5

Schizophrenia and Other Psychotic Disorders

HERBERT WILLIAM MULLIN

Herbert Mullin was born in Salinas, California, on April 18, 1947. The son of Catholic parents, he was raised in an oppressively religious home. As a child, he was described as bright and gentle-natured. He had many friends in high school and was envied as one of the "popular" crowd. He played varsity football, had a steady girlfriend, and was voted "most likely to succeed."

Psychological problems began for Mullin in late adolescence (a point when schizophrenia characteristically surfaces). He experienced delusions and a range of involuntary repetitive behaviors, such as echolalia and echopraxia. He was institutionalized on several occasions and diagnosed with paranoid schizophrenia. At one point, he began to hear voices commanding him to shave his head and to burn his penis with a cigarette. He also wrote dozens of letters to strangers, signing them "A human sacrifice, Herb Mullin."

On October 13, 1972, Mullin bashed the skull of Lawrence White, an alcoholic drifter, with a baseball bat. Eleven days later, he picked up coed hitchhiker Mary Guilfoyle, stabbed her in the heart, disemboweled her, and scattered her organs on the shoulder of the road. On November 2, 1972 ("All Souls' Day"), he stabbed a priest, Father Henry Tomei, to death in his confessional booth. He also shot and stabbed a drug dealer's wife and children and a young married couple. On February 6, 1973, he murdered four teenage campers execution-style. A week later, while driving through Santa Cruz, he pulled to the curb and shot a retired boxer, Fred Perez, in his front yard with a rifle. In total, Mullin brutally murdered 13 victims.

Mullin's crimes had decidedly religious overtones. He claimed he was a hero, a sacrificial scapegoat, and that his victims telepathically gave him permission to kill them. He also claimed his homicides were necessary to prevent catastrophic earthquakes from destroying California and that his war veteran father had telepathically commanded him to murder. He believed he was obeying God's "commandment" to make human sacrifices for the greater good of humanity. Mullin's birthday (April 18, 1947) held great significance for him. April 18th was the anniversary of the 1906 San Francisco earthquake and the anniversary of Albert Einstein's death. Both of these events would, in his psychotic mind, give him a cosmic duty to kill. Mullin was ultimately convicted of many of these homicides and sentenced to life imprisonment with the possibility of parole when he reaches 78 years of age.

The world of *psychosis* is one of chaos, disruption, and disorganization. In it, the psychological boundary separating one's internal experiences from external reality, a boundary that for some is a nearly solid "wall" and for others already a mere thin veil, becomes blurred, compromised, or even obliterated. Thoughts, beliefs, feelings, behaviors, and perceptions can become confusing and frightening as the barrier disintegrates and inner and outer worlds collide. This psychotic "break" from reality may occur suddenly or develop insidiously over months and even years.

Herbert Mullin suffered from an illness known as schizophrenia—one of a group of similar disorders outlined in the DSM-IV-TR, DSM-5, and other diagnostic systems. Mullin's separation from reality brought over a dozen innocent lives to a tragic end, for reasons not likely to be readily understood by others. However, as unusual and bizarre as his symptoms may seem (as psychotic symptoms often do), it must be understood that they represent his attempts to make sense of his own unraveling sense of self, the reference point for assessing our perceptions (Dorman, 2008), as he gradually descended into psychosis. Although his murderous behavior exemplifies *how* crime and violence may manifest within the context of schizophrenia and other psychotic disorders, discussions in the pages that follow will demonstrate how researchers have attempted to address a more important question about the schizophrenia-crime relationship: *why*.

Diagnostic Criteria and the Prevalence of Psychotic Disorders

Psychotic disorders are a class of illnesses characterized by delusions and hallucinations. The DSM-IV-TR defines a **delusion** as a "false belief based on an incorrect inference about external reality that is firmly sustained despite what almost everyone else believes and despite what constitutes incontrovertible and obvious proof of evidence to the contrary" (APA, 2000, p. 821). The DSM-5 states that delusions are "fixed beliefs not amenable to change in light of conflicting evidence" (APA, 2013, p. 87). The DSM-5 descriptions of delusions are listed in Table 5.1.

The DSM-IV-TR defines a **hallucination** as "a sensory perception that has the compelling sense of reality of a true sensation, but that occurs without external stimulation of the relevant sensory organ" (APA, 2000, p. 823); the DSM-5 states that hallucinations are "perception-like experiences that occur without an external stimulus" (APA, 2013, p. 87). In essence, they are sensory perception without sensory input. Hallucinations may occur along any sensory modality—sight (visual), hearing (auditory), smell (olfactory), touch (tactile), and taste (gustatory). An individual might see the Devil coming out of the ceiling, hear voices commenting on his or her

Table 5.1 DSM-5 Classifications of Delusions

Delusions
Bizarre: A delusion that is clearly implausible and not understandable to same-culture peers and does not derive from ordinary life experiences.
Nihilistic: Involves the conviction that a major catastrophe will occur.
Erotomanic: When an individual believes falsely that another person is in love with him or her.
Grandiose: When an individual believes that he or she has exceptional abilities, wealth, or fame.
Of control: The belief that one's body or actions are being acted on or manipulated by some outside force.
Referential: The belief that certain gestures, comments, environmental cues, and so forth are directed at oneself.
Persecutory: The belief that one is going to be harmed, harassed, and so forth by an individual, organization, or other group.
Somatic: A delusion that focuses on preoccupations regarding health and organ function.
Thought withdrawal: The belief that one's thoughts have been "removed" by some outside force.
Thought insertion: The belief that alien thoughts have been put into one's mind.

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behavior, smell perfumes or foul odors that are not actually present, feel insects crawling on or under his or her skin, or taste food in his or her mouth. The most common type of hallucination is the auditory type. The DSM-IV-TR distinguishes between hallucinations and illusions—the latter being actual external stimuli that are misperceived or misinterpreted (APA, 2000). Interestingly, this distinction is not made in the DSM-5; however, the newer edition does explicitly state that "hallucinations must occur in the context of a clear sensorium; those that occur while falling asleep (*hypnagogic*) or waking up (*hypnopompic*) are considered to be within the range of normal experience" (pp. 87–88).

Schizophrenia is a devastating mental illness, and only one of the larger class or spectrum of psychotic disorders. This illness is characterized by a cluster of symptoms (see Table 5.2), which are categorized into two distinct types. **Positive symptoms** represent ways of thinking and behaving that indicate something has been added to the way a person normally thinks and behaves. These include delusions, hallucinations, **catatonic behavior**, and **disorganized speech**, which is referred to by some as **thought disorder** (see Box 5.1 for explanations of different types of disorganized speech). **Negative symptoms** (i.e., *affective flattening*, *alogia*, and *avolition*), on the other hand, represent ways of thinking, feeling, and behaving that suggest something is missing or has been taken away from a person's normal experience. Disorganized speech patterns reflect disrupted and unorganized thoughts and may be characterized by jumping "off-track" during conversations, speaking with random and jumbled words, and the use of words that do not make sense to others. Catatonic behaviors occur when an individual moves or behaves in a disorganized manner, such as remaining completely still in unusual positions, moving in ways that do not serve a purpose, mimicking the speech or behaviors of others, or refusing to talk or respond to others. (The DSM-5 has now articulated diagnostic criteria for "Catatonia Associated With Another Mental Disorder [Catatonia Specifier]" for schizophrenia and other disorders, and these criteria explicate the various forms of catatonic behavior; see Table 5.3 and Box 5.2.). Affective flattening refers to a lack of emotional response or experience as suggested by an individual's facial expressions (as if their emotions are missing). Alogia refers to an absence of thoughts, which is indicated by "poverty of speech" (e.g., very limited talking or short, one-word responses). Finally, avolition refers to the lack of will to engage in behavior that is goal directed or purpose driven.

Other problems commonly associated with schizophrenia include isolation or withdrawal from others. Schizophrenia may develop gradually or rapidly and can begin at any point in one's life, though it is typically first seen between the late teens and the mid-30s (and, on average, slightly later in life in women than in men). Women with schizophrenia typically suffer more from affective (emotional) symptoms, paranoid delusions, and hallucinations, and men tend to express more negative symptoms. Also, schizophrenia rarely occurs alone as a diagnosis. Depression, anxiety disorders, or substance abuse often accompany schizophrenia (APA, 2000, 2013).

Prevalence and Incidence Rates of Schizophrenia

The DSM-IV-TR indicates that adult prevalence rates of schizophrenia are often reported in the 0.5% to 1.5% range (APA, 2000), and the DSM-5 reports lifetime prevalence rates of approximately 0.3% to 0.7%

Table 5.2 DSM-5 Diagnostic Criteria for Schizophrenia

295.90 (F20.9) Schizophrenia

A. Two (or more) of the following, each present for a significant portion of time during a 1-month period (or less if successfully treated). At least one of these must be (1), (2), or (3):

1. Delusions.
2. Hallucinations.
3. Disorganized speech (e.g., frequent derailment or incoherence).
4. Grossly disorganized or catatonic behavior.
5. Negative symptoms (i.e., diminished emotional expression or avolition).

(Continued)

(Continued)

B. For a significant portion of the time since the onset of the disturbance, level of functioning in one or more major areas, such as work, interpersonal relations, or self-care, is markedly below the level achieved prior to the onset (or when the onset is in childhood or adolescence, there is failure to achieve expected level of interpersonal, academic, or occupational functioning).

C. Continuous signs of the disturbance persist for at least 6 months. This 6-month period must include at least 1 month of symptoms (or less if successfully treated) that meet Criterion A (i.e., active-phase symptoms) and may include periods of prodromal or residual symptoms. During these prodromal or residual periods, the signs of the disturbance may be manifested by only negative symptoms or two or more symptoms listed in Criterion A present in attenuated form (e.g., odd beliefs, unusual perceptual experiences).

D. Schizoaffective disorder and depressive or bipolar disorder with psychotic features have been ruled out because either 1) no major depressive or manic episodes have occurred concurrently with the active-phase symptoms; or 2) if mood episodes have occurred during active-phase symptoms, they have been present for a minority of the total duration of the active and residual periods of the illness.

