Child and Adolescent Psychiatry

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The scientific foundations of child and adolescent psychiatry have only been recently built and are still under construction. They are now being increasingly incorporated into the principles and practice of psychiatric care for young people and their families. There have been 3 different waves of influence that have moved this discipline from its original base in theories to a foundation in science. These are: epidemiology (the scientific study of populations); therapeutic effectiveness/efficacy (how we know what works and what does not); developmental neurobiology (how the brain grows and develops based on genes and the environment, in health and in disease).

The epidemiologic sciences have been characterized by methodologically complex designs and survey procedures[1] and have made a great impact on our understanding of the prevalence and time of onset of mental disorders in young people.[2,3] It is from this work that we know how common mental disorders are, when they are likely to begin, how they are likely to manifest themselves, and what their outcomes are over time. This research has also helped us to better understand the relation between adverse environmental factors occurring in childhood and the development of mental disorders across the lifespan.[4] This foundational epidemiologic research has provided us with information that we need to have to create better mental health policies and to develop and deliver better mental health care. It also has identified numerous areas of interest that have been used to drive further research, especially in the domain of developmental neurobiology where scientists are now trying to determine how the environment impacts the development of the brain and how the complex interaction between genes and environment leads to or protects against mental disorder.

The scientific study of therapeutics has revolutionized our approach to treatment. We are now much better able to say with some degree of certainty as to whether a treatment is likely to work for a particular person with a particular mental condition, and what the likely negative effects of that treatment might be. We are also much more confident in deciding what is not likely to work. This has perhaps been the most important scientific contribution to mental health care to date. Although much work is yet to be done to find the best treatment or combination of treatments for each individual, it is essential not to underestimate the revolution in mental health care that application of randomized controlled trial (RCT) research design and the systematic reviews methodologies for psychiatric treatments for child and youth mental disorders has created. Attention deficit disorder[5]; depression[6]; anxiety disorders[7]; and autism[8], just to name a few, are mental disorders that now could be receiving standardized and effective therapeutic interventions globally—all based on the application of RCT research to child and youth mental disorders.

Basic science research into developmental neurobiology (how the brain grows and changes over time based on its genetic endowment and with input from the environment) is the most recent of the 3 foundation areas. Based on findings from numerous laboratories around the world, this science is beginning to transform how we think about the causes of mental disorders. An entirely new discipline, called epigenetics, now provides us with a model that links together the historically separate theories of nature and nurture to show us how the environment and our genes are likely to interact, and how that interaction makes a difference to our mental health and our risk for mental disorder.[9–11] In addition to this basic science research, a new science that lets us see how the brain grows, develops, and, in part, operates (neuroimaging) has led to new understanding of normal child and adolescent development and problems in brain development that are related to various mental disorders.[12–14] Indeed, with the new MRI and other neuroimaging technologies and their scientific application to child and youth mental health, we have probably learned more about the brain in health and in illnesses of children and youth during the last decade than we have throughout history. Now our task is to translate that knowledge into better care and perhaps prevention.

And that leads me to what I hope will be the next scientific foundation for child and youth mental health—primary prevention of mental disorders. This is an area of study currently struggling to shed its theory bound roots and establish a critical scientific approach. Some early findings are promising, and the most cutting edge thinking brings together the scientific findings from neuroscience and brain development to begin addressing basic questions regarding the science of preventing mental illness in young people (see the National Institute of Mental Health website[15] regarding this initative). And again, it is scientific reasoning, scientific research, and critical scientific thinking that will lead us to a better understanding and application of prevention in the field of child and youth

mental health. This upcoming research will help us understand both what we should be doing and what we should not be doing (irrespective of how right it feels).

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