

This is a repository copy of *"I don't stress about it like I used to": Perceptions of non-problematic sleep amongst people in residential treatment for substance disorders.*

White Rose Research Online URL for this paper:

<https://eprints.whiterose.ac.uk/id/eprint/143493/>

Version: Published Version

Article:

Neale, Jo, Grivska, Ksenija, Meadows, Robert et al. (1 more author) (2019) "I don't stress about it like I used to": Perceptions of non-problematic sleep amongst people in residential treatment for substance disorders. *Journal of Substance Use*. ISSN: 1475-9942

<https://doi.org/10.1080/14659891.2019.1595196>

Reuse

This article is distributed under the terms of the Creative Commons Attribution (CC BY) licence. This licence allows you to distribute, remix, tweak, and build upon the work, even commercially, as long as you credit the authors for the original work. More information and the full terms of the licence here:

<https://creativecommons.org/licenses/>

Takedown

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing eprints@whiterose.ac.uk including the URL of the record and the reason for the withdrawal request.



"I don't stress about it like I used to": Perceptions of non-problematic sleep amongst people in residential treatment for substance use disorders

Joanne Neale, Ksenija Diana Strekalova, Robert Meadows & Sarah Nettleton

To cite this article: Joanne Neale, Ksenija Diana Strekalova, Robert Meadows & Sarah Nettleton (2019): "I don't stress about it like I used to": Perceptions of non-problematic sleep amongst people in residential treatment for substance use disorders, *Journal of Substance Use*, DOI: [10.1080/14659891.2019.1595196](https://doi.org/10.1080/14659891.2019.1595196)

To link to this article: <https://doi.org/10.1080/14659891.2019.1595196>



© 2019 The Author(s). Published with license by Taylor & Francis Group, LLC.



Published online: 05 Apr 2019.



Submit your article to this journal [↗](#)





Article views: 92



View Crossmark data [↗](#)

"I don't stress about it like I used to": Perceptions of non-problematic sleep amongst people in residential treatment for substance use disorders

Joanne Neale ^{a,b}, Ksenija Diana Strekalova^a, Robert Meadows^c, and Sarah Nettleton ^d

^aInstitute of Psychiatry, Psychology & Neuroscience, King's College London, London, UK; ^bSouth London & Maudsley (SLaM) NHS Foundation Trust, Maudsley Hospital, London, UK; ^cDepartment of Sociology, University of Surrey, Surrey, UK; ^dDepartment of Sociology, University of York, York, UK

ABSTRACT

Background: Sleep problems are common amongst people who use alcohol and other drugs, but treatment options are limited. This paper explores how people in residential treatment for alcohol and other drug problems perceived and described 'non-problematic' sleep to provide insights that might inform sleep interventions for this population.

Methods: Qualitative interviews were conducted with 28 residents (19 women, 9 men; ages 24–83 years) in two residential drug and alcohol treatment centres in England during 2014/15. Interviews were audio-recorded, transcribed, and coded. Accounts of non-problematic sleep were then analysed inductively.

Results: Non-problematic sleep comprised three linked components: i. personal sleep patterns and routines; ii. sleep perceptions; and iii. sleep metacognitions. Some participants reported they slept well; others described their sleep as problematic but improving. Participants believed that sleep improved naturally with residential treatment and abstinence, but perceptions of 'good' sleep varied greatly. Participants used a range of metacognitive strategies (e.g. downgrading the importance of sleep; adapting their sleeping patterns; and focusing on sleep quality alongside sleep quantity) to manage sleep problems and render them non-problematic.

Conclusions: Metacognitive strategies that focus on changing perceptions of sleep can potentially inform sleep interventions for people with a history of alcohol and other drug use.

