

# The Cinderella of mental health translational research

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World Mental Health Day falls on the 10th of October each year. Supported by the United Nations, this day is observed by more than 100 countries and is meant to raise public awareness of mental health issues. It is therefore, timely to remind ourselves of the impact of mental illness in our present time. The World Health Organization (WHO) Global Burden of Disease study has reported that mental disorders are an important cause of long-term disability and dependency, with the five major contributors being depression, alcohol-use disorder, schizophrenia, bipolar depression and dementia.<sup>(1)</sup> Unlike other chronic disabling illnesses, mental illness usually begins early in life, with 50% of mental illnesses having their onset by the age of 14.<sup>(2)</sup>

The relationship of mental disorders with other physical illnesses and problems is often bi-directional. For instance, while depression, which is set to become the second leading cause of disability worldwide by the year 2020, predicts the onset and progression of both physical and social disability,<sup>(3,4)</sup> disability is likewise an important risk factor for depression.<sup>(5-7)</sup> Stress and anxiety are related to myocardial infarction, which in turn leads to higher rates of depression.<sup>(8)</sup> Maternal depression is associated with childhood failure to thrive, and this can predispose to developmental delays and psychiatric problems later in life.<sup>(9)</sup> Alcohol abuse and personality disorder frequently precede violence, depression and suicide.<sup>(10)</sup>

According to WHO's 2005 estimates, neuropsychiatric disorders account for 1.2 million deaths every year, with at least 800,000 suicides yearly, and more than half of these are people aged between 15 and 44 years.<sup>(11)</sup> Beyond mortality from suicide, people with serious mental illness have a shorter life-span; a study done in the United States found that those with mental illness, such as schizophrenia and bipolar disorder, have an average life expectancy of only 56.3 years.<sup>(12)</sup> This early mortality could partly be attributed to the medical complications of these illnesses, sometimes ironically from certain psychotropic medications and the significantly greater use of tobacco (it has been estimated that 44% of cigarettes are consumed by individuals with

mental illness).<sup>(13)</sup> In the face of these grim statistics, the Editor of Nature expressed in a commentary early this year that this coming decade would be the decade for psychiatric disorders – “an era in which the neural circuitry underlying cognitive dysfunctions... will be delineated.” He opined that psychiatric disorders, such as schizophrenia, depression and autism, are entering a scientific phase of significant discoveries.<sup>(14)</sup> Following this editorial, Thomas Insel, Director of the American National Institute of Mental Health, echoed the same upbeat sentiments in JAMA,<sup>(15)</sup> sanguinely predicting that a revolution in the understanding of psychiatric disorders is glimmering on the horizon. The basis for this optimism after decades of uncertain and slow progress in our basic understanding of the underlying biology of mental disorders is the advent and employment of new technology and techniques such as genome-wide association studies, epigenomics, structural and functional neuroimaging, optical manipulation of neural circuits, and increasingly more sophisticated behavioural neurophysiologic research. The new toolset holds out the promise of understanding the interaction between genetics and environment, as well as the more complex mental events that are the hallmarks of the various mental disorders.

However, the translational road from bench to bedside is both long and arduous; it takes, on average, an estimated 17 years for 14% of new scientific discoveries to be incorporated in clinical practice.<sup>(16)</sup> This process is perhaps even more challenging for psychiatry because “human neurons are less accessible than tumour cells, separating genetic and environmental influences is tough, and the diagnosis of the conditions is highly problematic.”<sup>(14)</sup>

From a stance of just waiting to harvest the fruits of translational research done elsewhere as a cheaper and more efficient way of improving our health care, the Singapore government has rethought this issue from a new perspective. It has, since then, taken a bold step in committing more than a decade of rather considerable investment in research in the life sciences, and has made translational research its priority in the second phase

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of the Biomedical Sciences Initiative. One strategy has been the Translational and Clinical Research Flagship Programme in five key disease areas, one of which is mental health. Each of these programmes is spearheaded by a consortium evaluated to have met the articulated “bench to bedside” criteria and is awarded S\$25 million, funded over a five-year period.

However, this enthusiasm for translational research must be matched with another type of research that is less glamorous, more pedestrian and more prosaic, but which may have a more immediate impact on public health as well as reduce morbidity and mortality. This research is seen by some—especially health services researchers and public health investigators—as “the second area of translational research that seeks to close that gap and improve quality by improving access, reorganising and coordinating systems of care, helping clinicians and patients to change behaviours and make more informed choices.”<sup>(17)</sup> These include studies that establish the rates and distribution of diseases within a community or country, examine the access to and quality of care, estimate the economic impact of illness, and elucidate the factors that impede dissemination and implementation of evidence-based treatment.

At this present time, we have a dearth of such studies on the mental health status of the Singapore population. The problems of people in Singapore suffering from serious mental illness are not fully known. For that matter, we do not have accurate estimates of the number of people with mental disorders, or know how many have been rightly diagnosed and are receiving treatment (let alone receiving appropriate treatment), nor have we identified the barriers to care, although stigma is certainly an important factor, and we do not know what the social and economic costs of these mental disorders are, which are all necessary for the sensible allocation of limited resources and the shaping of better informed policies. Therein lies another problem that is endemic almost everywhere; there are cost-effective, evidence-based treatments for a number of mental illnesses, but even in the most affluent countries, a significant proportion of people are not receiving these treatments.<sup>(18)</sup>

Going forward, there must be close collaboration among researchers, the government, decision-makers and consumers so that there is a convergence of goals and the generation of relevant actionable information. In this respect, the Singapore Mental Health Study<sup>(19)</sup> is an example of such a model. This nationwide study would establish the prevalence of mental disorders in the adult Singaporean population, the pattern of utilisation of mental health services and the level of unmet needs,

as well as identify barriers to mental health treatment and estimate the economic costs of mental illness in the Singapore context. It was undertaken after a series of discussions and negotiation with the funders, Singapore Millennium Foundation and the Ministry of Health, in order to understand their priorities and their expectations. For policymakers in the Ministry, it would provide that high quality baseline data to track the trend of the mental health status of the population as well as to help evaluate some of the initiatives of the first National Mental Health Blueprint implemented a few years ago. The study also has a Stakeholders Board that comprises representatives from the major stakeholders, including those from three main ethnic communities in Singapore, whose views are actively sought for the implementation of the study and the dissemination of findings. In a way, this study has elements of community-engaged research, which works collaboratively with communities to address issues affecting the well-being of people within those communities, and seeks to form partnerships, cooperate and collaborate with community partners on research that is of interest and importance to them, while sharing a commitment to address local health issues.

While scientific breakthroughs are important, funders should strike a balance between areas of research within the continuum of translational research. Emphasis should not only be on “bench to bedside” but also on “bedside to practice”<sup>(18)</sup> if we want to realise and optimise the public health impact of our research and reduce the burden of illness, particularly for mental health, when there can be “no health without mental health.”<sup>(11)</sup>

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