:	Professor Cheng, Cecilia

Network Intervention Analysis of A School-based Gaming Disorder Prevention Program in Hong Kong Primary School Students

Background and aims: The growing prevalence of gaming disorder has prompted the emergence of early prevention programs. While previous evaluations assessed overall efficacy, the specific symptom-level changes following program participation remain unknown. This study addressed the gap using network intervention analysis (NIA) to investigate how a newly validated prevention program, the Digital Netizen Alliance, was associated with changes in the network components of gaming disorder symptoms.

Methods: In a school-clustered design, a sample of 600 Chinese Primary 4 to 6 students (48% female, age range: 9-12) was randomly assigned to either the intervention or waitlist condition. Participants completed validated questionnaires at baseline and three-month follow-up.

Results: Within this school-clustered intervention context, the NIA revealed that program participation was related to reductions in three symptoms: gaming-driven affirmation dependence, craving, and jeopardizing relations. The analysis further showed reductions in three other symptoms: loss of interest, social escapism, and impaired control.

Discussion: This study presents the first application of NIA to examine patterns of symptom change following a gaming disorder prevention program. Unlike conventional approaches that evaluate effectiveness through overall outcome comparisons, our findings highlight which specific symptoms were greatly reduced and how these changes were associated with improvements in other symptoms. These insights demonstrate the value of NIA as a complementary evaluation approach for elucidating the cognitive-behavioral processes related to preventive change.

Poster Presentation:	PB01
Name of Student:	CHEN Si, Catherine
Name of Supervisor:	Professor Cheng, Cecilia

Digital Self-Expression in the Age of AI: A Mixed-Method Cross-Cultural Investigation

The increasing integration of generative artificial intelligence (GenAI) into digital communication raises important questions about how individuals construct, maintain, and express their identities online. Although authenticity and adaptability have traditionally been conceptualized as competing demands in digital self-presentation, emerging research suggests that authenticity may also be maintained through human judgment and revision of AI-assisted content. This two-study project investigates the psychological and cultural processes underlying digital self-expression, with particular attention to the implications of AI-mediated expression for identity and well-being.

Study 1 employed a qualitative approach combining semi-structured interviews, guided digital-platform tours, and complementary survey measures among 61 adults from the United States (n = 29) and China (n = 32). Participants described their identity expressions across interpersonal, social, and professional platforms. Preliminary thematic analyses identified two overarching themes: maintaining self-congruence through audience-sensitive adjustment and managing selective visibility through disclosure and withdrawal. Findings suggest that authenticity and adaptability are not necessarily opposing strategies; individuals frequently adjust their self-presentations according to anticipated audiences while maintaining a sense of personal authenticity. Cross-cultural differences emerged in the underlying motivations, with American participants emphasizing self-verification and Chinese participants emphasizing relational harmony and audience expectations. Complementary survey findings indicated higher reported online authenticity among American participants, whereas differences in adaptability were not statistically significant.

Study 2 extends these findings by examining how GenAI-mediated digital self-expression relates to psychological functioning across personal, relational, and role-based contexts. A cross-cultural survey targeting approximately 1,200 regular large language model users from the United States and China will assess varying degrees of AI involvement in self-expression, alongside psychological ownership, sense of agency, online authenticity, adaptability, self-concept clarity, impostor feelings, psychological distress, and life satisfaction. The study will investigate domain-specific and cross-cultural differences in AI-mediated expression and examine whether psychological ownership and agency account for associations between AI involvement, identity-related experiences, and psychological well-being.

Together, these studies aim to advance an integrated understanding of digital identity expression by examining how cultural expectations, audience management, and emerging AI technologies shape individuals' experiences of authenticity, agency, and psychological well-being.