ARTICLE HISTORY

Received 5 October 2018

Accepted 10 March 2019

KEYWORDS

Substance use disorder; sleep; residential treatment; cognitive behavioural therapy; metacognition

Introduction

Sleep problems are common amongst people who use alcohol and other drugs (Arnedt, Conroy, & Brower, 2012; Burke et al., 2008), people in treatment for substance use disorders (Caetano, Clark, & Greenfield, 1998; Escobar-Cordoba, Avila-Cadavid, & Cote-Menendez, 2009), people exiting treatment for substances use disorders (Kolla et al., 2015), and people in recovery (Brower, Aldrich, Robinson, Zucker, & Greden, 2001; Nettleton, Neale, & Pickering, 2011). Difficulties sleeping are correlated with relapse (Brower, Aldrich, & Hall, 1998; Burke et al., 2008) and can cause people who are seeking to overcome a substance use disorder to feel distressed and unable to cope (Neale, Pickering, & Nettleton, 2012; Nettleton et al., 2011). Whilst there is evidence that sleep improves with abstinence from substances (Angarita et al., 2014; Kolla et al., 2014), sleep problems can persist long after substance use cessation (Brower, 2015; Hasler, Smith, Cousins, & Bootzin, 2012).

The types of sleep problems experienced by people who use substances are diverse, including difficulties falling asleep, prolonged wakefulness, sleeping too much, broken sleep, vivid dreams, nightmares, and hallucinations (Neale et al., 2017). Research has shown that many people who use, or who have used, alcohol and other drugs have a strong desire to sleep 'better' (Neale et al., 2017). Nonetheless, improving

sleep quality and quantity is not straightforward for this population. This is because substance use can affect sleep regulation processes (Armitage, Hoffmann, Conroy, Arnedt, & Brower, 2012), sleep-stage physiology (Irwin et al., 2002), and circadian rhythms (Hasler et al., 2012). Additionally, sleep can be compromised by personal, social and environmental factors that are not easily controlled, such as poor mental and physical health; bodily needs and functions; worries and stresses; unstable housing or homelessness; feeling unsafe; noise and smells; an uncomfortable bed; and biographies of poor or light sleeping (Neale et al., 2017).

Various sleep-related scales have been used to assess the sleep of people addicted to alcohol and other drugs, e.g. the Pittsburgh Sleep Quality Index (Buysse, Reynolds, Monk, Berman, & Kupfer, 1989), the Epworth Sleepiness Scale (Johns, 1991), and the Sleep Problems Questionnaire (Jenkins, Stanton, Niemcryk, & Rose, 1988). However, we have only been able to identify one validated measure designed specifically for people experiencing problems with alcohol or other drugs. This is the Substance Use Sleep Scale (SUSS) which was developed with significant input from people reporting a current or previous problem with alcohol or other drugs (Neale et al., 2018). SUSS may be deployed by people who use substances to monitor and reflect on their own sleep; by treatment providers to encourage and enable people who use substances to think about sleep and identify

strategies for improving sleep; and by researchers as an outcome measure when conducting studies with this population (Neale et al., 2018).

Aside from standard education and information on 'sleep hygiene' and cognitive behavioural therapy (CBT), there are limited treatment options for people experiencing co-occurring sleep problems and substance use disorders. Medical professionals can be reluctant to prescribe, and people in treatment and recovery for a substance use disorder can be unwilling to take, sleep medications as these drugs may reinforce substance use or trigger relapse (Friedmann et al., 2003; Neale et al., 2017). Cognitive behavioural therapy for insomnia in alcohol dependent patients (CBTI-AD) is the only treatment that has been evaluated and found to improve subjective sleep and daytime symptoms (although not relapse rates) in people recovering from alcohol problems (Arnedt, Conroy, Armitage, & Brower, 2011; Currie, Clark, Hodgins, & El-Guebaly, 2004). CBTI-AD includes education on how alcohol and drugs affect sleep, highlights the importance of abstinence for sleep, challenges relapse-related thoughts, and helps people to find alternative behaviours to night-time drinking (Arnedt et al., 2011).

One notable feature of the existing clinical and academic work on sleep and substance use disorders is the focus on 'poor' sleep and sleep 'problems'. Whilst this is explicable given their prevalence, there is a lack of research exploring whether people in treatment or in recovery from alcohol and other drug problems ever experience 'good', 'adequate' or 'acceptable' sleep. Understanding what constitutes 'good enough' sleep, and how this is attained, seems to be crucial but missing information if we are to help people in treatment or in recovery to sleep better. In this paper, we begin to address this gap by exploring how people in residential treatment for alcohol and other drug problems perceived and described 'non-problematic' sleep. A secondary aim is to provide insights that might inform future sleep interventions for this population.

