

## Impact case study (REF3)

<b>Institution:</b> University of Northumbria at Newcastle		
<b>Unit of Assessment:</b> 4 (Psychology, Psychiatry, and Neuroscience)		
<b>Title of case study:</b> Improving understanding of, and effective treatment for, insomnia		
<b>Period when the underpinning research was undertaken:</b> 2009 - 2018		
<b>Details of staff conducting the underpinning research from the submitting unit:</b>		
<b>Name(s):</b>	<b>Role(s) (e.g. job title):</b>	<b>Period(s) employed by submitting HEI:</b>
Jason Ellis	Professor	2009 - present
<b>Period when the claimed impact occurred:</b> August 2013 – December 2020		
<b>Is this case study continued from a case study submitted in 2014?</b> N		
<p><b>1. Summary of the impact</b> (indicative maximum 100 words)</p> <p>Insomnia is a significant, costly condition, known to contribute to the development and/or worsening of other conditions, including depression. Cognitive Behavioural Therapy (CBT) is traditionally considered the first line of treatment for insomnia. However, success is often hampered by a lack of qualified providers and high levels of non-adherence and attrition. Over the last decade, Professor Jason Ellis at Northumbria University has led research to improve the understanding of insomnia, culminating in the development of an alternative treatment – a brief, ‘one-shot’, CBT-I intervention. Development of the intervention has informed EU and USA sleep guidelines and improved clinical understanding and skills for treating sleep issues in the UK and beyond. Ellis has also used his research to improve public understanding of, and ability to self-manage, insomnia, through the development of publicly accessible self-help tools, including a book entitled <i>The One-Week Insomnia Cure</i>, the content of which was serialised in the Daily Mail in 2017. Feedback on the book and serialisation demonstrates a change in understanding, which has helped readers to manage their sleep issues, leading to improved sleep outcomes among the general population.</p>		
<p><b>2. Underpinning research</b> (indicative maximum 500 words)</p> <p>Insomnia is a condition that affects approximately 16% of the population of the UK and Europe. The research institute RAND Europe estimates that this costs the UK economy GBP40,000,000,000 per year in reduced productivity and absences from work. Without treatment, insomnia is unrelenting and persistent and can lead to the development or worsening of other health problems, including depression [R1-R3].</p> <p>Since 2009, Professor Jason Ellis from Northumbria University has led research (funded in-part by the ESRC) exploring the clinical manifestations of, and potential new ways to treat, insomnia. Within this research, Ellis has worked to improve understanding of acute insomnia, a condition that traditionally receives relatively little attention in comparison to persistent/chronic insomnia [R1]. Ellis’ research provided the first accepted working definition of acute insomnia for research and clinical practice – insomnia which persists for a period of between 2 weeks and 3 months, resulting in distress and reduced quality of life [R1]. Recognising an absence of published estimates of the prevalence/incidence of acute insomnia and data regarding transition to chronic insomnia or remission, Ellis led an epidemiological study to ascertain such data in the UK and USA [R2]. This research, published in 2012, determined that the prevalence of acute insomnia was 7.9% in the UK and 9.5% in the USA, and that the annual incidence rate is between 33-36% in the UK. These findings aid the understanding of the pathogenesis of insomnia and improved comprehension of when and how treatment should be initiated [R2]. In 2014, Ellis published a mixed-model inception study exploring the link between acute insomnia and depression, which identified a clear link between poorer sleep experienced because of acute insomnia and a first-ever episode of depression [R3].</p> <p>The traditional first-line treatment for insomnia is Cognitive Behavioural Therapy for Insomnia (CBT-I), which requires 8-10 hours of face-to-face contact with a healthcare professional, over a period of 6 to 8 weeks. The success of CBT-I is known to be hampered by a lack of qualified providers and high levels of non-adherence and attrition. Using this knowledge, Ellis developed a new form of treatment – a brief, ‘one-shot’, CBT-I intervention comprising a one-hour session (covering sleep education and sleep restriction) aimed at managing dysfunctional behaviours</p>		

