



Preface
Behavioral pediatrics, part I



Donald E. Greydanus, MD



Dilip R. Patel, MD
Guest Editors



Helen D. Pratt, PhD

The boundary between biology and behavior is arbitrary and changing. It has been imposed not by the natural contours of disciplines but by lack of knowledge. —E.R. Kandel [1]

An analysis of almost any scientific problem leads automatically to a study of its history. —E. Mayr [2]

The study of life began with the emergence of *Homo sapiens* over 50,000 years ago [2]. Western civilization's understanding of science is traced to the Greek natural philosophers of the sixth century BC. Modern Western medicine traces its roots to Hippocrates of Cos (460–380 BC), the Greek physician who taught all future physicians not to rely only on the leading of experience and to place emphasis on the patient and the powers of observation, not on the disease itself. The *Hippocratic Corpus* (a collection of medical writings linked to Hippocrates) linked health and disease to the imbalance of four bodily humors (black bile, yellow bile, blood, and phlegm). Subsequent centuries of observation were greatly influenced by the humoral pathology theory and also the need to explain human disease strictly or primarily with prevalent theological themes.

The interpretations that some religions have had of human sexuality over thousands of years have led to some incorrect assumptions. The ancient fear of masturbation, for example, led Galen (the father of modern medicine and famous physician of the Roman gladiators) to falsely link masturbation with epilepsy and

many other disorders. In 130 AD, he stressed teaching children and youth not to masturbate—if young men did, he advised:

Watch carefully over this young man, leave him alone neither night or day; at least sleep in his chamber. When he has contracted his fatal habit, the most fatal to which a young man can be subject, he will care its painful effects to the tomb—his mind and body will always be enervated [3].

Sixteen centuries later, American medicine was also initiated by the strong undercurrent of religious dogma. However, the first significant figure in American medicine, the Reverend Cotton Mather (1663–1728) sought to explain human behavior and disease with religious beliefs in addition to some scientific concepts; for example, he emphasized the need for smallpox inoculations at a time when such treatment was not popular [4].

The term *biology* was initiated in the early years of the nineteenth century and signaled the beginning of an attempt to understand concepts of human disease apart from ancient philosophical theories [2]. Although medicine focused on adults, some scholars eventually began to look at the medical problems of children as well. In 1776, a well-known European textbook of its time related diseases of children to the concept that “the nerves of children are very irritable [in contrast to adults], much the more softened, and also covered with very thin membranes” [5]. In 1837, diseases in children were linked to adolescent marriage and adolescent pregnancy [6]. In 1869, Dr. John Scudder, a pathologist in Ohio, published a textbook on pediatrics because of his conclusion that “there are sufficient differences in the action of remedies upon the adult and child, to demand a careful study of the subject” (ie, the child) [7]. He also wrote that children are capable of “receiving mental impressions and being pleasurably or painfully impressed by them . . . [and children] are more impressionable than the adults” [7]. Concerns with substance abuse, such as alcoholism and opiates (eg, morphine), was addressed by the greatest Western physician of the nineteenth and early twentieth century, Dr. William Osler [8].

A variety of theoretical perspectives on child development arose in the nineteenth and twentieth centuries. These important models of development include the evolutionary model (Charles Darwin), the organismic model (G. Stanley Hall and Jean Piaget), the psychoanalytic model (Sigmund Freud), the mechanistic model (B. F. Skinner), and the contextualistic model (William James). Biological (including genetic) factors and environmental factors in development had become important components of twentieth-century medicine. In 1902, children with traits later termed *hyperactivity* were identified by English physician George Still as having “defects of moral control” [9]. In 1937, Bradley [10] noted that stimulant medication was helpful to those possessing these moral defects. In 1955, methylphenidate was developed for attention disorders, and by the end of the twentieth century there had been such an explosion of stimulants available for those with such “moral defects” that the behavioral aspects of management may be overlooked [11].