Material and methods

Data were generated as part of a qualitative study conducted in two residential drug and alcohol treatment centres in England during 2014 and 2015. One treatment centre was mixed sex and provided supervised detoxification and structured activities focusing on achieving abstinence and dealing with the challenges associated with early recovery. The second treatment centre catered only for women and provided a less structured programme of groups and activities to build life skills and confidence post detoxification. Ethical approval was received from two University ethics committees; see Nettleton, Meadows, and Neale (2016) and Meadows, Nettleton, and Neale (2017) for further study details.

Three experienced qualitative researchers (R.M., S.N. and a third colleague not otherwise involved in the study) conducted one-to-one interviews with 28 residents (19 women and 9 men; ages 24–83 years). Prior to being interviewed, all participants signed a consent form that clarified that their involvement was voluntary, confidential and independent of any professional support they may have been receiving. Most

of the 28 participants were white British, and most had left school at 16 years of age with few or no qualifications, although 7 had a university degree and some had professional occupations. Each interview lasted approximated one hour, was audio recorded, and followed a topic guide that explored participants' biographies; substance use; treatment experiences; and sleep at different life stages, although with a focus on the two weeks prior to interview.

All audio recordings were professionally transcribed verbatim and entered into the software programme MAXQDA v18 (VERBI Software, 2017). A code 'non-problematic sleep' was first created. Next each interview transcription was reviewed line-by-line (by K.G.) and all segments of text relating to sleep experiences that participants described as 'good', 'desirable', 'satisfying', 'acceptable' or 'not causing any problems' were appended to the 'non-problematic sleep' code. Data relating to non-problematic sleep during periods of active substance use were deleted to ensure that the analyses focused only on sleep whilst in treatment, in recovery, or abstinent.

Once all 28 interviews had been coded in this way, the coded data were exported into a Microsoft Word document and analysed inductively (by K.D.S. and J.N.) via a process of Iterative Categorization (Neale, 2016). To this end, each coded text extract was summarised into key points and similar key points from all data extracts were then grouped and re-grouped to yield patterns and themes in the data.

Findings

Analyses indicated that non-problematic sleep comprised three linked components: i. personal sleep patterns and routines (participants' accounts of their own experiences of sleeping well); ii. sleep perceptions (participants' general thoughts and beliefs about sleep quality); and iii. sleep metacognitions (participants' strategies for adapting to poor sleep by reconceptualizing it as non-problematic sleep). Findings are presented below and illustrated with verbatim quotations. Each participant has been given a pseudonym to protect their anonymity. Pseudonyms are followed by the letter A or D to indicate whether a participant was in treatment primarily for alcohol (A) or other drugs (D) or alcohol and other drugs (A and D) during their interview.

Personal sleep patterns and routines

Most participants spoke of previous periods in their lives when they had either slept well or did not remember sleeping badly, and some reported that they slept well currently. Others explained that their sleep had been improving since they had been in treatment; since they had stopped using substances; since their days had become busier and more structured; or since their withdrawal symptoms, physical pains and nightmares had abated:

"But recently, last week or two, because I've been clean [abstinent], I am clean, I'm not suffering withdrawals, I found it a lot easier to sleep, sleep longer." (Harry, D)

Participants frequently described their own current experiences of good sleep in terms of being able to fall asleep quickly and easily, and without too much tossing and turning:

"I had no problems initiating [sleep]. I'd say one minute, two minutes, I'm gone [asleep]". (Emma, A)

To evidence their rapid sleep onset, participants commonly linked falling asleep directly to a prior act that clearly demonstrated their intention to sleep, such as 'closing their eyes', 'getting into bed', 'turning off the lights', 'putting their head on the pillow', 'finishing their prayers' or 'reading a few pages of their book'.