during the acute phase of insomnia [R4]. An accompanying self-help pamphlet was also provided, explaining the principles of stimulus control, cognitive control, and the use of imagery distraction techniques – conveyed as the three D's: detect, detach, distract - to manage dysfunctional sleep-related thinking [R4]. A randomised controlled trial exploring the efficacy of this variant of CBT-I conducted by Ellis and colleagues concluded that full CBT-I was not necessary – rather, this brief version with fewer components would be suitable for circumventing the development of insomnia disorder [R4]. Results from the study of this new intervention demonstrated it was effective and efficacious, resulting in a 73% remission status at three months post-treatment [R4]. Following this, Ellis and colleagues performed additional research to test the efficacy of brief CBT-I in different contexts. In 2016, they conducted a pilot study to examine the extent to which delivery approach – group- vs. individual-therapy - impacted the success of brief CBT-I [R5]. The results revealed that the brief CBT-I intervention could be delivered through either method, with only a slight reduction in efficacy (of 1%) identified in the group setting [R5]. In 2018, Ellis and colleagues tested the success of the intervention with a vulnerable population, namely male prisoners, again finding a significant remission rate at one-month post-treatment, as well as substantial reductions in symptoms of anxiety and depression [R6].

### 3. References to the research (indicative maximum of six references)

- R1. Jason Ellis**, Gehrman, P.\*\* , Espie, C.A.\*\* , Riemann D.\*\* , and Perlis, M.\*\* (2012) 'Acute Insomnia: Current Conceptualizations and Future Directions' *Sleep Medicine Reviews* **16**: 5-14 DOI: [10.1016/j.smrv.2011.02.002](https://doi.org/10.1016/j.smrv.2011.02.002)
- R2. Jason Ellis**, Perlis, M.L., Neale, L.\* , Espie, C.A., and Bastien, C.H.\*\* (2012) 'The Natural History of Insomnia: Focus on Prevalence and Incidence of Acute Insomnia' *Journal of Psychiatric Research* **46**: 1278-1285 DOI: [10.1016/j.jpsychires.2012.07.001](https://doi.org/10.1016/j.jpsychires.2012.07.001)
- R3. Jason Ellis**, Perlis, M.L., Gardani, M.\*\* , Bastien, C.H., and Espie, C.A. (2014) 'The Natural History of Insomnia: Acute insomnia and first onset depression' *Sleep* **37**(1): 97-106 DOI: [doi.org/10.5665/sleep.3316](https://doi.org/10.5665/sleep.3316)
- R4. Jason Ellis**, Cushing, T.\* , and Germain, A.\*\* (2015) 'Treating Acute Insomnia: A Randomised Control Trial of a 'Single-shot' of Cognitive Behavioral Therapy for Insomnia' *Sleep* **38**(6): 971–978 DOI: [10.5665/sleep.4752](https://doi.org/10.5665/sleep.4752)
- R5.** Boullin, P.\* , Ellwood, C.\* , and **Jason Ellis** (2016) 'Group versus individual treatment for acute insomnia: A pilot investigation of a 'one-shot' treatment strategy' *Brain Sciences* **7**: 1-9 DOI: [10.3390/brainsci7010001](https://doi.org/10.3390/brainsci7010001)
- R6.** Randall, C.\* , Nowakowski, S.\*\* , and **Jason Ellis** (2018) 'Managing Acute Insomnia in Prison: Evaluation of a 'one-shot' Cognitive Behavioral Therapy for Insomnia (CBT-I) intervention' *Behavioral Sleep Medicine* **17**(6): 827-836 DOI: [10.1080/15402002.2018.1518227](https://doi.org/10.1080/15402002.2018.1518227)

\*Internal collaborators: L. Neale – research fellow; T. Cushing, P. Boullin, C. Ellwood – students

\*\*External collaborators: P. Gehrman, M. Perlis – University of Pennsylvania; C. Espie (2012), M. Gardani – University of Glasgow; D. Riemann – Feriburg University Medical Centre; C. Bastien – Université Laval, Canada; C. Espie (2014) – University of Oxford; A. Germain – University of Pittsburgh; S. Nowakowski – University of Texas

### 4. Details of the impact (indicative maximum 750 words)

Ellis' research has led to two main areas of impact, regarding: 1) improved clinical understanding, guidance, and skills for treating sleep issues and insomnia and 2) public understanding of sleep issues and ability to self-manage insomnia.

