

Institution: University of Lincoln		
Unit of Assessment: 03 – Allied Health Professions, Dentistry, Nursing and Pharmacy		
Title of case study: Improving Primary Care for People with Insomnia using Psychological Therapies and Reducing Inappropriate Benzodiazepine Prescribing		
Period when the underpinning research was undertaken: 2012 - 2019		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
SIRIWARDENA Aloysius Niroshan	Professor of Primary and Pre-Hospital Healthcare	23 Mar 07 to date
SIRDIFIELD Coral	Research Fellow	8 May 06 to date
MIDDLEMASS Jo	Research Fellow	01 Oct 12 - 28 Apr 17
DAVY Zowie	Senior Lecturer	04 Jan 10 - 31 Aug 16
Period when the claimed impact occurred: 2014 - 2020		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact (indicative maximum 100 words) <p>Impacts are based on a programme of research conducted by members of the Community and Health Research Unit (CaHRU) with over £3M funding from the NIHR, EPSRC and Health Foundation. Findings and recommendations arising from these have been included in local and national policy information, new educational resources and guidance for healthcare practitioners on insomnia and hypnotic prescribing. The research informed National Institute for Health and Clinical Excellence [NICE] guidance in England, the UK Parliamentary Office on Science and Technology [POST] Note on Sleep and Health (2018), and international United States (American Association of Sleep Medicine) and European guidance in 2017.</p> <p>CaHRU staff developed and delivered educational workshops and seminars on primary care for insomnia to GPs and other healthcare staff, and an e-learning programme, developed by the team (www.restproject.org.uk) and launched in 2011, has been accessed by over 10,000 users in 160 countries worldwide between September 2013 and December 2020, with reported improvements in clinical care provided for people with insomnia and increased access to psychological therapies for people with insomnia.</p>		
2. Underpinning research (indicative maximum 500 words) <p>Context Insomnia is the commonest mental health disorder, affecting 30% of adults each year and 10% of adults long term, leading to impaired quality of life, work absence, poor daytime function and costs for individuals affected and the wider economy.</p> <p>People with insomnia often present to primary care, sometimes receiving care that lacks evidence or is potentially harmful, e.g. inappropriate long term hypnotic drugs are prescribed to 10% of adults and 25% of those aged over 65 years in the UK, with addiction to these prescribed medications being a major problem in the UK and US.</p> <p>Outline of Underpinning Research CaHRU has led a programme of original co-produced interdisciplinary research which has led to increased understanding of patient and practitioners' perceptions of sleep problems and their management leading to interventions which have brought about patient-centred service improvement in primary care of insomnia.</p>		

Through systematic reviews, cross-sectional, and qualitative studies led by CaHRU academics, current practice and problems in primary care for insomnia and use of hypnotic drugs have been investigated [3.1, 3.2, 3.3].

Two meta-syntheses of benzodiazepine prescribing and patient use, led by CaHRU and involving co-investigators from the University of Ghent, have revealed practitioners' and patients' perceptions of the problem of benzodiazepine prescribing and how this could be addressed in practice [3.4-3.5].

Clinical studies, with Siriwardena as co-investigator, have evaluated the use of online psychological therapy for primary care of insomnia [3.6].

Research Findings Related to Impact

In a qualitative study of patients and practitioners we found that patients often delayed seeking help, using self-help or complementary treatments and, despite their reluctance to take hypnotics, patients were desperate for help and believe that drugs are the only treatment available. In the same study we found that although practitioners were reluctant to recommend psychological treatments for insomnia, patients were open to these approaches [3.1].

In another qualitative study, we found that improving uptake and adherence to online programmes for insomnia require design features focusing on trust and functionality, and that enabling greater patient control and interaction with other users and professionals may stimulate positive experiences of online therapy [3.2].

In a systematic review and meta-analysis of pharmaceutical company data submitted to the US Food and Drug Administration we found limited evidence of effectiveness of newer Z' drug hypnotics and also showed, for the first time, considerable placebo effects of these drugs [3.3].

In two qualitative metasyntheses, patients and practitioners described their experiences of seeking and prescribing benzodiazepines and opportunities for reducing inappropriate prescribing [3.4, 3.5].

In a clinical trial of digital CBTi, we showed for the first time that this treatment not only improves insomnia symptoms, but also led to improvements in functional health, quality of life and psychological wellbeing [3.6].

