

Report on completed PhD Scholarships

Mental Health Research UK (MHRUK) aims to increase mental health research capacity in the UK by awarding PhD scholarships to train early career researchers. The scholarships are for 4 years fees and stipend with additional discretionary funding for attendance at conferences and specialist training courses outside the host university. Of the 29 awards made so far, 9 scholars have completed their PhDs. This report covers the 6 most recently completed. We asked each primary supervisor to complete a short form to tell us about the impact of the doctoral research funded by MHRUK:

1. Impact in terms of scientific findings
2. Contribution to departmental research
3. Impact on the student's training and career development

We do not identify students by name but capture the impact under each of the headings above. To find out more about each PhD topic and the methods used click on the links to each report in the table below.

Scientific and clinical impact

Condition	Topic	Scientific impact	Clinical impact
Post traumatic stress disorder	Mediators and moderators of treatment effects in social anxiety disorder and post-traumatic stress disorder. https://www.mentalhealthresearchuk.org.uk/files/ugd/2714fe_1234ee4196644453b827986e7c314837.pdf	Sophisticated statistical methods show that change in negative appraisals, memory characteristics and coping behaviours drives symptom change, and not vice versa. This is a clinically and theoretically important finding.	Use of the cognitive process measures in therapy can help a therapist spot earlier if an intervention has been helpful so that they can maximise change in therapy.

Schizophrenia	<p>Understanding and translating Working Memory Deficits in schizophrenia into treatment</p> <p>https://www.mentalhealthresearch.org.uk/files/ugd/2b3042_7374ed87f80c47ae89d0f64ff7b01fb3.pdf</p>	<p>Confirmed that basic visual processing problems in people with schizophrenia are associated with lower working memory performance.</p>	<p>Future treatment programs ameliorating these early visual problems could improve working memory and consequently quality of life.</p>
Suicide/ Non-affective psychosis	<p>Understanding psychological resilience to negative stressors and suicidal thoughts and behaviours in people experiencing schizophrenia spectrum disorders.</p> <p>https://www.mentalhealthresearch.org.uk/files/ugd/2b3042_3ff3ce3c3aaf47b99ed2a848271afa9e.pdf</p>	<p>Significant contribution to the field of resilience and suicidology. Working with a marginalised group, i.e., people with non-affective psychosis who are 'hard-to-reach' is a very real achievement. The research has shown that people who are exceptionally vulnerable because of their severe mental health problems nevertheless do develop ways of being 'resilient'.</p>	<p>This has important implications for psychological therapeutic approaches in focussing on nurturing 'resilience' formulated at an individual level in terms of what resilience means to that person. Our learning has contributed to the development of psychological therapies to nurture resilience.</p>
Bipolar disorder	<p>Identifying clinical and cognitive endophenotypes for bipolar disorder: genetic risk score analysis of two large population cohorts</p> <p>https://www.mentalhealthresearch.org.uk/files/ugd/2b3042_83aa4afad6564912b5815dad4eb377f4.pdf</p>	<p>The increased presence of psychopathology seen in children of parents with bipolar disorder is more likely to be due to the family environment arising from parental psychopathology rather than the child's own genetic risk per se.</p>	<p>The findings on cognitive function might help clinicians to predict who is most likely to develop bipolar disorder in the future and might therefore warrant closer follow-up (particularly in offspring of a parent with bipolar disorder, where baseline risk is higher). The provision of greater support to parents with BD is required to minimise child psychopathology.</p>

Psychotic disorders in migrant populations	<p>The Life Course Epidemiology of Psychotic Symptoms in Schizophrenia and Other Psychoses: from environment to psychosis</p> <p>https://www.mentalhealthresearch.org.uk/files/ugd/2b3042_b8e2fc497434d149331de5539d9c3d0.pdf</p>	<p>Discovery of novel findings on the epidemiology of psychotic disorders. Risk factors related to migration or being the child of a migrant that increase risk of psychiatric health problems appear to act specifically on psychosis rather than on mood symptoms.</p> <p>New findings on family support suggest different risk factors for men and women migrants.</p>	<p>The post-migratory social environment seems to modify the risk of psychosis amongst migrants, with migrants living in neighbourhoods with more people from their same region of origin at lower risk of psychosis. This work has direct relevance for potential public health interventions.</p>
Paranoia	<p>Using immersive virtual reality to help patients with persecutory delusions successfully re-engage with social situations.</p> <p>https://www.mentalhealthresearch.org.uk/john-grace-2017-oxford</p>	<p>Showed the importance of rigorous experimental tests of single interventions.</p> <p>Development of immersive virtual reality as a treatment tool.</p>	<p>Virtual reality now being used to treat people with psychosis who have persecutory delusions. The approach has proved successful with patients and clinical staff.</p>