Participants also reported that, once asleep, staying asleep demonstrated that they were sleeping well. Supporting this, participants sometimes stated that they slept 'solidly' or referred to the number of hours they slept without waking. When asked to describe what she meant when she said she slept well, one female participant responded:

"A good sleep is going to bed at about ten o'clock, half ten, eleven latest, and waking up at six, and not getting up in the middle of the night." (Olienka, A and D)

In practice, few participants said that they currently slept through the entire night without waking up at all. Nonetheless, many explained that, once asleep, they often managed to sleep through discomfort and disturbances, including uncomfortable beds and mattresses, the physical pain of withdrawal symptoms, reading lights, fire alarms, bad weather outside, and noises made by roommates, including snoring:

"My roommate snores like a fucking chainsaw, but I still do get some sleep." (Agatha, A and D)

Whereas some participants said that they slept so well that other people could not wake them in a morning, others explained that they slept well and therefore woke up 'easily' in a morning. Participants also described their own experiences of positive sleep in terms of wakening 'naturally'; that is by their own 'body clock' rather than by noise, an alarm, light, or other people. For one female participant, 'natural waking' tended to happen at the weekend when she felt 'more relaxed' and knew she 'did not have to get up'.

Sleep perceptions

In terms of general thoughts and beliefs about sleep quality, several participants reported that sleeping invariably deteriorated during detoxification and early recovery, but 'slowly' and 'naturally' improved over time:

"I think sometimes there's got to be definitely some kind of natural process there. I think nature does its thing, don't it? In its own good time a lot of the time... I hear people all the time in here [residential treatment] talk about not getting their sleep patterns back and then I see it come back." (Neil, D)

Others maintained that improvement in sleep was conditional on other psycho-social and environmental changes, such as 'getting stronger', 'feeling more comfortable', 'getting settled in one's own mind', 'feeling safer', 'becoming more peaceful', 'utilising coping strategies and tools', 'talking about one's feelings', 'going to mutual aid meetings', 'not drinking or using drugs', and, in due course, 'not being bound by the rigid structure of a residential treatment setting' and 'being back in one's own environment'.

Participants often stated that sleep quality depended on both the duration and timing of sleep. For example, some felt that having a specific number of hours asleep (ranging from six to nine) was a sign of good sleep. Conversely, others thought that too much sleep made them tired and lazy, and believed that a few hours' sleep or a nap during the day made them feel less tired than a full night in bed. Some associated good sleep with going to sleep and waking up at the same time each day, with one male participant adding that getting to sleep before midnight and getting up before nine o'clock in the morning was the key to feeling rested:

"If you manage to get any hours before midnight, they're the most important. And I feel that getting up at a decent time in the morning, i.e. before nine o'clock, is important for your body clock". (Harry, D)

Despite the importance participants attached to measurable indicators of sleep quantity, others argued that sleep quality was more significant:

"For me it's quality... If my body decides I... only need six, seven hours sleep a night, if it's good quality, that doesn't bother me. I can do it." (Anna, A)

Yet, participants perceived sleep quality in different ways. For some, it meant experiencing a deep and disorienting sleep, which felt like 'entering a different world', and after which they woke up not knowing where they were or what time of day it was. Others associated sleep quality with waking up feeling 'not tired', 'fresh', 'alert' and 'ready to start the day'.

Sleep metacognitions

Participants routinely described ways that they had adapted to poor sleep by reconceptualizing it as non-problematic. For example, many participants explained that they had decided to 'accept' sleep problems, such as insomnia, insufficient sleep, and early morning wakening, because they could not control them. Elaborating on this, some described health conditions, such as liver problems, pain, or tinnitus, that caused unavoidable sleep problems; some noted that 'you just have to live with' noisy roommates or other people snoring when in residential treatment; and some emphasized that there was no point in 'fighting' insomnia whilst detoxing as it was inevitable and even 'normal'. Participants then explained how accepting sleep problems had made difficulties sleeping much easier for them to manage:

"Going in to [residential treatment centre], I had made a decision to just roll with it [sleep problem] basically, and take every minute as it came, and just be aware that I couldn't do anything about it... it was much, much better." (Kirsty, D)

In addition, one female participant reported that she struggled to wake up on a morning because of her anti-depressant medications so had recently adapted to this by getting up an hour earlier each day to give herself more time to become fully alert. Others described how they woke up in the night (because of noise, or night sweats or to use the bathroom) but did not worry about it and did not believe that waking up in this way compromised their sleep quality.

