Insomnia in All its Forms

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The polysomnographical characteristics of women who have sought medical help for sleep problems – a large study of sleep macro and micro architeture

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Objectives: Insomnia patients appear not to show worse polysomnographical sleep (PSG) than non-patients. Possibly, this could be due to combining males and females in the analysis since there are indications that women's PSG recorded sleep seems better than that of men, despite more complaints. Here we focus on the group with most sleep complaints (women) and compare PSG in those who had sought medical help for sleep problems with those that had not.

Methods: A representative sample of 400 women in Uppsala had their sleep recorded in their homes. Self-reported snorers were oversampled. After removing those suffering from major disease and used medication that might affect the EEG, and had deviated from the agreed sleep hours, 251 women remained, of which 41 had sought help. The two groups were compared using ANCOVA, with age, BMI, snoring and menopause status as covariates.

Results: The comparison of the two groups, showed that those who had sought help (second mean within parentheses) had significantly higher N1% ($17.3 \pm 0.5\%$ vs 24.6 ± 1.4, $P < 0.001$), lower N3% ($14.3 \pm 0.5\%$ vs $11.3 \pm 1.2\%$, $P = 0.017$), longer N3 latency (38.1 ± 2.9 vs 57.9 ± 7.5, $P = 0.015$), more awakenings (2.6 ± 0.12 vs 3.60 ± 0.30, $P = 0.002$), and less sleep spindles per minute in N2 (0.99 ± 0.06 vs 0.59 ± 0.15, $P = 0.015$), than those who had not sought medical help.

Conclusions: It was concluded that women who had sought medical help for sleep problems had significantly worse PSG sleep than those who had not sought help.

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Persistence of insomnia over a 5-year period in a population-based sample

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Objectives: Insomnia is a public health problem associated with negative long-term adversities. Despite its pervasiveness, little information is available on the long-term natural history of insomnia. This study estimated the rates of persistent insomnia and remission and documented the most common insomnia trajectories.

Methods: Participants were adults selected from a larger population-based sample (M = 48.4 years, SD = 14.7; 66.8% female) with subsyndromal insomnia ($n = 1020$) or insomnia syndrome ($n = 600$) at baseline. They completed standardized sleep and insomnia questionnaires at five annual follow-up assessments. Rates of persistent insomnia and remission and trajectories were computed for each subgroup.

Results: Persistence rates among participants with baseline insomnia syndrome were 87.4%, 73.3%, and 62.9% at 1-, 3-, and 5-year follow-ups, respectively, whereas rates were 66.8%, 41%, and 30.3%, respectively, among participants with baseline subsyndromal insomnia. Cumulative remission rates were almost double in participants with subsyndromal insomnia than insomnia syndrome at 1-year (33.2% vs. 12.6%), 3-year (59.0% vs. 26.7%), and 5-year follow-up (37.1% vs. 70.0%). The most common 1-year trajectories revealed that participants with baseline subsyndromal insomnia had a significantly greater relative risk (2.43) to improve rather than to worsen. For participants with an insomnia syndrome, there was a greater relative risk (2.11) to remain syndrome than to improve.

Conclusions: Insomnia is often a persistent disorder, particularly when it reaches syndrome threshold. Research is needed to identify mediators and moderators that influence the course of insomnia.

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Network meta-analysis on the effectiveness of cognitive behavioral therapies for insomnia on daytime depression and fatigue

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Objective: To examine the extent to which cognitive behavioral therapies for insomnia (CBT-I) are effective on daytime symptoms of depression and fatigue using network meta-analysis.

Methods: PubMed, Scopus and Web of Science were searched from 1986 to May 2015. Randomized controlled trials were selected when they included sleep restriction within the treatment, an adult insomnia sample, a control group and a standardized measure of depression and/or fatigue. Methodological variables were extracted and risk of bias was assessed. Cohen´s d and 95% confidence interval were calculated to assess standardized mean differences. Heterogeneity and inconsistency between studies were carefully tested and sensitivity analyses were performed considering inconsistency, age, sex, comorbidity and risk of bias.

Results: Forty-six studies satisfied criteria for meta-analysis. Eleven classes of treatments entered the network including CBT-I approaches classified depending on strategies included (only behavioral or cognitive and behavioral) and setting (face-to-face, group or self-help) and different control conditions. Compared to placebo, only individual therapy with both behavioral and cognitive strategies had significant effects on depression ($d = 0.51$, 95% CI 0.22; 0.80) and fatigue ($d = 0.57$, 95% CI 0.14; 1.00). Q and I^2 tests revealed high heterogeneity between studies (depression:

$Q = 199.08$, df 37, $P < 0.0001$; $I^2 = 81.4\%$; fatigue: $Q = 97.31$, df 17, $P < 0.0001$; $I^2 = 82.5\%$). Heterogeneity decreased after sensitivity analyses but remained significant. No significant effects were evidenced with respect to group and self-help interventions as well as behavioral interventions alone.