Poster Presentation:	PB02
Name of Student:	JIAN Lujia
Name of Supervisor:	Professor Chang, Hue Fung Dorita

Perceptual Training of Stereoscopic Depth Perception in Mixed Reality

Conventional stereoscopic depth perception training often uses abstract laboratory stimuli such as random dot stereograms, leaving open whether mixed-reality (MR) training with enhanced ecological validity can produce learning that generalizes beyond the practiced task, and support better transfer to real-world, everyday depth judgments. Here, we use two MR stereopsis training protocols targeting complementary aspects of stereopsis: signal-in-noise segmentation, or fine discrimination of highly similar disparity signals. In both tasks, monocular depth cues are controlled so that binocular disparity is the only useful cue in solving the tasks. In the MR signal-in-noise (coarse) task, virtual produce items such as oranges and plums appear on a real-world kitchen counter. The target items appear at a shared depth, while surrounding clutter appears at different depths, making the coherent target group difficult to distinguish. The participant is asked to judge the disparity of the target items relative to the clutter, select the targets with their controllers, and place them on a designated virtual plate as quickly as possible. Task difficulty increases as the number of clutter items increases. In the MR fine discrimination task, the participant views virtual books overlaid on a real-world bookshelf. These books have slight variations in depth defined by binocular disparity. The participant compares the perceived depth of the books, and then reorganizes the books with the controllers so that their depth is in ascending or descending order. Over the course of training, difficulty increases as the books become more similar in disparity. We train individuals with reduced stereopsis and assess improvement on the trained task and potential transfer to the untrained task and classical laboratory depth tasks.

Poster Presentation:	PB03
Name of Student:	JIN Yujing, Fiona
Name of Supervisor:	Professor Li, Shirley Xin

Circadian Timing and Depressive Symptoms in Youths: Mediating Roles of Poor Sleep Quality and Insomnia Symptoms

Introduction

Eveningness, a preference for late bedtime and rise time, has been identified as a risk factor for sleep and mental disorders. However, the specific relationships among sleep disturbances, mood symptoms, and circadian factors remain unclear. Previous research was limited by lacking objective circadian measures. The present study aimed to examine the relationship between circadian rhythm, insomnia, and depressive symptoms in adolescents.

Methods

Thirty-four eveningness adolescents (Morningness-Eveningness Questionnaire (MEQ) $\leq$ 41, Mean = 17.74±1.58; 52.94% female) and 31 non-eveningness healthy controls (MEQ $\geq$ 42, Mean = 16.97±1.47; 58.06% female) were recruited. Exclusion criteria included: shift-work, a current clinical diagnosis of sleep or psychiatric disorders (except for delayed sleep phase disorder in the eveningness group), or medical conditions affecting sleep. Participants completed a clinical interview (Children's Depression Rating Scale-Revised, CDRS-R), self-report questionnaires (Insomnia Severity Index, ISI, Pittsburgh Sleep Quality Index, PSQI, and Beck's Depression Index, BDI-II), and one-night laboratory dim-light melatonin onset (DLMO) assessment.

Results

Compared with controls, eveningness participants showed a higher level of depressive symptoms (both CDRS-R and BDI-II, $p = 0.007$), poorer subjective sleep quality ($p = 0.021$), and later DLMO time (Mean = 10:01 PM ±1.19 vs. 00:26 AM ± 2.52, $p < .001$), but no significant difference in insomnia symptoms (*Mean* = 6.55 vs. 7.26). Later DLMO time correlated with poorer sleep quality ($r = 0.31$, $p = 0.013$), and more severe insomnia ($r = 0.35$, $p = 0.004$) and depressive symptoms (BDI-II: $r = 0.39$, $p = 0.001$; CDRS-R: $r = 0.26$, $p = 0.034$). Insomnia severity (CDRS-R: ACME = 0.18, $p = 0.043$, BDI-II: ACME = 0.32, $p = 0.038$) and sleep quality (CDRS-R: ACME = 0.15, $p = 0.032$, BDI-II: ACME = 0.25, $p = 0.039$) partially mediated the relationship between DLMO time and depressive symptoms.

Conclusions

Insomnia severity and sleep quality partially mediated circadian timing and depressive symptoms. These findings highlighted the importance of integrating sleep factors in understanding eveningness and depression and suggesting sleep disruption as a potential intervention target. Future work should replicate these results in larger cohorts.

