Remote and digital mental health interventions and COVID-19

Summary report of a joint Academy of Medical Sciences/MQ Mental Health Research virtual workshop on 15 May 2020

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Opinions expressed in this report do not necessarily represent the views of all participants at the workshop, the Academy of Medical Sciences or its Fellows, or MQ.

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Executive summary

The COVID-19 pandemic is having a profound effect on society, with potential long-term impacts on mental health, as well as on the brain function of some of those affected by COVID-19. Understanding the mental, cognitive and neurological health impacts of COVID-19 must therefore be a high priority in the UK response to tackle the COVID-19 pandemic. A Position Paper, published shortly before the workshop in *The Lancet Psychiatry* by an expert group convened by the Academy of Medical Sciences and MQ, highlighted an urgent need to tackle the harmful impacts of the COVID-19 pandemic on mental health and called for research on these areas to be central to the global response to the pandemic.¹

As part of the follow-up to this work, on Tuesday 15 May 2020, the Academy and MQ co-hosted a virtual workshop to explore the role of remote and digital interventions in supporting mental health during the COVID-19 pandemic. This workshop, chaired by Professor Hugh Perry FMedSci, UK Dementia Research Institute Honorary Consultant & Theme Lead (Neuroinflammation), University College London, convened leading experts in a range of fields across the UK to discuss remote and digital mental health interventions in relation to the COVID-19 pandemic.

The following key findings and next steps emerged from the workshop:

- There is widespread endorsement from funders that mental health is a priority area for COVID-19 research, and recognition that the mental health science community will be best served by being as coordinated as possible.
- There is an opportunity for the mental health science community to develop a research proposal to develop
 effective remote/digital interventions by bringing together: 1) interventions co-designed with people with lived
 experience; 2) the mechanisms under which interventions would operate; and 3) the data to evidence their
 success.
- There was appetite from a number of participants to develop a consortium proposal with a focus on transdiagnostic mechanisms for identifying remote/digital interventions. This could be developed across different subgroups, including younger people, older people, frontline workers and people with severe mental illnesses (SMIs), to explore the broader application of existing interventions.
- The findings from individual sub-groups could be used to inform potential uses in other sub-groups and could therefore facilitate the repurposing of interventions, as welcomed by funders.
- A number of cross-cutting themes and challenges to consider when developing a consortium proposal were
 identified throughout the discussion, including: engaging people with lived experience, especially those in
 underrepresented communities; harmonisation and the use of data; timescales for ensuring deliverables within 12
 months; and developing links with service delivery.

1. Holmes EA, et al. (2020). Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. Lancet Psychiatry, **2020(7)**, 547–60.

Introduction

It is evident that the direct and indirect psychological and social effects of the COVID-19 pandemic could affect mental health now and in the future. In March/April 2020, the Academy and MQ convened a multi-disciplinary expert group to define the mental health research priorities for the COVID-19 pandemic, which were published on 15 April 2020 in *The Lancet Psychiatry*. The paper called for a coordinated approach to ensure that these priorities are most effectively addressed, and highlighted as an immediate priority the need to develop effective interventions to address the psychological, social and neuroscientific aspects of the pandemic.

The paper called for more widespread mental health monitoring of the UK population in response to the pandemic, and for better ways to protect against, and treat, mental ill health – both of which will require new funding and better coordination. Funding calls for COVID-19 research are highly-competitive, and there is appetite from funders for high-impact, collaborative proposals that are coordinated across the mental health sciences sector. As such, this workshop held on 15 May 2020, chaired by Professor Hugh Perry FMedSci, UK Dementia Research Institute Honorary Consultant & Theme Lead (Neuroinflammation), University College London, brought together leading experts in a range of fields across the UK to discuss remote and digital mental health interventions in relation to the COVID-19 pandemic. These discussions took place in the context of open calls for funding for 12-18 month projects focussing on urgent COVID-19 and public health research priorities from a range of Government funders.

The workshop aimed to:

- Share intelligence on how COVID-19 related mental health research proposals can be supported by UK Research and Innovation (UKRI) and DHSC (Department of Health and Social Care).
- Share information on proposals currently in development in the mental health research community related to remote and digital interventions.
- Discuss psychological and social intervention priorities, with particular reference to those identified in The Lancet Psychiatry paper.
- Discuss opportunities for consortia that might allow a portfolio of studies to be supported, as well as the enablers and barriers to these opportunities.