E. The disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or another medical condition.

F. If there is a history of autism spectrum disorder or a communication disorder of childhood onset, the additional diagnosis of schizophrenia is made only if prominent delusions or hallucinations, in addition to the other required symptoms of schizophrenia, are also present for at least 1 month (or less if successfully treated).

Specify if:

The following course specifiers are only to be used after a 1-year duration of the disorder and if they are not in contradiction to the diagnostic course criteria.

First episode, currently in acute episode: First manifestation of the disorder meeting the defining diagnostic symptom and time criteria. An *acute episode* is a time period in which the symptom criteria are fulfilled.

First episode, currently in partial remission: *Partial remission* is a period of time during which an improvement after a previous episode is maintained and in which the defining criteria of the disorder are only partially fulfilled.

First episode, currently in full remission: Full remission is a period of time after a previous episode during which no disorder-specific symptoms are present.

Multiple episodes, currently in acute episode: Multiple episodes may be determined after a minimum of two episodes (i.e., after a first episode, a remission and a minimum of one relapse).

Multiple episodes, currently in partial remission

Multiple episodes, currently in full remission

Continuous: Symptoms fulfilling the diagnostic symptom criteria of the disorder are remaining for the majority of the illness course, with subthreshold symptom periods being very brief relative to the overall course.

Unspecified

Specify if:

With catatonia (refer to the criteria for catatonia associated with another mental disorder [Table 5.3] for definition).

Specify current severity:

Severity is rated by a quantitative assessment of the primary symptoms of psychosis, including delusions, hallucinations, disorganized speech, abnormal psychomotor behavior, and negative symptoms. Each of these symptoms may be rated for its current severity (most severe in the last 7 days) on a 5-point scale ranging from 0 (not present) to 4 (present and severe).

Note: Diagnosis of schizophrenia can be made without using this severity specifier.

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Table 5.3 DSM-5 Diagnostic Criteria for Catatonia Associated With Another Mental Disorder (Catatonia Specifier)

293.89 (F06.1) Catatonia Associated With Another Mental Disorder (Catatonia Specifier)

A. The clinical picture is dominated by three (or more) of the following symptoms:

1. Stupor (i.e., no psychomotor activity; not actively relating to environment).
2. Catalepsy (i.e., passive induction of a posture held against gravity).
3. Waxy flexibility (i.e., slight, even resistance to positioning by examiner).
4. Mutism (i.e., no, or very little, verbal response [exclude if known aphasia]).
5. Negativism (i.e., opposition or no response to instructions or external stimuli).
6. Posturing (i.e., spontaneous and active maintenance of a posture against gravity).
7. Mannerism (i.e., odd, circumstantial caricature of normal actions).
8. Stereotypy (i.e., repetitive, abnormally frequent, non-goal-directed behaviors).
9. Agitation, not influenced by external stimuli.
10. Grimacing.
11. Echolalia (i.e., mimicking another's speech).
12. Echopraxia (i.e., mimicking another's movements).

Coding note: Indicate the name of the associated mental disorder when recoding the name of the condition (i.e., 293.89 [F06.1] catatonia associated with major depressive disorder). Code first the associated mental disorder (e.g., neurodevelopmental disorder, brief psychotic disorder, schizophreniform disorder, schizophrenia, schizoaffective disorder, bipolar disorder, major depressive disorder, or other mental disorder) (e.g., 295.70 [F25.1] schizoaffective disorder, depressive type; 293.89 [F06.01] catatonia associated with schizoaffective disorder).

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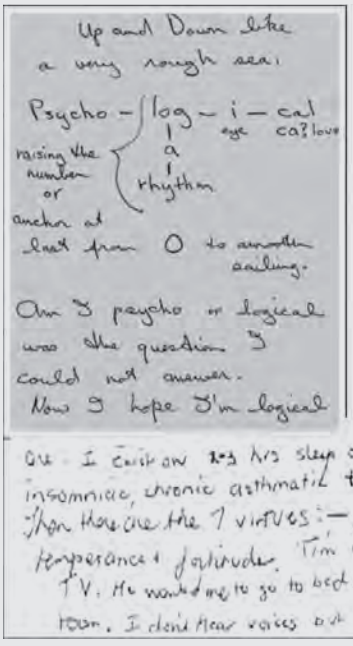
(APA, 2013). A 1% prevalence rate is often reported in textbooks and other sources (Bhugra, 2005; Bobes et al., 2009). Incidence rates are often reported in the range of 0.5 to 5.0 per 10,000 individuals per year (APA, 2000), though lower estimates have been reported (McGrath et al., 2004; Saha et al., 2005). *Birth cohort studies* suggest some geographic and historical variations in incidence. For example, an elevated risk has been reported among urban-born individuals in comparison to rural-born individuals (APA, 2000) and in richer countries in comparison to poorer countries (Saha et al., 2005).

Other Psychotic Disorders

Diagnoses of other psychotic disorders are based upon presentations of some psychotic symptoms and not others, the inclusion of mood disorder symptomatology, or variations in the length of symptom presentation. Table 5.4 lists and describes the various psychotic disorders found in the DSM-IV-TR. The DSM-5 has renamed this class of disorders "Schizophrenia Spectrum and Other Psychotic Disorders," and the disorders remain largely consistent with those in the DSM-IV-TR. Exceptions include the removal of shared psychotic disorder and the addition of substance / medication-induced psychotic disorder (formerly substance-induced psychotic disorder), psychotic disorder due to another medical condition (formerly psychotic disorder due to a general medical condition), other specified schizophrenia spectrum and other psychotic disorder, and unspecified schizophrenia spectrum and other psychotic disorder (the latter two roughly translating into the former DSM-IV-TR designation of psychotic disorder NOS). Additionally, *schizotypal personality disorder*—considered to be part of the schizophrenia spectrum—has now been included among these disorders in the DSM-5. The ICD-10

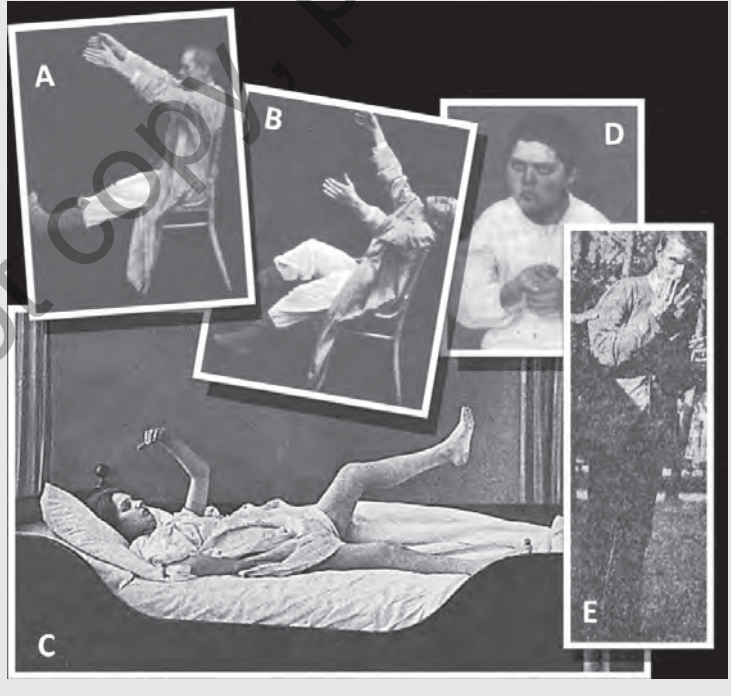
BOX 5.1 DISORGANIZED SPEECH



There are several types of disorganized speech patterns (Andreasen, 1979).

- **Tangentiality:** Replying to a question in an oblique, tangential, or even irrelevant manner.
- **Derailment:** A pattern of spontaneous speech in which the ideas slip off the track onto another one that is clearly but obliquely related or onto one that is completely unrelated.
- **Disorganized speech:** Speech marked by poorly organized ideas and difficult for others to understand (i.e., "**word salad**").
- **Neologisms:** New word formations. A completely new word or phrase whose derivation cannot be understood (e.g., a "geshinker").
- **Word approximations:** Old words that are used in a new and unconventional way, or new words that are developed by conventional rules of word formation (e.g., "handshoes" for gloves).
- **Circumstantiality:** A pattern of speech that is very indirect and delayed in reaching its goal idea.

BOX 5.2 CATATONIC BEHAVIOR



Late nineteenth- and early twentieth-century images of catatonic behavior: Catalepsy, waxy flexibility (A, B), posturing (C), stupor (D), and mannerism (E).

classifies this group of disorders under "Schizophrenia, Schizotypal and Delusional Disorders"; these include schizophrenia, schizotypal disorder, persistent delusional disorders, acute and transient psychotic disorders, induced delusional disorder, schizoaffective disorders, other nonorganic psychotic disorders, and unspecified nonorganic psychosis. The limited evidence available indicates that these other psychotic disorders are, overall, much more rare than schizophrenia (see Table 5.4), though lifetime prevalence of all psychotic disorders has been reported at rates as high as 3.48% (Perala et al., 2007).