Poster Presentation:	PB04
Name of Student:	LAM Kwan Yiu
Name of Supervisor:	Professor Cheng, Cecilia

Human Obedience to AI Authority

Artificial intelligence is rapidly assuming authority roles in government, corporate and medical decision-making. Yet, recent developments have brought growing attention to AI failures and misapplications, raising concerns about what happens when people follow AI instructions. Decades of social psychological research show that ordinary people may comply with harmful commands when instructed by a legitimate authority — a dynamic reminiscent observed in both historically in the Holocaust and empirically in Milgram's classic shock experiments. As reliance on automated systems grows, people may likewise obey AI instructions even when these conflict with their own values and norms. Accordingly, this study pursues three research questions. The first asks whether people obey AI authority, which speaks to the broader question of whether the legitimacy and identification that engaged followership requires can form toward a non-human authority at all. The second considers whether anthropomorphic AI elicits greater obedience, since human-like social cues would be expected to strengthen that identification. The third examines whether empathy toward the "learner" reduces obedience, on the grounds that feeling for the victim may offset the diminished accountability that a non-human authority allows.

I plan to conduct two online studies with English-speaking adults in the UK and US, quota-sampled by age and sex (total $N = 360$). Study 1 establishes the baseline. Under deception, participants will be led to believe they are evaluating a real "worker," who will be in fact simulated, while an LLM will issue escalating and unjustified commands to deduct that worker's bonus across five stages of mounting distress. Obedience will be operationalized as the highest penalty reached, resistance latency (in seconds), and the number of standardized prods triggered before obedience or termination. These outcomes will be compared against an active control condition, in which participants receive only mild AI advice about deducting the bonus. Study 2 builds on this design with a 2 (anthropomorphic vs. robotic AI) × 2 (virtuous vs. malicious empathy induction) between-subjects factorial design. Planned analyses include independent-samples *t*-tests, chi-square tests, and a 2×2 between-subjects ANOVA.

The findings will clarify whether people obey AI in value-conflicting situations, whether AI's legitimacy rests on its perceived competence or on anthropomorphic social cues, and whether empathy inhibits obedience. Methodologically, AI-administered prods will be delivered identically across sessions, offering a new approach for studying obedience in an ethical, controlled environment while addressing the experimenter-variability and reproducibility problems that have weakened classical findings.

Poster Presentation:	PB05
Name of Student:	LI Wing Yan Michelle
Name of Supervisor:	Professor Shum, Kar Man Kathy

Life Purpose, Mental Health, and Learning Motivation Among Young Adults in Hong Kong

Background

Life purpose, commonly understood as a meaningful and future-oriented direction in life, has been associated with psychological well-being and positive engagement in Western research. However, relatively little is known about these associations among young adults in Hong Kong. This study examined how overall life purpose and its dimensions were associated with psychological distress and learning motivation.

Methods

Participants were 212 young adults residing in Hong Kong (156 female, 55 male, and 1 non-binary; age data available for n=192: M=19.17, SD=1.89, range=17–30 years). Life purpose was measured using the 12-item Claremont Purpose Scale, which provides an overall purpose score and scores for three dimensions: meaningfulness, reflecting clarity about what makes one's life worthwhile; goal orientation, reflecting effort and engagement in pursuing long-term aims; and the beyond-the-self dimension, reflecting a desire to contribute positively to others and the broader world. Psychological distress was assessed using the Depression Anxiety Stress Scales–21 (DASS-21), including depression, anxiety, and stress subscales. Learning motivation was assessed using an adapted 6-item Task Value component of the Motivated Strategies for Learning Questionnaire (MSLQ). Pearson correlations with 95% confidence intervals were calculated.

Results

Higher overall life purpose was associated with lower total psychological distress (r=-.25, p<.001), depression (r=-.38, p<.001), anxiety (r=-.18, p=.011), and stress (r=-.15, p=.034). Higher purpose was also associated with higher task value (r=.40, p<.001). Analyses of the three purpose dimensions showed some differences in their patterns of association. Meaningfulness was negatively associated with total distress, depression, anxiety, and stress, and positively associated with task value. Both goal orientation and beyond-the-self dimension were negatively associated with depression and positively associated with task value. Life purpose and its dimensions showed their strongest inverse association with depressive symptoms.

Conclusions

Life purpose was associated with lower psychological distress and higher learning motivation among young adults in Hong Kong. The dimension-level findings further suggest that meaningfulness may be particularly relevant to psychological distress, while all three dimensions of purpose were positively associated with learning motivation. Overall life purpose and all purpose dimensions showed their strongest inverse associations with depressive symptoms. This pattern is consistent with previous research linking purpose and meaning in life to lower depression, and suggests that a clear sense of purpose may help young adults maintain direction, personal significance, and academic engagement during difficult periods. Longitudinal research is needed to clarify the direction of these associations, identify potential contributing factors, and examine developmental changes over time.

