Ordinary and innovation: Insights from a child psychiatrist

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Received: 14 March, 2020; Accepted: 9 April, 2020

“Ordinary and innovation” are two words that seem incompatible. However, they are well integrated from a doctor’s perspective. It takes more years to learn as a medical student than as an ordinary college student, and the boring and mundane life of learning breed innovation. The seemingly mundane day-to-day patient-treating work is full of innovation. People who withstand the ordinary can achieve innovation. Innovation shines in ordinary accumulation. In particular, for a child psychiatrist, ignorance and discrimination among others are mixed with the ordinary. This makes the flash of innovation more dazzling and valuable.

—— Yi Zheng

Many people think that medical innovation is the discovery of a disease or the search for a new gene. In fact, it can reflect achievement in many aspects such as basic research and clinical practical methods.” Professor Yi Zheng’s innovation always adheres to the comprehensive “practice-research-practice” model.

In terms of basic research, Prof. Yi Zheng, as the project director, completed the “DRD4 gene polymorphism and genetic susceptibility to Tourette’s syndrome” project funded by the Beijing Natural Science Foundation. For the first time, the DRD4-7R polymorphism was found in patients of Han nationality with Tourette’s syndrome (TS). He subsequently carried out a series of researches on TS, which won the third prize of Chinese Medical Science and Technology, the second prize of Beijing Medical Association, and the third prize of Beijing Science and Technology Progress. He is also responsible for a national “12th Five-Year Plan” science and technology support project, which is the first Chinese epidemiological survey of mental disorders in children and adolescents. There have been three epidemiological surveys of adult mental illness in the history of our country. However, for various reasons, no national survey of children and adolescents with mental disorders has been conducted. This groundbreaking project will provide a strong scientific basis for the government to formulate policies and prevention plans for mental health among children and adolescents, and clarify research directions and service needs for professionals in related fields. Now, he is responsible for the national “13th Five-Year Plan” science and technology support project: “Comprehensive intervention strategies for chronic non-communicable diseases with attention-deficient/

FIGURE 1 Photograph of Professor Yi Zheng

Adhere to the comprehensive “practice-research-practice” innovation model, be rooted in research, and explore children’s mental disorders

DOI: 10.1002/ped4.12195

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hyperactivity disorder (ADHD)."

As a professional doctor whose basic work is diagnosis and treatment, Dr. Yi Zheng places great importance on the clinical transformation of medical innovation results. In the early 1990s, he was the first doctor in China to use mood stabilizers and antipsychotic drugs to treat refractory TS, which achieved good results and has become a widely used treatment strategy. Faced with children with intellectual disabilities with poor speech and logical thinking, he tried to develop right-brain function using these children's advantages in intuition, music, color, and other aspects to bring them hope of a normal life. He published the research results in the *Chinese Journal of Psychiatry* and a book entitled *How to Make Children Smarter: Developing Right Brain Function to Treat Mental Retardation*. This book has since become a "model and scripture." Dr. Zheng also holds regular training seminars on the diagnosis and treatment of children with tic disorders and the progress in diagnosis and treatment of childhood mental disorders. He continuously promotes the clinical practice and transformation of his research results.

**Popularization of practical technology for children's mental health in the pediatric healthcare system, and international innovation achievements**

There are currently more than 20,000 psychiatrists in China, but fewer than 500 child psychiatrists; the ratio of child psychiatrists to adult psychiatrists is < 1:40, compared with 1:4 in the United States. This makes it difficult for these child psychiatrists to perform early screening of psychiatric or mental disorders for all children, and means that many children may miss the best opportunity for early detection and treatment for mental disorders. More importantly, there are not enough people focused on early childhood mental health care.

Faced with this dilemma, he constantly thinks, explores, and innovates: "Be sure to collect and use all possible resources to promote early childhood mental health care." After rigorous exploration and multidisciplinary cooperation and efforts, including direction and leadership by the National Health Commission, a new model of child early healthcare was introduced. This model, called the "Technical Criterion for Child Mental Health Care," was disseminated to the entire pediatric health care system. Ordinary pediatric doctors were trained to master scientific early screening and diagnosis indicators for children's mental disorders. In addition to basic physical examination, healthcare, and preventive immunization work, they began to pay attention to children's eye contact, behaviors, emotions, and psychological conditions, meaning they could identify children with various conditions (e.g., ADHD, autism, and tics). Therefore, a first line of defense for child mental disorders has been established by the state. This model has been promoted by the National Health Commission and is widely promoted in China. The *Children's Mental Health Care and Counseling Training Course* has become a classic textbook. He also co-authored and published the *The Yale Child Study Center Guide to Understanding Your Child* book with international authoritative experts in 2003 and simultaneously published a Chinese version in China. Unlike the United States, which has more than 8000 child psychiatrists, many developing countries face challenges associated with a lack of professional child psychiatrists. This means that early identification of child mental disorders is a major problem. However, the advanced model of innovation described above may contribute to solving the difficulties for these countries. Because of this innovation, Yi Zheng won the Outstanding Contribution Award from the International Association of Child and Adolescent Psychiatry and Related Disciplines in 2014.

**Endless innovation: Breakthroughs in the field of brain science as the next goal**

"With the continuous improvement and popularization of three-dimensional printing technology, physical objects such as limbs and organs can be manufactured or transplanted. What should the brain do?" Yi Zheng believes that uncovering the secrets of the brain will be central to medical development in future. "Brain science and brain research" is launched by "Science and Technology Innovation 2030 major Project" and is called "China Brain Project".

He set a new goal to achieve innovative breakthroughs in the child mental health field of neuroscience. He started two Beijing "brain plan" projects: "Early schizophrenia recognition and intervention model" and "Non-interfering wearable devices for early recognition of ADHD." He hopes to use modern technology to achieve objective observation of patient behavior in the natural state, truly grasp the characteristics of psychological activity and behavior of these patients, and create scientific indicators, thereby improving the early diagnosis and intervention for brain diseases. In the field of neurodevelopmental disorders, Yi Zheng was also in charge of the "13 Five-Year National Major Chronic Disease Research Project", exploring biomarkers and comprehensive intervention models for ADHD.

"We must base our research on Chinese culture, especially upbringing culture and family culture, to promote research on the mental health of children and adolescents." said Yi Zheng.

**CONFLICT OF INTEREST**

None.

*How to cite this article*: Cui Y, Zheng Y. Ordinary and innovation: Insights from a child psychiatrist. *Pediatr Invest*. 2020;4:77-78. https://doi.org/10.1002/pedi.12195