

Editorial

Discovery versus implementation research on mental disorders in low- and middle-income countries

The 10/90 research gap refers to the fact that only 10% of the world's research resources are spent in low- and middle-income countries (LMICs) although 90% of preventable deaths occur in these regions: similar disparities also exist in mental health research (1). A number of efforts have been made to address the mental health research gap, including establishment of priorities and funding for global mental health research (2). Furthermore, scientific journals have been encouraged to be inclusive of research from around the globe (3), and *Acta Neuropsychiatrica* is pleased to be able to include a number of contributions from African laboratories in the current edition (4–9).

Given that LMICs also demonstrate an important treatment gap, with significant under-diagnosis and under-treatment of mental disorders (10), a good deal of attention has been paid to the value of implementation science. The emerging discipline of global mental health has focussed on adaptation of existing interventions to under-served settings, on task-shifting and task-sharing of such interventions to non-specialist health workers, and on scale-up of those interventions that are found feasible and effective (11).

At the same time, it is important to note that populations in LMICs differ in important ways from those found in high-income countries. Research undertaken on western, educated, industrialised, rich, and democratic (WEIRD) individuals cannot always be extrapolated to other populations (12). From a basic neuroscience perspective, it is notable that the vast majority of work done to date in collaborative genome-wide association studies and brain imaging collaborative research on mental disorders has been undertaken in populations of European ancestry (13).

Indeed, although early research priority exercises emphasised the importance of epidemiological research and implementation science in LMIC settings (14), more recent work has emphasised the importance of basic neuroscience and discovery science (2). Several additional lines of argument support this shift. First, there are differences in the prevalence of disorders and

associated burden of disease across contexts. Thus, for example, the high prevalence of neuro-HIV/AIDS in LMICs, including the occurrence of particular clades of the virus, necessitates local research on the neurobiology, and management of this condition (15). Second, there are differences in risk and resilience factors across contexts. Thus, for example, higher consumption of alcohol during pregnancy in some settings necessitates locally relevant research to understand and address such use (16). Third, there are differences in the availability of local psychotropic agents. There is, for example, the opportunity to study a range of herbal agents with potential psychotropic agents in different parts of the globe (17).

Indeed there are exciting and significant opportunities for basic and clinical neuroscience around the world. Rather than viewing LMICs as simply another context in which implementation science can be undertaken, it may be argued that work in these contexts can provide valuable lessons for the rest of the world (18). It is remarkable that a number of key discoveries in psychiatry and the behavioural sciences have in fact emerged from LMICs, including key work on non-human primates and in cognitive-behavioural therapy (19). The inclusion of more representative populations in gene and gene-environment studies may be of particular value for the field in the future (13). More rigorous study of the global pharmacopeia may be of potential value for a number of areas of medicine, including psychiatry (17). It is also important to emphasise the crucial intersections between research, training, and services: learning organisations throughout the world are dependent on rigorous collation and analysis of outcome data. The notion of a 'research fallacy' emphasises that a good deal of clinical work is not evidence-based, whereas access to research trials may provide individuals with state-of-the-art clinical care: it is therefore key to build research, training, and services in concert in LMICs (20).

In short, global discovery research on the causes of and treatments for mental disorders is important (21,22).

Given the need to bolster basic and clinical neuroscience discovery research around the globe, *Acta Neuropsychiatrica* has developed a close relationship with the emerging African College of Neuropsychopharmacology, publishing abstracts from its conferences. Furthermore, as noted earlier, *Acta Neuropsychiatrica* has included researchers from around the globe on its editorial board, and has included research from a number of laboratories around the world in its publications. We look forward to seeing how this work can contribute to our understanding and treatment of mental disorders, not only in LMICs, but also elsewhere.