2. Holmes EA, et al. (2020). Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. Lancet Psychiatry, **2020(7)**, 547–60

Mental health research funding landscape

Early evidence indicates that there has been a substantial worsening of mental health in certain groups since March this year.³ For this reason, it is important that mental health research forms part of the response to the COVID-19 pandemic. This workshop provided attendees with an overview of some of the current funding mechanisms available and identified potential collaborative opportunities for the development of bids.

Context setting and the current funding landscape

Professor Perry indicated that following the publication of The Lancet Psychiatry Position Paper there was clear acknowledgement from funders that mental health was a priority area for COVID-19 research, as indicated through the highlight notice, and most notably, recognition that the mental health science community will be best served by being as coordinated as possible.⁴

Dr Munn highlighted the need for the mental health community to demonstrate that it stands ready to respond in the most effective way. Specifically, the national prioritisation exercise undertaken by NIHR and devolved administrations had prioritised funding for research into COVID-19 treatments and vaccines in the early phases of the pandemic. But there was now a need and opportunity to bring mental health into focus given the potential wide-ranging impacts of COVID-19 on mental health. The uncertain financial situation caused by COVID-19 has presented income challenges for medical research charities, which ordinarily fund around half of all publicly funded medical research nationally. This means that COVID-19-related research, including mental health research, is even more reliant on public funding from UKRI and DHSC.

With consideration of the priority areas identified in The Lancet Psychiatry Position Paper, Dr Munn explained that remote and digital interventions are a priority area for further exploration owing to the pressing nature of declining mental health and wellbeing being reported during the first wave, and the likely recurrence of future waves of infection.⁶ This also presents an opportunity for the community to come together and establish and embed ways of working for the future.

UKRI and **DHSC** funding mechanisms

Dr Latimer, Head of Neurosciences and Mental Health Board at the Medical Research Council, highlighted that mental health research is a core strategic priority for the MRC and is reflected in the targeted investments made in mental health research, such as the MRC Mental Health Data Pathfinders, which invested £10 million in 2018.⁷ Other investments include the UKRI Interdisciplinary Mental Health Networks (£8 million in 2018); the Therapeutic Target Validation for Mental Health (£2.5 million in 2019); the Global Challenges Research Fund Global Mental Health Funding (£12.5 million in 2019); and the Adolescence, Mental Health and the Developing Mind investment in partnership with ESRC and AHRC (£35 million 2019-2025).^{8,9,10,11}

Funding routes available to apply for COVID-19 relevant mental health research include the UKRI/DHSC rapid response COVID-19 call and the UKRI rolling call, with timelines of 12 and 18 months, respectively. 12,13 Dr Latimer recognised that

some research may not be achievable in this timeframe, and therefore encouraged submissions through alternative response mode routes, including the Neurosciences and Mental Health Board and the Adolescence, Mental Health and the Developing Mind Programme. The UKRI/Newton Fund Agile call (18 months), provided an additional route to mental health research in low and middle income countries. ¹⁴ Dr Latimer provided examples of current UKRI-funded mental health COVID-19 research, highlighting that an extensive list can be found on the UKRI website. ¹⁵

Alison Tingle, Senior Research Liaison Manager at the Department of Health & Social Care, provided an update on the NIHR's High priority COVID-19 Urgent Public Health Research route for studies that have funding and are looking to access patients through the Clinical Research Network (CRN). Similarly to other funding calls, this route initially prioritised drug and vaccine studies. Mental health studies have been identified as the next priority, with a panel being established to process the mental health applications shortly after the workshop took place.

Challenges for mental health research funding

Participants were pleased to hear the commitment from the funders to prioritise mental health research. However, some questioned the timeframes for the COVID-19 rapid response funding calls, noting the difficulty to ensure the impact of mental health research within the 12-18 month timeframes. Funders were urged to consider an approach to fill the gap between the urgent funding calls and the standard response mode funding routes, which have a longer timeline for applications and therefore are unable to provide immediate funding. Filling this gap would ensure that the opportunity for urgent data collection to support longer term mental health research is not missed, should it not be possible to deliver research outputs in the required 12-18 month timeframe.

