



Published in final edited form as:

*Psychiatr Clin North Am.* 2008 June ; 31(2): xiii–xvi. doi:10.1016/j.psc.2008.03.001.

## Suicidal Behavior: A Developmental Perspective

**Maria A. Oquendo, MD** and

Columbia University, NYSPI Unit #42, 1051 Riverside Drive, New York, NY 10032

**J. John Mann, MD**

New York State Psychiatric Institute and Columbia University, NYSPI Unit #42, 1051 Riverside Drive, New York, NY 10032

Maria A. Oquendo: mao4@columbia.edu; J. John Mann: jjm@columbia.edu

It has long been known that suicidal behavior varies strikingly across the life span. One example is the ratio of nonfatal to fatal suicide attempts, which goes from about 20:1 in youth to 4:1 in the elderly. In this issue, we have asked leading investigators in suicidology to produce a set of critical reviews of the scientific literature on suicidal behavior across the lifespan. This issue gives the reader a bird's eye view of the field with special emphasis on unanswered research questions that are relevant for clinical care. The issue is organized to cover different spectra of risk at major developmental stages: familial effects on suicidal behavior; the effect of early childhood experiences on later suicidal risk; phenomenology of child and adolescent suicidal behavior; and suicidal behavior in adulthood focused on two higher risk groups, nonfatal attempts in young women and suicide in elders.

### FAMILIAL EFFECTS ON SUICIDAL BEHAVIOR

Because improved understanding of the mechanisms, such as heritability, involved in familial transmission of suicidal behavior can shed light on etiology, identify high-risk individuals, and frame targets for intervention and prevention, the article by Brent and Melhem presents the evidence supporting the familial transmission of suicidal behavior. The authors identify possible genetic and environmental explanations for this phenomenon. They describe putative intermediate phenotypes and discuss the contributions of early child-rearing and concurrent familial environmental stressors to suicidal risk.

Brezo, Klempan, and Turecki, in "The Genetics of Suicide: A Critical Review of Molecular Studies," provide an in-depth review of genetic association studies of suicidal phenotypes, accompanied by a thoughtful discussion of possible theoretic and methodologic challenges that may explain the limited success of association studies thus far. As a potential solution, they propose more systematic and comprehensive studies of genes and variants, examination of gene–environment and gene–gene interactions, and investigation of higher-order moderators.

In "Pregnancies in High Psychosocial Risk Groups: Research Findings and Implications for Early Intervention," Mittendorfer-Rutz and Wasserman describe prenatal and perinatal

period effects that may affect the risk for suicide in youth and adults. Low weight and short length at birth, adjusted for gestational age, seem to increase risk for suicidal behavior, and particularly violent suicide attempts. The authors suggest that associations between pre- and perinatal complications and subsequent suicidal acts could be mediated by neurodevelopmental impairment and by modifications in programming of neuroendocrine systems. Early intervention for low birth weight infants, preterm birth infants, or infants born and raised in families at high psychosocial risk may mitigate future suicide risk, indicating the relative importance of the pre- and perinatal environment.

Bronisch and Lieb examine another perspective in their article “Maternal Suicidality and Suicide Risk in Offspring.” Age at first suicide attempt of offspring of parents (mothers and fathers) who have attempted suicide is on average younger than the parents’ age of first suicide attempt and younger than onset of suicidal behavior in offspring of parents who do not have suicidality. Understanding this phenomenon can help understand causes of suicidal behavior and guide the timing and target of prevention. Together, these four articles provide evidence for the heritability of suicidal behavior from the perspective of genetics, pre- and perinatal environmental effects, and parental psychopathologic antecedents to suicidal behavior.

## THE EFFECT OF EARLY EXPERIENCES ON LATER SUICIDAL RISK

In “Adverse Childhood Experiences and Suicidal Behavior” Brodsky and Stanley review factors mediating the relationship between suicidal behavior and childhood abuse/neglect. In describing (1) those personality traits that may be risk factors mediating this relationship, (2) protective factors, and (3) neurobiologic abnormalities, they describe the chain of events leading from childhood abuse or neglect to suicidal acts.