Relatedly, participants sometimes stated that they just did not worry about sleep. In this regard, several participants

reported that they used their time awake during the night to do things that distracted them from their sleeplessness, were enjoyable, or helped them to relax. This might include watching television, reading books, listening to music, doing odd jobs, going for a walk, or watching the stars:

"I'd say it's not a problem if you're awake at four in the morning, what's the difference? There's plenty of hours you can get to sleep when you're really knackered. You've got music, you've got books... Sleep when you have to. If you can't, just try and amuse yourself." (Andrew, D)

In fact, two male participants reported that they had even come to like sleepless nights because they were quiet and peaceful, and one added that relaxing was very similar to sleeping and he had latterly realised that he probably did not need as much sleep as he had always believed:

"Do I really need as much [sleep] as I thought I did? Maybe some days you do, maybe some days you don't. But I thought there's so much I could get done, at them times really." (Neil, D)

Not dissimilarly, other participants stated that they did not sleep as much as other people, but they were content with the amount of sleep they currently had. Even if it was not perfect, they said that they could manage. Indeed, several participants compared the hours they currently slept with previous experiences of almost no sleep and said that they felt satisfied or even happy:

"I'm actually happy with the amount of sleep I'm getting compared to what it was like when I was drinking." (Betty, A and D)

According to some participants, being restless or tossing and turning during sleep was normal and therefore also nothing to worry about. Furthermore, several stated that stress, and stress about not sleeping, were pointless and only exacerbated sleep problems. Based on this, a few participants said that they had learned not to get anxious about, or 'overthink', sleep. Some said that this was relatively straightforward because they did not believe sleep was important or because they had other 'more serious' problems to worry about. Others had more consciously rationalised that a bad night's sleep would not stop them from functioning:

"I don't stress about it like I used to. I know if I have a poor night that I will catch up, and, on the whole, it doesn't affect my functioning in order to work. So I don't stress about it like I used to." (Christopher, A)

Discussion

This paper has explored how people in residential treatment for alcohol and other drug problems perceived and described their experiences of 'non-problematic' sleep, with the intention that this might provide information to inform future sleep interventions for this population. Analyses found that some participants reported that they slept well; others said their sleep was problematic yet improving since entering treatment and/or abstaining. Few participants described sleeping through the entire night. Nonetheless, waking up during sleep is very common amongst adults in the general population (Arber & Meadows, 2011). More positively, many participants explained how they were able to sleep through noise, light, pain, and other potentially disturbing factors.

Participants commonly believed that sleep deteriorated during detoxification and early recovery but then improved naturally overtime. Nonetheless, views of what constituted good sleep varied. Whereas some participants prioritized length, others focused on depth, quality, timing, ease of falling asleep or wakening, lack of tiredness, or daily functioning. These diverse aspects of sleep resonate strongly with six of the seven components of the Pittsburgh Sleep Quality Index (PSQI): subjective sleep quality, sleep latency, sleep duration, time in bed asleep, sleep disturbances, and daytime dysfunction (Buysse et al., 1989). Although participants did not mention the seventh component of the PSQI (use of sleep medications), reluctance to use sleep medication has been previously reported by people in recovery from a substance use disorder (Neale et al., 2017).

Findings additionally provide insights into a range of metacognitive strategies that participants used to manage sleep, and thereby render it non-problematic. These included accepting sleep problems; adapting by using time awake to do restful, productive or pleasurable things; re-conceptualizing time awake as relaxing and even enjoyable; recognizing that it is possible to go back to sleep with minimal disruption if awoken; comparing current sleep favourably with previously very poor sleep; recognizing that 'tossing and turning' are 'normal'; understanding that it is possible to manage and function despite being tired; and learning not to worry about, stress over, or 'overthink' sleep.

Metacognition is effectively 'thinking about thinking', and it offers a useful way of knowing when and how to use particular strategies to address problems (Metcalfe & Shimamura, 1994). Although there are metacognitive approaches to insomnia (Harvey, 2002; Ong, Ulmer, & Manber, 2012; Palagini, Ong, & Riemann, 2017; Palagini et al., 2014), they do not feature in the literature on sleep problems amongst people experiencing a substance use disorder. Metacognitive approaches to insomnia promote increased acceptance and equanimity regarding not sleeping instead of attempting to modify unsatisfactory sleep (Ong et al., 2012). This is achieved via four mechanisms: i. balance (not ascribing sleep too much importance); ii. flexibility (being flexible about sleep behaviours); iii. equanimity (not being attached to specific sleep outcomes or needs); and iv. commitment to values (retaining a focus on non-sleep values and actions and not letting efforts to control sleeplessness overshadow value-consistent goals) (Ong et al., 2012).