Other scientific impacts

- Development and publication of new analytical tools.
- Development of a guide to help authors of genetic studies to present results consistently to allow future reviews to combine data across studies in meta-analyses. This will have a positive impact on the ability to synthesise research findings across different studies in the future.
- Invitations to write book chapters and editorials on mental health inequalities in migrants and their children.

Contribution of the PhD to departmental Research

All host departments reported very positive contributions from the Scholar including:

- Strengthening international collaborations.
- Laying the foundations for major grant applications.
- Expanding the departments research portfolio into development of new therapies.
- Extending pioneering work.

Impact on the research student's training and career development

Scholar A has established an impressive research publication portfolio from her PhD. Also gained experience of student supervision, co-supervising two MSc students as co-supervisor. The student has excelled in MSc teaching on the module in Epidemiological Research Methods in Mental Health. Student feedback is that her lectures on public mental health are amongst the most stimulating of all sessions they receive during the whole year of their course; secured a prestigious and senior appointment as a Senior Research Fellow at UCL, and is currently the lead programme manager on the NIHR-funded School for Public Health Research's mental health theme. In an incredibly competitive environment at a leading UK institution the transition from PhD student to Senior Research Fellow post would normally take several years. Since taking up this post Student A has been able to secure some small grants to continue her own trajectory towards becoming an independent research scientist.

Scholar B. Significant positive impact on Student B, both in terms of research training and personal development. Developed competence in a wide range of statistical/methodological approaches, including regression modelling, factor analysis, multiple imputation, genetic risk score derivation, systematic reviews, and meta-analyses; now has a strong grounding in epidemiology (study design and causal inference) and genetic epidemiology principles and is well-placed to become a more independent researcher in this field.

Scholar C. Developed new analytical tools which are now in the public domain and has secured a position as a data analyst at Nottingham University.

Scholar D. Enhanced research skills including conducting clinical studies and data analysis skills. Presented results at national and international conferences. Postdoctoral positions at San Raffaele Hospital Milan and University of Bologna.

Scholar E. In the course of the research developed understanding and practical experience of mental health services, and working with people with non-affective psychosis who are suicidal. She is now training to be a clinical psychologist.

Scholar F. Has the potential to be a future leader in mental health service research and treatment as a clinical academic. The scholarship has enabled a PhD to be completed (i.e. the academic component) and has now started a doctorate in clinical psychology (i.e. the clinical component). The scholarship provided invaluable opportunities to learn: systematic reviews, advanced statistical methods (e.g. network analyses), qualitative methods, experimental design, and writing publications (both academic and for wider dissemination). The scholarship enabled the student to learn how to include people with lived experience in the research process. There have been several excellent conference presentations. The student also obtained an internship in the Department of Health, which provided learning about leadership and making policy improvements.

Annex

Published papers from the PhD research. The Scholar's name is underlined.

<u>Brown, P.</u> , Waite, F., & Freeman, D.	'Twisting the lion's tail': Manipulationist tests of causation for psychological mechanisms in the occurrence of delusions and hallucinations.	Clinical psychology review 2018, 68, 25-37.
<u>Brown, P.</u> , Waite, F., Rovira, A., Freeman, D.	Two virtual reality clinical experimental tests of compassion techniques to reduce paranoia.	Nature Sci Rep 2020, 1-9
<u>Brown, P.</u> , Waite, F, Lambe, L., Rosebrock, L., Freeman, F	Virtual reality cognitive therapy on inpatient psychiatric wards: protocol for a qualitative investigation of staff and patient views across multiple NHS sites.	JMIR Research Protocols, 2020, 9(8), e20300.
<u>Brown, P.</u> , Waite, F., Freeman, D.	Parenting behaviour and paranoia: a network analysis and results from the National Comorbidity Survey-Adolescents	Social Psychiatry and Psychiatric Epidemiology, 2020, 1-12.
<u>Brown, P.</u> , Waite, F., Rovira, A., & Freeman, D	Power posing for paranoia: a double blind randomised controlled experimental test using virtual reality.	Behav Res and Ther.2020. 132, 103691
Brown,P.	How to overcome a phobia of Heights	AEON magazine. 2020
Brown,P.	Posture: How to feel more powerful and confident.	The Conversation. 2020
Brown,P.	Presentation 'Transforming psychiatric inpatient care: the potential of virtual reality'	Linacre College Domus Research Prize 2020
Brown, P	Three ways virtual reality could transform mental health treatment	The Conversation, 2021.
Freeman, D... <u>Brown, P.</u> et al.	Automated psychological therapy using immersive virtual reality for treatment of fear of heights: a single-blind, parallel-group, randomised controlled trial.	Lancet Psychiatry, 2018, 625-632
Freeman, D... <u>Brown, P.</u> et al.	The revised Green et al., Paranoid Thoughts Scale (R-GPTS): psychometric properties, severity ranges, and clinical cut-offs.	Psychological Medicine, 51(2), 244-253.

