

Introduction: Military personnel are at an increased risk for suicide compared to the general population, making it important to develop a deeper understanding of which factors contribute to this elevated risk. Given that suicidal ideation (SI) is one of the strongest predictors of suicide attempts, understanding factors that underlie SI may improve prevention efforts. Insomnia and depression both serve as independent risk factors for SI, and therefore the aim of this study was to examine the extent to which depressive symptoms moderate the association between insomnia and SI.

Methods: Data were obtained from the All Army Study of the Army Study to Assess Risk and Resilience in Servicemembers (STARRS). Soldiers ($n=21,450$) completed questions related to suicidal ideation (5 items), depressive symptoms (9 items), and insomnia (5 items) based on symptom presence in the past 30 days. Items in each domain were summed to create a total severity score. GEE models using a negative binomial linking function were conducted to examine the impact of depression, insomnia, and their interaction on SI.

Results: Both depression ($\chi^2=117.56$, $p<0.001$) and insomnia ($\chi^2=11.79$, $p=0.0006$) were found to have significant main effects on SI, and there was a significant interaction effect ($\chi^2=4.52$, $p=0.0335$). Follow up simple effects revealed that insomnia was no longer significantly associated with SI when depression severity was low, but was associated with SI in the presence of greater depression severity ($\chi^2=2.91$, $p=0.0882$).

Conclusion: In a large sample of Army soldiers, depression significantly moderated the association between SI and insomnia, such that insomnia seems to amplify the effects of depression on SI. These findings highlight the importance of addressing insomnia severity as a mean of reducing SI in those with depression, potentially allowing for intervention prior to a suicide attempt.

Support (if any): Perlis: K24AG055602 & R01AG041783. This publication is based on public use data from Army STARRS (Inter-university Consortium for Political and Social Research, University of Michigan- <http://doi.org/10.3886/ICPSR35197-v1>), funded by U.S. NIMH-U01MH087981.

757

ASSOCIATIONS BETWEEN SLEEP COMPLAINTS, SUICIDAL IDEATION AND DEPRESSION AMONG ADOLESCENTS AND YOUNG ADULTS IN GREECE

Maria Basta,¹ Alexandros Vgontzas,² Panagiotis Simos,¹ Stamatis Karakonstantis,¹ Katerina Micheli,¹ Yun Li,³ Vasilis Defaermos,⁴ Nikolaos Papadakis⁴

¹Department of Psychiatry, School of Medicine, University of Crete, ²Pennsylvania State University, College of Medicine, ³Mental Health Center of Shantou University, ⁴Department of Political Science, University of Crete

Introduction: Suicide risk begins to increase among adolescents and young adults representing the leading cause of death in this age group. The aim of this study was to assess associations between sleep complaints, suicidal ideation and depression in a large, representative sample of adolescents and young adults of the general population in Greece.

Methods: A structured telephone questionnaire was conducted in a representative sample of 2,741 young Greeks aged 15–24 years, including sociodemographic variables, life-style habits, and substance use. symptoms were assessed using the PhQ-9. Suicidal ideation and sleep complaints, i.e. insomnia/ hypersomnia symptoms, were assessed based on the relevant questions of the PhQ-9 questionnaire. We conducted a direct and indirect effect analysis between the modified

PhQ-7 scale, sleep complaints and suicidality controlling for gender, family income, education and substance use.

Results: In our sample prevalence of suicidal ideation was 7.8%, while 47.9% reported sleep complaints. The mean PhQ-7 score was 6.15 ± 4.11 . The direct paths from depression to sleep, as well as from sleep to ideation were both statistically significant with p -values <0.001 . Indirect mediation analysis revealed a significant indirect effect of depression on ideation mediated by sleep complaints as indicated by the sobel test ($z=3.59$, $p=0.0003$). This is a partial mediation given that the direct effect of depression on ideation controlling for sleep (the mediator) remains significant ($p<.001$). The percentage of the effect of depression on ideation accounted for by the indirect effect through sleep is estimated at 16.5%. The mediation remains significant ($p<.001$) after controlling for income, gender, education, and substance use.

Conclusion: Our study supports that among youth there is direct associations between depression, sleep complaints and suicidal ideation. Furthermore, we found an indirect effect of depression on suicidal ideation mediated by sleep complaints. Our findings highlight the presence of complex interactions between subjective psychiatric symptoms and perceived sleep problems to account for suicidal ideation. Therefore, treatment of sleep among youth with depression may significantly independently further reduce suicidal risk.