Table 5.4 Other Psychotic Disorders

DSM-IV-TR[1]/DSM-5[2]	Description	Prevalence/Incidence
Schizophreniform Disorder	Characterized by a symptomatic presentation that is equivalent to Schizophrenia except for its duration (i.e., the disturbance lasts from 1 to 6 months) and the absence of a requirement that there be a decline in functioning.	Variable incidence across sociocultural settings. Low incidence in developed countries (i.e., five-fold less than schizophrenia), higher in developing countries.[1,2] Likely similar to that observed in schizophrenia.[2]
Schizoaffective Disorder	A disorder in which a mood episode and the active-phase symptoms of Schizophrenia occur together and were preceded or are followed by at least 2 weeks of delusions or hallucinations without prominent mood symptoms.	Detailed information lacking. Thought to be less common than schizophrenia.[1] Lifetime prevalence estimated to be 0.3%.[2]
Delusional Disorder	Characterized by at least 1 month of nonbizarre delusions without other active-phase symptoms of Schizophrenia.	Best estimate of population prevalence around 0.03%. Lifetime morbidity risk 0.05%–0.1%.[1] Lifetime prevalence estimated at around 0.2%.[2]
Brief Psychotic Disorder	A disorder that lasts more than 1 day and remits by 1 month.	Rare in clinical settings in developed countries. Overall prevalence or incidence rates largely unknown.[1] May account for 9% of cases of first-onset psychosis in U.S.[2]
Shared Psychotic Disorder (Folie à Deux)[1]	Characterized by the presence of a delusion in an individual who is influenced by someone else.	Little systematic information available. Rare in clinical settings. May be more common in women than men.[1]
Psychotic Disorder Due to a General Medical Condition[1] (Psychotic Disorder Due to Another Medical Condition[2])	The psychotic symptoms are judged to be a direct physiological consequence of a general medical condition.	Prevalence rates difficult to estimate. Psychotic symptoms can be present in ≥ 40% of individuals with certain medical conditions (i.e., temporal lobe epilepsy).[1] Lifetime prevalence estimated to range from 0.21% to 0.54%.[2]
Substance-Induced Psychotic Disorder[1] (Substance / Medication-Induced Psychotic Disorder[2])	The psychotic symptoms are judged to be a direct physiological consequence of a drug of abuse, medication, or toxin exposure.	Not specified in DSM-IV-TR.[1] Prevalence unknown.[2]
Psychotic Disorder NOS (Other Specified Schizophrenia Spectrum and Other Psychotic Disorder; Unspecified Schizophrenia Spectrum and Other Psychotic Disorder[2])	Included for classifying psychotic presentations that do not meet the criteria for any of the specific Psychotic Disorders defined in this section or psychotic symptomatology about which there is inadequate or contradictory information.	Not specified in DSM-IV-TR[1] or DSM-5.[2]

Sources: [1]APA (2000); [2]APA (2013)

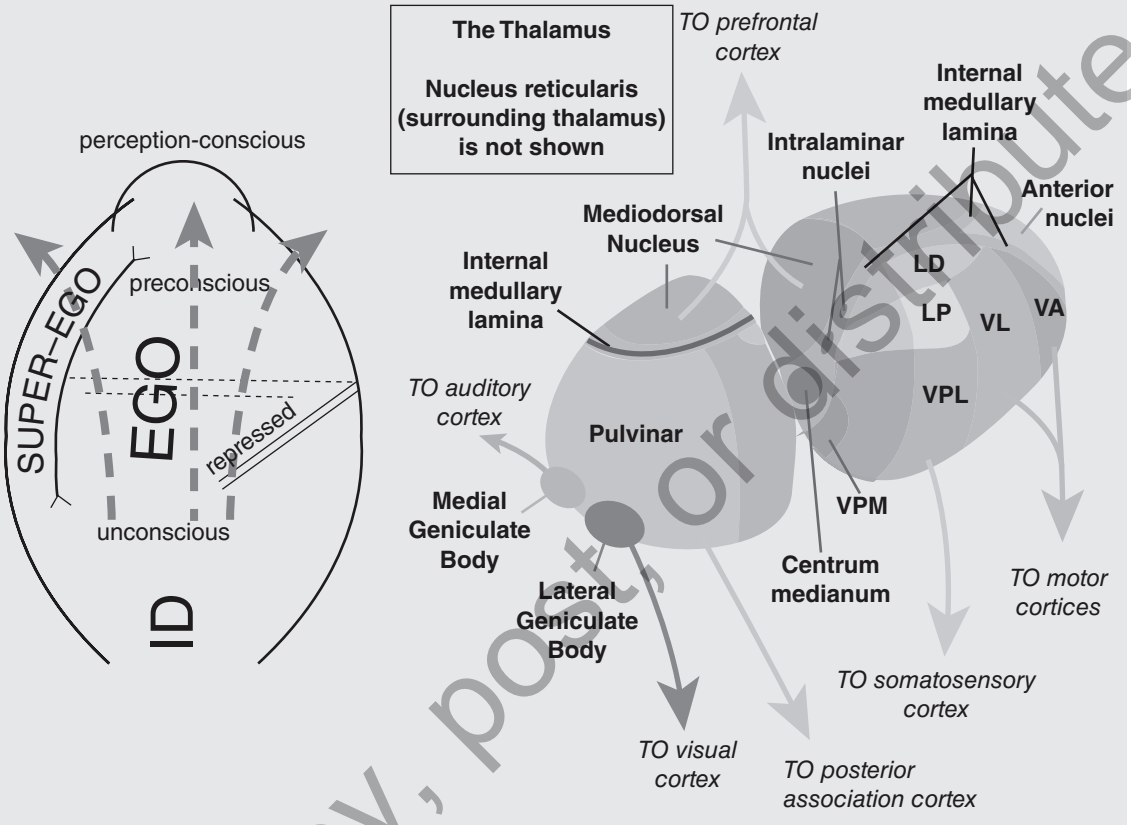
Theoretical Conceptualizations

Several theoretical perspectives have proven useful in the conceptualization of schizophrenia. Psychoanalytic theorists have proposed that the psychotic individual is characterized by ego defenses that are too weak, leaving him or her helplessly overwhelmed by primitive material from the id. Freud explained symptoms of schizophrenia and psychosis as a regression to an *autoerotic stage of development* accompanied by emotional withdrawal from external figures and internal objects (the internal picture of those people and things that satisfy the instinctual drives)—as a sort of primitive, detached, self-contained state of narcissistic self-absorption (Mitchell & Black, 1995). Later, Freud saw psychosis as a conflict between the ego and the external world (in contrast to neurosis, which was a conflict between the ego and id). Others have noted a complete lack of a barrier between internal and external experiences in schizophrenia patients (Gabbard, 2005). Neurobiological theorists explain schizophrenia and other psychotic disorders as a dysfunction in neurotransmitter systems or as a series of structural or functional deficits in brain anatomical components, for example, in the frontal lobe and its subregions or in the thalamus or cingulate gyrus (Haznedar et al., 2004; Mitelman et al., 2005; Zhou et al., 2005). Proposed etiological mechanisms include genetic transmission (i.e., family history of schizophrenia), prenatal complications, and even maternal exposure to influenza (Gabbard, 2005).

It is here that an interesting conceptual overlap between psychoanalytic and neurobiological theories can be observed. The former proposes a profound confusion between the inner and outer worlds of the individual with schizophrenia, the result of ego defenses that are too weak and leave him or her helplessly overwhelmed by primitive material from the id. A conceptual analogue in neurobiological theory lies in the functioning of the thalamus, which—as stated in Chapter 2—acts as a kind of relay station that receives information from all of the senses (except the sense of smell) and sends it on to the associated regions of the cerebral cortex for processing (Mitelman et al., 2005). The thalamus is also thought to process sensory information, receiving strong "back projections" from the cerebral cortex, and to play a role in recollective and familiarity memory given its functional connections to the hippocampus (Carlesimo et al., 2011). Thus, it would not be difficult to imagine the sensory and perceptual confusion that would occur if the critical connectivity between the thalamus and other brain regions was structurally compromised, as brain imaging evidence suggests it is in schizophrenia (Mitelman et al., 2005). Processed sensory information, memory material, and external data from the senses might all become hopelessly jumbled—a profound confusion between inner and outer worlds (see Box 5.3).

Cognitive and behavioral theorists have proposed that psychotic experiences are essentially normal phenomena that occur on a continuum in the general population. Most individuals are able to reject the idea that these experiences are externally caused and personally significant, the idea that forms the basis for delusions and hallucinations (e.g., "I am being poisoned"; "God is giving me special powers"; "My voices are coming from persecutors who want to kill me"; or "A transmitter is beaming my thoughts worldwide"). They do not develop full-blown psychotic symptoms because they make protective self-correcting decisions (e.g., "I thought I was hearing the voice of God, but more likely my mind is playing tricks"; or "Things look different, somehow, I must be stressed with all that's going on"). In the individual with schizophrenia, however, this is not the case. Instead, sensory input becomes distorted, disorganized, and confused with previous material from memory, and these individuals begin to perceive their own intentions as alien and externally controlled. Experiences and distressing interpretations are sustained and made worse by cognitive and behavioral responses (e.g., selective attention, thought suppression, and safety behaviors), as well as by emotional and physiological responses and environmental factors (Garety et al., 2001; Morrison, 2008). Interestingly, it has also been proposed that schizophrenia can be "learned" through a system of rewards. For example, the thinking of aberrant, irrelevant thoughts may be rewarded by anxiety reduction by removing disturbing ideation from consciousness (Mednick, 1958). Also, the "mentally ill" schizophrenic role could be reinforced by the short-term advantages of the deviant social role, such as avoiding military service or being disturbing to others and thereby avoiding unpleasant and increasing pleasant stimuli; this role could be selectively reinforced in patients by the culture of large psychiatric hospitals (Rosenbaum, 1969).

BOX 5.3 SCHIZOPHRENIA: OVERLAPPING PSYCHOANALYTIC AND NEUROBIOLOGICAL THEORIES



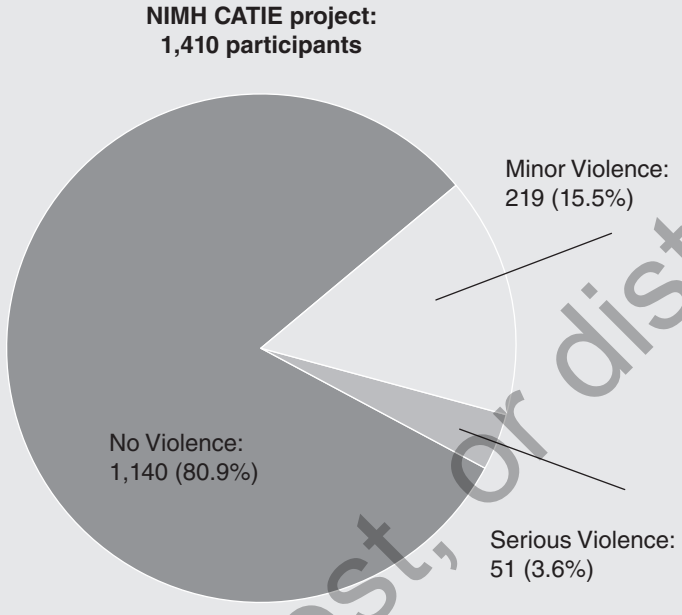
Schizophrenia: Confusion Between Internal and External Worlds?