Zalsman, Levy, and Shoval describe the key observation that in pediatric populations, not all suicidal ideation or behavior is directly attributable to depression in their article, “Interaction of Child and Family Psychopathology Leading to Suicidal Behavior.” A major survey found 12-month prevalences among high school students nationwide as follows: 28.6% felt sad or hopeless almost every day for at least 2 weeks in a row so that they stopped doing some of their usual activities, 16.9% of the students had seriously considered attempting suicide, 16.5% of students had planned a suicide attempt, 8.5% of students had actually attempted suicide one or more times, and 2.9% of students nationwide had made a suicide attempt requiring medical care. These high rates suggest the need for acute attention for these high-risk children.

“Stress, Genes, and the Biology of Suicidal Behavior,” by Currier and Mann, reviews the genetic underpinnings of suicidal behavior. Genetic studies have mainly focused on genes involved in candidate neurotransmitter systems reported to be altered in completed and attempted suicide, including the serotonergic, noradrenergic and dopaminergic systems and the hypothalamic-pituitary-adrenal (HPA) axis. For the most part, replication of candidate gene association studies has been unsuccessful, with the notable exception of the serotonin transporter promoter HTTLPR polymorphism. In a review of specific gene effects and gene–environment interactions and their influence risk on suicidal behavior, the authors note

that developmental effects of childhood stress and their influence on adult responses to current stress are clearly relevant not only for mood disorders but also for the development of aggressive/impulsive traits and later suicidal behavior.

## **CHILD AND ADOLESCENT SUICIDAL BEHAVIOR**

Dervic, Brent, and Oquendo describe, in “Completed Suicide in Childhood,” the alarming trend for more suicides in children aged 14 and younger. Childhood mood and disruptive disorders and childhood abuse are the most commonly reported psychiatric risk factors. Suicide becomes increasingly common after puberty, likely because of new onset of mood disorders and substance abuse, increasing suicide risk. Common precipitants include school and family problems and actual or anticipated transitions in these environments. Sadly, suicides in children may follow only a brief period of stress, creating a challenge for prevention. Cognitive immaturity, lack of judgment, impulsivity, and method availability may play a pivotal role.

As adolescents grow, other factors come into play. In “Impact of Modeling on Adolescent Suicidal Behavior,” Insel and Gould note the mounting evidence for a role for imitation and modeling in completed suicide. The evidence emerges from three areas of research: (1) clusters of suicide occurring in temporal-spatial proximity, (2) individual exposure to the suicidal behavior of teen peers, and (3) media effects on subsequent suicidal behavior. A more complete picture of risk in young people requires consideration of family psychopathology and environmental effects, including contagion.

## **SUICIDAL BEHAVIOR IN ADULTHOOD**

In “Suicidal Behavior in Young Women,” Baca-Garcia, Perez-Rodriguez, Mann, and Oquendo provide an update on suicidal behaviors in young women. Young women are the demographic group with the highest risk for nonfatal suicide attempts. Rates of completed and attempted suicide among young females are presented with a special emphasis on the impact of race and ethnicity on these rates. Risk and protective factors are associated with suicidal behaviors in young females, including stressful life events, mental disorders, and hormonal factors and the treatment options for suicidal young females.

Conwell and Thompson describe the disturbing rates of suicide among older adults compared with other age groups in “Suicidal Behavior in Elders.” They provide a foundation for decision making concerning design and implementation of preventive interventions. Risk and protective factors suggest potential pathogenic mechanisms and indicate the need for efficient methods to reach older adults at risk. With this information those interventions can be designed and preliminary testing conducted for their refinement before implementation at a larger scale. They emphasize the usefulness of effective surveillance tools to evaluate the impact of interventions in guiding the next steps for improvement. Nonetheless, the special challenges of suicide prevention among older adults remain considerable because of social isolation and assumptions that depression and nihilism are “understandable” in late life.

This issue strives to present a comprehensive review and incisive synthesis of the data regarding suicidal behavior across the lifespan.

## Biographies



Maria A. Oquendo



J. John Mann