# Supporting employees with insomnia and emotional regulation problems

Submission date	Recruitment status No longer recruiting	[X] Prospectively registered		
13/05/2021		[X] Protocol		
<b>Registration date</b> 08/06/2021	Overall study status Completed	Statistical analysis plan		
		[X] Results		
Last Edited	Condition category	Individual participant data		
04/07/2024	Mental and Behavioural Disorders			

#### Plain English summary of protocol

Current plain English summary as of 26/10/2021:

#### Background and study aims

Mental health problems affect one in six workers each year and are the leading cause of sickness absence, where stress, anxiety and depression are responsible for about half of the working days lost. The high association between mental health conditions further exacerbates this problem, for instance 40-60% of insomnia sufferers also suffer from other mental health disorders, such as depression and anxiety. The estimated annual cost of poor mental health has increased 16% since 2017, and is now up to £45 billion.

The prevalence rates of mental health problems tend to increase substantially during large-scale disasters, such as traumatic events (e.g. mass shootings or terror attacks) or natural events (e.g. hurricanes or pandemics). In the context of the current COVID-19 pandemic, there has been an estimated increase of 500,000 cases of mental health problems due to factors such as income shocks, loneliness, and stress. It is estimated that about 41.8% of the UK population are at high risk of mental health problems due to their economic vulnerability and exposure to a negative economic shock as a result of the COVID-19 outbreak.

Various attempts have been made to intervene within the workplace to reduce mental health difficulties. However, these interventions are limited due to the quality of the screening tools used, accessibility and the lack of evidence-based approaches. Previous research shows that people with mental health difficulties find it problematic to find jobs or remain in work, and this is one reason why the associated financial costs of mental health are so high, and subsequently costly to society, employers and individuals. However, many employers are unaware of their role in supporting workers' mental health or unsure what to do to help.

This is the initial pilot study of an intervention to improve workforce mental health and productivity as part of the Mental Health and Productivity Pilot program (https://mhpp.me/).

#### Who can participate?

Employees and self-employed workers, aged 18 or over, in employment (including being on furlough) from organisations across the Midlands Engine region. These are full-time or part-time paid workers working on site or remotely, recruited either through our partner employers or directly from the community (via online advertising outlets), who suffer from insomnia and anxiety but are not currently receiving treatment

#### What does the study involve?

SLEEP is a hybrid digital intervention consisting of cognitive behavioural therapy for insomnia and emotion regulation difficulties supplemented by online sessions with trained therapists, which aims to improve sleep problems and productivity across the Midlands. Participants are randomly allocated to the control group or the intervention group. The control group will receive the intervention after 8 weeks. Those in the intervention group will start with a 1-week sleep tracking facilitated by a sleep tracker. The sleep tracker is a compact and lightweight activity monitoring device that participants need to wear on their wrist like a watch for the duration of that week, which tracks their sleep and physical movement. The researchers will use data from the sleep tracker to assess participants' sleep quality. Following the sleep tracking week, participants will be enrolled in the 6-week digital intervention consisting of an hour of weekly commitment, in addition to four 45-minute online sessions with trained specialists. Participants will then be sent another sleep tracker to complete a final 1-week of sleep tracking. They will then be contacted after 1 month to complete the follow-up questionnaires. Those in the control group will start with a 1-week sleep tracking facilitated by a sleep tracker. Following the sleep tracking week, participants will be asked to continue life as usual for 6-week (i.e. they will not receive the 6-week digital intervention or provided with any other treatment). Participants will then be asked to complete a final 1-week of sleep tracking. Subsequently. participants will be offered the 6-week digital intervention, and finish with another 1-week of sleep tracking. Overall, the study will last for 3 months if participants are placed initially in the intervention group. If they are initially placed in the waitlist control group, they will be offered the intervention after an 8-week delay, and be in the study for 5 months. Upon completion of the 8-week study period, an evaluation of the 6-week intervention programme will be conducted using interviews to explore the effectiveness, acceptability, barriers, and facilitators of the intervention. This will be completed with a randomly selected 25 participants who have completed the intervention and consented to be contacted again for this part of the study.