A recent survey of 188 people reporting drug or alcohol problems concluded that sleep interventions for this population should be informed by the accounts and experiences of those who have already managed to address their sleep problems, and by those currently working to overcome sleep problems (Neale et al., 2017). The current qualitative study has contributed to this endeavour by exploring perceptions of non-problematic sleep amongst people in residential treatment, thereby revealing how they routinely deploy metacognitive techniques to reconceptualize 'poor sleep' as 'non-problematic'. For example, they demoted the importance of sleep (balance), adapted their sleeping patterns (flexibility), recognised the relevance of sleep quality as well as quantity (equanimity), and prioritised 'more serious problems' (commitment to values).

Conclusions

Sleep is an involuntary process and trying to change or control sleep outcomes may simply make it harder to sleep (Espie, 1991). For people who are using alcohol and other drugs, or who are in treatment or in recovery, the opportunity and capability to sleep well can be even more constrained (Neale et al., 2017). Despite this, all people generally retain a degree of control over their own cognitive processes; therefore, perceptions of sleep quality seem likely to be more amenable to change than quantitative measures, such as sleep latency, duration and efficiency. One potential response to sleep problems amongst people with a history of alcohol and other drug use might therefore be to focus less on attempts to modify quantitative sleep outcomes via sleep hygiene and cognitive behavioural therapy, and focus more on helping people to change their perceptions of sleep quality via metacognitive strategies. If rigid beliefs about sleep being problematic can be dispelled, sleep itself may then begin to improve (Ong et al., 2012).

Limitations and strengths

The analyses presented are based on only 28 interviews conducted in two UK residential treatment settings. As with any qualitative study, the findings cannot be generalized in any empirical sense to the wider population of people using or recovering from a substance use disorder. In addition, we acknowledge that the three components of sleep identified in the findings (personal sleep patterns and routines, sleep perceptions, and sleep metacognitions) are not totally discrete. They have been separated as a heuristic device although in practice how we act, what we think, and how we adapt and regulate what we think are linked. Despite these limitations, this qualitative study has facilitated a detailed exploration of non-problematic sleep from the perspective of people who have experienced a substance use disorder. In so doing, we have generated insights that we hope might facilitate the design of future sleep interventions for this population.

Acknowledgments

We wish to thank the men and women who participated in the study and the staff at the two treatment services who facilitated access to their residents and supported the study. We are additionally grateful to Dr Sue Venn who carried out three of the interviews and to James Gunn for his excellent transcribing.

Disclosure of potential conflicts of interest

In the last 2 years, J.N. has received research grant support from Mundipharma International Limited and Camurus AB to undertake qualitative research on opioid pharmacotherapy bio-delivery systems. K.D.S., R.M. and S.N. have no declarations to report.

Funding

The empirical research and data collection for this study were supported and made possible by funds from the British Academy/Leverhulme Small Research Grants Scheme SRG 2013-14 Round (Reference: SG132091). Project title: Sleep during recovery from drug and alcohol dependence: a sociological study of embodied change. J. N. is part-funded by the National Institute for Health Research (NIHR) Biomedical Research Centre for Mental Health at South London and

Maudsley NHS Foundation Trust and King's College London. The views expressed are those of the authors and not necessarily those of the British Academy/Leverhulme, the NHS, the NIHR, or the Department of Health.

