#ResearchGMMH



Greater Manchester Mental Health NHS Foundation Trus

GM Connected Health Ecosystem XR IN MENTAL HEALTH

Date & Time: 15th February 2024 | 09:30 – 16:00 Location: Citylabs 1.0, Manchester

Join us for a showcase of developed XR Mental Health interventions currently in use in the NHS or close to real world implementation, with an opportunity to experience these innovative technologies first-hand.

DIGITAL FUTURES

MANCHESTER

The University of Manchester

Research & Innovation at GMMH

TRANSFORMING OUR WORLD



GM Connected Health Ecosystem | XR in Mental



Mental Health NHS Foundation Trust

The University of Manchester #ResearchGMMH

Agenda

Health

- 09:00 09:30 | Arrivals and Tea/Coffee
- 09:30 09:45 | Welcome | Professor Chris Taylor (Digital Futures Director), Professor Tony Warne (Chair of GMMH NHS Foundation Trust Board)
- 09:45 10:00 | Introduction to Health Ecosystem | Professor Panos Constantinides (Manchester Business School)
- 10:00 10:25 | Treating anxiety and phobias for people with ASC & LD | Jeremy Parr (Newcastle University), Billy Webber (XR Therapeutics)
- 10:25 10:45 | Discussion of XR research generation: Round Table 1 | Aislinn Gómez Bergin (MindTech, Nottingham University)
- 10:45 11:00 | Tea/Coffee Break
- 11:00 11:30 |AVATAR Therapy: Extended reality therapy for auditory hallucinations | Dr Thomas Ward, AVATAR Therapy Co-ordinator (Kings College London)
- 11:30 12:15 | GameChange VR: Exposure therapy for people with psychosis and agoraphobia | Sinead Lambe (Oxford VR), Heather Peel (GMMH Service User Researcher), Kate Kelly (GMMH Peer Mentor), Kichau Ramlaul (GMMH Peer Mentor), John Sainsbury (GMMH)

12:15 - 12:45 | Discussion of XR research generation: **Round Table 2** 12:45 - 13:30 | Lunch 13:30 - 14:30 | XR Demonstration (breakout) • GameChange • AVATAR • XR Therapeutics • Paul Warren – The Decision Bridge • Data visualisation suite – Robotic home help. 14:30 - 14:50 | The possibilities and challenges of XR in Mental Health | Aislinn Gómez Bergin (MindTech, Nottingham University) & Jane Guest (Innovate UK, UKRI) 14:50 - 15:05 | Tea/Coffee Break **15:05 - 15:25 | Discussion of XR research generation: Round Table 3** 15:25 - 15:45 | Panel Discussion | Chair – Aislinn, Tom Ward, Jeremy Parr, Jane Guest, Kate Kelly 15:45 - 16:00 | Closing Remarks and Next Steps 16:00 | Evaluation and Feedback

The Role of Healthcare Ecosystems in Accelerating Digital Transformation

Panos Constantinides

Professor of Digital Innovation Alliance Manchester Business School, University of Manchester



Hidden waits force more than three quarters of mental health patients to seek help from emergency services





The government and the NHS had previously pledged to eliminate 18-month waits b 2023. Photograph: Victoria Jones/PA

Emergency departments were not set up to look after the sick for days on end. It's a shambolic situation



Ambulances wait outside an A&E department: 'I have never seen patients get that far nospital system without physically entering the building.' Photograph: Guy Bell/Rex/Shu

Patients turning to A&E as wait times for NHS mental health treatment spiral

Royal College of Psychiatrists found patients' mental health was deteriorating amid 12-week waits



 The Royal College of Psychiatrists wants to see more medical school places to tackle staff shortages in the NHS. Photograph: Andy Rain/EPA











Woebot Health









Healthcare VR/AR usage



pwc



London

7.56%

7.56%

6.72%

4.20%

3.36%

South East

North West

South West

East Midlands

West Midlands Yorkshire and the

Scotland

Wales

Humber

North East

East of England



Major Shocks

Supply-side constraints

Capital investments in resources

(based on national budgets, geographical & demographic characteristics)

Priority setting

(efforts toward universal coverage of services while reducing spending)

Implicit Rationing

(delays, dilution, deflection and deterrence)

DISRUPTION IN HEALTHCARE

Tech Companies

Demand-side pressures

Advances in medical knowledge

(R&D toward new treatments & patient-driven outcomes – e.g. psychedelic drugs)

Technological innovations

(New technologies emerging in other sectors and translated into healthcare services – e.g. virtual mental health consultations)

Patient Empowerment

(demand for personalized solutions – e.g. monitoring of drug and substance use on mobile apps)

Disruption is systemic and digital transformation complex

Coordination Problems

(who does what, when, how much etc.)