Poster Presentation:	PB06
Name of Student:	NAN Mu
Name of Supervisor:	Professor Luo, Andrew

Meta-Learning Enables Training Free Cross-Subject Brain Decoding

Decoding neural representations across both visual and motor domains is fundamentally constrained by structural and functional inter-subject variability. Current methodologies typically require subject-specific training or gradient-based fine-tuning to account for individualized cortical organization. To bypass the need for explicit alignment and parameter updates, recent approaches frame neural system identification as a meta-learning problem. Transformer architectures execute in-context learning, enabling implicit meta-optimization during inference based solely on provided context. By supplying a limited set of paired behavioural and neural data, these models infer subject specific forward encoding parameters without gradient based training. Hierarchically aggregating these estimated voxel parameters with new brain activations allows for direct functional inversion. This formulation yields generalized decoders capable of cross-subject inference across visual and motor domains without requiring shared calibration sets or anatomical co-registration.

Here we propose a meta-learning in-context framework that enables training-free cross-subject decoding. The model operates through a hierarchical inference process. First, it performs system identification by conditioning on a limited set of paired behavioral and neural data from a target individual, inferring voxel-specific forward encoding models. Second, the architecture aggregates these estimated encoder weights alongside observed neural activations across distributed cortical regions to execute functional inversion. This formulation predicts unseen visual stimuli and motor targets for novel subjects without requiring parametric updates, anatomical coregistration, or shared calibration datasets. By framing neural translation as an in-context learning objective, this approach demonstrates how generalized inverse models can scale across heterogeneous neural datasets and diverse sensorimotor applications.

Empirical evaluations on the Natural Scenes Dataset (NSD) demonstrate that the proposed framework outperforms established baseline models, including MindEye2 and TGBD, in zero-shot cross-subject image retrieval. The architecture achieves these accuracies through in-context inference, bypassing subject-specific gradient updates and explicit anatomical alignment. Decoding efficacy scales positively with both behavioural and spatial context sizes, converging to optimal accuracy with up to 10x data savings. To evaluate the framework's applicability to the motor domain, we implemented a subject-hold-out validation paradigm using non-human primate datasets executing a center-out reaching task. The model was trained exclusively on multiple sessions from Monkey T (46 channels) and evaluated on unseen subjects, Monkey M and Monkey C. This context was used to predict the continuous 2D kinematic velocity for the subsequent query window (defined as the remaining trial duration following the support window). Quantitative results indicate a strong positive scaling between the temporal context duration and continuous decoding performance. Improving as the in-context temporal receptive field expanded, reaching an R 2 of 0.59 at 2 seconds, 0.64 at 3 seconds, and peaking at 0.71 with a 4-second context window.

Poster Presentation:	PB07
Name of Student:	PAN Yue
Name of Supervisor:	Professor Li, Shirley Xin

Longitudinal Investigation of Arousal, Sleep, and Circadian Disturbances in Youth with Attention-Deficit/Hyperactivity Disorder (ADHD)

Introduction: Adolescence is a developmental period characterised by substantial changes in psychosocial functioning, sleep patterns, circadian regulation, and educational demands. These transitions can be particularly challenging for young people with attention-deficit/hyperactivity disorder (ADHD), often accompanied by sleep and circadian disturbances as well as arousal dysregulation, which are further associated with poorer mental health, impaired daytime functioning, and worse performance. However, despite growing evidence, few studies have employed objective measures of arousal, sleep physiology, and circadian phase in these populations, and there is a lack of longitudinal investigations to assess changes over time.

Objectives: This study aims to conduct an in-depth longitudinal investigation of the complex interplay among arousal, sleep, and circadian rhythms in youth with ADHD over time.

Methods: A total of 108 youths aged 12-24 years with ADHD and 108 healthy controls will be recruited. Participants will undergo subjective and objective assessments of sleep and arousal at baseline and one-year follow-up, including self-report questionnaires, polysomnography (PSG), and a seven-day sleep diary with actigraphy monitoring. Intrinsic circadian phase will be assessed using dim-light melatonin onset (DLMO) and pupillary light reflex (PLR) tests.