#### 4.1 Improving clinical understanding of sleep issues and ways to treat insomnia for patient benefit

Ellis' work has improved clinical understanding of insomnia and improved skills to effectively treat this condition. Since 2013, Ellis has delivered training on his brief, 'one-shot', CBT-I approach to over 580 healthcare professionals in the UK at locations including: NHS Aintree, the Edinburgh Sleep Service, Surrey & Borders NHS Foundation Trust, and NHS Scotland (Psychological Interventions team). Training has also been delivered by Ellis internationally to

around 250 professionals from a wide range of countries, including the USA (n=>150), Holland (n=35), and Japan (n=5). Participation in this training, alongside engagement with Ellis' broader research on insomnia, has been recognised to have a substantial effect on clinicians. Dr Renata Riha, a consultant in Sleep and Respiratory Medicine at Royal Infirmary of Edinburgh, states that it has *'helped me to deal more effectively with patient problems due to the speed of the intervention, on a day-to-day clinical basis'* [E1]. In addition: *'Professor Ellis' research is seen as ground-breaking in the field of sleep, particularly his one-shot intervention... [his] work is valued very highly and seen as inspirational... I personally know individuals who have been inspired to change career after engaging with his work'* [E1].

Similarly, Dr Richard Twaites, Consultant Clinical Psychologist at Cumbria, Northumberland, Tyne and Wear NHS Foundation Trust, invited Ellis to run a two-day sleep training course tailored to the First Step workforce (a service providing telephone-based therapy within Cumbria, Northumberland, Tyne and Wear, and Lancashire). Approximately 40 mental health practitioners were trained in how to deliver brief CBT-I practices, which have subsequently been rolled out in NHS clinical practice [E2]. Twaites notes:

*'Staff were extremely receptive to this training and it has become clear since that this training has drastically boosted their understanding of and interest in brief CBT-I as a way to treat sleep issues. This training also provided [40+ members of] staff with the skills to be able to deliver CBT-I, using this approach, to patients who contact our service with sleep disorders'* [E2].

Therapy services across the UK, including those specialising in treating sleep issues, have incorporated Ellis' brief CBT-I intervention into their practice and are now using it to treat patients, including the Edinburgh Sleep Service [E1], Berkshire Healthcare NHS Foundation Trust [E3], and First Steps [E2]. Accounts from clinicians using the brief CBT-I intervention clearly indicate that it is having a positive impact on patients sleep. Riha from the Edinburgh Sleep Clinic (which treats 2,000 patients a year) states that the intervention has improved practice across the department since it was incorporated into care protocols, by *'chang[ing] the way that we approach patient referrals for behavioural sleep issues [as] we are able to send the leaflet [Ellis' aforementioned pamphlet] as an immediate intervention to the patient and their general practitioner allowing them to 'get started' and understand the process'* [E1]. Riha notes that patients *'appear to find this approach very easy to follow and empowering, as it gives them a renewed sense of ownership over their future'* [E1].

This impact is not restricted to the UK. Brief CBT-I has been incorporated into clinical practice in other countries, including the USA, Australia, and Iceland. One example demonstrating how far this intervention has been adopted is its use in the Republic of Korea. Dr Chan-Young Kwon, Specialist in Neuropsychiatry of Korean Medicine, highlights that he has been using the brief CBT-I intervention with his patients since opening his clinic in May 2020, with positive results:

*'Incorporating Prof. Ellis' one-shot CBT-I approach into my practice has given my patients more choice over their treatment and I believe it has improved the sense of self-efficacy among patients and their engagement with the treatment process...I often meet patients who feel that keeping a diary (to organise the previous day), as recommended by Prof. Ellis's pamphlet, has improved their sleep. From this I believe this practice can help the sleep onset, by reducing excessive ruminant thoughts'* [E4].