Cooperation Problems

(with what incentives for value creation / capture)

Vertical Integration? (e.g., a national, government-controlled hierarchical system)

The complexity of coordination and cooperation problems can be reduced, and risks mitigated if healthcare organizations start exploring *joint value propositions* through an **ecosystem approach** to digital transformation

Generated with Stability.AI





Improved Outcomes

In a six-month study across 4 clinical sites with 37 physicians and 75,000 covered patient lives:











in emergency room visits



https://www.aptihealth.com/pdf/Aptihealth_Case_Study_08-14-2019.pdf



https://www.xr.health/

A survey of 200 Medical XR Companies discovered the following applications:

- Phobias and Post Traumatic Stress Disorder
- Stress Management and Relaxation
- Surgical Training and Planning
- Physical Rehabilitation
- Cognitive Training Wellness
- Sports Medicine
- Disability Solutions
- Speech Therapy
- Pain and Difficult Procedure Management

- Exercise
- Cognitive Rehabilitation
- Optical Rehabilitation
- Addiction
- Neuropsychological Assessments
- Autism Spectrum Disorder
- Mood Disorders
- Patient Education
- Preventative Health
- ► ADHD
- Elderly Care

Patients

XR enables remote delivery of care at home and can improve the experience in the clinic, providing more regular and reliable access to experiences and therapies.

Clinicians

can use XR to engage patients better and free up time by automating certain elements of the therapeutic process.

Medical education

benefit from better quality training and more learning opportunities, including access to a range of scenarios and conditions otherwise impossible to access.

Health systems

can use XR to tackle increasing demand and improve services, and reducing capacity of clinicians.

Society

can benefit from its role in equitable access to treatments and in public health prevention programmes.

XR Industry

can support the creative and technological demand, and create new ways to fund and support XR healthcare tools, whilst gaining access to a new market sector.

Digital Transformation in Healthcare

ROUTLEDGE

An Ecosystem Approach

Panos Constantinides



Thank You for your attention!

panos.constantinides@manchester.ac.uk



The University of Manchester

GM Connected Health Ecosystem | XR in Mental

Health



Greater Manchester Mental Health NHS Foundation Trust

Treating Anxiety and Phobias for People with ASC & LD Jeremy Parr (Newcastle University) Billy Webber (XR Therapeutics)

Virtual Reality treatment for anxiety

From Research to Clinical provision

Jeremy Parr | Newcastle University





From Newcastle. For the world.



Register of Interests

Cumbria, Northumberland, Tyne and Wear NHS Foundation Trust

01

Employed by Newcastle University; I work in the National Health Service (NHS); 20 years clinical research experience; no lived experience.

02

Various sources of clinical research funding for the research I'll describe; NIHR, MRC CiC and Innovate UK; my employment is not directly reliant on funding.

03

My presentation relates to XRTherapeutics, which as the clinical academic founder I have a financial interest in as a Director and Shareholder; Newcastle University, and Cumbria Northumbria Tyne and Wear NHS Foundation Trust are also Shareholders in XRT.

Overview

Jeremy Parr

- Design and evaluation of a novel virtual reality environment treatment for anxiety in autism; a journey from an idea, to clinical service and a company
- Evidence from observational studies and a pilot RCT
- NHS provision and creation of a company to drive forward treatment availability
- Billy Webber



Cumbria, Northumberland

Tyne and Wear

Anxiety and Autism

- Anxiety is common; at least 50% YP and adults. Multiple anxiety disorders concurrently.
- Situation-specific anxiety, phobia and fears are common.
- Often fears and phobias experienced may be 'unusual' or atypical e.g. fear of specific everyday objects (toilets, machines, certain foods).
- Some anxiety situations relate to sensory sensitivities.
- Impact on daily life for the young person; relatives; friends; some financial impact.
- Schooling often affected; some YP not attending or going out.





Treatment





Cognitive behavioural therapy (CBT) is recommended by NICE for:

Autistic young people and adults with anxiety who have the verbal and cognitive ability

- Adjusted group CBT
- Individual CBT for those who find group-based activities difficult

But....what is usual care?