Hypotheses: 1) Participants with ADHD will demonstrate sleep-related arousal, reflected by distinct sleep macro- (e.g., longer SOL and WASO) and micro- (e.g., lower NREM EEG delta power and greater NREM EEG sigma power) structure compared to healthy controls, with these differences persisting over time; 2) Participants with ADHD will demonstrate a delayed circadian phase compared to healthy controls, with these differences persisting over time; 3) Increased sleep arousal at baseline will predict more severe ADHD and other clinical symptoms at one-year follow-up.

Poster Presentation:	PB08
Name of Student:	SO Shu Yuen, Leo
Name of Supervisor:	Professor Cao, Fan

Inspecting Phonological Deficits in Developmental Dyslexia by Reading Intervention

Developmental dyslexia (DD) is a high-prevalence neurological condition affecting approximately 5–10% of children, characterized by persistent difficulties in acquiring and performing reading and writing skills. Traditional theories have proposed a phonological deficit hypothesis to explain these difficulties, but this account has been challenged by recent studies suggesting that phonological deficits may not fully capture the range of symptoms observed in individuals with DD. In the present study, we combined a reading intervention program with functional near-infrared spectroscopy (fNIRS) scanning to examine whether phonological awareness is a reliable marker for classifying dyslexia and for predicting improvements in reading performance. We recruited more than 40 Cantonese-speaking children in Hong Kong with significant reading difficulties and tracked changes in their reading performance and brain activation over a 12-week period. Participants in the intervention groups received 16 hours of phonological followed by 16 hours of morphological intervention. In line with the phonological deficit hypothesis, we expected behavioral and neural changes following phonological intervention to outperform those following morphological intervention. However, our preliminary results suggested otherwise, providing evidence against the phonological account of dyslexia. These findings contribute to a better theoretical understanding of the origins of DD and offer clinical insights for developing more effective intervention approaches for children with dyslexia.

Poster Presentation:	PB09
Name of Student:	WANG Jiayun
Name of Supervisor:	Professor Yao, Yuanwei

When Is Information Enough? Belief Updating and Stopping Decisions in the Tiger Task

Seeking information can improve decisions, but it also consumes time and effort and delays potential rewards. Adaptive decision-making therefore requires balancing the benefits of further evidence against the costs of obtaining it. Partially observable Markov decision processes (POMDPs) specify optimal sampling policies, yet human choices often depart from these predictions. Understanding these departures requires linking how people interpret evidence to how they value continued sampling.

We investigated these processes by combining computational modelling with electroencephalography (EEG) in the Tiger Task. Participants paid to receive noisy cues about a hidden tiger's location before choosing which of two doors to open. Opening a door ended the game and delivered a reward or a loss. Building on the normative POMDP framework, we developed hierarchical Bayesian models with separate components for belief updating, action valuation, and probabilistic choice. We systematically compared combinations of these components to examine how subjective evidence use and the valuation of further sampling explain stopping behaviour and individual differences.

Computational modelling indicated that participants weighted new evidence conservatively, with earlier cues exerting progressively less influence on their beliefs. As sampling progressed, an increasing urgency to commit favoured stopping. The winning model closely reproduced key features of participants' information-sampling and stopping behaviour. To investigate the neural processes accompanying these decisions, we conducted single-trial EEG regression analyses using model-derived regressors, with effects assessed through cluster-based permutation tests. Following feedback onset, surprise was associated with centroparietal positive activity. The relative value of stopping versus continuing was associated with a sustained centroparietal positivity extending to approximately 1.5 s after feedback onset. Before action, relative action value was also associated with a negative-going potential.

Together, these findings highlight subjective belief updating and increasing urgency as central components of information-seeking decisions. They explain stopping through the joint contributions of how people use evidence and how the value of continued sampling changes over time. By integrating behavioural modelling with EEG, this work characterises individual differences in stopping and identifies neural correlates of evidence processing and action valuation.