Forkert, A., <u>Brown, P.</u> , Freeman, D., & Waite, F.	A compassionate imagery intervention for patients with persecutory delusions.	Behavioural and Cognitive Psychotherapy, 2021, 1-13.
McInerney, J., <u>Brown, P.</u> , et al.	Does raising heart rate prior to a behavioural test enhance learning in cognitive therapy for anxiety? An experimental test for the treatment of fear of heights using virtual reality.	Behaviour Research and Therapy, 2021, 144, 103928.
Duncan FH, McGrath M, Baskin C, Osborn D, <u>Dykxhoorn J</u> et al	Delivery of community-centred public mental health interventions in diverse areas of England: a mapping protocol.	BMJ Open 10, e376631. https://doi.org/10.1136/bmjopen-2020-037631
Terhune J, <u>Dykxhoorn J</u> , Mackay E, Hollander A-C, Sommerland A, et al	Migrant status and risk of compulsory admission at first diagnosis of psychotic disorder: a population-based cohort study in Sweden.	Psychological Medicine 2020, 1-10. https://doi.org/10.1017/S00332917200068
Lewis G, <u>Dykxhoorn J</u> , Karlsson H, Khandahar GM, Lewis G, et al	Assessment of the role of IQ in associations between population density and deprivation and non-affective psychosis.	JAMA Psychiatry 2020, 17 729-736. https://doi.org/10.1001/jamapsychiatry.2020.0103
<u>Dykxhoorn J</u> , Lewis G, Hollander A-C, Kirkbride JB, Dalman C.	Association of neighbourhood migrant density and risk of non-affective psychosis: a national. Longitudinal; cohort study.	The Lancet Psychiatry; 2020, 7, 327-336. https://doi.org/10.1016/S2215-0366(20)3005906
<u>Dykxhoorn J</u> , Hollander A-C, Lewis G, Dalman C, Kirkbride JB.	Family networks during migration and risk of non-affective psychosis: A population-based cohort study.	Schizophr Res. 2019;208:268–75. doi:10.1016/j.schres.2019.01.044.
<u>Harris S</u> , <u>Dykxhoorn J</u> , Hollander A-C, Dalman C, Kirkbride JB.	Substance use disorders in refugee and migrant groups in Sweden: a nationwide cohort study of 1.2 million people.	PLOS Medicine , 2019, 16, e1002944. https://doi.org/10.1371/journal.pmed.1002944
Solmi F, <u>Dykxhoorn J</u> , Kirkbride JB.	Urban-Rural Differences in Major Mental Health Conditions.	In: Okkels N, Kristiansen CB, Munk-Jørgensen P, editors. Mental health and Illness in the City. Vol 6. London:

		Springer-Nature; 2016. p. 1–106. doi:10.1007/978-981-10-0752-1_7-1
<u>Dykhhoorn J</u> , Hollander AC, Lewis G, Magnusson C, Dalman C, Kirkbride JB.	Risk of schizophrenia, schizoaffective, and bipolar disorders by migrant status, region of origin, and age-at-migration: A national cohort study of 1.8 million people.	Psychol Med. 2018;49 2354-2363. doi:10.1017/S0033291718003227
<u>Dykhhoorn J</u> , Kirkbride JB.	Psychoses sans Frontieres: towards an interdisciplinary understanding of psychosis risk amongst migrants and their descendants.	Epidemiol Psychiatr Sci. 2019;28:146–52. doi:10.1017/S2045796018000501
<u>Harris, K.</u> , Haddock, G., Peters, S., & Gooding, P.	Psychological resilience to suicidal thoughts and behaviours in people with schizophrenia diagnoses: A systematic literature review. Psychology and Psychotherapy:	Theory, Research and Practice 2019. DOI:https://doi.org/10.1111/papt.12255.
<u>Harris, K.</u> , Gooding, P., Haddock, G., & Peters, S.	Factors that contribute to psychological resilience to suicidal thoughts and behaviours in people with schizophrenia diagnoses: Qualitative study.	British Journal of Psychiatry Open 2019 DOI: 10.1192/bjo.2019.63.
Littlewood, D., <u>Harris, K.</u> , Gooding, P., Pratt, D., Haddock, G., & Peters, S.	Using my demons to make good: The short- and long-term impact of participating in suicide-related research.	Archives of Suicide Research 2019, 1-25. DOI: 10.1080/13811118.2019.1663330.
<u>Harris, K.</u> , Haddock, G., Peters, S., & Gooding, P.	The long-term relationship between psychological resilience, psychosis, distress, and suicidal thoughts and behaviours.	Schizophrenia Bulletin Open. 2021 COI:10.1093/schizbullopen/sgaa071
<u>Harris, K.</u> , Gooding, P., Peters, S., & Haddock, G.	Investigating the perceived impact of psychosis on suicidal thoughts and behaviors	Schizophrenia Bulletin Open, 2020. 1(1), 1-19. DOI: 10.1093/schizbullopen/sgaa038
<u>Harris, K.</u> , Haddock, G., Peters, S., & Gooding, P.	The long-term relationship between psychological resilience, psychosis, distress, and suicidal thoughts and behaviours.	Schizophrenia Bulletin Open, 2021 DOI: 10.1093/schizbullopen/sgaa071

Gooding, P., & <u>Harris, K.</u>	Psychological resilience to suicidal experiences.	In W. Stritzke & A. Page (Eds.), <i>Alternatives to suicide: Beyond risk and toward a life worth living</i> (pp. 201-219). London, UK: Academic Press. 2020
<u>Mistry S</u> , Escott-Price V, Florio AD, Smith DJ, Zammit S.	Genetic risk for bipolar disorder and psychopathology from childhood to early adulthood.	Journal of affective disorders. 2019;246:633-639.
<u>Mistry S</u> , Harrison JR, Smith DJ, Escott-Price V, Zammit S.	The use of polygenic risk scores to identify phenotypes associated with genetic risk of schizophrenia: Systematic review.	Schizophrenia research. 2017.
<u>Mistry S</u> , Harrison JR, Smith DJ, Escott-Price V, Zammit S.	The use of polygenic risk scores to identify phenotypes associated with genetic risk of bipolar disorder and depression: A systematic review.	Journal of affective disorders. 2018;234:148-155.
<u>Mistry S</u> , Zammit S, Price VE, Jones HJ, Smith DJ. B	Borderline personality and attention-deficit hyperactivity traits in childhood are associated with hypomanic features in early adulthood.	Journal of affective disorders. 2017;221:246-253.
Richards A, Horwood J, Boden J, Kennedy M, Sellers R, Riglin L, <u>Mistry et al</u>	Associations between schizophrenia genetic risk, anxiety disorders and manic/hypomanic episode in a longitudinal population cohort study.	The British journal of psychiatry : the journal of mental science 2019; 214(2): 96-102
<u>Wiedemann, M.</u> , Thew, G., Stott, R., & Ehlers, A.	Suddengains: An R package to identify sudden gains in longitudinal data.	2020 <i>PLOS ONE</i> . https://doi.org/10.1371/journal.pone.0230276
<u>Wiedemann, M.</u> , Janecka, M., Wild, J., Warnock-Parkes, E., Stott, R., Grey, N., Clark, D.M., & Ehlers, A. (2019).	Mediation of treatment effects in cognitive therapy for posttraumatic stress disorder in routine care - test of theory-derived cognitive factors.	Manuscript in preparation.

<p>Wiedemann, M., Stott, N., Nickless, A., Beierl, E.T., Wild, J., Warnock-Parkes, E., Grey, N., Clark, D.M. & Ehlers, A.</p>	<p>Cognitive processes associated with sudden gains in cognitive therapy for posttraumatic stress disorder in routine care.</p>	<p><i>Journal of Consulting and Clinical Psychology</i>. 2020 https://doi.org/10.1037/ccp0000488</p>
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