Psychoanalytic and neurobiological theories of schizophrenia overlap. According to psychoanalytic theory (left), weak ego defenses lead to primitive material from the id overwhelming the schizophrenic individual's mind. According to neurobiological theory (right), abnormal connections between the thalamus and cerebral cortex may cause misinterpretation of sensory information. In both scenarios, the barrier between inner and outer worlds effectively disintegrates, thus explaining some of the hallmark characteristics of schizophrenia.

The Relationship Between Schizophrenia and Crime

Historically, the relationship between schizophrenia and crime has received attention from numerous authors—perhaps due to the aberrant nature of both phenomena. Cases of sexually deviant behavior in schizophrenic individuals were reported by Krafft-Ebing (1886/1965), and early psychoanalytic writers proposed an intimate relationship between crime and psychosis (Karpman, 1923). It must be remembered (as we stated in Chapter 1)

BOX 5.4 RESULTS OF NATIONAL INSTITUTE OF MENTAL HEALTH (NIMH) CLINICAL ANTIPSYCHOTIC TRIALS OF INTERVENTION EFFECTIVENESS (CATIE) STUDY



Source: Swanson et al. (2006).

that most individuals with schizophrenia are not violent. To put this point into perspective, a national multisite study investigating the cost-effectiveness of antipsychotic medications found low 6-month prevalence rates of self-reported violence (and even lower rates of serious violence) in a large sample of schizophrenia patients (n = 1,410). In short, *over 80%* of this sizeable group of individuals with schizophrenia was characterized by no violence whatsoever (Swanson et al., 2006; see Box 5.4).

That being said, multiple studies have consistently demonstrated that higher rates of psychosis and schizophrenia are found in criminal or delinquent populations and that schizophrenia patients are much more criminal and violent than the general population (Nijman, Cima, & Merckelbach, 2003; Raine, 2006; Taylor et al., 1998; Tengström, Hodgins, Grann, Langström, & Kullgren, 2004; Walsh, Buchanan, & Fahy, 2002). International studies have demonstrated that people with schizophrenia are at elevated risk for committing homicide (Schwartz, Petersen, & Skaggs, 2001) and that the prevalence rates of homicides committed by persons with schizophrenia are comparatively high (8–20% for men and 6–44% for women; Taylor & Gunn, 1999). Even the aforementioned CATIE results for serious violence are about 19 times the rates of violent crime in the general population reported to the FBI in 2008 (see below).

Tables 5.5 and 5.6 list a number of investigations, in chronological order, that have examined both prevalence rates of crime in those diagnosed with schizophrenia (and other psychotic disorders) and rates of schizophrenia in criminal populations.

Interestingly, Rabkin (1979) noted that studies before 1965 demonstrated reduced arrest rates among discharged psychiatric inpatients compared to the general population, but those findings have been the opposite in studies conducted since 1965 (with arrest ratios ranging from a low of 1.16 patients per community resident to

(Text continues on page 188)

Table 5.5 Prevalence of Schizophrenia and Other Psychotic Disorders in Criminal Populations

Source	N	Gender	Age	Study Type[a1]	Sample Description	Disorder	Diagnostic System	Prevalence/ Incidence
Cohen & Freeman (1945)	(1) 320 (2) 87	M, F	Adult?	AR	Police records of arrested patients from 1,676 patients paroled or discharged from Norwich State Hospital (Connecticut), 1940–1944 (1) Arrested before hospitalization (2) Arrested after hospitalization	Schizophrenia	?	(1) 28.1% (n = 90) (2) 23.0% (n = 20)
Stierlin (1956, in Schipkowensky, 1968)	773	?	?	PI	Statistical data from aggressive inmates in 73 psychiatric clinics and mental hospitals in Europe	Schizophrenia	?	59.6% (n = 462)
Lanzkron (1964, in Schipkowensky, 1968)	150	?	?	HO	Murderers in Matteawan State Hospital, New York	Schizophrenia	?	42.6% (n = 64)
Kalashnik (1966, in Schipkowensky, 1968)	271	?	?	HO	Murderers in the Moscow Forensic Psychiatric Institute	Schizophrenia	?	49.1% (n = 133)
Rachev (1966, in Schipkowensky, 1968)	100	?	?	HO	Murderers in custodial care at Lovech Mental Hospital Forensic Department, Bulgaria, 1933–1965	Schizophrenia	?	57.0% (n = 57; + Paranoia [13] = 70.0%)
West (1966)	148	88 M, 60 F	< 20 – 40+	HO	Homicide followed by suicide: England and Wales, 1954–1961	Schizophrenia	?	2.7% (n = 4)
						Morbid jealousy		1.4% (n = 2)
						Total psychotic disorders		4.1% (n = 6)
Pfeiffer, Eisenstein, & Dabbs (1967)	85	2/3 M, 1/3 F	17–63	JD	Federal prisoners referred for mental competency evaluations, at USPHS Hospital in Lexington, Kentucky, 1960–1965	Schizophrenia	?	37.6% (n =32)

(Continued)

(Continued)

Source	N	Gender	Age	Study Type[a1]	Sample Description	Disorder	Diagnostic System	Prevalence/ Incidence
Schipkowensky (1968)	194	?	?	HO	Murderers at the psychiatric clinic of the University of Sofia, Bulgaria, 1926–1965	Schizophrenia	?	55.0% (n = 108)
Kahn (1971)	43	41 M, 2 F	11–74	HO	Interviews and psychiatric examinations of individuals who made pleas of insanity to charges of first or second degree murder	Psychotic	?	14.0% (n =6)
Szymusik (1972)	50	M	16–68	HO	Murderers, Poland, 1955–1969	Schizophrenia	?	6.0% (n =3)
						Hallucinatory-delusional syndromes		10.0% (n =5)
						Organic psychosis		4.0% (n =2)
						Total psychotic disorders		20.0% (n =10)
Frazier (1974)	31	?	?	HO	Murderers in prisons in Texas, Minnesota, New Jersey, and New York and in mental hospitals in Texas, Minnesota, Saskatchewan, Massachusetts, and New York	Episodic psychosis	?	48.4% (n = 15)
Okasha et al. (1975)	(1) 60 (2) 20	(1) 50 M, 10 F (2) ?M, ?F	25–35[a]	HO	"Socio-psychiatric study" of (1) Murderers in Abou-Zabel and Kanater prisons, Egypt (2) Murderers in Egyptian State Mental Hospital	Schizophrenia	?	(1) 13.3% (n = 8) (2) 50.0% (n = 15)
Medlicott (1976)	38	29 M, 9 F	14–62	HO	Individuals charged with murder (n = 28) and attempted murder (n = 10) hospitalized or referred for psychiatric opinion, New Zealand	Schizophrenia	?	28.9% (n = 11)
						Mixed paranoid states		18.4% (n = 7)
						Total psychotic disorders		47.4% (n = 18)
Parker (1979)	100	79 M, 21 F	Adult?	HO	Murderers (n = 70) and attempted murderers (n = 30) examined in Brisbane, Queensland, 1956–1976	Schizophrenia	?	11.0% (n = 11)

Source	N	Gender	Age	Study Type[al]	Sample Description	Disorder	Diagnostic System	Prevalence/ Incidence
Pétursson & Gudjónsson (1981)	47	44 M, 3 F	Adult[ai]	HO	File review of cases of intentional and unintentional homicide in Iceland, 1900–1979	Schizophrenia (paranoid)	?	8.5% (n = 4)
						Schizophrenia (other)		6.4% (n = 3)
						Psychogenic psychosis		4.3% (n = 2)
						Organic psychosis		2.1% (n = 1)
						Morbid jealousy		2.1% (n = 1)
						Total psychotic disorders		23.4% (n = 11)
Häfner & Böker (1982)	(1) 533 (2) 3,392	M, F	14–60+	PI	(1) Mentally ill and mentally defective offenders from records searches of German federal and regional criminal bureaus, 1955–1964 (2) Mentally abnormal non-offenders (every fifth admission to regional psychiatric hospital, from register search, 1955–1964)	Schizophrenias	Unspecified multiple (different and discordant) German psychiatric classification systems	(1) 53.3% (n = 284)[c] (2) 23.8% (n = 807)
Langevin et al. (1982)	(1) 109 (2) 38	?	Adult?	PI	File record review of minimum-security forensic ward psychiatric hospital cases, 1969–1979 (Clarke Institute in Toronto, Ontario, Canada) (1) Killers (2) Nonviolent offenders	Schizophrenia	Feighner et al. (1972) psychiatric research diagnostic criteria	(1) 8.0% (2) 15.0%
						Paranoid states		(1) 2.0% (2) 0.0%
Dell & Smith (1983)	253	M	15 and under to 70+[d]	HO	File review of men convicted of manslaughter on the grounds of diminished responsibility, 1966–1977	Schizophrenia	?	20.0% (n = 51)