#### What are the possible benefits and risks of participating?

While this study is part of a pilot project, the researchers expect to see an improvement in mental health symptoms of insomnia, depression and anxiety, as well as work productivity as a result of the intervention. The researchers do not anticipate any major disadvantages, side effects or risks in taking part. The digital intervention targeting sleep problems could involve established elements of "sleep restriction" and/or sleep re-scheduling therapy, which may be associated with minor side effects such as daytime sleepiness. Participants will be fully instructed as to the rationale and potential side effects of the intervention at the outset. In addition, participants will be advised to not drive or operate machinery if experiencing excessive daytime sleepiness. This element of the study will be overseen by a qualified clinical psychologist who is experienced and will be on hand throughout the trial to advise and supervise the intervention staff. Serious adverse events will be documented and reported. Additionally, the study questionnaire asks about self-harming and suicidal behaviour, which would require participants to disclose sensitive information. In addition, high scores on the questionnaires may indicate clinically significant conditions. This could highlight an undiagnosed severe mentalhealth condition for which the participant is not receiving care. To provide support and guidance to at-risk participants, individuals who report having suicidal and self-harming thoughts "several days, more than half the days, or nearly every day", as well as individuals with high scores on the questionnaires will be suggested to speak to their GP and provided with contact details for psychological therapies, whilst still being eligible to receive the interventions.

Where is the study run from? University of Warwick (UK)

When is the study starting and how long is it expected to run for? July 2020 to April 2022

Who is funding the study? Midlands Engine (UK)

Who is the main contact? Charlotte Kershaw, Charlotte.Kershaw@warwick.ac.uk Dr Nicole Tang, N.Tang@warwick.ac.uk

Previous plain English summary:

#### Background and study aims

Mental health problems affect one in six workers each year and are the leading cause of sickness absence, where stress, anxiety and depression are responsible for about half of the working days lost. The high association between mental health conditions further exacerbates this problem, for instance 40-60% of insomnia sufferers also suffer from other mental health disorders, such as depression and anxiety. The estimated annual cost of poor mental health has increased 16% since 2017, and is now up to £45 billion.

The prevalence rates of mental health problems tend to increase substantially during large-scale disasters, such as traumatic events (e.g. mass shootings or terror attacks) or natural events (e.g. hurricanes or pandemics). In the context of the current COVID-19 pandemic, there has been an estimated increase of 500,000 cases of mental health problems due to factors such as income shocks, loneliness, and stress. It is estimated that about 41.8% of the UK population are at high risk of mental health problems due to their economic vulnerability and exposure to a negative economic shock as a result of the COVID-19 outbreak.

Various attempts have been made to intervene within the workplace to reduce mental health difficulties. However, these interventions are limited due to the quality of the screening tools used, accessibility and the lack of evidence-based approaches. Previous research shows that people with mental health difficulties find it problematic to find jobs or remain in work, and this is one reason why the associated financial costs of mental health are so high, and subsequently costly to society, employers and individuals. However, many employers are unaware of their role in supporting workers' mental health or unsure what to do to help.

This is the initial pilot study of an intervention to improve workforce mental health and productivity as part of the Mental Health and Productivity Pilot program (https://mhpp.me/).

#### Who can participate?

Adults aged over 18, in employment (including being on furlough), who suffer from insomnia and anxiety but are not currently receiving treatment

#### What does the study involve?

SLEEP is a hybrid digital intervention consisting of cognitive behavioural therapy for insomnia and emotion regulation difficulties supplemented by online sessions with trained therapists, which aims to improve sleep problems and productivity across the Midlands. Participants are randomly allocated to the control group or the intervention group. The control group will receive the intervention after 8 weeks. Those in the intervention group will start with a 1-week sleep tracking facilitated by a sleep tracker. The sleep tracker is a compact and lightweight activity monitoring device that participants need to wear on their wrist like a watch for the duration of that week, which tracks their sleep and physical movement. The researchers will use data from the sleep tracker to assess participants' sleep quality. Following the sleep tracking

week, participants will be enrolled in the 6-week digital intervention consisting of an hour of weekly commitment, in addition to four 45-minute online sessions with trained specialists. Participants will then be sent another sleep tracker to complete a final 1-week of sleep tracking. They will then be contacted after 1 month to complete the follow-up questionnaires. Those in the control group will start with a 1-week sleep tracking facilitated by a sleep tracker. Following the sleep tracking week, participants will be asked to continue life as usual for 6-week (i.e. they will not receive the 6-week digital intervention or provided with any other treatment). Participants will then be asked to complete a final 1-week of sleep tracking. Subsequently, participants will be offered the 6-week digital intervention, and finish with another 1-week of sleep tracking. Overall, the study will last for 3 months if participants are placed initially in the intervention group. If they are initially placed in the waitlist control group, they will be offered the intervention after an 8-week delay, and be in the study for 5 months. Upon completion of the 8-week study period, an evaluation of the 6-week intervention programme will be conducted using interviews to explore the effectiveness, acceptability, barriers, and facilitators of the intervention. This will be completed with a randomly selected 25 participants who have completed the intervention and consented to be contacted again for this part of the study. Participants for the process evaluation will be sampled to account for sector, job role, seniority, age, and gender.