ORCID

Joanne Neale  <http://orcid.org/0000-0003-1502-5983>
Sarah Nettleton  <http://orcid.org/0000-0002-5184-2764>

References

- Angarita, G., Canavan, S., Forselius, E., Bessette, A., Pittman, B., & Morgan, P. (2014). Abstinence-related changes in sleep during treatment for cocaine dependence. *Drug and Alcohol Dependence*, 134, 343–347. doi:10.1016/j.drugalcdep.2013.11.007
- Arber, S., & Meadows, R. (2011). Social and health patterning of sleep quality and duration. In S. McFall & C. Garrington (Eds.), *Understanding society: Early findings from the first wave of the UK's household longitudinal study* (pp. 88–98). Colchester, UK: ISER, University of Essex.
- Armitage, R., Hoffmann, R., Conroy, D. A., Arnedt, J. T., & Brower, K. J. (2012). Effects of a 3-hour sleep delay on sleep homeostasis in alcohol dependent adults. *Sleep*, 35, 273–278. doi:10.5665/sleep.1638
- Arnedt, J. T., Conroy, D. A., Armitage, R., & Brower, K. J. (2011). Cognitive-behavioral therapy for insomnia in alcohol dependent patients: A randomized controlled pilot trial. *Behaviour Research and Therapy*, 49, 227–233. doi:10.1016/j.brat.2011.02.003
- Arnedt, J. T., Conroy, D. A., & Brower, K. J. (2012). Sleep and substance use disorders. In C. M. Morin & C. A. Espie (Eds.), *The Oxford handbook of sleep and sleep disorders* (pp. 526–554). Oxford, UK: Oxford University Press.
- Brower, K. J. (2015). Assessment and treatment of insomnia in adult patients with alcohol use disorders. *Alcohol*, 49, 417–427. doi:10.1016/j.alcohol.2014.12.003
- Brower, K. J., Aldrich, M. S., & Hall, J. M. (1998). Polysomnographic and subjective sleep predictors of alcoholic relapse. *Alcoholism: Clinical & Experimental Research*, 22, 1864–1871. doi:10.1111/acer.1998.22.issue-8
- Brower, K. J., Aldrich, M. S., Robinson, E. A., Zucker, R. A., & Greden, J. F. (2001). Insomnia, self-medication, and relapse to alcoholism. *American Journal of Psychiatry*, 158, 399–404. doi:10.1176/appi.ajp.158.3.399
- Burke, C. K., Peirce, J. M., Kidorf, M. S., Neubauer, D., Punjabi, N. M., Stoller, K. B., ... Brooner, R. K. (2008). Sleep problems reported by patients entering opioid agonist treatment. *Journal of Substance Abuse Treatment*, 35, 328–333. doi:10.1016/j.jsat.2007.10.003
- Buyse, D. J., Reynolds, C. F., Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh Sleep Quality Index: A new instrument for psychiatric practice and research. *Psychiatry Research*, 28, 193–213. doi:10.1016/0165-1781(89)90047-4
- Caetano, R., Clark, C. L., & Greenfield, T. K. (1998). Prevalence, trends, and incidence of alcohol withdrawal symptoms: Analysis of general population and clinical samples. *Alcohol Health and Research World Journal*, 22, 73–79.
- Currie, S. R., Clark, S., Hodgins, D. C., & El-Guebaly, N. (2004). Randomized controlled trial of brief cognitive-behavioural interventions for insomnia in recovering alcoholics. *Addiction*, 99, 1121–1132. doi:10.1111/j.1360-0443.2004.00835.x
- Escobar-Cordoba, F., Avila-Cadavid, J. D., & Cote-Menendez, M. (2009). Complaints of insomnia in hospitalized alcoholics. *Revista Brasileira De Psiquiatria*, 31, 261–264.
- Espie, C. A. (1991). *The psychological treatment of insomnia*. Oxford, UK: Wiley-Blackwell.
- Friedmann, P. D., Herman, D. S., Freedman, S., Lemon, S. C., Ramsey, S., & Stein, M. D. (2003). Treatment of sleep disturbance in alcohol recovery. *Journal of Addictive Diseases*, 22, 91–103. doi:10.1300/J069v22n02_08
- Harvey, A. (2002). A cognitive model of insomnia. *Behaviour. Research and Therapy*, 40, 869–893. doi:10.1016/S0005-7967(01)00061-4
- Hasler, B. P., Smith, L. J., Cousins, J. C., & Bootzin, R. R. (2012). Circadian rhythms, sleep, and substance abuse. *Sleep Medicine Reviews*, 16, 67–81. doi:10.1016/j.smrv.2011.03.004