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Source	N	Gender	Age	Study Type[al]	Sample Description	Disorder	Diagnostic System	Prevalence/ Incidence
Seltzer & Langford (1984)	85	M, F	15–25 (Median = 18)	PI	Interviews of individuals referred by courts or legal counsel to psychiatry department of large regional hospital in Northwest Territories, calendar year 1981	Schizophrenia	DSM-III, MMPI	2.4% (n = 2)
						Paranoid disorder		5.9% (n = 5)
						Total psychotic disorders		8.2% (n = 7)
Taylor & Gunn (1984)	2,743	M	Adult	JD	File review of men remanded to Brixton prison, South London (June, September, December 1979 and March 1980)	Schizophrenia	ICD	6.1% (n = 166)
						Schizoaffective psychosis		0.3% (n = 8)
						Other psychosis		1.1% (n = 30)
						Total psychotic disorders		7.4% (n = 204)
Reich & Wells (1985)	390	325 M, 65 F	M = 30.9	JD	Record review of defendants evaluated for competency to stand trial by the Yale-New Haven Psychiatric Court Clinic, 1980–1982	Schizophrenia	DSM-III	28.8% (n = 112)[bb]
						Other psychotic disorders		13.3% (n = 52)
						Total psychotic disorders		42.1% (n = 164)
Taylor (1986)	183	175 M, 8 F	18–73	JD	Record review of life-sentenced men and women, supervised by the Inner London Probation Service (inside prison and on license in the community)	Schizophrenia	ICD-9	9% (n = 17)
Gottlieb et al. (1987)	251	215 M, 36 F	Median = 33[aj]	HO	Record review of homicide defendants in Copenhagen, 1959–1983	Psychotic disorders, including schizophrenia	ICD-8	16.3% (n = 41) psychotic at the time of the crime (16.3% of males, 16.7% of females)

Source	N	Gender	Age	Study Type[al]	Sample Description	Disorder	Diagnostic System	Prevalence/ Incidence
Wilcox (1985, 1987)	71	62 M, 9 F	Six < 18, five > 50	HO	Record review of all individuals convicted for homicides committed in Contra Costa County, California, 1978–1980	Acute and chronic paranoid schizophrenia	?	9.9% ($n = 7$)
Phillips et al. (1988)	1,816	1,569 M, 247 F	11–78 ($M = 28$)	PI, CS	Record review of psychiatric referrals from the criminal justice system of Alaska, 1977–1981	Schizophrenia	DSM-II, DSM-III	16.5% ($n = 300$)
Bland et al. (1990)	180	M	18–44	JD	Diagnostic interviews with inmates from two correctional centers, Alberta, Canada	Schizophrenia	DSM-III (DIS)	2.2% ($n = 4$) [ao]
Côté & Hodgins (1990)	495	M	19–67 ($M = 31.1$)	JD	Diagnostic interviews with Quebec adult penitentiary inmates	Schizophrenic disorder	DSM-III (DIS)	6.5% ($n = 32$)
						Schizophreniform disorder		1.2% ($n = 6$)
						Total psychotic disorders		7.7% ($n = 38$)
Rath & Dash (1990)	15	10 M, 3 F[fp]	20–29[p]	JD	Interviews, file reviews, and clinical observation of prisoners (murderers) referred for psychiatric evaluation, India	Schizophrenia	ICD-9	33.3% ($n = 5$)
						Paranoid illness		13.3% ($n = 2$)
						Drug-related psychosis		23.1% ($n = 3$)
						Total psychotic disorders		66.7% ($n = 10$)
Yarvis (1990)	100	88 M, 12 F	33% < 25, 85% < 40	HO	Diagnostic interviews and record reviews of a series of murderers referred for psychiatric evaluation in California, 1980–1988	All psychoses	DSM-III	29.0% ($n = 29$)[g]

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Source	N	Gender	Age	Study Type[a1]	Sample Description	Disorder	Diagnostic System	Prevalence/ Incidence
						Schizophrenia		21.0% (n = 21)[g]
						Affective psychoses		8.0% (n = 8)[g]
Côté & Hodgins (1992)	(1) 87 (2) 373	M	(1) M = 35.6, SD = 8.9 (2) M = 30.3, SD = 8.3	JD	Diagnostic interviews and file reviews of penitentiary inmates, Quebec: (1) Homicide offenders (2) Nonhomicide offenders	Schizophrenia	DSM-III (DIS)	(1) 12.6% (n = 11) (2) 5.4% (n = 20)
						Schizophreniform disorder		(1) 0.0% (n = 0) (2) 1.1% (n = 4)
						Total psychotic disorders		(1) 12.6% (n = 11) (2) 6.4% (n = 24)
Abram & Teplin (1991)[r]	728	M	16–68 (M = 26.3)	JD	Diagnostic interviews with jail detainees at Cook County Department of Corrections, Chicago, November 1983–November 1984	Schizophrenia	DSM-III-R (DIS)	Lifetime: 3.8% (n = 28) Current: 3.0% (n = 22)[s]
DeJong, Virkkunen, & Linnoila (1992)	(1) 248 (2) 100	M	16–68 (M = 31.2, SD = 11.9)	JD	Criminals ordered for forensic psychiatric examination at initial incarceration in Finland (1) Murders and attempted murderers (2) Arsonists	Schizophrenia	DSM-III	(1) 1.0% (2) 2.0%
Eronen et al. (1996)	1,423	1,302 M, 121 F	Adult	HO	File review of forensic psychiatric examinations of homicide and attempted homicide cases, Finland, 1980–1991	Schizophrenia	DSM-III, ICD-8, DSM-III-R	6.5% (6.6% of men, 5.8% of women)[ah]
Marshall et al. (1998)	103	M	18–56	JD	Diagnostic interviews and questionnaires administered to recently sentenced inmates (August–December 1997) at Yatala Labour Prison, South Australia	Schizophrenia	(PDI-R)	2.9%

Source	N	Gender	Age	Study Type[a1]	Sample Description	Disorder	Diagnostic System	Prevalence/ Incidence
Wallace et al. (1998)	(1) 3,838 (2) 1,998 (3) 152 (4) 1,137 (5) 876	M	Adult	AR	Case linkage study of higher court records and psychiatric case register databases, Victoria, Australia, 1993–1995 (men) (1) Total convictions (2) Violent offenses (3) Homicide offenses (4) Property offenses (5) Sexual offending	Schizophrenia	ICD-9	(1) 2.4% (n = 91) (2) 3.3% (n = 66) (3) 7.2% (n = 11) (4) 2.1% (n = 24) (5) 2.1% (n = 18)
	(1) 315 (2) 152 (3) 116	F	Adult		(women) (1) Total convictions (2) Violent offenses (3) Property offenses	Schizophrenia	ICD-9	(1) 2.5% (n = 8) (2) 2.6% (n = 4) (3) 2.6% (n = 3)
Gibson et al. (1999)	213	M	M = 32	JD	Structured interviews with randomly selected state prison and regional jail inmates from a rural New England state	Schizophrenia	DSM-III-R (DIS-III-R)	Lifetime: 6.6% (n = 14) Current: 5.2% (n = 11)
						Schizoaffective		Lifetime: 5.6% (n = 12) Current: NA
Baillargeon et al. (2000)	170,215	155,949 M, 14,268 F	32% 18–29, 60% 30–49, 8% 50+	JD	File review of Texas Department of Criminal Justice inmates incarcerated August 1997–July 1998	Schizophrenic disorders	ICD-10	2.0%
Baxter et al. (2001)	257	240 M, 17 F	M = 30.6, M = 31.4[bi]	HO	File review of consecutive series of patients, with index offenses of parricide or stranger killing, admitted to 1 of 3 high-secure hospitals in England and Wales, 1972–1996	Schizophrenia	?	56.8% (n = 146)

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Source	N	Gender	Age	Study Type[a1]	Sample Description	Disorder	Diagnostic System	Prevalence/ Incidence
Siponmaa et al. (2001)	126	123 M, 3 F	15–22 (Median = 20)	JD	Interviews with young offenders consecutively referred for presentencing psychiatric investigation, Stockholm, Sweden, 1990–1995	Psychosis	ICD-9	13% (n = 16)
Teplin et al. (2002)	1,829	1,172 M, 657 F	10–18	JD	Diagnostic interviews of youths randomly sampled from intake into the Cook County Juvenile Temporary Detention Center, November 1995–June 1998	Psychotic disorders	DSM-III-R	M: 1.0% F: 1.0%
Langevin (2003)	(1) 33 (2) 80 (3) 23 (4) 611	M	(1) M = 32.06 (2) M = 27.58 (3) M = 27.57 (4) M = 31.42	PI	Interviews with convicted sex offenders (n = 747) belonging to one of four groups: (1) sex killers, (2) nonhomicidal sexually aggressives, (3) nonhomicidal sadists, and (4) general sex offenders. Participants were chosen from a database of more than 2,800 minimum-security forensic ward psychiatric hospital cases (Clarke Institute in Toronto, Ontario, Canada) seen since 1973.	Psychosis	?	(1) 27.3% (2) 18.8% (3) 30.4% (4) 12.9%
Trestman et al. (2007)	508	307 M, 201 F	18–64 (M = 31.6, SD = 9.3)	JD	Diagnostic interviews with randomly selected inmates newly admitted to one of five jail facilities, Connecticut	Psychotic disorder	DSM-IV (SCID)	1.6%
Grella et al. (2008)	280	65% M	M = 34.8	JD	Diagnostic interviews with offenders consecutively admitted to prison-based substance-abuse treatment programs at one of four research centers (Colorado, Rhode Island, Texas, California)	Schizophrenia	DSM-IV (SCID)	1.4% (n = 4)
						Psychotic disorder NOS		1.4% (n = 4)
						Any psychotic disorder		2.9% (n = 8)
Hanlon et al. (2010)	77	69 M, 8 F	M = 31.92	HO	Indigent murder defendants and death row inmates clinically interviewed while in custody in jails and maximum-security prisons (Illinois and Missouri)	Psychosis	?	14.3% (n = 11)

Source	N	Gender	Age	Study Type[a1]	Sample Description	Disorder	Diagnostic System	Prevalence/ Incidence
Pham & Saloppé (2010)	84	M	Adult	PI	Psychological evaluations of forensic patients at high-security psychiatric hospital in Tomai, Belgium (Etablissement de Défense Sociale)	Schizophrenia and other psychotic disorder	DSM-III (DISSI)	18% (n = 15)
Bennett et al. (2011)	435	380 M, 55 F	16-84 (M = 34.49, SD = 12.57)	HO	Database case-linkage study of offenders convicted of murder or manslaughter, 1997–2005, Victoria, Australia	Schizophrenia disorders	ICD-10	8.7% (n = 38)[bu]
Catanesi et al. (2011)	103	85.44% M	53.41% 25–54, 22.73% 45–65, 13.64% 18–24, 5.68% <18	HO	Psychiatric and psychological evaluations of perpetrators of homicide and attempted homicide, Italy	Schizophrenia	DSM-IV-TR	23.3%
						Delusional disorder		11.7%

Notes: [a1]AR = arrest rates of patients discharged from psychiatric facilities, JD = jailed detainees and incarcerated prisoners, HO = homicide offenders, BC = birth cohort study, PI = psychiatric inpatient sample, CS = community sample (i.e., epidemiological catchment area survey studies and outpatient psychiatric patients).

