December 5, 2016

From: Sleep Research Society

To: National Institute on Alcohol Abuse and Alcoholism
NIAAASciencePolicyBranch@nih.gov

Re: SLEEP RESEARCH SOCIETY RESPONSE TO 2017-2021 Strategic Plan of the National Institute on Alcohol Abuse and Alcoholism (NIAAA).

We are providing input on behalf of the Sleep Research Society (SRS) regarding the 2017-2021 Strategic Plan of the National Institute of Alcohol Abuse and Alcoholism. The Sleep Research Society is the leading scientific organization in sleep and circadian research with 1,222 members.

Executive Summary

A third of our life is spent sleeping. Sleep and circadian timing are increasingly recognized as basic yet vital functions throughout the lifespan of animals and human beings. Individual choices, societal/peer pressures and alcohol use disorders (AUD) specifically will challenge these biological systems, resulting in widespread disturbances in sleep continuity and/or the sleep-wake cycle and consequent daytime impairment.

Progress of research at the interface of alcohol use and sleep and circadian science has improved our understanding of these complex inter-relationships. This understanding has led to improved conceptualization of the potential contribution of sleep and circadian rhythms to alcohol use disorders and to enhanced screening and counseling of patients with co-occurring AUD and sleep/circadian disorders. Given the mounting evidence of the importance of sleep and circadian health to AUD, together with the rapid advances in basic sleep and circadian science, we need to seize on this opportunity to accelerate alcohol-relevant translational and clinical research in sleep and circadian rhythms.

The Sleep Research Society created an ad-hoc committee with a mandate to suggest recommendations for conceptualizing and catalyzing research in sleep and circadian disorders within the 2017-2021 Strategic Plan of the National Institute on Alcohol Abuse and Alcoholism (NIAAA). Specific recommendations for wording changes with accompanying evidence are proposed for three of the proposed goals and their associated objectives. These recommendations can be adapted and directed to prioritize research across a range of populations and clinical settings of alcohol misuse and AUD. Sleep disorders preferentially burden disadvantaged populations, such as, those with AUDs, underscoring their public health importance and potential to address health disparities in our societies. It is our desire to move these recommendations towards the implementation phase by encouraging an exchange of ideas and advances in these identified goals by NIAAA.

Recommended text changes to Introduction:

- Add “sleep problems” to the sentence beginning “It contributes to...” and ending with “; and organ damage and disease” (p. 7, 2nd paragraph)
Add “sleep and circadian rhythm disorders” to the list of co-occurring conditions on page 9 (1st full paragraph under ‘Address Co-Occurring Conditions’)

Goal 1: Identify Mechanisms of Alcohol Action, Alcohol-Related Pathology, and Recovery.

Recommended text changes to Objective 1a:
- Insert an additional bullet point on p. 17, which may read as follows: *Identify the neurobiological and behavioral pathways through which sleep and circadian rhythm disturbances contribute to the development and maintenance of AUD*
- Insert “the circadian clock” after “stress” and before “cognitive function” on page 18, second paragraph/second sentence, which begins with “Other gene variants are thought.....”

Supporting Evidence for Proposed Wording Changes to Introduction and Objective 1a:
- Disturbed sleep is a pervasive and prominent symptom of alcohol misuse, with implications for a wide range of physical and mental health consequences, not the least of which is an increased risk of relapse during abstinence in adults with AUD. Starting with DSM-5, insomnia is now conceptualized as a comorbid disorder rather than “primary” or “secondary” to other mental health conditions, largely in recognition of the independent consequences of chronic insomnia (e.g., a 2-fold increase in developing new major depressive disorder).
- Insomnia is also highly comorbid with AUD (36-91%, ), as are other sleep disorders such as obstructive sleep apnea and delayed sleep phase disorder.
- Growing evidence indicates that sleep problems predict the onset of alcohol use, alcohol-related problems, and alcohol use disorder during adolescence and early adulthood. Sleep disturbance is implicated as an independent risk factor for relapse during recovery in AUD.
- A growing body of literature in other populations indicates that sleep and circadian rhythms modulate key mechanisms related to alcohol consumption and AUD, including aspects of emotion regulation, behavioral control, and decision-making. However, whether sleep problems influence alcohol-related outcomes via these mechanisms or others remains unclear.
- Multiple lines of evidence indicate that genes integral to the circadian clock show differential expression in adults with AUD and influence alcohol consumption.

Goal 3: Develop and Improve Interventions to Prevent Alcohol Misuse, Alcohol Use Disorder and Alcohol-Related Consequences

Recommended text changes to Objective 3b:
- Insert an additional bullet point on p. 43, which may read as follows: “Examine the additive benefits of adding sleep-focused education and/or behavioral sleep interventions to existing prevention programs for adolescents and young adults.”

Supporting Evidence for Proposed Wording Changes to Objective 3b:
- Growing longitudinal evidence suggests that sleep problems during childhood and adolescence are risk factors for the onset of alcohol use, alcohol-related problems, and alcohol use disorders. Although the mechanisms by which sleep confers risk remain unclear, addressing child and adolescent sleep problems prior to onset of alcohol involvement may prevent the progression to AUD. Notably, effective interventions for sleep problems during
childhood and adolescence are already available, and may complement other prevention efforts.

- Such efforts may also be effective after alcohol use has begun. Although using alcohol as a sleep aid is common among individuals with sleep problems, regular alcohol use actually disturbs sleep overall. Furthermore, among adolescents and young adults, alcohol appears to have differentially stimulating effects\textsuperscript{13,14}, especially during the evening\textsuperscript{15}, which could further exacerbate sleep problems. Thus, at a minimum, inclusion of sleep concepts is likely to enhance other educational alcohol-preventive interventions aimed at adolescents and young adults. Alternatively, prevention efforts ostensibly focused on sleep may prove more palatable to adolescents and young adults already barraged with other AUD prevention efforts\textsuperscript{16}.

Goal 4: Develop and Improve Treatments for Alcohol Misuse, Alcohol Use Disorder, Co-Occurring Conditions, and Alcohol-Related Consequences

**Recommended text changes to Objective 4a:**
- Insert “sleep disturbances” after “stress responsivity” and before “and cognitive function” in bullet point 2, page 48.

**Supporting Evidence for Proposed Wording Changes to Objective 4a:**
- Sleep disturbances are highly comorbid with AUD and have been shown to be independently related to the trajectory of recovery from AUD.
- Only a handful of studies have examined whether sleep interventions reduce alcohol use\textsuperscript{17,18}, even fewer in adolescents (despite promising results\textsuperscript{19}), and thus more research is needed to determine whether including sleep targets to existing AUD interventions would enhance their effectiveness.
- Sleep interventions may also carry less stigma, and thus provide a “gateway” into the therapeutic milieu that would may directly reduce alcohol-related outcomes and facilitate entry into an alcohol use disorder program via referral, if necessary.

**Recommended text changes to Objective 4b:**
Insert “and improve insomnia” after “reduce craving” and before “making it easier to....” On page 49, first paragraph/second sentence, which begins with “Acamprosate reduces the.....”

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Insert “and improve insomnia” after “reduce craving” and before “making it easier to....” On page 49, first paragraph/second sentence, which begins with “Acamprosate reduces the.....”

**Supporting Evidence for Proposed Wording Changes to Objective 4b:**
- Some medication such as gabapentin\textsuperscript{20} and acamprosate\textsuperscript{21,22} have demonstrated an improvement in insomnia symptoms when prescribed to subjects with AUD and insomnia, although more research is warranted

**References**


Sincerely,

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