What are the possible benefits and risks of participating?

While this study is part of a pilot project, the researchers expect to see an improvement in mental health symptoms of insomnia, depression and anxiety, as well as work productivity as a result of the intervention. The researchers do not anticipate any major disadvantages, side effects or risks in taking part. The digital intervention targeting sleep problems could involve established elements of "sleep restriction" and/or sleep re-scheduling therapy, which may be associated with minor side effects such as daytime sleepiness. Participants will be fully instructed as to the rationale and potential side effects of the intervention at the outset. In addition, participants will be advised to not drive or operate machinery if experiencing excessive daytime sleepiness. This element of the study will be overseen by a qualified clinical psychologist who is experienced and will be on hand throughout the trial to advise and supervise the intervention staff. Serious adverse events will be documented and reported. Additionally, the study questionnaire asks about self-harming and suicidal behaviour, which would require participants to disclose sensitive information. In addition, high scores on the questionnaires may indicate clinically significant conditions. This could highlight an undiagnosed severe mentalhealth condition for which the participant is not receiving care. To provide support and guidance to at-risk participants, individuals who report having suicidal and self-harming thoughts "several days, more than half the days, or nearly every day", as well as individuals with high scores on the questionnaires will be suggested to speak to their GP and provided with contact details for psychological therapies, whilst still being eligible to receive the interventions.

Where is the study run from? University of Warwick (UK)

When is the study starting and how long is it expected to run for? July 2020 to April 2022

Who is funding the study? Midlands Engine (UK)

Who is the main contact? Charlotte Kershaw, Charlotte.Kershaw@warwick.ac.uk Dr Nicole Tang, N.Tang@warwick.ac.uk

#### Study website

https://warwick.ac.uk/fac/cross fac/mentalhealth/get-involved/mhpp/

## Contact information

## Type(s)

Public

#### Contact name

Ms Charlotte Kershaw

#### Contact details

University of Warwick Coventry United Kingdom CV4 7AL N/A Charlotte.Kershaw@warwick.ac.uk

#### Type(s)

Scientific

#### Contact name

Dr Nicole Tang

#### Contact details

University of Warwick Coventry United Kingdom CV4 7AL N/A N.Tang@warwick.ac.uk

#### Type(s)

Scientific

#### Contact name

**Prof Caroline Meyer** 

#### Contact details

Vice-Provost, Chair of the Faculty of Science, Engineering and Medicine University of Warwick University Road Coventry United Kingdom CV4 7AL +44 (0)24 7652 3523 (ext. 73585) C.Meyer@warwick.ac.uk

## Additional identifiers

#### **EudraCT/CTIS** number

Nil known

#### **IRAS** number

#### ClinicalTrials.gov number

Nil known

#### Secondary identifying numbers

BSREC 45/20-21

## Study information

#### Scientific Title

Supporting employees with insomnia and emotional regulation problems: a multicentre interventional waitlist randomised-controlled trial

#### Acronym

**SLEEP** 

#### Study objectives

The SLEEP intervention will reduce insomnia severity, anxiety and depression scores on the Insomnia Severity Index (ISI), General Anxiety Disorder-7 (GAD-7) and Patient Health Questionnaire-9 (PHQ-9) respectively compared to those initially assigned to the waitlist control group at 8 weeks.

## Ethics approval required

Old ethics approval format

## Ethics approval(s)

Approved 25/01/2021, Biomedical Sciences Research Ethics Committee (University of Warwick, Coventry, CV4 7AL, UK; +44 (0)24 765 73123; BSREC@warwick.ac.uk), ref: BSREC 45/20-21

## Study design

Multicentre interventional waitlist randomized-controlled trial

## Primary study design

Interventional

## Secondary study design

Randomised controlled trial

## Study setting(s)

Internet/virtual

## Study type(s)

Treatment

#### Participant information sheet

See study outputs table

#### Health condition(s) or problem(s) studied

Insomnia, anxiety and depression

#### **Interventions**

Participants are randomly allocated through blocked randomisation with stratification into the SLEEP intervention or a waitlist control group with a 1:1 allocation ratio. The researchers will stratify across different employer sites in the Midlands to ensure weighting approximate to staff size and representation of the larger population.