Conclusion: Findings suggest potential effects of individual CBT-I with cognitive and behavioral strategies on daytime depression and fatigue.

Disclosure: Nothing to disclose.

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Improvements of adolescent psychopathology after insomnia treatment: results from a randomized controlled trial over 1 year

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Objective: To investigate whether

1. cognitive behavioral therapy for insomnia (CBTI) improves psychopathology in Internet- (IT) and face-to-face group treatment (GT) compared to waiting list (WL),

2. improvement in psychopathology can be explained by reduced insomnia,

3. improvements in psychopathology remain stable up to one year,

Method: 116 participants (age = 15.6 years, 25% males) with DSM-5 insomnia, were randomly assigned to IT, GT, or WL. Assessments of psychopathology, insomnia, and objectively measured sleep occurred at baseline, post-test, and at 2, 6, and 12 months follow-up. Multilevel and mediation analyses were run to test hypotheses. The CBTI protocol, "Sleeping Smart" consisted of 6 weekly sessions and a booster session after 2 months.

Results: Psychopathology symptoms, insomnia, and objective sleep measures decreased substantially in IT and GT compared to WL at 2 months follow-up with medium to large effect sizes. Psychopathology symptoms remained stable or further improved for up to 12 months follow-up for IT and GT respectively: affective ($d = -0.87$ and -0.97), anxiety ($d = -0.81$ for IT), somatic ($d = -0.38$ and $d = -0.52$), oppositional ($d = -0.42$ for GT), and ADHD problems ($d = -0.47$ and -0.46). Mediation analyses indicated full mediation of insomnia for effects of CBTI on affective and anxiety, and partial mediation on ADHD problems.

Conclusions: This is the first study demonstrating that Internet and face-to-face cognitive behavioral therapy for insomnia accomplishes long-term reduction in adolescent psychopathology by improvement of insomnia. This result has profound implications for youth mental health care.

Disclosure: Nothing to disclose.

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Insomnia symptoms and risk of coronary heart disease death in a community-based cohort

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Objectives: To investigate the association between insomnia symptoms and risk of coronary heart disease (CHD) death.

Methods: We used questionnaire data from a community-based cohort of 3550 participants aged 30–65 years to determine if difficulties initiating sleep (DIS) or difficulties maintaining sleep (DMS) were associated with CHD death during a 31-year follow-up period. The relative risk (RR) of CHD death was estimated using Cox's regression models.

Results: Severe DIS was reported by 6.2% and severe DMS by 8.4%. During the follow-up period 1417 participants died, 344 participants due to CHD death. Severe DIS and severe DMS were unrelated to all-cause mortality. In multivariate-adjusted models, women with severe DIS were more likely to die from CHD death than women without severe DIS (RR 2.42; 95% confidence interval [CI], 1.28–4.57). Adding regular use of hypnotics, sleep duration ≤ 6 h or ≥ 9 h to the model, the risk for women with severe DIS to die from CHD death was still significant, 2.48 (1.17–5.27). Men sleeping ≥ 9 h had an increased the risk of CHD death, 2.38 (1.08–5.26).

Conclusions: In a population-based cohort severe DIS in women and sleep duration ≥ 9 h in men were associated with increased risk of CHD death.

Disclosure: Nothing to disclose.

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Insomnia is associated with increased C-reactive protein levels in adolescents: role of objective short sleep duration

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Objectives: A recent meta-analysis indicated that insomnia and short sleep duration are associated with increased inflammation in adults. However, no study to date has examined the effect of insomnia, short sleep duration, and their combination on inflammation and whether this effect is present in adolescents.

Methods: 372 adolescents (17.0 ± 2.2 years, 46.2% female) from the Penn State Child Cohort underwent a 9-hour polysomnography (PSG) recording and provided a morning fasting blood sample. Insomnia was defined by a self-report of difficulties falling and/or staying asleep, while PSG sleep duration was split into ≥ 8, 7–8, and ≤ 7 h of sleep. Blood was assayed for CRP via ELISA. Linear regression assessed the association of insomnia, PSG sleep duration, and their interaction with CRP levels, while adjusting for age, gender, race, eveningness, and body mass (BMI), apnea/hypopnea (AHI), and periodic limb movement (PLMI) indices.

Results: A significant interaction ($P = 0.004$) indicated that PSG sleep duration modified the association between insomnia and CRP levels. Insomnia was significantly associated with higher CRP levels in adolescents who slept ≤ 7 h ($\beta = 0.30$, $P = 0.001$) but not in adolescents who slept 7–8 or ≥ 8 h ($\beta = -0.02$, $P = 0.773$ and $\beta = 0.07$, $P = 0.482$, respectively). This association was above and beyond the significant association of BMI and AHI with CRP, which was present regardless of PSG sleep duration.

Conclusions: Insomnia with objective short sleep duration is associated with elevated CRP levels as early as adolescence. Future studies should examine the role of systemic inflammation in predicting cardiometabolic abnormalities in this insomnia phenotype.

Disclosure: Nothing to disclose.