Ellis' own evaluative work demonstrates the effective and efficacious nature of the brief CBT-I intervention, including a 73% remission status at three months post-treatment [E5]. The patient benefit of brief CBT-I has also been confirmed by an independent evaluative study conducted in 2018 by the University of Reading [E6], which applied the intervention in adolescent depression and identified *'positive improvements in sleep but also an indication of improvements in depressive symptoms'* [E3]. Dr Faith Orchard, a psychologist who worked on this evaluation, confirmed that since the completion of this work in 2018, Berkshire Healthcare NHS Foundation Trust have continued to offer the intervention to young people referred to the Child and

Adolescent Mental Health Service for difficulties with anxiety and depression. In addition, it has been adapted into a workshop series that was tested for feasibility and acceptability with three local schools. This involved a total of 41 secondary school students, 96% of whom reported that they found the sessions 'useful', particularly because of their 'calm' and 'non-judgmental' nature [E3].

Ellis' brief CBT-I intervention has also been recognised in guidance on the management of sleep problems, including the European Guidelines for the Assessment and Management of Insomnia [E7] – a reference document for all clinicians involved in the stepped-care management of insomnia – and a response to managing sleep in the context of COVID-19 published by the Society for Behavioural Sleep Medicine, which acknowledges that the three D's (detect, detach, distract) can assist patients with managing new-onset (acute) insomnia [E8, p3].

#### 4.2 Improving public understanding, and supporting self-management, of insomnia

In addition to the development of an intervention for use by professionals Ellis has also published a self-help book targeted at members of the public entitled *The One-Week Insomnia Cure* (2017), which has sold more than 10,000 copies around the world. The book presents techniques informed by Ellis' research to address sleep issues including CBT-I, and, as the title suggests, includes a 7-day course that readers can follow to improve their sleep. The content of this book has been approved by clinicians working in the field; Surrey Hospital Insomnia Unit, for example, recommend the book as an appropriate form of self-help for individuals living with insomnia [E9, p4].

The book has received substantial media interest and following its publication Ellis was invited to appear on television shows to discuss his research, including *This Morning* [E10] (around 1,000,000 viewers a day). The Daily Mail (readership: 1,511,357 – Audit Bureau of Circulations) published a serialisation based on the book in February 2017 – comprised of 6 articles which have since been shared online over 2,250 times [E10]. Louise Atkinson, the freelance journalist involved in producing this serialisation, acknowledges it was '*very well received by the editors and readers alike [...particularly because] it offered a 'new' solution (sleep restriction) with advice and guidance from a respected expert*' [E11]. Indeed, Atkinson notes that the Daily Mail were so impressed with the series that they '*invested in a TV advert, which attracted new readers and helped boost newspaper circulation for that period – the ultimate measure of success in newspaper land!*' [E11].

Through the publication of the book, and subsequent media engagement, Ellis has worked to make his research accessible to the public, to support individuals to identify and self-manage their sleep issues in an effective way. Case studies denoting people's experience of following Ellis' approach, published within the Daily Mail serialisation, highlight the benefit on their sleep:

*'I've seen a dramatic improvement in my sleep quality and I'm delighted [...the solutions] were simple, but effective... I'm thrilled I've been able to sleep properly for the first time in nearly two years'* [E10, p2-3].

*'Now I am getting at least three more hours of sleep every night. I can't believe the vast improvement and I no longer dread going to sleep'* [E10, p19].

58% of reviewers on Amazon gave the book 5 stars, with several stating it 'worked' and 'really help[ed]' [E12]. One individual stated '*by the 3<sup>rd</sup> night I was sleeping more deeply... I am falling asleep as soon as I go to bed now and sleeping deeply, waking only rarely now... I've broken the addiction to my phone and checking the bedroom clock... I am confident things will go on improving*' [E12, p1].