- Parents reported very little treatment for situation specific anxiety/phobia
- Clinicians reported few mechanisms for delivering adapted CBT
- Limited capacity and expertise to treat lots of children with 8-12 sessions
- Long waiting lists historically and getting longer in recent years



Immersive VR

Immersive technology using computer generated images projected onto a curved screen, or walls of a room.

Participants were not required to wear a headset or goggles; therapist navigates through the scene using a handheld tablet computer

Manualised Intervention Design

(Parr and McConachie)

- A therapist remained throughout the treatment session; CBT plus exposure.
- Scenes are individualised for person, incorporating an exposure hierarchy related to the feared stimulus (visual, sensory).
- Participant attended for two 2x 20-minute treatment sessions with therapist Parents/supporter watched treatment via a video link.
- Start: relaxation scene allows familiarisation with the environment, practice relaxation and coping statements.
- Then CBT techniques, exposure practiced to reduce anxiety.
- After fourth session, therapist provides guidance regarding real world exposure; real world change?



Dogs



Public transport





Social interactions



Immersive VR Research

2012-2019

OPEN O ACCESS Freely available online

PLOS ONE

Reducing Specific Phobia/Fear in Young People with Autism Spectrum Disorders (ASDs) through a Virtual Reality Environment Intervention

Morag Maskey¹*, Jessica Lowry², Jacqui Rodgers¹, Helen McConachie², Jeremy R. Parr¹*

1 Institute of Neuroscience, Newcastle University, Newcastle upon Tyne, England, United Kingdom, 2 Institute of Health and Society, Newcastle University, Newcastle upon Tyne, England, United Kingdom

A Randomised Controlled Feasibility Trial of Immersive Virtual Reality Treatment with Cognitive Behaviour Therapy for Specific Phobias in Young People with Autism Spectrum Disorder

Morag Maskey¹ · Jacqui Rodgers¹ · Victoria Grahame^{2,6} · Magdalena Glod¹ · Emma Honey² · Julia Kinnear³ · Marie Labus⁴ · Jenny Milne⁵ · Dimitrios Minos⁶ · Helen McConachie⁶ · Jeremy R. Parr^{1,2}

Journal of Autism and Developmental Disorders (2019) 49:1912–1927 https://doi.org/10.1007/s10803-018-3861-x An intervention for fears and phobias in young people with autism spectrum disorders using flat screen computer-delivered virtual reality and cognitive behaviour therapy

Morag Maskey^a, Helen McConachie^b, Jacqui Rodgers^a, Victoria Grahame^c, Jessica Maxwell^a, Laura Tavernor^c, Jeremy R. Parr^{a,c,*}

Research in Autism Spectrum Disorders 59 (2019) 58-67

Using Virtual Reality Environments to Augment Cognitive Behavioral Therapy for Fears and Phobias in Autistic Adults

Morag Maskey, PhD,¹ Jacqui Rodgers, PhD,¹ Barry Ingham, PhD,^{1,2} Mark Freeston, PhD,¹ Gemma Evans, PhD,² Marie Labus, PhD,³ and Jeremy R. Parr, MB CHB, MRCPCH, MD^{1,2}



Cumbria, Northumberland, Tyne and Wear NHS Foundation Trust



Cumbria, Northumberland

Type and Wear

NHS Foundation Trust

Immersive VR Research

2012-2019

Pigeon phobia

- 11-year-old boy, severe pigeon phobia
- Unable to sit by windows
- Anxiety getting ready to go out
- Restricted family activities; panic attack in town near pigeons

Increasing challenge; one pigeon; flapping closer; multiple pigeons One week after 4 treatment sessions: able to walk past pigeons at entrance to shopping mall

'I still have a fear of pigeons...it doesn't control me anymore'

- Less impact, more participation. Improvement sustained at 12 months

Specific phobias

 Table 2 Specific phobias which were addressed (treatment group and control group)

Treatment group phobias	Control group phobias		
Bananas	Dogs (x2)		
Wasps/bees (x2)	Flying (x2)		
Open spaces	Wasps/bees		
Dogs (x3)	Specific chronological time		
Lifts	Heights/glass elevators (x2)		
Fear of the dark	Thunder and lightening		
Insects	Making requests ^a		
Being looked at ^a	Mascots		
Changes in weather	Automated toys		
Eating in front of other people ^a Fear of the dark			
Balloons	Travelling in the car		
Dolls	Toilets		
Bats	Balloons		

^aAnxiety related to very specific social situations that were identified by the child and their parents as highly desirable treatment targets

