Prevalence, Course, and Comorbidity of Insomnia and Depression in Young Adults

Daniel J. Buysse, MD; Jules Angst, MD; Alex Gamma, PhD; Vladeta Ajdacic, PhD; Dominique Eich, MD; Wulf Rössler, MA, MD

1Department of Psychiatry, University of Pittsburgh School of Medicine, Pittsburgh, PA; 2Zurich University Psychiatric Hospital, Zurich, Switzerland

Study Objectives: (1) To describe the prevalence and prospective course of insomnia in a representative young-adult sample and (2) to describe the cross-sectional and longitudinal associations between insomnia and depression.

Design: Longitudinal cohort study.

Setting: Community of Zurich, Switzerland.

Participants: Representative stratified population sample.

Interventions: None.

Measurements and Results: The Zurich Study prospectively assessed psychiatric, physical, and sleep symptoms in a community sample of young adults (n = 591) with 6 interviews spanning 20 years. We distinguished 4 duration-based subtypes of insomnia: 1-month insomnia associated with significant distress, 2- to 3-week insomnia, recurrent brief insomnia, and occasional brief insomnia. The annual prevalence of 1-month insomnia increased gradually over time, with a cumulative prevalence rate of 20% and a greater than 2-fold risk among women. In 40% of subjects, insomnia developed into more chronic forms over time. Insomnia either with or without comorbid depression was highly stable over time. Insomnia lasting 2 weeks or longer predicted major depressive episodes and major depressive disorder at subsequent interviews; 17% to 50% of subjects with insomnia lasting 2 weeks or longer developed a major depressive episode in a later interview. “Pure” insomnia and “pure” depression were not longitudinally related to each other, whereas insomnia comorbid with depression was longitudinally related to both.

Conclusions: This longitudinal study confirms the persistent nature of insomnia and the increased risk of subsequent depression among individuals with insomnia. The data support a spectrum of insomnia (defined by duration and frequency) comorbid with, rather than secondary to, depression.

Keywords: epidemiology, insomnia, depression, prospective course

Citation: Buysse DJ; Angst J; Gamma A; Ajdacic V; Eich D; Rössler W. Prevalence, Course, and Comorbidity of Insomnia and Depression in Young Adults. SLEEP 2008;31(4):473-480.

Cognitive Behavioral Therapy for Insomnia Enhances Depression Outcome in Patients with Comorbid Major Depressive Disorder and Insomnia

Rachel Manber, PhD; Jack D. Edinger, PhD; Jenna L. Gress, BA; Melanie G. San Pedro-Salcedo, MA; Tracy F. Kuo, PhD; Tasha Kalista, MA

1Stanford University, Stanford, CA; 2VA Medical Center and Duke University Medical Center, Durham, NC

Study Objective: Insomnia impacts the course of major depressive disorder (MDD), hinders response to treatment, and increases risk for depressive relapse. This study is an initial evaluation of adding cognitive behavioral therapy for insomnia (CBTI) to the antidepressant medication escitalopram (EsCIT) in individuals with both disorders.

Design and setting: A randomized, controlled, pilot study in a single academic medical center.

Participants: 30 individuals (61% female, mean age 35±18) with MDD and insomnia.

Interventions: EsCIT and 7 individual therapy sessions of CBTI or CTRL (quasi-desensitization).

Measurements and results: Depression was assessed with the HRSD, and the depression portion of the SCID, administered by raters masked to treatment assignment, at baseline and after 2, 4, 6, 8, and 12 weeks of treatment. The primary outcome was remission of MDD at study exit, which required both an HRSD score ≤ 7 and absence of the 2 core symptoms of MDD. Sleep was assessed with the insomnia severity index (ISI), daily sleep diaries, and actigraphy. EsCIT + CBTI resulted in a higher rate of remission of depression (61.5%) than EsCIT + CTRL (33.3%). EsCIT + CBTI was also associated with a greater remission from insomnia (50.0%) than EsCIT + CTRL (7.7%) and larger improvement in all diary and actigraphy measures of sleep, except for total sleep time.

Conclusion: This pilot study provides evidence that augmenting an antidepressant medication with a brief, symptom focused, cognitive-behavioral therapy for insomnia is promising for individuals with MDD and comorbid insomnia in terms of alleviating both depression and insomnia.

Keywords: Major depressive disorder, Insomnia, Cognitive behavioral therapy, Remission

Citation: Manber R; Edinger JD; Gress JL; San Pedro-Salcedo MG; Kuo TF; Kalista T. Cognitive behavioral therapy for insomnia enhances depression outcome in patients with comorbid major depressive disorder and insomnia. SLEEP 2008;31(4):489-495.
Is Insomnia a Perpetuating Factor for Late-Life Depression in the IMPACT Cohort?