As part of the Daily Mail serialisation, readers were provided with a 32-page sleep diary to use alongside the articles to develop a personalised plan to address their specific sleep issue. Readers were encouraged to send completed diaries to Ellis for analysis. Of the 347 diaries returned, 213 contained sufficient data for analysis [E13]. Results revealed a statistically



significant improvement in sleep, with regards to reductions in time to sleep onset ( $p=.001$ ), waking after sleep onset ( $p=.002$ ), and number of awakenings ( $p=.002$ ) [E13].		
<b>5. Sources to corroborate the impact</b> (indicative maximum of 10 references)		
Ref.	Source of corroboration	Link to claimed impact
E1	Testimonial - Dr Renata Riha, Consultant in Sleep and Respiratory Medicine, Royal Infirmary of Edinburgh	Demonstrates use of Prof. Ellis' brief CBT-I within the Edinburgh Sleep Clinic
E2	Testimonial - First Steps Service: Dr Richard Thwaites - Cumbria, Northumberland, Tyne and Wear NHS Foundation Trust and Dave Sanford - Lancashire and South Cumbria NHS Foundation Trust	Confirms use of Prof. Ellis' brief CBT-I training and use of the intervention within IAPT services
E3	Testimonial - Dr Faith Orchard, Lecturer in Psychology, University of Sussex	Confirms use of brief CBT-I in the Anxiety and Depression in Young People Research Clinic and Berkshire Healthcare NHS Foundation Trust
E4	Testimonial - Dr Chan-Young Kwon, Specialist in Neuropsychiatry of Korean Medicine, Republic of Korea	Demonstrates influence of Prof. Ellis' work on brief CBT-I on clinical understanding and practice in Korea
E5	Jason Ellis, Cushing, T., and Germain, A. (2015) 'Treating Acute Insomnia: A Randomised Control Trial of a 'Single-shot' of Cognitive Behavioral Therapy for Insomnia' <i>Sleep</i> 38(6), pp. 971–978	Demonstrates the brief CBT-I intervention is effective at addressing sleep issues
E6	Orchard, F. et al. (2019) 'Adapting Brief CBT-I for Depressed Adolescents: A Case Illustration of the Sleeping Better Program' <i>Cognitive and Behavioral Practice</i> 27(3), pp. 336-346	Demonstrates success of brief CBT-I when used with young adults through an evaluation conducted at the Anxiety and Depression in Young People Research Clinic
E7	Crew, E. C. et al. (2020) The Society of Behavioral Sleep Medicine (SBSM) COVID-19 Task Force: Objectives and Summary Recommendations for Managing Sleep during a Pandemic <i>Behavioral Sleep Medicine</i> , pp.1-3	Ellis' work on brief CBT-I is recommended as a way to manage insomnia during COVID – cites three D's from R4
E8	Riemann, D. et al. (2017) 'European guidelines for the diagnosis and treatment of insomnia' <i>Journal of sleep research</i> 26(6), pp. 675-700	Demonstrates EU recognition of brief CBT-I, such as Ellis' work, for use with individuals with acute insomnia
E9	Website – Royal Surrey Insomnia Clinic	Demonstrates that Surrey Hospital Insomnia Unit recommends Prof. Ellis' book to patients as a form of self-help
E10	Media coverage - a) Daily Mail Serialisation published February 2017 (p.1-85) b) <i>This Morning</i> , ITV.com – <i>How to banish your insomnia in one week</i> (p.86-91)	Demonstrates the existence of Daily Mail serialisation of Prof. Ellis' book <i>The One-Week Insomnia Cure</i> Confirms Prof. Ellis' appearance on <i>This Morning</i> to discuss his research
E11	Testimonial - Louise Atkinson, Freelance Journalist	Confirms that Prof. Ellis' book was serialised in the Daily Mail and the views of publishers and readers
E12	Amazon reviews for <i>The One Week Insomnia Cure</i> (accessed 25/02/2021)	Showcases customer feedback on the book, demonstrating benefit to sleep
E13	Audit summary – Daily Mail sleep diary analysis. Raw data available on request	Demonstrates statistically significant difference (improvement) in sleep quality between first and final entry