Support (if any): EEA/Norwegian Financial Mechanism 2009–2014, under Project Contract n° EEA Grants/ GR07- 3757

758

CIRCADIAN REST-ACTIVITY SIGNATURES IN WOMEN WITH MAJOR DEPRESSIVE DISORDER

Hui-Wen Yang,¹ Sarah Chellappa,² Arlen Gaba,¹ Christian Cajochen,³ Kun Hu⁴

¹Brigham Women's Hospital, ²Brigham and Women's Hospital, ³Centre for Chronobiology, University of Basel, Basel, Switzerland, ⁴Brigham & Women's Hospital, Harvard Medical School

Introduction: Patients with major depressive disorder (MDD) show disrupted circadian rhythms and sleep, including reduced daytime physical activity and poor sleep quality. However, previous findings are masked by psychotropic medication intake, co-morbid diseases and years of chronic mental illness. Here, we aim at identifying circadian motor activity patterns in unmedicated women at the onset of MDD.

Methods: Twelve young unmedicated women with MDD (Mean \pm -SD: 24.9 \pm 5.2y; range: 18-33y) and eight age-matched healthy women (Mean \pm -SD: 24.5 \pm 3.2y; range: 20-31y) participated in our study. Activity recordings were collected using wrist-worn wearable devices (actigraphs) for ~7 days in real-life settings. Cosinor analyses were performed to assess the amplitude and phase of the 24-h rest-activity activity rhythms. Non-parametric analyses were used to quantify interdaily stability and intradaily variability of the rest-activity rhythm. Furthermore, we calculated the mean activity level and scaling exponent alpha, which quantifies the temporal correlation in activity fluctuations, per 3-h bins across the 24-h sleep-wake cycle.

Results: Women with MDD showed a significantly higher amplitude of the 24-h rest-activity activity rhythm (Mean \pm -SD: 332.7 \pm 120.8 arbitrary units) than the controls (179.7 \pm 122.9; $p=0.002$), elicited by higher activity levels during the daytime (0-12h after habitual wake-up time; $p<0.01$). In contrast, women with MDD showed a trend for lower interdaily stability levels than controls (respectively, 0.41 \pm 0.07 and 0.46 \pm 0.08; $p=0.05$). Interestingly, a significant interaction effect of “group” and “time since habitual wake” was elicited for scaling exponent alpha ($p<0.001$). Accordingly, women with MDD had higher

alpha values during habitual sleep (0–6 hours before habitual wake-up time) than controls (respectively, 1.18 ± 0.22 and 1.12 ± 0.22).

Conclusion: Unmedicated women at the onset of MDD had altered circadian motor activity patterns, as indexed by higher amplitude particularly during daytime while awake, less stable 24-h activity rhythms, and highly correlated activity patterns during sleep that closely resemble those typically occurring during wakefulness. These findings suggest that MDD per se may be associated with impaired rest-activity profiles. Ultimately, the use of wearable devices might hold important prospects for the early detection of individuals at risk for mood disorders.

Support (if any): Swiss National Science Foundation Grants START #3100-055385.98, 3130-0544991.98 and 320000-108108; NIH RF1AG064312, RF1AG059867

759

SLEEP AND MENTAL HEALTH IN NEW MOTHERS WITH A HISTORY OF DEPRESSION: PRELIMINARY DATA FROM LATE PREGNANCY TO 1-MONTH POSTPARTUM

Michele Okun,¹ Leilani Feliciano,¹ Harvey Karp,² Keston Lindsay¹

¹UCCS, ²Happiest Baby

Introduction: Perinatal women report more sleep disruptions than non-pregnant women. This phenomenon is exaggerated among women with a history of depression, as sleep complaints are one of the most frequent symptoms of depression. Understanding the change in sleep and mental health from late pregnancy to postpartum may provide insights into prevention and intervention. Presented here are preliminary data from new mothers regarding sleep and mental health.

Methods: Preliminary examination of sleep and psychological data from 22 women enrolled in a study to assess the efficacy of the SNOO on infant and maternal sleep during the first 6 months of life. Participants were eligible if they had a history of, but no active depression as assessed by the Edinburgh Postnatal Depression Scale (EPDS). Data are from late pregnancy and at 1-month postpartum. Questionnaires included the Pittsburgh Sleep Quality Index (PSQI), Insomnia Symptom Questionnaire (ISQ), Epworth Sleepiness Scale (ESS), Flinders Fatigue Scale (FFS), and the Generalized Anxiety Disorder scale (GAD). Paired t-tests or chi-square tests were used to assess change over the first month postpartum. Linear regressions were done to determine whether sleep in late pregnancy was associated with depression and anxiety scores.