[a]Highest percentage of subjects in this age range.

[c]Rate per 1,000 of Mannheim's inhabitants, 1965: 0.51.

[d]Group mean ages: 1966–1969 (M = 36.1, SD = 15.8), 1970–1973 (M = 36.2, SD = 14.9), 1974–1977 (M = 37.1, SD = 16.9).

[g]Community sample comparative data (6-month prevalence rates from NIMH Community Survey data): 1.1–2.2% for all psychoses, 0.4–1.6% for schizophrenia, 0.4–0.9 for affective psychoses.

[p]Psychotic group (n = 13)—including schizophrenia, drug-related psychosis, epilepsy, affective psychosis (depression), mental subnormality, and paranoid illness.

[r]Other reports (Teplin, 1990b; Teplin, 1994) have been published on this sample. Teplin (1994) utilized the diagnostic category of schizophrenia/schizophreniform disorder.

[s]Non-jail lifetime prevalence rates from NIMH Epidemiologic Catchment Area (n = 3,654) = 1.7%, and current prevalence rates = 0.9% (Teplin, 1990b).

[ah]Prevalence of schizophrenia and schizophreniform disorder among general population—Males: 0.7%, females: 0.7%.

[ai]Group means and standard deviations: Psychotic illness (35.7, 8.8), personality disorder and alcohol use disorders (24.4, 8.2), no psychiatric abnormality (34.0, 12.4).

[aj]For defendants who were psychotic at the time of the crime. For those who were not, median age = 29.

[ao]Lifetime prevalence rate. For community comparison sample, standardized prevalence ratio (SPR) = 4.1 (an SPR greater than 1 indicates the prevalence rate in the prison sample was greater than that in the general population).

[bb]Rates of schizophrenia in comparison outpatient and inpatient samples from same catchment area: 8.6% (n = 800) and 19.9% (n = 185).

[bi]The former value represents parricial offenders, the latter stranger killers.

[bu]General community comparison group (n = 4,830): 0.7% (n = 35).

Table 5.6 Prevalence of Crime in Schizophrenia and Psychotic Disordered Populations

Source	N	Gender	Age	Study Type[a1]	Sample Description	Disorder	Crime Definition	Prevalence/Incidence
Giovannoni & Gurel (1967)	1,142	M	Adult	AR	Functional psychotic patients released from 12 Veterans Administration hospitals	Schizophrenia (95%)	(1) Homicide (2) Negligent manslaughter (3) Aggravated assault (4) Forcible rape (5) Robbery (6) Burglary (7) Grand larceny (8) Petty larceny (9) Auto theft	Est. annual rate/100,000:[n] (1) 98.2 (2) 0.0 (3) 229.1 (4) 0.0 (5) 98.2 (6) 65.4 (7) 130.9 (8) 32.7 (9) 163.6
Guze et al. (1974)	200+	?M, ?F	Adult	CS	Community psychiatric clinic patients, diagnosed using Feighner diagnostic criteria (Feighner et al., 1972)	Schizophrenia, schizophreniform illness, primary affective disorder	Felony conviction	0.0% ($n = 0$)
Tardiff & Koenigsberg (1985)	(1) 2,106 (2) 810	(1) 842 M, 1,256 F (2) 354 M, 453 F	(1) $\leq$ 20–65+[aa] (2) $\leq$ 20–65+[aa]	CS	Psychiatric outpatients evaluated during 1.5 years at two New York hospitals, diagnosed using DSM II and DSM II criteria (1) Payne Whitney Clinic (2) Westchester Division of NY Hospital	Paranoid schizophrenia and mania (1) $n = 310$ (2) $n = 121$ Other schizophrenia and atypical psychosis (1) $n = 136$ (2) $n = 69$	Presence of assaultive behavior toward others in hospital records	Paranoid schizophrenia and mania (1) 2.3% ($n = 7$) (2) 1.7% ($n = 2$) Other schizophrenia and atypical psychosis (1) 1.5% ($n = 2$) (2) 0.0% ($n = 0$)

Source	N	Gender	Age	Study Type[a1]	Sample Description	Disorder	Crime Definition	Prevalence/Incidence
Chuang et al. (1987)	(1) 42 (2) 42	?M, ?F	*M* = 34.8, *SD* = 10.9	CS	Randomly selected hospital patients, Alberta and British Columbia, Canada, diagnosed using DSM-III criteria (1) Psychiatric outpatients (2) Nonpsychiatric inpatients	Schizophrenia	Self-reported criminal behavior	(1) Property (28.6%, *n* = 12), persons (7.1%, *n* = 3), victimless (35.7%, *n* = 15), traffic (33.3%, *n* = 4) (2) Property (14.3%, *n* = 6), persons (9.5%, *n* = 4), victimless (31.0%, *n* = 13), traffic (50.0%, *n* = 21)
Shore et al. (1990)	(1) 192 (2) 192	M	20–59	AR	(1) White House case subjects (mainly DSM-II chart diagnoses of paranoid schizophrenia) with and without prior arrests, Washington DC, 1973–1983 (2) Matched control subjects with prior arrests	(1) Schizophrenia (2) None	Arrests for violence with 10-year follow-up	(1) No prior arrest: 12.48[e] (*n* = 13), prior arrest: 38.40 (*n* = 39) (2) 24.61 (*n* = 50)
Swanson et al. (1990)	10,059	4,717 M, 5,306 F[f]	Adult	CS	NIMH Epidemiologic Catchment Area respondent data (community adults from five U.S. sites), diagnosed using DSM-III criteria (DIS)	Schizophrenia or schizophreniform disorder	Self-reported violence	12.69% violent (*n* = 114[f])
Lindqvist & Allebeck (1990)	644	330 M, 314 F	12–51	AR	Patients identified in a county inpatient register in Stockholm, Sweden, 1920–1959, diagnosed using ICD-8 criteria	Schizophrenia	Official police register with 15-year follow-up	Any crime, 1976-1986: 14.3% (*n* = 92; 22.7% or *n* = 75 of males, 5.4% or *n* = 17 of females), violent crimes, 1972-1986: 6.7% (*n* = 43)
Link et al. (1992)	(1) 521 (2) 232	?M, ?F	(1) 19–59 (2) Adult?	PI, CS	Interviews with (1) Community residents (2) Psychiatric patients (from an outpatient clinic and an inpatient community service), New York City, diagnosed using DSM-III criteria[w]	(2) 33.6% (*n* = 78) major depression, 29.9% (*n* = 69) schizophrenia /other psychotic disorders, 36.6% (*n* = 85) other diagnoses[x]	Official arrest data, self-reports of violent or illegal behavior, 1980–1983[y]	Patient groups > never-treated community residents[z]

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Source	N	Gender	Age	Study Type[a1]	Sample Description	Disorder	Crime Definition	Prevalence/Incidence
Coid et al. (1993)	280	146 M, 134 F	20–80 (M = 45.9)	PI	Patients of twin birth seen at Bethlem and Maudsley hospitals, 1948–1988, diagnosed using DSM-III and RDC (Spitzer et al., 1978) criteria	Schizophrenia (n = 70)[ba]	Official criminal records	48.6% (n = 34)
Asnis et al. (1994)	517	204 M, 313 F	13–87 (M = 38.7)	CS	Psychiatric outpatients, Montefiore Medical Center, Bronx, New York, diagnosed using DSM-III criteria	Schizophrenia (n = 46)	Self-reported homicidal ideation and attempts	Ideation: 20% (n = 9) Attempts: 11% (n = 5)
						Psychotic disorder NOS (n = 29)		Ideation: 17% (n = 5) Attempts: 0% (n = 0)
Modestin & Ammann (1996)	(1) 282 (2) 282	M	18–78	PI	(1) Psychiatric patients hospitalized on at least one occasion at the Psychiatric Hospital of Berne, Switzerland, 1985–1987, diagnosed using Research Diagnostic Criteria (RDC) and DSM-III-R criteria (2) Catchment area general population controls	(1) Schizophrenia, schizophreniform disorder	National criminal register conviction records	Total criminal records: (1) 34% (n = 97) (2) 36% (n = 102)[ab]
Tiihonen et al. (1997)	(1) 86 (2) 5,285	M[ac]	(longitudinal)	BC	From a 26-year prospective study of a large unselected 1966 northern Finland birth cohort (N = 12,058) of individuals diagnosed using DSM-III-R with (1) Major mental illness (2) No mental disorder	Schizophrenia (n = 51)	Criminal register records	At least one registered crime: 19.6% (n = 10)* Violent crime: 13.7% (n = 7)* Property crime: 3.9% (n = 2)[ad]