Wilfred R. Pigeon, PhD; Mark Hegel, PhD; Jürgen Unützer, MD; Ming-Yu Fan, PhD; Michael J. Sateia, MD; Jeffrey M. Lyness, MD; Cindy Phillips; Michael L. Perlis, PhD

1Department of Psychiatry, University of Rochester Medical Center, Rochester, NY; 2Department of Psychiatry, Dartmouth Medical School, Hanover, NH; 3Department of Psychiatry, University of Washington-Seattle, Seattle, WA

Study Objectives: Insomnia and depressive disorders are significant health problems in the elderly. Persistent insomnia is a risk factor for the development of new-onset and recurrent major depressive disorder (MDD). Less clear is whether persistent insomnia may perpetuate MDD and/or dysthymia. The present longitudinal study examines the relationship of insomnia to the continuation of depression in the context of an intervention study in elderly subjects.

Design: Data were drawn from Project IMPACT, a multisite intervention study, which enrolled 1801 elderly patients with MDD and/or dysthymia. In the current study, subjects were assigned to an insomnia-status group (Persistent, Intermediate, and No Insomnia) based on insomnia scores at both baseline and 3-month time points. Logistic regressions were conducted to determine whether Persistent Insomnia was prospectively associated with increased risk of remaining depressed and/or achieving a less than 50% clinical improvement at 6 and at 12 months compared with the No Insomnia reference group. The Intermediate Insomnia group was compared with the other 2 groups to determine whether a dose-response relationship existed between insomnia type and subsequent depression.

Conclusions: These findings suggest that, in addition to being a risk factor for a depressive episode, persistent insomnia may serve to perpetuate the illness in some elderly patients and especially in those receiving standard care for depression in primary care settings. Enhanced depression care may partially mitigate the perpetuating effects of insomnia on depression.

Keywords: Insomnia, depression, elderly, treatment response, risk factor, primary care

Citation: Pigeon WR; Hegel M; Unützer J; Fan MY; Sateia MJ; Lyness JM; Phillips C; Perlis ML. Is insomnia a perpetuating factor for late-life depression in the IMPACT cohort?. SLEEP 2008;31(4):481-488.

The Association Between Sleep Duration and Weight Gain in Adults: A 6-Year Prospective Study from the Quebec Family Study

Jean-Philippe Chaput, MSc; Jean-Pierre Després, PhD; Claude Bouchard, PhD; Angelo Tremblay, PhD

1Division of Kinesiology, Department of Social and Preventive Medicine, Faculty of Medicine, Laval University, Quebec City, Quebec, Canada; 2Quebec Heart Institute, Hôpital Laval Research Center, Hôpital Laval, Quebec City, Quebec, Canada; 3Human Genomics Laboratory, Pennington Biomedical Research Center, Baton Rouge, LA

Study Objective: To investigate the relationship between sleep duration and subsequent body weight and fat gain.

Design: Six-year longitudinal study.

Setting: Community setting.

Participants: Two hundred seventy-six adults aged 21 to 64 years from the Quebec Family Study. More than half of the sample is drawn from families with at least 1 parent and 1 offspring with a body mass index of 32 kg/m² or higher.

Measurements and Results: Body composition measurements and self-reported sleep duration were determined. Changes in adiposity indices were compared between short- (5-6 hours), average- (7-8 hours), and long- (9-10 hours) duration sleeper groups. After adjustment for age, sex, and baseline body mass index, short-duration sleepers gained 1.98 kg (95% confidence interval: 1.16-2.82) more and long-duration sleepers gained 1.58 kg (95% CI: 1.02-2.56) more than did average-duration sleepers over 6 years. Short- and long-duration sleepers were 35% and 25% more likely to experience a 5-kg weight gain, respectively, as compared with average-duration sleepers over 6 years. The risk of developing obesity was elevated for short- and long-duration sleepers as compared with average-duration sleepers, with 27% and 21% increases in risk, respectively. These associations remained significant after inclusion of important covariates and were not affected by adjustment for energy intake and physical activity participation.

Conclusions: This study provides evidence that both short and long sleeping times predict an increased risk of future body weight and fat gain in adults. Hence, these results emphasize the need to add sleep duration to the panel of determinants that contribute to weight gain and obesity.