Participants also asked for assurance that there was an appropriate level of mental health expertise on committee panels for reviewing submissions. This is always an important consideration for funders, who strive to ensure there is relevant expertise on the committee panels.

Dr Latimer noted that the MRC is open to consider different research models — such as coordinated, holistic, multi-disciplinary approaches looking at diverse populations — provided the approach is best suited to address the research question under investigation. She emphasised that the MRC is keen to support a breadth of research and is open to discuss application queries. Dr Latimer encouraged researchers to engage with funders as early as possible to receive guidance on the development of proposals and on the appropriate funding mechanisms available.

- 3. **[pre-print]** Kwong ASF, et al. (2020). Mental health during the COVID-19 pandemic in two longitudinal UK population cohorts. MedRxiv 2020.06.16.20133116.
- 4. National Institute of Health Research (2020). *Highlight notice COVID-19 and mental health*. https://www.nihr.ac.uk/documents/highlight-notice-covid-19-and-mental-health/24978
- 5. Association of Medical Research Charities (2020). *COVID-19: The risk to AMRC charities*. https://www.amrc.org.uk/Handlers/Download.ashx?IDMF=3916cef3-3f16-437e-9cb7-7dbcbd5c0c33
- MQ: Transforming Mental Health and the Academy of Medical Sciences (2020). Survey results: Understanding people's concerns about the mental health impacts of the COVID-19 pandemic. https://acmedsci.ac.uk/file-download/99436893
- 7. Medical Research Council. *Mental Health Data Pathfinder*. https://mrc.ukri.org/funding/browse/mh-data-pathfinder/
- 8. UKRI. Mental Health Networks. https://www.ukri.org/research/themes-and-programmes/mental-health-networks/
- 9. Medical Research Council. Therapeutic Target Validation in Mental Health Call call for proposals. https://mrc.ukri.org/funding/browse/ttv-mh/therapeutic-target-validation-in-mental-health-call/
- 10. Medical Research Council. *Global Mental Health call for proposals*. https://mrc.ukri.org/funding/browse/gcrf-global-mental-health/global-mental-health/?utm_medium=email&utm_source=govdelivery
- 11. Medical Research Council. MRC/AHRC/ESRC Adolescence, Mental Health and the Developing Mind: Call for Research Programmes. https://mrc.ukri.org/funding/browse/amhdm/adolescence-mental-health-and-the-developing-mind/
- 12. Medical Research Council. *COVID-19 Rapid Response Rolling Call*. https://mrc.ukri.org/funding/browse/ukri-nihr-covid-19/ukri-nihr-covid-19-rolling-call/
- 13. Medical Research Council. COVID-19 Rapid Response Rolling Call. https://mrc.ukri.org/funding/browse/ukri-nihr-covid-19/ukri-nihr-covid-19-rolling-call/
- 14. UKRI. UKRI GCRF/Newton Fund Agile Response call to address COVID-19. https://www.ukri.org/funding/funding-opportunities/ukri-gcrf-newton-fund-agile-response-call-to-address-covid-19/
- 15. UKRI. COVID-19 research and innovation supported by UKRI. https://www.ukri.org/research/coronavirus/covid-19-research-and-innovation-supported-by-ukri/
- 16. National Institute of Health Research. *Public Health Research Programme Rapid Funding Scheme*. https://www.nihr.ac.uk/funding/public-health-research-programme-rapid-funding-scheme/20247

Cross-cutting themes and challenges to address

The COVID-19 pandemic has exposed unprecedented challenges for mental health due to its diverse and widespread impacts on wellbeing, combined with the restrictions on the availability of face-to-face care. Research into the most effective interventions is therefore required to ensure that the impacts of COVID-19 on mental health and wellbeing are addressed effectively.

Participants identified a number of cross-cutting themes and challenges to address including: engaging people with lived experience, especially those in underrepresented communities; supporting service delivery; harmonisation and the use of data; and the timeframe for deliverables of 12-18 months. It was acknowledged that there was an opportunity for the mental health science community to develop a proposal 'greater than the sum of its parts' through triangulation of: interventions co-designed with people with lived experience; the mechanisms under which interventions would operate; and the data to evidence success of interventions. This would enable the sharing of best practice to help address the identified challenges.

Participants also shared a number of relevant studies, covering a range of themes: older adults, children and young people, internet and digital platforms, and SMI. Detail of these can be found in Annex 3.

