2023; 8 e820-e826). One novel way to improve sleep health communication is to engage adolescents with lived experiences of sleep disturbances in the development of sleep health innovations.
**Objectives:** The designathon is a participatory innovation context that brings individuals to co-create communication packages to address a specific challenge within a short period. We aimed to present the process of crowdsourcing designathon to create sleep health communication packages for adolescents and the products produced in the event.
**Methods:** The designathon was a two-day event held at a university building in Hong Kong. Adolescents were recruited from a summer programme about sleep and psychology and sorted into groups with a balance of educational backgrounds. A judging panel that included experts in sleep and mental health and a youth representative evaluated the communication packages. The products were scored based on content, accuracy, visuals, innovation, and delivery.
**Results:** A total of 13 participants participated in the designathon. About 61.5% (n=8) of participants reported poor sleep quality. All three groups successfully created a sleep health communication package consisting of a poster, a leaflet, and a slideshow during the 2-day designathon event. One finalist was selected. The finalist package was a comprehensive package comprising psychoeducation and action elements to promote napping in school to address insufficient sleep and psychological health, and was described as structured, interesting, and informative although some information may be too technical to layperson based on judges' comments.
**Conclusions:** Designathon is a novel and successful strategy to engage the community to co-create sleep health communication package for adolescents. It is promising to utilise crowdsourcing designathon to increase access to sleep educational information and improve knowledge in the public. Future studies are needed to evaluate the feasibility, impact, and implementation of the products.

**Disclosure of Interest:** None Declared

## EPV1935

## Implementing group CBT-Insomnia in mental health and addictions services in London: initial results

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**Introduction:** Chronic insomnia is prevalent in secondary care mental health populations and is associated with emotional distress, interpersonal impairment and reduced quality of life. In addition, it contributes to the aetiology of major mental health conditions and substance use. CBT for insomnia (CBTi) is a well-established evidence-based treatment approach for chronic insomnia and is recommended as the first-line treatment for adults in the UK by National Institute for Health and Care Excellence (NICE). Despite this, CBTi is not accessible for most secondary care mental health patients and therefore few benefit from this intervention.
**Objectives:** To examine the feasibility and effectiveness of a 6-week group CBTi programme for people using secondary care mental health and addictions services with chronic insomnia, using a case series design.
**Methods:** Each participant underwent an initial screening assessment to evaluate their suitability for the programme, the nature and impact of their sleep problem, and exclude other causes of insomnia. Self-reported measures of insomnia, personality functioning and depression were examined pre- and post-intervention using the Pittsburgh Sleep Quality Index (PSQI), Level of Personality Functioning Scale (LPFS) and Patient Health Questionnaire-9 (PHQ-9) respectively. PSQI was also re-assessed at 3-months' follow-up.
**Results:** Of 42 people referred to the service (26 from mental health and 16 from addictions services), 25 attended baseline assessment, 19 started the group and 12 completed sessions. The most common primary diagnoses were Alcohol Use Disorder (n=8), Treatment Resistant Depression (n=5), Bipolar Affective Disorder (n=3) and Personality Disorder (n=3). There were 9 men and 16 women. The severity of sleep disturbance was high with a cohort average PSQI of 15.4 (s.d. 2.7, range 12-20). Additionally, the level of personality functioning was high (mean 31.0, s.d. 7.6 range 13-45) as well as depressive symptoms (PHQ-9 cohort mean 18.0, s.d. 5.5, range 7-26).
Among the completers, cohort mean PSQI score decreased from 14.1 to 12.0 (p=0.12). Of 10 patients with 3-month follow-up data, there was a relative reduction of 20.3% from baseline, to a cohort mean PSQI score of 11.5 (p=0.16). At 3-months other facets of sleep quality like total sleep time had improved in the cohort by 45 minutes, and onset latency reduced by 35 minutes. Post-group there were also reductions in cohort mean LPFS scores by a relative 10.3% (31.4 at baseline to 28.3 post-group, and in cohort mean PHQ-9 by 14.8% (16.4 to 13.8).
**Conclusions:** Group CBTi is a potentially scalable and feasible intervention that effectively treats chronic insomnia, depression and personality dysfunction in secondary care mental health and addictions populations. Further research should focus on replicating these findings in larger cohorts, and examine factors associated with uptake and completion of CBTi.