Source	N	Gender	Age	Study Type[a1]	Sample Description	Disorder	Crime Definition	Prevalence/Incidence
						Schizophreniform and schizoaffective disorders ($n = 7$)		At least one registered crime: 28.6% ($n = 2$)* Violent crime: 0.0% ($n = 0$) Property crime: 0.0% ($n = 0$)
						Paranoid and other psychoses ($n = 9$)		At least one registered crime: 33.3% ($n = 3$)* Violent crime: 11.1% ($n = 1$) Property crime: 11.1% ($n = 1$)
Arango et al. (1999)	63	46 M, 17 F	$M = 35.2$, $SD = 10.8$	PI	Psychiatric inpatients admitted consecutively to a Madrid university general hospital, diagnosed using DSM-IV criteria	Schizophrenia and schizoaffective disorder	Checklist for aggression (OAS; verbal aggression, physical aggression against self, objects, others) administered by nursing staff	Violent: 25.4% ($n = 16$)
Arsenault et al. (2000)	(1) 389 (2) 572	51.6% M, 48.4% F	Adult	BC	From a study of a total-city New Zealand birth cohort ($N = 1,037$) of individuals diagnosed using DSM-III-R criteria with (1) Psychiatric disorder (2) No psychiatric disorder	Schizophrenia-spectrum disorder ($n = 39$)	Violence: Self-reported and criminal convictions	(1) Convictions: 15.4% ($n = 6$), self-report: 33.3% ($n = 13$) (2) Convictions: 1.2% ($n = 7$), self-report: 3.1% ($n = 18$)

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Source	N	Gender	Age	Study Type[a1]	Sample Description	Disorder	Crime Definition	Prevalence/Incidence
Brennan et al. (2000)	(1) 7,692 (2) 314,715	51.7% M, 48.3% F	Adult	BC	From a study of a large Danish birth cohort (n = 358,180) of individuals diagnosed using ICD-8 criteria with (1) Psychiatric diagnoses (2) No diagnoses (reference group)	Schizophrenia (n = 1143)	Arrests for violent crime	(1) Men: 11.3%, women: 2.8% (2) Men: 2.7%, women: 0.1%
						Organic psychosis (n = 895)		(1) Men: 19.4%, women: 2.0%
						Affective psychosis (n = 729)		(1) Men: 5.2%, women: 0.5%
						Other psychosis (n = 1,042)		(1) Men: 10.7%, women: 1.2%
Mullen et al. (2000)	(1) 301 (2) 331	M[ae]	(1) M = 34.2, SD = 15.7 (2) M = 33.0, SD = 15.1	PI	Cases from the Victorian Psychiatric Case Register (Australia) with ICD-9 diagnoses of schizophrenia (1) First admitted in 1975 (2) First admitted in 1985 Along with matched community controls for each schizophrenia group	Schizophrenia	Criminal conviction records from police databases	Lifetime convictions: (1) Patients: 21.6% (n = 65), controls: 6.5% (n = 18)* (2) Patients: 26.3% (n = 87), controls: 8.6% (n = 19)* Convictions in 10 years after admission: (1) Patients: 13.3% (n = 40), controls: 2.9% (n = 8)* (2) Patients: 14.2% (n = 47), controls: 2.3% (n = 5)[af]*

Source	N	Gender	Age	Study Type[a1]	Sample Description	Disorder	Crime Definition	Prevalence/Incidence
Erb et al. (2001)	(1) 284 (2) 29	(1) 232 M, 52 F (2) 25 M, 4 F	(1) < 21–60+ (2) < 21–60+	HO	File review of all persons in Germany (FRG and Hessen) with schizophrenia who had committed or attempted homicide, diagnosed using DSM-III-R criteria[ag] (1) 1955–1964 (2) 1992–1996	Schizophrenia	Official criminal records	Criminal histories: (1) Violent offense: 33.5% (n = 95), murder 3.9% (n = 11), threat 41.9% (n = 119), nonviolent offense 7.4% (n = 21) (2) Violent offense: 62.1% (n = 18), murder 3.4% (n = 1), threat 13.8% (n = 4), nonviolent offense 24.1% (n = 7)
Walsh et al. (2004)	271	65% M	18–65	AR	Schizophrenia patients recruited as part of the multisite UK700 case management study, diagnosed with Research Diagnostic Criteria	Schizophrenia	Self and case manager reports and official records of assault	25.5% (n = 69) committed assault within 2-year follow-up
Corrigan & Watson (2005)	5,865	?M, ?F	15–54	CS	Subset of respondents from the U.S. National Comorbidity Survey, diagnosed using DSM-III-R criteria (structured diagnostic interview), 1990–1992	Psychosis (nonaffective disorder)	Self-reported violence	Mental illness lifetime: 11.5% (5/42); 12 months: 3.2% (1/18)
Swanson et al. (2006)	1,410	74.3% M	Adult (M = 40.5)	PI, CS	Schizophrenia patients enrolled from 56 U.S. sites in antipsychotic medication clinical trials (NIMH CATIE project), diagnosed using DSM-IV criteria	Schizophrenia	6-month prevalence of self and family reports of (1) Minor violence (2) Serious violence	(1) 15.5% (n = 219) (2) 3.6% (n = 51)

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Source	N	Gender	Age	Study Type[a1]	Sample Description	Disorder	Crime Definition	Prevalence/Incidence
Bobes et al. (2009)	895	589 M, 291 F	*M* = 38.7, *SD* = 11.5	CS	Schizophrenia outpatients in Spain receiving stable pharmacological treatment, diagnosed using DSM-IV-TR criteria	Schizophrenia	Self-reports of recent (past week) aggression, using MAOS scale	Verbal aggression: 4.5% (*n* = 40); physical aggression against self: 0.9% (*n* = 8), objects: 2.9% (*n* = 26), others: 1.9% (*n* = 17)

Notes: *Significant difference in comparison to control group.

[a1]AR = arrest rates of patients discharged from psychiatric facilities, JD = jailed detainees and incarcerated prisoners, HO = homicide offenders, BC = birth cohort study, PI = psychiatric inpatient sample, CS = community sample (i.e., epidemiological catchment area survey studies and outpatient psychiatric patients).

[e]Arrest rate per 1,000 population per year. Rate for general population reported as 7.92.

[f]Weighted Ns.

[n]Based on average number of patients in community on any given day 1957–1960, *N* = 764; computed as (100,000) (mean annual of *N* of offenses divided by 764). General population average annual rate/100,000 (FBI Uniform Crime Reports for the United States, 1957–1960): Homicide (4.7), negligent manslaughter (3.1), aggravated assault (86.0), forcible rape (8.6), robbery (61.6), burglary (507.5), grand larceny (319.3), petty larceny (962.1), auto theft (237.9).

[w]Study groups formed consisting of never-treated community residents, first-contact patients, repeat-contact patients, and former patients. A portion of community members were grouped into patient groups, though diagnoses for these individuals were not reported.

[x]Separate analyses were not conducted for individual diagnoses.

[y]Six indicators: (1) self-reported arrests; (2) official arrests; and self-reports of (3) hitting others, (4) fighting, (5) weapon use in a fight, and (6) ever hurting someone badly.

[z]Patient groups collapsed into one group and percentage rates recalculated. Results (never-treated community residents/patients): all lifetime official arrests (6.7/10.6), lifetime violent arrests (1.0/4.9), lifetime self-reported arrests (9.9/18.3), hitting others—past year/month (5.2/12.3), fighting—past 5 years (15.1/25.7), weapon use—past 5 years (2.7/9.7), lifetime hurting someone badly (5.4/14.8).

[aa](1) 12.4% (*n* = 261) 20 years and younger, 30.7% (*n* = 647) 21–30, 23.6% (*n* = 496) 31–40, 24.3% (*n* = 511) 41–64, 7.5% (*n* = 158) 65 years and older, 1.6% (*n* = 33) unknown; (2) 18.0% (*n* = 146) 20 years and younger, 31.4% (*n* = 254) 21–30, 18.0% (*n* = 146) 31–40, 27.0% (*n* = 219) 41–64, 5.0% (*n* = 41) 65 years and older, 0.5% (*n* = 4) unknown.

[ab]Percentages of patients with criminal records/controls with criminal records: Violent crimes (5/1*), crimes against property (19/9*), sexual offenses (3/1), violations of drug laws (10/4*), violations of traffic laws (21/31*), other offenses (15/11).

[ac]5,217 females were also included in this study. Only one offender among the female subjects (33.3%) was diagnosed with a major mental disorder. The prevalence of offenders among women with no mental disorders was 0.8% (*n* = 42).

[ad]Comparison group with no mental disorder: At least one registered crime: 7.3% (*n* = 387), violent crime: 2.2% (*n* = 117), property crime: 2.5% (*n* = 133).

[ae]Women were included in this study but conviction rates were very low: 5 (2.4%) female patients and 3 controls from the 1975 group and similarly low numbers in the 1985 group.

[af]Schizophrenia patients were characterized by significantly increased lifetime and 10-year post-admission convictions for property, violent, and other crimes (but not for sexual crimes) compared to controls in the 1975 group and by significantly increased lifetime and 10-year post-admission convictions for property, violent, drug-related, and other crimes (but not for sexual crimes) compared to controls in the 1985 group.

[ag]1992–1996 cohort only. Proportions of persons overall who committed homicide—1955–1964: 0.11%, 1992–1996: 0.09%.

[ai]Group means and standard deviations: Psychotic illness (35.7, 8.8), personality disorder and alcohol use disorders (24.4, 8.2), no psychiatric abnormality (34.0, 12.4).

A Closer Look: Schizophrenia, Other Psychotic Disorders, and Crime

Prevalence of the Disorder in Crime

Study Type	Number	Prevalence Rates
Arrest rates	2	2.1–28.1% (2.1–28.1%)
Birth cohorts	0	–
Community samples	1*	–
Homicide offenders	21	2.7–57.0% (4.1–57.0%)
Jailed detainees and prisoners	17	1.0–37.6% (1.0–66.7%)
Psychiatric inpatients	7*	2.4–59.6% (8.2–59.6%)
Total Number of Studies	**47**	

Sample Characteristics	
Size	15–170,215
Gender	Male only (12 studies); male and female but unbalanced, predominantly males (28 studies); not reported (7 studies)
Age	Youth, adult
Location	Countries worldwide (e.g., Australia, Belgium, Bulgaria, Canada, England, Egypt, Finland, Germany, Iceland, India, Italy, New Zealand, Poland, Sweden, United States)
Diagnostic Systems	Not specified in earlier studies (i.e., before 1982). DSM (various editions), ICD (various editions), other research diagnostic criteria.