Engaging people with lived experience

Concerns were raised about the lack of input from people with lived experience in some COVID-19 research generally.¹⁷ Participants agreed that due to the shorter timeframes associated with developing studies, the quality of engagement and inclusion of people with lived experience had declined. Particular emphasis was placed on engaging those who are traditionally more difficult to reach, such as people with SMI, physical health conditions, or those that experience language barriers, as they may require longer term support and would provide crucial insight into potentially successful interventions.

When engaging with service users, participants reflected on the importance of empowering those with lived experience to mitigate against a sense of vulnerability. To assist in this, consideration should be given to engaging service users in the design of studies, rather than solely as subjects for research.

Co-design of studies with service users, including those in underrepresented communities, could provide a useful route to service delivery and could play a vital role in developing effective remote/digital interventions.

Supporting mental health service delivery

Participants agreed that restarting mental health services will be vital to limit the impact of COVID-19 on mental health and wellbeing. This can be supported through the use of remote and digital interventions, but should also include inperson interventions for patients most in need, such as those leading more chaotic lifestyles or without access to digital interventions. Attendees highlighted that care must be taken not to exacerbate existing inequalities, especially when considering the 'digital divide', with some unable to access certain digital technologies.

Concern was also expressed for people with lived experience after lockdown, when the support that may have been provided by friends and family being present at home would decrease as people return to pre-lockdown working and living habits. People experiencing loss of support may benefit from both remote and in-person interventions and this should be a consideration for future research.

Harmonisation and use of data

It was acknowledged that while there are datasets available, they do not always contain data from diverse populations, particularly from black, Asian and minority ethnic (BAME) communities. Participants highlighted some of the available datasets, such as the Clinical Record Interactive Search (CRIS) or Evergreen systems, and the potential to link such data with primary care electronic health records to integrate research outcome measures. 18,19 Such datasets would ideally be supplemented by real world data to help assess the efficacy of interventions in different populations.

A prominent methodological barrier to data collection and dissemination identified by participants was the lack of routine coding for digital interventions in electronic health records. Specifically, there were concerns over the ability to run pragmatic trials with digital interventions, as without routine coding it is not possible to readily compare interventions. Participants were keen to address this methodological issue to assist in connecting interventions with service delivery, with one attendee highlighting efforts underway by NHSX to tackle this.

Timescales

A prominent challenge identified by participants was the ability to deliver outputs within short timeframes, particularly when considering the UKRI/DHSC rapid response COVID-19 call and the UKRI rolling call, with timelines of 12 and 18 months, respectively. As discussed in the challenges section, participants articulated the need for funding for research in the early stages of the pandemic to inform longer-term research and therefore goes beyond the immediate time frame.

- 17. Health Research Authority. *Involving the public in COVID-19 research: a guest blog by Bec Hanley and Maryrose Tarpey*. https://www.hra.nhs.uk/about-us/news-updates/involving-public-covid-19-research-guest-blog-bec-hanley-and-maryrose-tarpey/
- 18. NIHR Maudsley Biomedical Research Centre. *Clinical Record Interactive Search (CRIS)*. https://www.maudsleybrc.nihr.ac.uk/facilities/clinical-record-interactive-search-cris/
- 19. Evergreen. https://www.evergreensys.com/

Consortium development on trans-diagnostic mechanisms

During the final session of the meeting, there was appetite from a number of participants to develop a consortium proposal with a focus on trans-diagnostic mechanisms (mechanisms which can be applicable to multiple mental health illnesses) for identifying remote/digital interventions. The consortium could study effective interventions across different sub-groups, including younger people, older people, frontline workers and people with SMIs, to explore the broader application of existing interventions. The findings from individual sub-groups could be used to inform potential uses in other sub-groups and could therefore facilitate the repurposing of interventions as welcomed by funders.

Participants established that a possible approach for a consortium proposal could be to develop a common platform for research into remote interventions across different sub-groups. This platform could be utilised for longer term studies extending beyond the 12 month timeframe. When considering such an approach, participants noted that it could present challenges for interoperability, and there would be a need to harmonise studies across time to allow for cross-comparison of interventions. Harmonisation would minimise the potential for duplication and enable full use of data and would also be beneficial for linking to the delivery of interventions.

