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Evidence-based science policy for mental health in a post-truth era

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The world has been rocked by a series of unexpected political events. These events have been accompanied by often ugly debates and campaigns that are rife with questionable claims that range from exaggerations to inaccuracies to fake news and to outright lies. The field of medical research, and psychiatric research specifically, is not immune from these concerns. Exaggerated and even false claims have long existed in these domains. In the past 5 years, there have been more sophisticated attacks on the reproducibility of research in the field of mental health.^{1,2} Meanwhile, arguments regarding the distribution of mental health research funds are being fought out in the press.³

Ironically, although expectations for accountability and transparency in science are growing, the decision-making processes by research funding agencies remain opaque. As scientists cope with increased regulatory oversight of research processes, we argue that the determination of how research funding agencies steward increasingly precious resources should reflect a systematic and transparent empirical grounding across the range of key science policy issues confronting biomedical research. In doing so, we believe that leadership of mental health research funding organisations will be best prepared to instigate opportunities and take appropriate risks on the basis of real facts as compared with suppositions in this post-truth era.

A more fundamental approach to these challenges might be to apply good science principles to the science of science policy. Several recent initiatives hold substantial promise in charting a direction for a more evidence-based approach to science policy questions. Funders in several countries, including the National Health Service in England, the MQ initiative in the UK, and ROAMER in the European Union, have begun to systematise and analyse mental health research and identify research priorities by applying systematic, empirically based approaches. Similarly, the National Institute of Health's strategic plan incorporates the goal of managing results by using scientific methods to analyse their own performance. These efforts build upon the work of Ioannidis, Lauer, and others who have applied empirical approaches to science policy questions. In essence, every time a funding agency invests in a grant or initiates a programme they are setting forth a hypothesis with short-term, intermediate-term, and long-term implications. Unfortunately, very rarely are these hypotheses made explicit. Additionally, data are not systematically gathered and

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analysed to test these hypotheses, and findings are not applied to future decisions. How can policy makers, funding agencies, and researchers take advantage of this time of tumult in the political systems to create an opportunity to shift the culture of policy decision-making toward a more empirically informed approach? In the panel, we suggest an agenda of key issues that can be addressed in this manner.

The targets for addressing this agenda have been illuminated by a report from the RAND Corporation, sponsored by the International Alliance of Mental Health Research Funders, which used sophisticated bibliometric tools to describe a preliminary map of the so-called ecosystem of funding sources worldwide. Having identified the range of funders, to what extent can an organisation such as the Alliance or individual major funders such as the National Institute of Mental Health or the Wellcome Trust play a role in establishing or enhancing collaborations to address this agenda?

These issues are far more complex than alluded to in this commentary. For example, regarding the where, does the current high concentration of funding represent an appropriate distribution? This question probably reflects the reality that departments without funding have an inadequate key mass of personnel, technology, and other resources needed to do high-quality research. However, there are potential consequences from the uneven distribution. Many students and trainees might not be exposed to high-quality research and be less likely to seek out research opportunities or fully understand how research is done. One potential avenue for analysis is whether broader development of multi-institutional and multidisciplinary research networks, as recommended by ROAMER, provides advantages in expanding involvement in and exposure to research, and serves as an alternative approach to provide a sufficient level of key mass to do large-scale research activities. Recent controversies from 2016 regarding funding and defunding of clinical research centres in the USA also highlight concerns about the nature of infrastructure support that is necessary.¹²

Furthermore, empirical approaches will not necessarily fully address all of these issues. Responding to the fundamental question of how much goes well beyond empirical analysis to include addressing the underlying values of a society and engaging in rough and tumble politics. It requires assembling of effective partnerships with key stakeholder groups and advocates to affect political change. However, we argue that a more transparent evidence-based approach toward science policy not only can contribute to more rational and effective decisions about how increasingly scarce research resources might be more appropriately allocated, but can also instil more confidence in both the electorate and political leaders that these resources are being appropriately stewarded and worthy of being expanded.

There is one more question: the why. Unfortunately, too often the outcomes examined in empirical studies of the research enterprise focus narrowly on citation indices and do not consider other more meaningful effects with regard to changes in clinical practice and patient outcomes. In an era of ideology, instant opinion, fake news and so-called alternative facts, objective data and transparent decision-making matter more than ever.

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Panel: Agenda of key issues addressed by an empirically informed approach

What? Across different topics, fields, and approaches to research, to what extent is an appropriately balanced portfolio of investments maintained?

A group of former members of the National Institute of Mental Health's advisory council raised questions about the Institute's increasingly prioritised research into the neurobiological mechanisms underpinning mental illness. They argue that this pattern comes at a cost to other research domains that might have greater immediate effects on public health in the near future.⁴ Similarly, a 2013 study by the RAND Corporation traced highly cited research papers from 20 years ago forward in time and found that clinical research had a larger effect than basic research on patient benefits within a 20-year time frame.⁵ However, there are substantial challenges in translation of fundamental basic science discoveries into meaningful therapeutic approaches, and a 20-year time frame might not be an appropriate benchmark.

Where? Is there an appropriate distribution of funding across institutions and countries?

Funding is concentrated in a relatively small proportion of academic institutions. In the USA, 60% of the National Institute of Health (NIH) research funds to academic departments of psychiatry are concentrated within the top 10% of institutions.⁶ Conversely, 43% of academic departments of psychiatry receive no NIH funding.⁶ Similarly, in the UK, a large fraction of research funding is concentrated in a small number of research institutions.⁷

Who? Are we producing the right amount and type of investigators through the career pipeline?

The amount of grant funding reaching young investigators is declining.⁸ In the USA, the average age for a first-time recipient of an R01 grant has increased to more than 45 years, from 38 years in 1980. In psychiatry, the forecast might be much more worrisome because the absolute number of psychiatrists has decreased in the past 10 years.⁹ Although there have been several preliminary reports from individual innovative programmes targeting research-oriented psychiatry residents, little has been done to systematically assess strategies for recruitment, training, mentoring, and retention across the developmental field of a researcher.

How? To what extent do current peer review and scientific regulatory processes actually achieve their intended results?

Many investigators find the tasks of continuously preparing grant applications inefficient and demoralising. With regards to peer review, the NIH's Strategic Plan has proposed to do systematic experiments to test alternative approaches. Similar strategies could be applied to inform regulatory approaches to enhance protections, reduce administrative burdens, and speed research processes.¹⁰

How much? Does research on mental health disorders receive an appropriate share of the overall funding for biomedical research?

Recent US data document that behavioural health conditions are the costliest in terms of health-care spending.¹¹ In the UK, £115 million is invested in mental health research annually, averaging approximately £8 per person affected by mental illness and is less than 5% of what is spent on cancer research per person affected.⁷