**Disclosure of Interest:** None Declared

## EPV1936

## Quantifying Stress and Relaxation: The New Measure of Heart Rate Variability as a Precise Biomarker Beyond Beats

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**Introduction:** The basis of this study is established on the unreliability of conventional heart rate variability metrics. The complex physiology of stress and the relaxed state cannot be drawn sufficiently, because the conventional heart rate variability metrics, presented by the established professional medical literatures, are

dependent on the changes in the heart rate and thus cannot provide reliable data.
**Objectives:** We introduced a novel, heart rate independent variability parameter, which is the normalized variability, and we contrasted it with the consensus-based parameters (RMSSD: root mean square of successive differences between normal heartbeats; SDNN: standard deviation of normal-to-normal interbeat intervals).
**Methods:** We tested the normalized variability parameter in two studies. During the first study, the work-related stress among professionals in the frontlines of healthcare was reduced during the work-shift via either heart rate variability-biofeedback training or through achieving a relaxed state by allowing the subjects of the test during breaks to relax in their own usual manner. Consequently, the sample of Study 1 was categorized into the heart rate variability biofeedback group (N = 21) and the habitual recreation group (N = 21). Comparatively, Study 2 was concluded on healthy students, where the subject sample consisted of N = 9 participants. In this case, stress response was triggered by one of two laboratory stress induction methods. This meant the application of either the Socially Evaluated Cold Pressor Test (SECPT) or, a novel stress induction procedure, the Socially Evaluated Stroop Test (SEST). Furthermore, we used the Kolmogorov-Smirnov test to compare the distribution of heart rate variability parameters, mean heart rate, logRMSSD, logSDNN, and normalized variability before, during, and after the stress-inducing and the stress-alleviating interventions.
**Results:** According to our results, on the one hand, logRMSSD and logSDNN did not change significantly throughout the stress alleviation and stress inducing states; on the other hand, the distribution of normalized variability significantly changed during and after both stress decreasing methods ($p \leq 0.01$) and between the period that preceded recreation and during the process of habitual recreation itself ($p = 0.03$). Normalized variability during and after the SECPT ($p = 0.05$) significantly changed as well; however, the heart rate did not change significantly under and during the test.
**Conclusions:** Normalized variability, a heart rate variability parameter that is independent of the heart rate of the patient, can be considered a sensitive stress indicator and suitable for investigating the complexity of the functions of the vegetative nervous system without the confounding effect of the heart rate.

**Disclosure of Interest:** None Declared

## EPV1937

## Different chronotypes are associated with different metabolomics profiles-results from the UK biobank

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**Introduction:** Individuals with an evening chronotype (i.e., a behavioral phenotype related to a preference for eveningness) commonly display metabolic alterations that predispose to cardiovascular disease and worse cardiometabolic health. While lifestyle habits may partly explain the adverse cardiometabolic findings, underlying independent biological mechanisms may also confer higher risk. However, metabolomics signatures associated with chronotype remain to be determined.
**Objectives:** This study aimed to use nuclear magnetic resonance (NMR) metabolomics and phenotype data from the UK Biobank to characterize the metabolomics signatures of different chronotypes.
**Methods:** The population included approximately 245,000 participants with plasma metabolomics and questionnaire data on chronotype, both collected at the first assessment (2006-2010). The levels of 237 metabolites were compared in individuals with morning vs. more morning than evening vs. more evening than morning vs. evening chronotype via univariable and multivariable linear regression models adjusted by fasting time, age, sex, body mass index, economic status, physical activity and smoking status. The False Discovery Rate was applied to account for multiple testing. This research has been conducted using the UK Biobank Resource under application number 99811.
**Results:** In unadjusted models, compared to morning types, individuals with more evening (163/237 metabolites, median estimate 0.01 SD) and definitely evening (203/237, -0.01 SD) chronotypes had significantly different profiles, suggestive of higher cardiometabolic risk (higher levels of the inflammation marker glycoprotein acetyls, of triglycerides and lipids in Very-Low-Density-Lipoproteins (VLDL), but lower levels of fatty acid unsaturation and of lipids in High-Density-Lipoproteins (HDL)). On the contrary, more morning than evening types had opposite profiles. After adjustments, the risky profiles of evening and intermediate-evening types attenuated partly, especially with respect to fatty acids. However, irrespective of adjustments, evening types had metabolic profiles characterized by less HDL and more VLDL lipoproteins than morning types, while HDL levels appeared less affected in intermediate-evening types. In adjusted models, intermediate-morning types had similar profiles as morning types.
**Conclusions:** Total or partial preference to eveningness was associated with a metabolic profile suggestive of higher cardiovascular risk. While these associations were partly explained by sociodemographic and lifestyle characteristics, several markers suggestive of higher cardiometabolic risks appeared intrinsic to the chronotype, and more evident in the evening types. Lifestyle habits may induce an even more favorable metabolic profile in intermediate-morning compared to pure morning types.

**Disclosure of Interest:** None Declared

## EPV1938

## Sleep Disorders in Multiple Sclerosis Patients Following Diagnosis: Prevalence, Contributing Factors

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**Introduction:** Sleep disorders are commonly reported among patients diagnosed with multiple sclerosis (MS), particularly in