Participants agreed that it may be useful to include resilience as a framing tool to consider how the delivery of remote interventions could support restarting routine care, for example through the creation of a digital mental health platform. The proposal could also seek to establish a platform to run intervention studies more pragmatically, and thereby address some methodological issues, such as the lack of routine coding for digital interventions in electronic health records. Participants also felt that there was an opportunity to think creatively about the delivery platforms for interventions, for example using gaming and social media platforms that may prove useful given their vast reach.

Participants felt that engaging people with lived experience should also be central to developing a consortium proposal and that a proposal would also benefit from a strong link with service delivery. A pathway to rapid embedding of remote interventions in the health service could ensure patient demand in clinical practice is met while also demonstrating impact, further appealing to funders.

There was much enthusiasm at the meeting to develop a consortium proposal on trans-diagnostic mechanisms for remote and digital interventions, taking a targeted approach to include a range of research disciplines and target groups, including older adults, children and young adults, frontline care staff and those with SMI.

Annex 1: Participant List

Dr Junaid Bajwa, Chief Medical Scientist, Microsoft Research Cambridge

Professor Clive Ballard, Pro-Vice Chancellor and Executive Dean, University of Exeter

Professor Sandra Bucci, Professor of Clinical Psychology, University of Manchester

Professor Ed Bullmore FMedSci, Professor of Psychiatry, University of Cambridge

Professor Helen Christensen, Director and Chief Scientist, Black Dog Institute, Sydney, Australia

Professor Andrea Cipriani, Professor of Psychiatry, University of Oxford

Matthew Clarke, Grants and research officer, MQ Mental Health

Professor Cathy Creswell, Professor of Developmental Clinical Psychology, University of Oxford

Professor Hugo Critchley, Foundation Chair of Psychiatry, University of Sussex

Professor Anke Ehlers FBA FMedSci, Professor of Experimental Psychopathology, University of Oxford

Professor Tamsin Ford, Professor of Child and Adolescent Psychiatry, University of Cambridge

Professor Andrew Gumley, Professor of Psychological Therapy, University of Glasgow

Dr Colette Hirsch, Reader in Cognitive Clinical Psychology, King's College London

Professor Chris Hollis, Professor of Child & Adolescent Psychiatry, University of Nottingham and Director, MindTech

Professor Emily Holmes, Professor in Clinical Psychology, Uppsala University

Professor Matthew Hotopf FMedSci, Professor of General Hospital Psychiatry, King's College London

Professor Ann John, Professor in Public Health and Psychiatry, Swansea University Medical School

Professor Peter Jones FMedSci, Professor of Psychiatry, Cambridge Institute of Public Health

Kate King MBE, Adviser on lived experience, The Mental Health Act Review 2018

Dr Joanna Latimer, Head of Neurosciences and Mental Health Board, Medical Research Council

Dr Tom Manly, Programme Leader, MRC Cognition and Brain Sciences Unit

Professor Anthony Morrison, Professor of Clinical Psychology, University of Manchester

Professor Michelle Moulds, School of Psychology, University of New South Wales

Professor Maurice Mulvenna, Professor of Computer Science, Ulster University

Professor Marcus Munafò, Professor of Biological Psychology, University of Bristol

Dr Helen Munn, Acting CEO, MQ Mental Health

Professor Rory O'Connor, Professor of Health Psychology, University of Glasgow

Professor Hugh Perry FMedSci (Chair), UK DRI Honorary Consultant & Theme Lead (Neuroinflammation), UCL UKDRI

Professor John Powell, Theme Lead for Applied Digital Health, NIHR ARC and Nuffield Department of Primary Care Health Sciences, University of Oxford

Professor Andrew Przybylski, Director of Research of the Oxford Internet Institute, University of Oxford **Dr Dan Robotham**, Head of Research, The McPin Foundation

Professor Ilina Singh, Professor of Neuroscience and Society, University of Oxford and Co-Director, Wellcome Trust Centre for Ethics and the Humanities – dialled in

Alison Tingle, Senior Research Liaison Manager, Department of Health & Social Care

Professor Sir Simon Wessely FMedSci, Professor of Psychological Medicine, King's College London

Dr Pauline Whelan, Co-Director, CAMHS.Digital and Digital Lead, Greater Manchester Mental Health & Centre for Women's Mental Health, University of Manchester

