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## Neuroscience in Pakistan

Fatima Kaneez

*United Arab Emirates University*

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# NEUROSCIENCE IN PAKISTAN - challenges and opportunities

The history of neuroscience and exploration of the complexities of the brain could be as old as 4000 B.C., when euphoriant effects of poppy plant were reported in Sumerian records, or at the end of the 19th century when Alois Alzheimer and Franz Nissl established the pathological anatomy of mental illness. And it could be as recent as 2004 when Linda B. Buck and Richard Axel shared the Nobel Prize for their discoveries about odorant receptors and the organization of the olfactory system.

A scientist working in any part of the globe may take pride in and benefit from all these accomplishments and achievements in the area of neuroscience, as the work of knowledge has no boundaries.

But in the North-South divide the flow of knowledge is still one-way traffic. If a society is to grow, it will have to grow its knowledge capital and transform itself from being a mere user to becoming an active contributor of new knowledge. In Pakistan we have good neurologists, neurosurgeons and neuroscientists who are contributing towards neuroscience in some way, but unfortunately such efforts have not been coordinated at the national level, a prerequisite for producing long lasting results.

Neuroscience in Pakistan is seriously neglected at a time that is described as the Century of the Brain, and when there is a national need to create opportunities and excitement about brain research among bright young Pakistanis. There are some active efforts underway, such as the Molecular Medicine postgraduate teaching program at the Dr Panjwani Center for Molecular Medicine and Drug Research at Karachi University, and the anticipated establishment of the National Institute of Excellence Neuroscience (NIEN) at the Ojha Campus of Dow University of Health Sciences, in collaboration with PEP Foundation, New York.

Existing neuroscience programs in various institutions in Pakistan are not structured well enough to create the thrill and excitement young people need; the programs tend to "guide on the side instead of sage on the stage."

There is a pressing need to establish a national body that encompasses all types of neurosciences. There is also a need for a large neuroscience center in Pakistan which can train students in the neurosciences at the undergraduate and graduate level. On the whole, there is a natural demand of at least 100 qualified neuroscientists in Pakistan, for whose training the government's Higher Education Commission (HEC) should set aside funding. Discussions are underway to establish a Pakistan Neuroscience Society to bring together neuroscientists from all parts of Pakistan and to facilitate professional and academic interaction among them.

This proposal stems from positive experiences with the relatively new and similar associations in other countries, including the United Arab Emirates and Singapore. These

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efforts were encouraged by the visit of Laurence Gary, who represented the Neuroscience Programs Network of the International Brain Research Organization (IBRO). Dr. Gary's visit resulted in the promise of international support for development of a coordinated neuroscience platform in Pakistan.

Pakistan has an active neuroscience community. It includes researchers and students in basic science institutes, as well as interested staff in clinical environments, such as neurologists, neurosurgeons, psychiatrists and psychologists.

Experience in other countries has shown that specialized scientists often remain unaware as to who is working on what and where, and such information gaps hinder the growth of the discipline. A neuroscience association would help to build a local community feeling, identify topics and strategies for development, and serve as a platform for professional needs and concerns.

IBRO is enthusiastic in supporting such new ventures in countries where neuroscience is developing. Pakistan would greatly benefit from this collaboration and will doubtless reap the rewards from international networks of neuroscience.

Pakistani society, along with many other ills, is also confronting serious disorders of the brain, including suicidal behavior, depression, and anxiety-related problems, as well as chronic neurological ailments such as stroke, epilepsy, and nervous system infections. Such burdens need our urgent attention and serious efforts have to been made in addressing them.

A systematic review of risk factors, prevalence, and treatment of anxiety and depressive disorders in Pakistan found that the overall mean prevalence of these disorders in the community was 34 percent. Factors positively associated with these disorders were female sex, middle age, low level of education, financial difficulty, being a housewife, and relationship problems.

The study suggested that social factors play an important part in the etiology of anxiety and depression in Pakistan. Other major mental health problems are developmental disorders, psychosis, and drug abuse, although credible estimates for these are lacking.

Unfortunately, in Pakistan as in most parts of the world, mental health and mental disorders are not accorded the same degree of importance as physical health. Rather, they are and have been largely ignored or neglected. Mental ill-health has been hidden behind a curtain of stigma and discrimination far too long. It is time to bring it out into the open. This can only be achieved by introducing general topics of neurosciences right from the high school level. We can make a difference in Pakistan by using existing knowledge, ready to be applied.

On the one hand, understanding of neurosciences will pave the way for treatment and support to a larger proportion of the nearly 450 million people suffering from mental

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disorders. On the other hand a basic perception of neuroscience in our society will help avoid chronic disability and premature death, and provide support that gives individuals a life that is healthier and richer - a life lived with dignity.

Along with focusing on widespread understanding of neurosciences, our government should introduce some basic changes in legislation such as the De-criminalizing Suicidal Act. When a person is committing suicide there is an absolute imbalance of chemicals present in the neurons of his/her brain. Punishing a person for being ill is not a humanitarian act.

**Fatima Kaneez**

Professor of Neuroscience  
Faculty of Science  
United Arab Emirates University  
FatimaK@uaeu.ac.ae