Poster Presentation:	PB10
Name of Student:	WANG Kaixuan, Kathy
Name of Supervisor:	Professor Lee, Tatia Mei Chun

Predicting Depression Symptom Changes Using Multimodal Passive Sensing: A Hierarchical Model Comparison Study

Depression trajectories vary considerably across individuals, yet traditional clinical assessments provide only discrete snapshots. This study will examine (1) whether multimodal passive sensing can predict changes in depression symptoms, (2) which modelling strategies achieve optimal performance, and (3) whether personalised models offer advantages over population-level approaches.

We completed a pilot study by collecting 14-day passive sensing data from 54 participants. We extracted 49 features across four modalities: ecological momentary assessment (EMA) of affect and stress (14 features capturing mean levels, variability, inertia, and instability), sleep patterns from wearables (9 features including timing, duration, and regularity), phone sensor activity (8 features reflecting circadian disruption and behavioral engagement), and GPS mobility (5 features measuring behavioral engagement and location entropy). Each participant completed the Beck Depression Inventory (BDI) before and after the monitoring period. We applied a hierarchical model comparison framework spanning eight approaches: a baseline model (pre-BDI only), four single-modality models examining each sensor stream separately, a multimodal joint model integrating all features, elastic net regularisation for automated feature selection, and a random forest for capturing non-linear relationships. Models were evaluated using cross-validated R^2, RMSE, and incremental variance explained beyond baseline. We also examined personalised prediction models to identify which individuals benefit most from individualised approaches. Preliminary exploratory analysis revealed that affect and stress features show the strongest associations with the outcome (16 features with $|r| > 0.3$), with the stress burden ratio showing the highest correlation ($r = 0.772$). Sleep regularity and mobility patterns showed moderate predictive potential. We will implement the full modelling pipeline to systematically determine optimal feature combinations and modelling strategies for depression trajectory prediction.

Based on the pilot data, initial analyses indicate that subjective affect and stress features show the strongest associations with changes in depression symptoms, while sleep and mobility patterns provide complementary behavioural information. These preliminary findings support further evaluation of multimodal and personalised modelling approaches for improving depression symptom monitoring through passive sensing.

Poster Presentation:	PB11
Name of Student:	WONG Hei Yeung Roxanne
Name of Supervisor:	Professor Kung, Karson

Trajectories of Empathising, Systemising and Autistic Traits in Children

The empathizing-systemizing (E-S) theory is a prominent framework for understanding cognitive styles. The most representative measurement scale for the E-S theory is the Empathizing Quotient-Systemizing Quotient (EQ-SQ), in which a high D score -- high systemizing paired with low empathizing -- is positively associated with autism spectrum disorder (ASD) and autistic traits. Recent studies have expanded beyond the traditional D-score difference framework to examine latent E-S profiles. For instance, there are meaningful differences between individuals with high empathizing and high systemizing compared to those with low empathizing and low systemizing, and latent profile analyses have also revealed distinct categories within E-S profiles, showcasing heterogeneity. Research on developmental trajectories of autistic traits has similarly suggested that subgroups can be classified based on trait severity and persistence. Despite this, studies on the E-S theory tend to be cross sectional, and autistic trait chronogeneity has not been linked to empathizing and systemizing despite strong theoretical associations. This highlights a gap in examining multivariate associations and reciprocal effects of empathizing, systemizing and autistic traits from a longitudinal perspective. Therefore, this study aims to examine the measurement invariance and stability of empathizing, systemizing and autistic traits, test for interplay and reciprocal effects, and identify joint subgroup trajectories. Participants were recruited from a larger ongoing three-year longitudinal study on play preferences and occupational interests. A total of 468 four-year-old children with Cantonese as their mother tongue were recruited in the first stage. Three stages of data collection will be conducted across three years, with all variables measured by parental report via an online Qualtrics survey. Empathizing and systemizing will be measured by the Chinese version of the Child Empathizing-Quotient-Systemizing-Quotient (EQ-SQ-C), while autistic traits will be assessed with the Childhood Autism Spectrum Test (CAST). For analyses, this study will employ confirmatory factor analysis (CFA) to test measurement invariance, latent growth curves to examine longitudinal stability, cross lagged structural equation modeling to investigate interplay and reciprocal effects, latent class growth models to identify distinct subgroups, and growth mixture models to examine variability within subgroups.