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

- 3.1 Dyas JV, Apekey TA, Tilling M, *Orner R, Middleton H, Siriwardena AN. Patients' and clinicians' experiences of consultations in primary care for sleep problems and insomnia: a focus group study. Br J Gen Pract 2010;60: 180-200. (JIF 4.4, 65 citations).
<http://dx.doi.org/10.3399/bjgp10X484183>
<https://bjgp.org/content/bjgp/60/574/e180.full.pdf>
- 3.2 Middlemass J, Davy Z, Cavanagh K, Linehan C, Morgan K, Lawson S, Siriwardena AN. Integrating online communities and social networks with computerised treatment for insomnia: a qualitative study. Br J Gen Pract 2012;62: e840-e850. (JIF 4.4, 18 citations).
<http://dx.doi.org/10.3399/bjgp12X659321>
<https://bjgp.org/content/62/605/e840>
- 3.3 Huedo-Medina TB, Kirsch I, Middlemass J, Klonizakis M, Siriwardena AN. Effectiveness of non-benzodiazepine hypnotics in treatment of adult insomnia: meta-analysis of data submitted to the Food and Drug Administration. British Medical Journal 2012;345: e8343.(JIF 27.6, 198 citations)
<http://dx.doi.org/10.1136/bmj.e8343>
<https://www.bmj.com/content/bmj/345/bmj.e8343.full.pdf>

- 3.4 Sirdifield C, Chipchase SY, Owen S, Siriwardena AN. A systematic review and meta-synthesis of patients' experiences and perceptions of seeking and using benzodiazepines and Z-drugs: towards safer prescribing. Patient. 2016. (JIF 2.7, 18 citations)
<http://dx.doi.org/10.1007/s40271-016-0182-z>
<http://eprints.lincoln.ac.uk/23324/7/23324%20Patient%20MetaSynthesis%20Final%20Proofed%20Version.pdf>
- 3.5 Sirdifield C, Chipchase S, Anthierens S, Creuptland H, Christiaens T, Siriwardena AN. General practitioners' experiences and perceptions of benzodiazepine prescribing in Western primary care settings: a meta-synthesis. BMC Family Practice 2013; 14: 191. (JIF 2.7, 53 citations)
<http://doi.org/10.1186/1471-2296-14-191>
<https://bmcfampract.biomedcentral.com/track/pdf/10.1186/1471-2296-14-191.pdf>
- 3.6 Espie CA, Emsley R, Kyle SD, Gordon C, Drake CL, Siriwardena AN, Cape J, Ong JC, Sheaves B, Foster R, Freeman D, Costa-Font J, Marsden A, Luik AI. Effect of Digital Cognitive Behavioral Therapy for Insomnia on Health, Psychological Well-being, and Sleep- Related Quality of Life: A Randomized Clinical Trial. JAMA Psychiatry 2019;76 (1): 21-30.
<http://dx.doi.org/10.1001/jamapsychiatry.2018.2745> [JIF 15.9, 16 citations].
<http://eprints.lincoln.ac.uk/33432/1/Espie%20DIALS%20JAMAPsych%202018.pdf>

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

Impact has been achieved through changes in national and international policy and guidance, change in professional knowledge and practice and novel online therapies provided directly to patients.

Change in National and International Policy and Guidance

At a policy guidance level, the research [3.6] has informed and been referenced in the British Association for Psychopharmacology guidance update in 2019 [5.1], and referenced [3.3] in the international European [5.2] and US American Academy of Sleep Medicine [5.3] policy and guidance on insomnia.

Change in Professional Knowledge and Practice

The research has changed professional practice, nationally and internationally, by improving healthcare staff understanding of the importance of sleep and insomnia, identifying gaps in care, and developing and testing methods which have improved delivery of care for sleep problems and insomnia. It has had a direct benefit on primary care (GPs, practice nurses) and provision for patients with insomnia and sleep problems, as described in detail below. Service users, the public and health practitioners were involved in the conception, design and dissemination of the work).

The research has been translated into practice through knowledge translation efforts conducted by Siriwardena and members of the CaHRU team who provided training to GPs and nurses on the management of insomnia via workshops and seminars (from August 2011 – 2013) which led clinicians to report changes in behaviour and with patient feedback showing improved care. The work was presented directly to practitioners in Lincolnshire (to over 100 GPs in March 2011); Chesterfield (16 GPs in July 2011) and in November 2011 to GPs in Leicester (40), Nottingham (26) and Derby (40 doctors). at a national event 'Sleep and mental health' in London (for 75 doctors) run by the Royal Society of Medicine together with the mental health charity, the Mental Health Foundation, as part of their Mental Health Awareness week 2011 campaign on sleep (<https://www.rsm.ac.uk/academ/slc01.php>), where we presented our findings and the implications for practice.