Feasibility RCT Data



- Treatment group: 6/16 definite improvement; 1/16 worse
- Control group: 0/16 definite improvement; 5/16 worse
 - (Effect Size ~1.0)

Evidence of real-life change

- Control group post treatment: 9/15 definite improvement
- Total definite improvement: 15/31





Cumbria, Northumberland, Tyne and Wear NHS Foundation Trust

Adult development study

Using Virtual Reality Environments to Augment Cognitive Behavioral Therapy for Fears and Phobias in Autistic Adults

AUTISM IN ADULTHOOD

Morag Maskey,¹ Jacqui Rodgers,¹ Barry Ingham,^{1,2} Mark Freeston,¹ Gemma Evans,² Marie Labus,³ and Jeremy R. Parr¹

5/8 definite improvement at 6 months; impact

Adult	Phobia/situational	Supporter and observers of	Responder	
	fear	sessions	6 weeks	6 months
A	Open spaces	Friend	No	No
В	Walking through doorways	Parents and support worker	Yes	Yes
С	Spiders	Mother, sister and partner	Yes	Yes
D	Babies/pram	Parents, brother and support worker	No	No
E	Making requests	Mother	Yes	Yes
F	Pigeons	Mother	Yes	Yes
G	Insects/flies	Parents	No	Yes
Н	Crowded buses	Mother and support worker	No	No

Current NHS Provision



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National referrals; needs Local funding

A real-life improvement for 50% of participants (n=53 children and adults); acceptable; an NHS service from 2018;

R&D, Innovation Group, Medical Director/Board Support; Evaluation plan.



Information on Virtual Reality treatment for situation specific anxiety, phobia or fear.

Virtual Reality Treatment Referral Form – for referrals from outside CNTW NHS Trust Version 5 – December 2022



https://www.cntw.nhs.uk/resource-library/virtual-reality/

Young people with a clinical diagnosis of ASD; aged 7-17 years (under 18 years) with a specific phobia;

who are able to understand and use sentence level speech.



Early challenges of NHS provision, and creation of XR Therapeutics

- 30 referrals; Individual Funding Requests (IFRs) needed.
- Severe enough impact to warrant clinical treatment?
- Some clinicians who refer and are accepted don't complete IFRs.
- Some IFRs are then turned down need to agree pathway to funding with commissioners (not enough 'usual care' prior to referral).
- Technology needed set up and training.
- Cost a barrier.
- Following ICURe, Newcastle University Spin Out company able to look commercially at the opportunity; business model; gain investment to support national and international provision; IPSOC permission to create a company Feb 2020.



Innovate UK

"This intervention shows up where there is a **real gap in** treatment and a **real opportunity**" - Director of Research, Autism Speaks, New York

A balance between Clinical Academia and Industry roles.

- Personally: New skills and challenges; giving away IP; relinquish control and decision making a Director, not the CEO; influencing company policy re NHS provision, quality, safety.
- Remembering for most of us it's not about the money, it's about the impact and getting a useful intervention into clinical services for YP and families.





Cumbria, Northumberland, Tyne and Wear NHS Foundation Trust

Thank you to:

- Many autistic people, and relatives, supporters, carers
- NHS professionals from child and adult healthcare services
- Clinical research colleagues in Newcastle, across the UK and internationally

Please get in touch if you have any further questions: <u>Jeremy.Parr@ncl.ac.uk</u> @jeremyrparr


Our treatment





Neurotypical patients



We are working with...





IAPT / Talking Therapies

What can we treat?

Our approach is suitable for a number of different Mental health conditions including:



When you feel anxious about a wide range of situations and issues, rather than one specific event, occuring most days and often struggle to remember the last time you felt relaxed.



Sudden attacks of panic, fear, feelings of anxiety, and/or stress regularly at any time, and often for no apparent reason.

Social Anxiety

An overwhelming fear of social situations that does not go away, and affects everyday activities, self-confidence, relationships and work or school life, worring before, during, and after social situations or encounters.



A fear of being in certain situations (travelling on public transport, visiting a shopping centre and/or leaving home etc) where escape might be perceived as difficult, or that help wouldn't be available if things go wrong.



OCD (Obsessive-Compulsive Disorder)

When a person has obsessive (an unwanted and unpleasant repeated thought, image or urge) and compulsive (repetitive behaviour or mental act) behaviours.



Health Anxiety

When you spend so much time worrying that you are ill, or going to get ill, that it starts to take over your life (it is also related to OCD).