Keywords: adiposity, body mass index, body weight, sleep loss, sleep deprivation, waist circumference

Citation: Chaput JP; Després JP; Bouchard C; Tremblay A. The association between sleep duration and weight gain in adults: a 6-year prospective study from the Quebec Family Study. SLEEP 2008;31(4):517-523.
Self-Reported Sleep Duration is Associated with the Metabolic Syndrome in Midlife Adults

Martica H. Hall, PhD; Matthew F. Muldoon, MD; J. Richard Jennings, PhD; Daniel J. Buysse, MD; Janine D. Flory, PhD; Steven B. Manuck, PhD

Study objective: Short and long sleep duration have been linked to various risk factors for cardiovascular disease. In the present study, we evaluated the relationship between sleep duration and presence of the metabolic syndrome, which is a cluster of physiologically interrelated risk factors for cardiometabolic disease.

Design/Setting: Cross-sectional community-based cohort study.

Participants: One thousand two hundred fourteen participants from the Adult Health and Behavior Project registry (aged 30 to 54 years).

Measurements: Participants were divided into 4 groups based upon their reported sleep duration. The metabolic syndrome was defined according to the American Heart Association/National Heart, Lung, and Blood Institute’s criteria. Logistic regression was used to test the hypothesis that sleep duration is a significant correlate of the metabolic syndrome and its components.

Results: The observed metabolic syndrome rate (22%) was similar to that of published health statistics for American adults. After covariate adjustment, the odds for having the metabolic syndrome increased by more than 45% in both short and long sleepers, compared with those sleeping 7 to 8 hours per night. Sleep duration was also associated individually with abdominal obesity, elevated fasting glucose, and hypertriglyceridemia. After further adjustment for use of antihypertensive medication, prevalence of the metabolic syndrome and its components remained elevated in short sleepers only.

Conclusion: These data suggest that sleep duration is a significant correlate of the metabolic syndrome. Additional studies are needed to evaluate temporal relationships among these measures, the behavioral and physiologic mechanisms that link the two, and their impact on subsequent cardiometabolic disease.

Keywords: Sleep, metabolic syndrome, obesity, cardiovascular disease, diabetes

Citation: Hall MH; Muldoon MF; Jennings JR; Buysse DJ; Flory JD; Manuck SB. Self-reported sleep duration is associated with the metabolic syndrome in midlife adults. SLEEP 2008;31(5):635-643.

Association between Nighttime Sleep and Napping in Older Adults

Suzanne E. Goldman, PhD; Martica Hall, PhD; Robert Boudreau, PhD; Karen A. Matthews, PhD; Jane A. Cauley, DrPH; Sonia Ancoli-Israel, PhD; Katie L. Stone, PhD; Susan M. Rubin, MPH; Suzanne Satterfield, PhD; Eleanor M. Simonsick, PhD; Anne B. Newman, MD, MPH

Study Objectives: Napping might indicate deficiencies in nighttime sleep, but the relationship is not well defined. We assessed the association of nighttime sleep duration and fragmentation with subsequent daytime sleep.

Design: Cross-sectional study.

Participants: 235 individuals (47.5% men, 29.7% black), age 80.1 (2.9) years.

Measurements and Results: Nighttime and daytime sleep were measured with wrist actigraphy and sleep diaries for an average of 6.8 (SD 0.7) nights. Sleep parameters included total nighttime sleep (h), movement and fragmentation index (fragmentation), and total daytime sleep (h). The relationship of total nighttime sleep and fragmentation to napping (yes/no) was assessed using logistic regression. In individuals who napped, mixed random effects models were used to determine the association between the previous night sleep duration and fragmentation and nap duration, and nap duration and subsequent night sleep duration. All models were adjusted for age, race, gender, BMI, cognitive status, depression, cardiovascular disease, respiratory symptoms, diabetes, pain, fatigue, and sleep medication use. Naps were recorded in sleep diaries by 178 (75.7%) participants. The odds ratios (95% CI) for napping were higher for individuals with higher levels of nighttime fragmentation [2.1 [0.8, 5.7]], respiratory symptoms [2.4 [1.1, 5.4]], diabetes [6.1 [1.2, 30.7]], and pain [2.2 [1.0, 4.7]]. Among nappers, neither sleep duration nor fragmentation the preceding night was associated with nap duration the next day.

Conclusion: More sleep fragmentation was associated with higher odds of napping although not with nap duration. Further research is needed to determine the causal association between sleep fragmentation and daytime napping.

Keywords: Napping, sleep duration, sleep fragmentation, diabetes, elderly

Citation: Goldman SE; Hall M; Boudreau R; Matthews KA; Cauley JA; Ancoli-Israel S; Stone KL; Rubin SM; Satterfield S; Simonsick EM; Newman AB. Association between nighttime sleep and napping in older adults. SLEEP 2008;31(5):733-740.