

EDITORIAL

Neuroscience: the way forward

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First received 3 Sep 2020
Accepted 7 Sep 2020

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SUMMARY

This editorial introduces a special issue of *BJPsych Advances* on neuroscience in 21st-century psychiatry. It focuses on two articles in particular, which reveal the contributions of neuroscience to fully integrated biopsychosocial models of human experience.

KEYWORDS

Neuroscience; mental illness; clinical practice; psychiatric training; translational.

Scientific understanding of the human brain is progressing at an unprecedented rate. New methods and multidisciplinary approaches are yielding extraordinary results. Meanwhile, the increased emphasis on 'translational' neuroscience is accelerating the transfer of knowledge from the research laboratory to the clinic, to the benefit of patients. Across the range of psychiatric disorders, a greater appreciation of the biological contribution to mental illness is becoming possible.

In this context, it is imperative that the practising psychiatrist develops and retains a firm grasp of the scientific foundations that underpin their formulations. Those at the beginning of their careers in psychiatry will see immense change in how psychiatric disorders are managed over the course of their working lives. This makes the integration of modern neuroscience into psychiatric training of fundamental and urgent importance.

The Gatsby/Wellcome Neuroscience Project

Through its 5-year Gatsby/Wellcome Neuroscience Project, the Royal College of Psychiatrists is at the forefront of innovations in neuroscience training and education for psychiatrists (<https://www.rcpsych.ac.uk/training/neuroscience-in-training/neuroscience>). This will ensure that the next generation of UK psychiatrists is trained to be neuroscientifically literate; armed with the latest neuroscience knowledge, they will be better prepared to critically evaluate new research findings and integrate these with psychosocial explanations.

BJPsych Advances special issue

This special issue of *BJPsych Advances* illustrates some of the diversity of impact of modern neuroscience on psychiatry. Particularly thought-provoking contributions explore state-of-the-art knowledge of

the complex biology behind substance misuse (Hayes 2020), some of the challenges associated with benzodiazepine pharmacotherapy in depression (Cates 2020) and the neuropsychiatric sequelae of Parkinson's disease (Jones 2020).

Two key articles illustrate the power of modern neuroscience to support the development of fully integrated biopsychosocial models of human experience. First, Mizen & Hook describe how interdisciplinary thinking across the biological–psychological divide is enabling a reworking and refinement of key psychological concepts, such as Freudian metapsychology. This raises the possibility of improved therapeutic techniques and better outcomes for patients. Second, Novick & Ross give examples of how neuroscience is increasingly providing the crucial data to demonstrate the often subtle ways in which the brain mediates and brings together bio-, psycho- and social processes. This has the potential to strengthen the status of psychiatry as an evidence-based specialty that considers all possible causes of a person's mental illness and has the capacity to incorporate all of these diverse components into treatment planning.

There is an opportunity to reflect on and update your knowledge of neuroscience by reading about the clinical relevance of evidence gained through imaging methods in addiction studies (Hayes 2020). You can also revisit your understanding of investigative laboratory techniques that are used to study single-gene psychiatric disorders (Mizen 2020).

Embedding psychiatry in neuroscience and neuroscience in psychiatry

Of course, besides bringing greater understanding of the brain, cutting-edge neuroscience research also raises further questions that require investigation, such as the nature of free will and to what extent society can hold an individual responsible for behaviour that may be driven by their biology. Genetic mutations, epigenetic modifications and the impact of early life experience on the structure and function of the developing brain are areas of enquiry with multiple practical and ethical implications. Psychiatrists need to be at the heart of that process of discovery, able to accept uncertainty and to work with neuroscientists to develop future research that will, in turn, lead to even greater progress.

Embedding neuroscience in psychiatric training and clinical practice enhances the specialty. Ultimately, this

will improve patient care. Neuroscience will enable everyone in psychiatry to make an even bigger difference to patients' lives.

Author contributions

Both authors contributed equally to the drafting of this editorial and both approved the final version.

Declaration of interest

None.

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