Abstract  Schizophrenia and bipolar affective disorder (bipolar disorder, manic depression) are the paradigmatic illnesses of psychiatry. They profoundly affect thought, perception, emotion, and behavior, and their symptoms cause significant social and/or occupational dysfunction. Schizophrenia and bipolar disorder have been recognized for several millennia, and the WHO (2001) ranks both among the top ten leading causes of the global burden of disease for the age group 15–44 years.

Schizophrenia and bipolar disorder are illnesses with a largely unknown pathophysiology and etiology. Evidence of a clear genetic contribution to the development of these disorders has led to important endeavors to discover the responsible genes. This chapter provides a concise and comprehensive review of the current state of genetic research into schizophrenia and bipolar disorder, and also of its limitations and possible future directions.

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23.7.1 Schizophrenia

Schizophrenia (for diagnostic criteria see Table 23.7.1) is characterized by fundamental and characteristic distortions of thought and perception, inappropriate feelings and/or blunted emotions, and a restricted capacity to act and interact appropriately. The hallmark symptoms of schizophrenia are psychotic phenomena, which include delusions, delusional perceptions, and hallucinations.
Negative symptoms, thought disorders, and neuropsychological deficits, while less striking in nature, are usually more persistent and more indicative of the course of the disorder [50]. Although cognitive deficits and a decline in intellectual capacities are observed in most patients, consciousness and a substantial level of intellectual capacity are maintained. The course of the disorder is often characterized by recurrent episodes and an increased mortality rate. Approximately two-thirds of all affected individuals have persistent or fluctuating symptoms even if they receive optimal treatment [9].

The onset of schizophrenia typically occurs in early adulthood, although premorbid symptoms have often been present for many years [121]. On average, the age at onset is 3–5 years earlier in men than in women, but this gender difference is not observed in patients with a family history of schizophrenia [4, 44, 121].

### 23.7.1 Prevalence

The life-time prevalence of schizophrenia in developed countries is around 0.5–1%. Early studies indicated that schizophrenia occurs at the same rate world-wide, but more recent studies have suggested that the prevalence may vary between countries, a higher prevalence being observed in developed nations [43, 119]. The prevalence in females and males is similar [6, 119].

### 23.7.2 Environmental Risk Factors

A substantial body of epidemiological research has established that there is a set of nongenetic risk factors for schizophrenia. These include being a first- or second-generation migrant, being born or living in an urban area, having had a winter or spring birth, advanced