The seeds of the development of behavioral pediatrics were laid by the nineteenth- and twentieth-century recognition that children are not small adults [7,12], the development of child psychiatry in the 1920s and 1930s, the development of family therapy as a tool of therapy in the 1950s, and the results of research in psychopharmacology in the latter part of the twentieth century. Before the twentieth century, infections of children dominated the writers of pediatric textbooks [5–7,13]. The success of twentieth-century immunization programs and antibiotic production allowed childcare clinicians to deal with various mental health issues in children and adolescents as well as adults. The term *behavioral pediatrics* was first used in the early 1970s by Dr. Robert J. Haggerty and colleagues at the University of Rochester to study behavioral concerns of children from a pediatrician's perspective, not only from a child psychiatrist's perspective [14]. In the late 1970s, the William T. Grant Foundation funded 11 American Behavioral Pediatrics programs; these programs were based in university pediatric departments (not the psychiatric departments) and subsequently sparked a growing interest in behavioral pediatrics throughout the United States. In the 1975 *Pediatric Clinics of North America's* preface on behavioral pediatrics, Dr. Stanford B. Friedman defined behavioral pediatrics as "an area within pediatrics which focuses on the psychological, social, and learning problems of children and adolescents" [15]. Behavioral pediatrics has also been defined as "what the clinician does to diagnose, to treat, and most importantly, to *prevent* mental illness in children and adolescents" [14]. The field of behavioral–developmental pediatrics has gone on to develop its own society and journal; in addition, it has received approval from the Accreditation Council for Graduate Medical Education's Residency Review Committee and, most recently, from the American Board of Pediatrics for board certification [16].

Although there is some overlap between behavioral pediatrics and child psychiatry, the severe shortage of both child psychiatrists and behavioral pediatricians has encouraged primary care clinicians to manage these various issues on an increasing basis. Concepts of behavioral pediatrics as outlined in this issue become major issues for practicing pediatricians—whether or not they receive adequate training in these areas. Indeed, though also not trained, children, adolescents, and their families are presented with prodigious difficulties as they face the challenges of the twenty-first century. Children pass through intricate developmental phases as they traverse through childhood and adolescence on their inevitable journey into adulthood. Research in child and adolescent psychiatry, psychology, behavioral sciences, pediatrics, family therapy, individual therapy, and related fields have led to new and exciting information. Advancements in psychopharmacology have led to the availability of many medications now used to treat a wide variety of mental health disorders, including depression, anxiety, disruptive behavioral disorders, eating disorders, and others. We know that the central nervous system of children and adolescents allows adoption of behavior based in large part on the environmental stimulation it receives over many years [1,17–19]. As we learn about the complex neurobiological and neurobehavioral changes occurring in childhood, we can observe the develop-

ment of children, understand what is happening, and help the process along in a positive manner.

These issues of the *Pediatric Clinics of North America* addresses general concepts of behavioral pediatrics, covering such important topics as child and adolescent sexuality, abuse, anxiety disorders, attention-deficit hyperactivity disorder (ADHD), depression, disruptive behavior disorders (conduct disorders and oppositional defiant disorder), eating disorders, substance abuse disorders, psychological aspects of sports medicine, adolescent pregnancy, and other related subjects that involve the school-age child and adolescent. Much has been learned since the days of Hippocrates and Democritus (470–370 BC) with regard to behavior and biology. Today, families expect us to look at both the medical and behavioral health aspects that affect their children and teenagers. It is the hope of the editors of this issue that the updated information contained herein will be of considerable value to clinicians by helping to meet the complex needs of the children, adolescents, and families, that they serve.

A wide variety of experts in the field of pediatric health care has been called upon to prepare these issues, and I thank them all for working with the editors in this exciting venture. I thank my coeditors, Dilip R. Patel, MD, and Helen D. Pratt, PhD, for their wonderful assistance in the development of this *coronat opus*. I also express my sincere appreciation to Luis H. Toledo, MD, PhD, and Ralph C. Gordon, MD, for their superb technical assistance. Finally, I thank Elsevier (Carin Davis and J. Heather Cullen, in particular) for encouragement and assistance in the preparation of this issue.

Who loves not knowledge? Who shall rail

Against her beauty? May she mix

With men and prosper! Who shall fix

Her pillars? Let her work prevail.

—Alfred Lord Tennyson, from *In Memoriam*, CXIV [20]

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Donald E. Greydanus, MD

Dilip R. Patel, MD

Helen D. Pratt, PhD

*Department of Pediatrics and Human Development
Michigan State University College of Human Medicine*

Kalamazoo Center for Medical Studies

1000 Oakland Drive

Kalamazoo, MI 49008-1284, USA

E-mail address: greydanus@kcms.msu.edu (D.E. Greydanus)