Phobias

An overwhelming and debilitating fear or anxiety of an object or situation, that may develop when a person has an exaggerated or unrealistic sense of danger of the above.



A treatment that aims to help people with depression and low mood by taking simple, practical steps towards enjoying life again, with problemsolving skills to help you tackle issues that are affecting your mood and day to day functioning.

Results as a company

REAL WORLD DATA AND OUTCOMES

95%

of patients have shown noticeable improvements after using our treatment. 71%

of patients have **completely** recovered or are showing signs of major improvements.

Autistic People & People with Learning Disabilities









We now have 4 new sites

And treating 80 patients



Technology roadmap









Remote delivery

Metaverse for Mindset

Al tools for future scene development











Cumbria, Northumberland, Tyne and Wear NHS Foundation Trust

Thank you!

Please get in touch if you have any further questions:

Billy Webber

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@billywebber1

Jeremy Parr Jeremy.Parr@ncl.ac.uk

@jeremyrparr



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Mental Health

NHS Foundation Trust

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GameChange VR: Exposure Therapy for People with Psychosis and Agoraphobia Sinead Lambe (Oxford VR) Heather Peel (GMMH Service User Researcher) Kate Kelly (GMMH Peer Mentor) Kichau Ramlaul (GMMH Peer Mentor) John Sainsbury (GMMH)



GameChange virtual reality therapy: a service user researcher perspective.





Heather Peel Service user researcher

VR therapy during the pandemic

Greater Manchester Mental Health NHS Foundation Trust

Face Shield

HD FACE SHIELD PROTECT

You make us better...

Implementation pilot study



1000

-

You make us better...





Thank you





Greater Manchester Mental Health NHS Foundation Trust

Real World Pilot

Implementing gameChange VR therapy

in Community Mental Health & Early Intervention in Psychosis settings

Research & Innovation at GMMH



Dr. Liz Murphy Clinical Psychologist

Heather Peel Service User Researcher

John Sainsbury Innovation Manager



Innovation journey annotated by S-curves











Meeting the Mentor





You make us better...



Meeting the mentor





You make us better...







Non adoption, scale, spread and sustainability (NASSS) framework (Greenhalgh,T., et al, 2019)

CONDITION Nature of condition or illness Comorbidities

Sociocultural factors

2. TECHNOLOGY

- Material properties
- Knowledge to use it
- Knowledge generated by it
- Supply model
- Who owns the intellectual property?

3. VALUE PROPOSITION

- Supply-side value (to developer)
- Demand-side value (to patient)

4. ADOPTERS

- Staff (role, identity)
- Patient (passive vs active input)
- Carers (available, type of input)

5. ORGANISATION(S)

- Capacity to innovate in general
- Readiness for this technology
- Nature of adoption and/or funding decision
- Extent of change needed to organisational routines
- Work needed to plan, implement
 and monitor change
- 6. WIDER SYSTEM
 - Political/policy context
 - Regulatory/legal issues
 - Professional bodies
 - Sociocultural context
 - Interorganisational networking
- 7. EMBEDDING AND ADAPTATION OVER TIME
 - Scope for adaptation over time
 - Organisational resilience







Greater Manchester Mental Health

Tests, friends & challenges









<70% vs <0.7%







The Ordeal





You make us better...











Changes in Distress from Pre- and Post-Intervention





Changes in Avoidance from Pre- and Post-Intervention

All outcome data analysis (n=25)

Pre-post mean difference = -1.04 (SD=1.6) t=3.26, p-value =0.003



Changes in Distress and Avoidance from Baseline and Follow-up among Study Completers (N=5)

Avoidance mean change = 1.6



The Reward



How satisfied are you with the treatment and care provided to you?



NICE National Institute for Health and Care Excellence

You make us better...









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Thank you





GM Connected Health Ecosystem | XR in Mental

Health



Mental Health

NHS Foundation Trust

The University of Manchester

The Possibilities & Challenges of XR in Mental Health Jane Guest (Innovate UK, UKRI) Aislinn Gómez Bergin (MindTech, Nottingham University)

WK Research and Innovation Mindset XR Programme: 2022 – 2026

jane.guest@iuk.ukri.org Mindset Delivery Team

Healthy Living and Agriculture Domain, Innovate UK




Key Societal Problem

- 1 in 4 people will experience mental health issues each year in the UK, but only 1 in 8 adults are receiving treatment. <u>*Mind*</u>, 2017
- Around a 1/3 of adults and young people say their mental health has got much worse since March 2020/COVID. <u>Mind, July 2021</u>
- 5 million patients accessed NHS treatment in 2022/23, an increase of more than 25% in five years. <u>NHS England, 2024</u>
- Demand isn't just increasing it's being sustained

© Mind 2017



Mental health facts

and statistics

Key facts and statistics on mental health problems and issues.