Results: Participants were 30 ± 2.2 years of age and 72.7% were White. In the first month postpartum, sleep was negatively impacted. Clinical insomnia increased (4 (18.2%) vs 5 (22.7%); $X^2 = 7.61$, $p = .006$), sleep quality (PSQI) worsened (6.13 ± 3.54 vs 8.89 ± 3.54 ; $t = -3.03$, $p = .006$), daytime sleepiness was higher (4.77 ± 2.51 vs 6.64 ± 3.44 ; $t = -3.31$, $p = .003$), and fatigue was greater (9.55 ± 4.73 vs 13.36 ± 5.86 ; $t = -3.21$, $p = .004$). Likewise, depression and generalized anxiety increased (p 's < .01). Insomnia in late pregnancy was associated with more depression ($\beta = .542$, $p = .009$) and more anxiety ($\beta = .510$, $p = .015$).

Conclusion: Pregnant women with a history of depression are at risk for more sleep disturbances, and therefore more likely to be at significant risk for a recurrent depressive episode. Improving sleep in the perinatal period could have a positive impact.

Support (if any): Happiest Baby Inc.

760

DOES OBSTRUCTIVE SLEEP APNEA INCREASE SUICIDALITY IN PATIENTS WITH BIPOLAR DISORDER?

Abhishek Reddy,¹ Zeeshan Mansuri,² Chintan Trivedi,³

Ramu Vadukapuram⁴

¹Virginia Tech Carilion School of Medicine, ²Boston Children's Hospital/Harvard Medical School, ³St. David's Medical Center, ⁴Mount Sinai School of Medicine

Introduction: Bipolar disorder (BPD) is associated with suicidality in adult population. There are several risk factors for suicide, however the relationship between Obstructive Sleep Apnea (OSA) and suicidality in patients with BPD has not been explored. Hence, we decided to perform this study with primary objective of comparison of suicidality by OSA diagnosis in patients with BPD.

Methods: We used inpatient hospitalization data from National Inpatient sample dataset year 2016–2018. Our primary population (BPD + OSA) was composed of adult patients admitted to the hospital with the primary diagnosis of Bipolar Disorder and secondary diagnosis of Obstructive sleep apnea. Age-gender matched (1:4 matching) control population was selected with primary diagnosis of BPD having no OSA (BPD-OSA). Data on suicidality (suicidal ideation/attempt) were collected and compared between the groups using logistic regression analysis methods by including OSA, age, gender, race, substance use disorder and personality disorder as predictors.

Results: From the dataset, 17895 patients were obtained for the BPD + OSA group (average age: 50.5 years, male 45.5%). After 1:4 age-gender matching, 71575 patients were included in the BPD-OSA group. In the unadjusted analysis, suicidal ideation was significantly high BPD+OSA group compared the BPD-OSA group (38.4% vs. 31.9%, $p < 0.001$). Rate of suicide attempt and self-inflicted injuries were similar in two groups (3.5% vs. 3.3%, $p = 0.27$). In the adjusted logistic regression analysis odds of suicidality were 36% more in BPD+OSA group compared to BPD-OSA (Odds Ratio: 1.36, 95% Confidence interval: 1.25–1.48, $p < 0.001$).

Conclusion: In adult patients with BPD, diagnosis of OSA significantly increases the odds of suicidality. Addressing OSA in patients with BPD, can improve management, and potentially reduce the incidence of suicide. We believe our study will be helpful in guiding future research and development on this issue.

Support (if any): None

761

ASSOCIATIONS BETWEEN DEPRESSION AND GUIDELINES MET FOR PHYSICAL ACTIVITY AND SUFFICIENT SLEEP IN AN INTERNATIONAL SAMPLE

Amy Bender,¹ Robbie Babins-Wagner,¹ Angela Laughton¹

¹Calgary Counselling Centre

Introduction: Physical activity (PA) and sleep both influence symptoms of depression. Here we explored relationships between guidelines met for physical activity and sleep and how this related to depression scores.

Methods: N=23,663 respondents (age range 18–98, mean age 40.1y, 51% female) completed the 10-item Harvard Department of Psychiatry National Depression Screening Day Scale (HANDS) online during one week in October from 2018–2020. Higher total scores on the HANDS indicated a higher likelihood of major depressive episode. Additional questions were added to the survey including questions on sleep duration and moderate to strenuous PA. The cut-off guidelines for PA were 150 weekly minutes and 7-9h of sleep per night. We categorized the sample based on those who met PA guidelines or not and whether respondents had short sleep duration (9h), or met the sleep guidelines (7-9h).

Results: One-way ANOVA revealed differences between the groups on HANDS depression score $F(5,23657)=262.5$, $p < 0.001$. Nearly half of the sample did not meet both PA guidelines or sleep guidelines of