Secretariat

Dr Claire Cope, Head of Policy, Academy of Medical Sciences **Dr Tom Livermore**, Policy Manager, Academy of Medical Sciences **Angel Yiangou**, Policy Manager, Academy of Medical Sciences

George Phillips, Policy Officer, Academy of Medical Sciences

Annex 2: Workshop Agenda

12.55 – 13.00	Participants join meeting					
13.00 – 13.10	Welcome and introduction Chair: Professor Hugh Perry FMedSci, UK Dementia Research Institute Honorary Consultant & Theme Lead (Neuroinflammation), University College London					
13.10 – 13.20	The COVID-19 mental health research funding landscape Dr Helen Munn, Acting CEO of MQ: transforming mental health research Professor Patrick Chinnery FMedSci, Clinical Director, Medical Research Council					
13.20 – 13.30	Q&A and discussion An opportunity for participants to discuss, ask questions and share any further intelligence about the current funding landscape					
13.30 – 14.10	Discussion of proposals currently in development Chair: Professor Hugh Perry FMedSci This session will focus on exploring what research activity on remote mental health interventions is currently taking place, including proposals in development. Issues to discuss include: What remote intervention research initiatives already exist or are emerging? What patient cohorts are they focussing on? Are relevant datasets already available or will novel data collection be required? Are there any gaps or overlap? Are there opportunities for collaboration/consortia?					
14.10 – 14.15	Break					
14.15 – 14.55	 Discussion of priority areas for action and collaboration Chair: Professor Hugh Perry FMedSci This session will provide an opportunity for participants to discuss the priority areas identified in The Lancet Psychiatry paper, and how the proposals discussed in the earlier session align with them. Issues to discuss include: Are these the themes to focus on? Should some be prioritised over others? Are there any gaps? Within each theme, what research should be prioritised? What data sets are already available? What additional data collection will be needed? Are there already relevant research studies underway or in planning that could be included in a consortium proposal? What are the barriers and enablers to consortia proposals? How can barriers be overcome? 					
14.55 – 15.00	Summary of key points raised and next steps Chair: Professor Hugh Perry FMedSci					
15.00	Close of meeting					

Annex 3: Summary of identified studies

The PROTECT study, University of Exeter and King's College London

A study focusing on older adults' cognitive health and looking at delivering evidence based interventions, currently including cognitive training for cognitive health and will soon include interventions for mental health and wellbeing including Resilience training and Cognitive behavioural therapy (CBT) around rumination and worry. Colleagues in Nottingham and Oxford are providing a COVID-19 angle. ²⁰

WHELD Nursing home training study, University of Exeter and King's College London

An evidence-based staff training programme to promote wellbeing and mental health in care homes. A new version of the intervention with optimised digital resources and virtual coaching has been supported through the rapid response COVID UKRI programme and will deliver the intervention to 1280 UK care homes. Added COVID-19 specific elements will include interaction with family members and platforms for peer support and sharing of best practice.

Machine learning for cluster identification, Ulster University

Ulster University has a data analytics team dedicated to machine learning, which is analysing data from helplines and apps, including machine learning of event logs from a reminiscence app for people with dementia, and their family and carers. For helplines, observations made from data on call duration and times over a four week period before and during COVID-19 showed that there has been behaviour change, with more early morning calls and also call durations becoming longer.

Children and adolescents mental health, Oxford University

The UKRI funded Co-SPACE study has tracked children and young people's mental health throughout the pandemic and has identified increases in emotional, behavioural and attentional problems in pre-adolescent children. Parents reported a particular need for support with managing their children's emotions and a preference for online professional support. NIHR/DHSC have recently supported a rapid RCT to compare a novel online guided, parent-led interventions for children with anxiety problems in child and adolescent mental health services (CAMHS) in the COVID-19 context.

Every mind matters campaign and NHS app, Public Health England and NHS England

The national 'Every mind matters' campaign run by PHE is responding to the COVID-19 pandemic and provides advice and guidance to the public on looking after mental health and wellbeing, focusing on anxiety, sleep, low mood and stress. ²¹ The platform is evolving to include or recommend more interventions. There may be an opportunity to work with PHE on the delivery of digital public mental health advice or tools to the population. There is also research activity evaluating the use of the NHS App at this time - not specifically a mental health tool, but a general tool for accessing NHS services and advice.