If you require this information in Word document format for compatibility with screen readers, please email: <u>publications@mind.org.uk</u>

Contents



NHS England

Date published: 12 January, 2024 Date last updated: 24 January, 2024

Monthly operational statistics – January 2024

Publication (/publication)

Content

Executive summary
Urgent and emergency care
Elective recovery
Cancer

Executive summary

The total waiting list and unique patient number have fallen for the second month in a row, with the total waiting list falling to 7.6 million in November 2023, despite disruption from ongoing industrial action and sustained demand.

A record 1.63 million patients began treatment in November 2023 and more than 2.3 million diagnostic tests were undertaken in the same month.

Continuing industrial action in the NHS has had a significant impact on patients. Since strikes began, more than 1.3 million appointments have been rescheduled

Pressure has continued in emergency departments across the country, with more than 2.1 million A&E attendances and over 547,000 emergency admissions in December 2023.

Ambulance services also faced increasingly high demand in December, with more than 889,000 calls to 999 answered by staff throughout the month, an average of 28,690 every day.





Programme Ambition:

- Invest in Extended Reality (XR) delivered as digital mental health therapeutics to treat:
 - More people
 - More efficiently
 - More effectively
- To create a supportive ecosystem to help bring innovations to market and make them <u>stick</u>





Why XR?

- XR refers to Extended Reality and covers:
 - Augmented Reality (AR)
 - Mixed Reality (MR)
 - Virtual Reality (VR)
 - Haptics, interfaces, platforms and software (immersive technologies)
- Delivering therapies remotely via XR can:
 - Be 2-3 times cheaper than traditional treatment
 - Cut wait times
 - Improve reach and engagement
- We plan to utilise the world class XR sector emerging in the UK healthcare market





3 Workstreams, 2022 – 2026: Overall Programme Value £20m

Delivering:

1. Grant funding for research and development (R&D) projects

2. Investment Partnerships to boost government funding and catalyse future investment

3. Partnering with Health Innovation Network, South London to deliver a new XR Innovation Support Programme to encourage:

- Knowledge sharing
- Adoption and scaling
- Marketplace longevity



Mindset Workstream 1, 2022: R&D Competition 1

Scope/Overview:

- Grant funding opportunities for business-led (R&D) projects that apply immersive technology in digital mental health therapies (for all ages)
- Closed Oct 22, with £3.1m committed to 29 projects:
 - 12 x Feasibility: All completed by Dec 23
 - 11 x Industrial Research: All due to complete by Mar 25
- Example XR mental health therapeutic applications include (but not limited to): anxiety, eating disorders and phobias





• Plan is to now expand our portfolio via our investor partnership scheme and two further R&D competitions

Mindset Workstream 1, 2023: R&D Competition 2

Scope/Overview:

- Workstream 2: Similar scope as the first competition.
- Competition closed in Dec 23, with approx. £4.5m due to be committed to a mix of Feasibility and Industrial Research Projects
- Successful projects will be announced around May 24

Image: Freepik

Mindset Workstream 1, Launching Sept 2024: R&D Competition 3

• Scope being defined, but one area that deserves support is Severe Mental Illness



K UK Research o and Innovation

Thank You jane.guest@iuk.ukri.org

Learn more, search: 'MINDSET' @UKRI.org

Challenges and Opportunities of XR in Mental Health

Dr Aislinn Gomez Bergin

RAI UK Transitional Assistant Professor, University of Nottingham









THE GROWING VALUE OF XR IN HEALTHCARE IN THE UNITED KINGDOM



h tion

Rescape

Health Education England

signed and illustrated by <u>Straw Man Hero</u>

Further reading: Gómez Bergin, A. D., & Craven, M. P. (2023). Virtual, augmented, mixed, and extended reality interventions in healthcare: a systematic review of health economic evaluations and cost-effectiveness. *BMC Digital Health*, 1(1), 53.





Dr. Mandy Claudia tom Dieck, Alexandra Taylor, Prof. Timothy Jung

Business Transformations Research Centre, Manchester Metropolitan University







The University of Manchester

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