The SLEEP trial is a hybrid digital intervention of cognitive behaviour therapy for insomnia and emotion regulation for a duration of 6 weeks, that includes self-guided components on sleep psychoeducation, sleep monitoring, cognitive behavioural therapy, and guided sleep restriction therapy with a trained therapist.

Content for the self-guided intervention will be digitised and presented via an online platform, with each component being tailored to maximise the relevance of the treatment as a workplace intervention and the generalisability of the treatment across industries. The bulk of the treatment content is a self-paced 'homework' that participants complete during the week, and supported by online therapists.

The core components of the SLEEP intervention will include:

- 1. Psychoeducation of sleep science
- 2. Stimulus control therapy
- 3. Sleep restriction therapy
- 4. Cognitive therapy for addressing insomnia-related cognitions and behaviour
- 5. Emotion regulation skills training (non-judgmental awareness, acceptance and tolerance, effective self-support, analysis and modification, physical activity)
- 6. Goal-setting (action planning, goal-setting)

#### Intervention Type

Behavioural

#### Primary outcome measure

- 1. Insomnia measured using the Insomnia Severity Index at baseline, post-intervention (8 weeks) and follow-up (12 weeks)
- 2. Anxiety measured using the General Anxiety Disorder-7 at baseline, post-intervention (8 weeks) and follow-up (12 weeks)
- 3. Depression measured using the Patient Health Questionnaire-9 at baseline, post-intervention (8 weeks) and follow-up (12 weeks)

## Secondary outcome measures

Current secondary outcome measures as of 26/10/2021:

- 1. Sleep quality parameters measured using Camntech MotionWatch actigraphy trackers and self-reported sleep diary data at week 1 (pre-intervention) and week 8 (post-intervention)
- 2. Work productivity measured using the Work Productivity and Activity Impairment: General Health v2.0 at baseline, post-intervention (8 weeks) and follow up (12 weeks)
- 3. Job satisfaction measured using the Indiana Job Satisfaction Scale at baseline, post-

intervention (8 weeks) and follow up (12 weeks)

- 4. Well-being measured using the Warwick-Edinburgh Mental Health Well-being Scale at baseline, post-intervention (8 weeks) and follow up (12 weeks)
- 5. Quality of life measured using the EuroQOL EQ-5D-5L questionnaire at baseline, post-intervention (8 weeks) and follow up (12 weeks)
- 6. User experience behaviour of platform usage collected as the counts of activities completed on the platform as well as the average duration of time spent on each topic over the 8-week intervention period.

#### Previous secondary outcome measures:

- 1. Sleep quality parameters measured using Camntech MotionWatch actigraphy trackers at week 1 (pre-intervention) and week 8 (post-intervention)
- 2. Job productivity measured using the Work Productivity and Activity Impairment: General Health v2.0 at baseline, post-intervention (8 weeks) and follow up (12 weeks)
- 3. Job satisfaction measured using the Indiana Job Satisfaction Scale at baseline, post-intervention (8 weeks) and follow up (12 weeks)
- 4. Well-being measured using the Warwick-Edinburgh Mental Health Well-being Scale at baseline, post-intervention (8 weeks) and follow up (12 weeks)
- 5. Quality of life measured using the EuroQOL EQ-5D-5L questionnaire at baseline, post-intervention (8 weeks) and follow up (12 weeks)
- 6. User experience behaviour of platform usage collected as the number of log-ins and counts of activities completed on the platform over the 8-week intervention period. These will be downloaded by the research team directly from the platform at the end of each week.