The team developed an online e-learning (<http://elearning.restproject.org.uk/>) resource in 2011 which widened the reach of information and education to practitioners to change primary care for

insomnia. There have been over 10,000 users in the REF impact census period from 160 countries across all five continents (data from Google analytics) [5.4], with all feedback from GPs in the UK and internationally being positive, including direct feedback on how they have used the learning in day-to-day practice [5.5]. The results were highlighted by the Health Foundation in their 'Stories of outstanding impact in primary care' [5.6], detailing the benefits of the REST project including significant reductions in sleeping pill prescriptions, changes in health service policy, findings incorporated into National Prescribing Centre guidance and citation by NASA.

Our research [3.1, 3.4, 3.5] provided the basis for an e-learning programme used in Belgium by 722 (out of approximately 7,500 registered) GPs until 2016, which in a peer-reviewed evaluation showed 'desirable changes in attitudes, perceptions and self-efficacy beliefs and these changes remained significant six months later' in those GPs who were followed up with 95.8% of the participants evaluating the e-learning as 'meaningful' and 85% reporting that the module changed their prescribing of benzodiazepine sleeping tablets [5.7, references 11,13,31].

The REST project website and e-learning programme (together with references 3.4 and 3.5 above) were cited in a UK Parliamentary Office on Science and Technology (POST) note on Sleep and Health in 2018 [5.8, reference 85].

Online Therapies Directly to Patients

CaHRU was part of the interdisciplinary team providing expert primary care input into the development of the prototype Sleepful programme (<https://sleepful.me/>), a new online therapy for insomnia, and exploring end user perceptions on how online therapies could be designed to ensure greater adherence [3.2].

Siriwardena has also provided research-based input to Sleepio based on his expertise in primary care of insomnia and specifically in digital therapies [3.2]. He was part of the team which showed that this online therapy improved insomnia symptoms leading to better functional health, quality of life and psychological wellbeing [3.6]. This scientific evidence has supported the development of Sleepio into the most widely used online psychological therapy for insomnia in the UK, which patients with insomnia are using to self-manage their condition <https://www.sleepio.com/research/>. The Sleepio app, which has been part of the NHS Innovation Accelerator programme since 2015, has been provided free since 2018-2019 to residents in Berkshire, Buckinghamshire, Oxfordshire and all NHS healthcare staff during the COVID-19 pandemic [5.9].

5. Sources to corroborate the impact (indicative maximum of 10 references)

- 5.1 Wilson W et al. British Association for Psychopharmacology consensus statement on evidence-based treatment of insomnia, parasomnias and circadian rhythm disorders: An update. *Journal of Psychopharmacology* 2019; 33(8) 923–947. DOI: 10.1177/0269881119855343
- 5.2 Riemann D et al. European guideline for the diagnosis and treatment of insomnia. *Journal of Sleep Research* 2017, DOI: 10.1111/jsr.12594.
- 5.3 Sateia MJ et al. Clinical Practice guideline for the pharmacologic treatment of chronic insomnia in adults: an American Academy of Sleep Medicine Clinical Practice Guideline. *J Clin Sleep Med*. 2017, DOI: 10.5664/jcsm.6470.
- 5.4 Google analytics for www.restproject.org.uk/ and REST e-learning <http://elearning.restproject.org.uk/>
- 5.5 REST e-learning <http://elearning.restproject.org.uk/> feedback from users.
- 5.6 The Health Foundation. Stories of outstanding impact in primary care. 2015. <http://www.health.org.uk/newsletter/stories-outstanding-impact-primary-care>

- 5.7 Creupelandt et al. A tailored e-learning gives long-term changes in determinants of GPs' benzodiazepines prescribing: a pretest-posttest study with self-report assessments. Scandinavian Journal of Primary Health Care, 37:4, 418-425, DOI: 10.1080/02813432.2019.1663591.
- 5.8 Parliamentary Office on Science and Technology (POST) note. Sleep and Health. 2018. <https://researchbriefings.parliament.uk/ResearchBriefing/Summary/POST-PN-0585>.
- 5.9 Sleepio <https://www.sleepio.com/research/>