Trial for behavioural therapy and interceptive training in anxiety, Brighton and Sussex Medical School, ADAPT Trial

A trial on behavioural interventions for anxiety in the form of an app, building on previous successful in person training in autism.²² The software has been rolled out quickly, allowing remote heart rate monitoring to assist with interventions in anxiety and also autism. This is also being used specifically in an anxiety group with musculoskeletal and autonomic symptoms (hypermobility) but has potential broad applicability over a variety of diagnoses.

NHS Staff sleeping app, Oxford, Bath and Belfast Universities

Espie's Sleepio app has been offered to NHS staff during the pandemic. Prof Clark and Prof Ehlers' team have trained NHS staff in remote and online delivery of treatments for anxiety disorders and post-traumatic stress disorder (PTSD).²³ Additional work is being carried out on an outreach programme for first responders and hospital staff, and digital support for bereavement and prolonged grief disorder.

NHS Digital National Mental Health of Children and Young People survey follow up, University of Cambridge

A brief mental health questionnaire follow up has been completed by the NHS Digital National Mental Health of Children and Young People (MHCYP) in England survey, and two further waves of questionnaires are planned, with purposive sampling for qualitative interviews to obtain more detailed information about access to services and experience during Lockdown.²⁴ A follow up of this survey will be conducted in three waves, one as soon as possible, the next in autumn and the final next year.

The Millennium Cohort Study, University College London

The study is following the lives of 19,000 young people born across the UK in 2000-2002.²⁵ It provides multiple measures of the cohort members' physical, socio-emotional, cognitive and behavioural development over time, as well as detailed information on their daily life, behaviour and experiences. Alongside this, rich information on economic circumstances, parenting, relationships and family life is available.

Adolescent Mental Health and Development in the Digital World, University of Nottingham

The study has two main research themes. The first on how to harness digital technologies and platforms to identify those at risk and target personalised digital interventions that bridge the adolescent mental health treatment gap.²⁶ This includes developing the infrastructure to collect, share, discover and analyse sensitive personal data that matches the speed of digital innovation. The second research theme looks at digital risk and resilience, specifically, how engagement with the digital environment influences, and is influenced by, adolescent mental health problems, brain and cognitive development, and what factors promote resilience.

Gamified Cognitive Behavioural Therapy (CBT), MindTech

MindTech is currently in receipt of support from the Medical Research Council (MRC) to scope the adaptation and update of the New Zealand SPARX gamified CBT for UK youth and the Aroha COVID-19 stress chat-bot.^{27,28} There may be potential to import and adapt several interventions from international groups to allow much larger international trials recruiting more young people.

An adaptive trial platform to host and trial digital interventions for youth, MindTech

A new UK platform that would host and trial digital interventions for children and young adults. This will be essential research infrastructure in the post COVID-19 world as a pipeline for comparative effectiveness trials of new digital mental health interventions. Unlike current platforms, these interventions will be linked to electronic health records, real-world outcomes and other routinely collected data, for example in education, and would be run in collaboration with Health Data Research UK (HDR UK).

Intervention to reduce anxiety, depression and worry in a range of populations related to COVID-19, King's College London

The research focuses on a simple, online mechanistic intervention which has been shown to reduce anxiety, depression and worry in a range of pertinent populations and will be pertinent to those feeling anxious and depressed during and in the aftermath of COVID-19. This has recently been adapted to include people with long term conditions and those at risk of developing anxiety and depression.

COVID-19 studies for symptom monitoring and CBT for psychosis, University of Manchester

An Innovate UK COVID-19 grant focussing on the scale up and deployment of a symptom monitoring app for psychosis across community mental health teams (CMHTs). MRC is also offering funding to scale up the access of CBT for

psychosis app, which is deployed in Early Intervention for Psychosis services. Also of relevance due to the increased risk of abuse during lockdown is a Health Services and Delivery Research bid in preparation to deliver a digitally-mediated intervention for young people exposed to online sexual abuse, through CAMHS and e-therapy providers.

- 20. University of Exeter and Kings College London. PROTECT Study. https://www.protectstudy.org.uk/
- 21. NHS. Every Mind Matters. https://www.nhs.uk/oneyou/every-mind-matters/
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Academy of Medical Sciences 41 Portland Place London, W1B 1QH +44(0)20 3141 3200



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