- Irwin, M., Gillin, J., Dang, J., Weissman, J., Phillips, E., & Ehlers, C. L. (2002). Sleep deprivation as a probe of homeostatic sleep regulation in primary alcoholics. *Biological Psychiatry*, 51, 632–641.
- Jenkins, C. D., Stanton, B. A., Niemcryk, S. J., & Rose, R. M. (1988). A scale for the estimation of sleep problems in clinical research. *Journal of Clinical Epidemiology*, 41, 313–321. doi:10.1016/0895-4356(88)90138-2
- Johns, M. W. (1991). A new method for measuring daytime sleepiness: The epworth sleepiness scale. *Sleep*, 14, 540–545.
- Kolla, B. P., Schneekloth, T., Biernacka, J., Mansukhani, M., Geske, J., Karpayak, V., ... Frye, M. A. (2014). The course of sleep disturbances in early alcohol recovery: An observational cohort study. *The American Journal on Addictions*, 23, 21–26. doi:10.1111/j.1521-0391.2013.12056.x
- Kolla, B. P., Schneekloth, T., Mansukhani, M. P., Biernacka, J. M., Hall-Flavin, D., Karpayak, V., ... Frye, M. A. (2015). The association between sleep disturbances and alcohol relapse: A 12-month observational cohort study. *The American Journal on Addictions*, 24, 362–367. doi:10.1111/ajad.12199
- Meadows, R., Nettleton, S., & Neale, J. (2017). Sleep waves and recovery from drug and alcohol dependence: Towards a rhythm analysis of sleep in residential treatment. *Social Science & Medicine*, 184, 124–133. doi:10.1016/j.socscimed.2017.05.016
- Metcalf, J., & Shimamura, A. P. (1994). *Metacognition: Knowing about knowing*. Cambridge, MA: MIT Press.
- Neale, J. (2016). Iterative Categorization (IC): A systematic technique for analysing qualitative data. *Addiction*, 111, 1096–1106. doi:10.1111/add.13314
- Neale, J., Meadows, R., Nettleton, S., Panebianco, D., Strang, J., Vitoratou, S., & Marsden, J. (2017). Substance use, sleep and intervention design: Insights from qualitative data. *Journal of Mental Health*. doi:10.1080/09638237.2017.1417560
- Neale, J., Pickering, L., & Nettleton, S. (2012). *The everyday lives of recovering heroin users*. London, UK: Royal Society of Arts.
- Neale, J., Vitoratou, S., Lennon, P., Meadows, R., Nettleton, S., Panebianco, D., ... Marsden, J. (2018). Development and early validation of a patient reported outcome measure to assess sleep amongst people experiencing problems with alcohol or other drugs. *Sleep*, 41(4), zsy013. doi:10.1093/sleep/zsy024
- Nettleton, S., Meadows, R., & Neale, J. (2016). Disturbing sleep and sleepfulness during recovery from substance dependence in residential rehabilitation settings. *Sociology of Health & Illness*, 39, 784–798. doi:10.1111/1467-9566.12528
- Nettleton, S., Neale, J., & Pickering, L. (2011). Techniques and transitions: A sociological analysis of sleeping practices amongst recovering heroin users. *Social Science and Medicine*, 72, 1367–1373. doi:10.1016/j.socscimed.2011.02.040
- Ong, J. C., Ulmer, C. S., & Manber, R. (2012). Improving sleep with mindfulness and acceptance: A metacognitive model of insomnia. *Behaviour Research and Therapy*, 50, 651–660. doi:10.1016/j.brat.2012.08.001
- Palagini, L., Ong, J. C., & Riemann, D. (2017). The mediating role of sleep-related metacognitive processes in trait and pre-sleep state hyperarousal in insomnia disorder. *Journal of Psychosomatic Research*, 99, 59–65. doi:10.1016/j.jpsychores.2017.03.001
- Palagini, L., Piarulli, A., Menicucci, D., Cheli, E., Lai, E., Bergamasco, M., ... Gemignani, A. (2014). Metacognitive beliefs relate specifically to sleep quality in primary insomnia: A pilot study. *Sleep Medicine*, 15, 918–919. doi:10.1016/j.sleep.2014.03.017
- VERBI Software. (2017). MAXQDA 2018 [computer software]. Berlin, Germany: VERBI Software. Retrieved from <https://www.maxqda.com>