### Overall study start date

21/07/2020

#### Completion date

25/04/2022

## **Eligibility**

#### Key inclusion criteria

- 1. Able to give informed consent
- 2. English-speaking
- 3. In employment (including being on furlough)
- 4. Insomnia Severity Index score: x >8
- 5. General Anxiety Disorder-7 score: x >5 or Patient Health Questionnaire-9 score: x >5
- 6. ≥18 years of age

#### Participant type(s)

Patient

#### Age group

Adult

#### Lower age limit

18 Years

#### Sex

Both

#### Target number of participants

Minimum required sample size: 156; Number of sites: 45

#### Total final enrolment

159

#### Key exclusion criteria

- 1. Currently receiving treatment (psychological or pharmacological) from mental health services (e.g. GP, Improving Access to Psychological Therapies (IAPT), specialist and community mental health services)
- 2. Not pregnant
- 3. Current substance abuse/misuse problems, epilepsy, neurological conditions (e.g. Parkinson's or Alzheimer's), psychosis, bipolar disorder, or any other circadian rhythm and sleep disorders (e.g. sleep apnoea, periodic limb movement syndrome/restless leg syndrome, circadian rhythm disorders)
- 4. Retiring in the next 10 months
- 5. Currently taking part in other psychological intervention trials
- 6. In shift work

#### Date of first enrolment

11/06/2021

#### Date of final enrolment

30/10/2021

## Locations

#### Countries of recruitment

England

United Kingdom

#### Study participating centre Royal Wolverhampton NHS Trust

12, Corporate Services Centre New Cross Hospital Wolverhampton United Kingdom WV10 0QP

Study participating centre Leicester City Football Club King Stadium Filbert way Leicester United Kingdom LE2 7FL

## Study participating centre Conference Care

Hinckley Leicestershire United Kingdom LE10 3EY

## Study participating centre Pathfinder schools

Havelock Infant School Desborough Northamptonshire United Kingdom NN14 2LU

## Study participating centre Birmingham City Council

Birmingham United Kingdom B1 1BB

## Study participating centre Noble Events

Leicestershire United Kingdom LE7 4UZ

## Study participating centre The University of Warwick

University Road Coventry United Kingdom CV4 7AL

## Study participating centre Jaguar Land Rover

Banbury Road Abbey Road Whitley Coventry United Kingdom CV4 7AL

## Study participating centre CCM Group

Nunn Brook Road Huthwaite United Kingdom NG17 2HU

## Study participating centre

**Mice and Dice** Newcastle-under-Lyme

Newcastle-under-Lyme United Kingdom ST5 2RP

## Study participating centre

NTT

Darwin House Lichfield South Birmingham Road Lichfield United Kingdom WS14 0QP

## Study participating centre Herefordshire & Worcestershire Chamber of Commerce

Severn House Prescott Drive Worcester United Kingdom WR4 9NE

## Study participating centre

#### Micronclean

Skegness Roman Bank Skegness United Kingdom PE25 1SQ

## Study participating centre WJ North Ltd

7 Brock Way Newcastle-under-Lyme United Kingdom ST5 6AZ

## Study participating centre

Colas Rail

Plant Depot Mill Road Rugby United Kingdom CV21 1BE

### Study participating centre Perfect Home

Eagle Court 2
Hatchford Way
Sheldon
Birmingham
United Kingdom
B26 3RZ

### Study participating centre Streets Heaver

Lincoln United Kingdom LN6 3QN

### Study participating centre Capgemini UK Stafford Park 11

Telford United Kingdom TF3 3AY

## Study participating centre D2N2 Ltd

8 Experian Way ng2 Business Park Nottingham United Kingdom NG2 1EP

## Sponsor information

#### Organisation

University of Warwick

#### Sponsor details

University House Coventry England United Kingdom CV4 7AL +44 (0)2476575386 Sponsorship@warwick.ac.uk

#### Sponsor type

University/education

#### Website

https://warwick.ac.uk/services/ris/research\_integrity/sponsorship

#### **ROR**

https://ror.org/01a77tt86

## Funder(s)

## Funder type

Other

#### **Funder Name**

Midlands Engine

## **Results and Publications**

## Publication and dissemination plan

Planned publication in high-impact peer-reviewed journals. The study protocol is currently being drafted for publication.

## Intention to publish date

01/04/2023

## Individual participant data (IPD) sharing plan

Data stored in repository: https://www.doi.org/10.17605/OSF.IO/2G75Y

## IPD sharing plan summary

Stored in publicly available repository

#### **Study outputs**

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	version V1.6		08/06/2021	No	Yes
Participant information sheet	version 1.7	08/07/2021	26/10/2021	No	Yes
Participant information sheet	IV version version 1.7	07/07/2021	26/10/2021	No	Yes
<u>Protocol article</u>		15/07/2022	16/08/2022	Yes	No
Basic results			26/05/2023	No	No
Protocol article		09/12/2022	04/07/2024	Yes	No