Dan J. Stein

Department of Psychiatry
SA MRC Unit on Risk &
Resilience in Mental Disorders
University of Cape Town
Cape Town, South Africa

Gregers Wegener

Department of Clinical Medicine
Translational Neuropsychiatry Unit
Aarhus University, Aarhus, Denmark &
Centre for Pharmaceutical Excellence
North-West University
Potchefstroom, South Africa

References

1. RAZZOUK D, SHARAN P, GALLO C et al. Scarcity and inequity of mental health research resources in low-and-middle income countries: a global survey. *Health Policy* 2010; **94**:211–220.
2. COLLINS PY, PATEL V, JOESTL SS et al. Grand challenges in global mental health. *Nature* 2011; **475**:27–30.
3. PATEL V, SUMATHIPALA A. International representation in psychiatric literature: survey of six leading journals. *Br J Psychiatry* 2001; **178**:406–409.
4. BADENHORST NJ, BRAND L, HARVEY BH, ELLIS SM, BRINK CB. Long-term effects of pre-pubertal fluoxetine on behaviour and monoaminergic stress response in stress-sensitive rats. *Acta Neuropsychiatr* 2017; **29**:222–235.
5. BRAND SJ, HARVEY BH. Exploring a post-traumatic stress disorder paradigm in Flinders sensitive line rats to model treatment-resistant depression II: response to antidepressant augmentation strategies. *Acta Neuropsychiatrica* 2017; **29**:207–221.
6. BRAND SJ, HARVEY BH. Exploring a post-traumatic stress disorder paradigm in Flinders sensitive line rats to model treatment-resistant depression I: bio-behavioural validation and response to imipramine. *Acta Neuropsychiatrica* 2017; **29**:193–206.
7. DALVIE S, BROOKS SJ, CARDENAS V, FEIN G, RAMESAR R, STEIN DJ. Genetic variation within *GRIN2B* in adolescents with alcohol use disorder may be associated with larger left posterior cingulate cortex volume. *Acta Neuropsychiatrica* 2017; **29**:252–258.
8. OJAGBEMI A, EMSLEY R, GUREJE O. Proposing the short Neurological Evaluation Scale. *Acta Neuropsychiatrica* 2017; **29**:236–243.
9. PADDICK S-M, KISOLI A, MKENDA S et al. Adaptation and validation of the Alzheimer's Disease Assessment Scale – Cognitive (ADAS-Cog) in a low-literacy setting in sub-Saharan Africa. *Acta Neuropsychiatrica* 2017; **29**:244–251.
10. PRINCE M, PATEL V, SAXENA S et al. No health without mental health. *Lancet* 2007; **370**:859–877.
11. PATEL V, SAXENA S. Transforming lives, enhancing communities – innovations in global mental health. *New Engl J Med* 2014; **370**:498–501.
12. HENRICH J, HEINE SJ, NORENZAYAN A. Most people are not WEIRD. *Nature* 2010; **466**:29.
13. DALVIE S, KOEN N, DUNCAN L et al. Large scale genetic research on neuropsychiatric disorders in African populations is needed. *EBioMedicine* 2015; **2**:1259–1261.
14. TOMLINSON M, RUDAN I, SAXENA S, SWARTZ L, TSAI AC, PATEL V. Setting priorities for global mental health research. *Bull World Health Organ* 2009; **87**:438–446.
15. JOSKA JA, HOARE J, STEIN DJ, FLISHER AJ. The neurobiology of HIV dementia: implications for practice in South Africa. *Afr J Psychiatry* 2011; **14**:17–22.
16. VYTHILINGUM B, ROOS A, FAURE SC, GEERTS L, STEIN DJ. Risk factors for substance use in pregnant women in South Africa. *S Afr Med J* 2012; **102**(Pt 1):851–854.
17. TERBURG D, SYAL S, ROSENBERGER LA et al. Acute effects of Sceletium tortuosum (Zembrin), a dual 5-HT reuptake and PDE4 inhibitor, in the human amygdala and its connection to the hypothalamus. *Neuropsychopharmacology* 2013; **38**:2708–2716.
18. MCKENZIE K, PATEL V, ARAYA R. Learning from low income countries: mental health. *BMJ* 2004; **329**:1138–1140.
19. STEIN DJ. Psychiatric contributions from South Africa: ex Africa semper aliquid novi. *Afr J Psychiatry* 2012; **15**:323–328.
20. STEIN DJ. Psychiatry and mental health research in South Africa: national priorities in a low and middle income context. *Afr J Psychiatry* 2012; **15**:427–431.
21. PATEL V. From delivery science to discovery science: realising the full potential of global mental health. *Epidemiol Psychiatr Sci* 2016; **25**:499–502.
22. STEIN DJ, HE Y, PHILLIPS A, SAHAKIAN BJ, WILLIAMS J, PATEL V. Global mental health and neuroscience: Potential synergies. *Lancet Psychiatry* 2015; **2**:178–185.