Note: *One study involved both psychiatric inpatients and community individuals.

Prevalence of Crime in the Disorder

Study Type	Number	Prevalence Rates	Crime Definition
Arrest rates	4	0.1–3.8%	Violent crime
Birth cohorts	3	0.1–33.3%	Arrests, convictions, self-reported crime
Community samples	9*	0.0–35.7%	Convictions, self- and informant-reported crimes or violence
Homicide offenders	1	3.4–62.1%	Criminal histories (aside from index offense of homicide)
Jailed detainees and prisoners	0	–	–
Psychiatric inpatients	6*	15.5–48.6%	Official criminal records, convictions, self- and informant-reported violence
Total Number of Studies	**21**		

Sample Characteristics	
Size	29–314,715
Gender	Male only (4 studies); male and female (17 studies)

(Continued)

(Continued)

Age	Predominantly adult, some youth and longitudinal cohort
Location	Several North American and European countries (e.g., Australia, Canada, Denmark, Finland, Germany, Spain, Sweden, Switzerland, United States)
Diagnostic Systems	DSM, ICD, and other research diagnostic criteria

Note: *Two studies involved both psychiatric inpatients and community individuals.

Nondisordered or community resident comparison group or general population baseline rates for either disorder or crime provided: **17 studies (25.0%)**†

Note: †Rates of schizophrenia and other psychotic disorders are increased relative to general population baseline rates when provided. Rates of crime are elevated relative to comparisons in most cases.

(Continued from page 170)

a high of 15 patients per community resident). The mean ratio of patient/public arrest across thirteen samples published since 1965 was reported to be 3.05 to 1 (Link et al., 1992). On balance, it does appear that the rates of crime are comparatively elevated in schizophrenia populations in these studies compared to the general population arrest rates reported in other sources (e.g., the FBI's UCR estimates of 4,437.7 arrests per 100,000 inhabitants [4.4%] and 198.2 arrests for violent crime per 100,000 inhabitants [0.2%] in 2008). Second, there are significant limitations in comparing different types of criminological data, such as official criminal records versus self-reported crime.

Finally, it must be remembered that elevated rates of either schizophrenia in criminal populations or of crime in those diagnosed with schizophrenia do not necessarily indicate that one *causes* the other, which is true, for that matter, for the other disorders discussed in this book (see Chapter 1). For example, in birth cohort studies, one must consider the chronology of offending in relation to onset of illness. Offending that occurs before the onset of schizophrenia, for example, may reflect etiological factors that are completely unrelated to schizophrenia (particularly if the offending occurs in youth or adolescence, which is before the typical age of onset for schizophrenia). Post-illness onset criminality, however, may speak more to the effects of the illness, particularly if no offending occurred before the illness began. Several studies of schizophrenia and crime have addressed this consideration (Brennan & Alden, 2006; Mullen et al., 2000).

Schizophrenia and Violent Crime

A general understanding of the timeline for the development of violence in schizophrenia has not been definitively established. Taylor (1993), for example, reports that, in schizophrenia, first violence may long postdate the illness but usually occurs once the illness is well established, the peak being 5–10 years after illness onset. *Longitudinal studies* suggest that violence largely postdates the onset of schizophrenia in schizophrenic individuals who become violent (Baxter, 1997). However, one Danish register linkage study (Gosden et al., 2005) found conviction of violence in late adolescence to be significantly associated with later schizophrenia diagnosis, suggesting that violent behavior may be conceptualized as a part of the preschizophrenia phase of young criminals.

Other emerging evidence, however, indicates a greatly increased risk of violence during the first episode of psychotic illness. Three recent studies of homicide, in fact, found 38%–61% of offenders at the time of their crimes to be in their first psychotic episode and yet to receive adequate treatment (Large & Nielssen, 2007), and the acute phase of mental illness in general is known to be associated with increased dangerous and lethal behavior (Nielssen, Westmore, Large, & Hayes, 2007). According to Nordström, Kullgren, and Dahlgren (2006), the highest probability of offending is found among young males in their early stage of the illness, and the negative impact of coexisting alcohol abuse on violent behavior has been emphasized in several studies. Hodgins and

colleagues (2011) noted that a significant number of men and women contacting mental health services for a first episode of psychosis already had a prior history of criminal convictions, including those for violent crimes.

Inpatient Violence

Much of what is currently known about violence in schizophrenia is based upon studies of schizophrenia inpatients newly admitted to hospitals and other psychiatric institutions, who often experience emotional turmoil along with intense psychotic symptoms (Krakowski, 2005) and who are often first-time offenders that committed severe physical assaults against intimates (Nijman et al., 2003). A significant number of violent incidents occur on psychiatric units, and schizophrenia has been shown to be overrepresented among the diagnoses of patients involved in violence upon admission in many, but not all, studies. In fact, rates of inpatients with schizophrenia who are involved in aggressive episodes vary widely, from 9%–45% (Arango, Barba, Gonzales-Salvador, & Ordóñez, 1999). Violence among schizophrenia inpatients has been shown to be associated with such factors as level of aggression and anxiety at referral, previous violence during admissions, positive symptoms, schizophrenia subtypes (i.e., both paranoid and nonparanoid), hospital environmental factors, neurological impairment, lack of treatment compliance, medication levels, and lack of insight into psychotic symptoms (Arango et al., 1999). As well, poor self-care and substance misuse at the time of hospital admission and medication noncompliance and substance misuse after release have been associated with homicide in hospital inpatients with schizophrenia and other psychotic disorders (Fazel, Lichtenstein, Grann, Goodwin, & Långström, 2010).

Outpatient Violence

Studies of violence and aggressive behavior in medicated schizophrenia outpatients are somewhat rare. Given the ability of many schizophrenia patients to live functional lives outside of institutions and in the community, while managing symptoms with antipsychotic medication, this area of research can be very important. Bobes and colleagues (2009) found only a small number of medication-compliant schizophrenia outpatients engaged in aggressive and violent behaviors in a one-week period prior to clinic visits (see Table 5.6). These behaviors were significantly more likely among patients with a history of violence, patients with relapses within the previous year, and those with low treatment satisfaction. In a study of 1,662 former university hospital inpatients with schizophrenia, Soyka, Graz, Bottlender, Dirschedl, and Schoech, (2007) found those with a hostility syndrome (e.g., suspiciousness, dysphoria, irritability, aggressiveness, lack of feeling of illness, lack of insight, and uncooperativeness) to be significantly more likely than those with a depressive syndrome to become criminal or violent during a 7- to 12-year period after discharge, suggesting that depressive symptoms may act as a possible protective factor against criminality in schizophrenia.

Birth Cohort Data

Birth cohort data from large national registers have also proven useful in understanding the relationship between schizophrenia and violence. Using criminal and psychiatric registers in Denmark, Brennan and Alden (2006) examined data from a Danish birth cohort of 358,180 individuals born between 1944 and 1947 to calculate odds ratios for schizophrenia and several types of violence: violence against authority, assault, robbery, rape, and murder. (An odds ratio is a statistical measure of *effect size*—a measure of the strength of a phenomenon—which describes the strength of association between two data values.) For males, *odds ratios* were significant for all categories of violence (ranging from 2.08 for assault to 3.30 for murder). For females, robbery was not linked to schizophrenia (and no cases of rape were located), though odds ratios for violence against authority and murder were quite high. In fact, females with schizophrenia were approximately 11 times more likely to commit violence against authority and over 22 times more likely to commit murder compared to females without schizophrenia (due partly to very low base rates of these crimes in nonschizophrenic controls). For males, schizophrenia diagnosis preceded arrest for violence in 50% and arrest for murder in 60% of cases. For females, the corresponding rates were 53% and 89%. This chronology of events suggests that schizophrenia may have played a role in the etiology of violence—particularly homicide—in this particular birth cohort (i.e., to the extent that it preceded the violence in a majority of cases).

Homicide

As illustrated in the Mullin case, nonhospitalized persons with schizophrenia may engage in the spectrum of violent behaviors observed in the general population, from minor assaults to brutal murders; and some speculation exists as to whether the *nature* of homicidal crimes committed by individuals with schizophrenia differs in some qualitative way from that of crimes committed by normal individuals or even by those with other forms of mental illness. In common folklore, the schizophrenic offender is depicted as "a crazed, senseless, and highly-lethal offender who preys on innocent and unsuspecting strangers in public places without apparent motive" (Steury & Choinski, 1995, p. 183). Others have reported murders by schizophrenic persons taking place more often during daytime hours on weekdays as opposed to weekends (Häkkänen & Laajasalo, 2006) or during evening and nighttime hours (Nordström & Kullgren, 2003). Another finding was that, among filicidal women, psychotic women were 11 times more likely to use a weapon to kill their children than nonpsychotic women (Lewis et al., 1998). Additional reports have indicated that psychotic murderers are less often addicted to drugs than nonpsychotic murderers (Gottlieb, Gabrielsen, & Kramp, 1987; Nijman et al., 2003) and have fewer arrest records and later onset of criminality than nonlethal psychotics (Nijman et al., 2003). Also, schizophrenic murderers may be more likely to injure the victim's face in comparison to nonschizophrenic murderers (Häkkänen & Laajasalo, 2006). Murder weapon choice has also been examined. For example, in a sample of 103 homicide perpetrators, Catanesi and colleagues (2011) found an association between delusional disorder and the use of sharp weapons, multiple (i.e., 4–10) strikes, and wounds to the thorax (depressive disorders were more associated with asphyxia, and organic disorders with blunt instruments). It may be that the characteristics of schizophrenia—unusual beliefs or disorganized thinking or behaviors—could be reflected in the motivations, behaviors, or emotional experiences of schizophrenic persons who commit crime.

In an attempt to integrate the literature in this area qualitatively, we identified 16 studies reporting on multiple variables related to the motivational, behavioral, and emotional aspects of homicide and criminal violence committed by individuals with schizophrenia and other psychotic illnesses; studies on hospital inpatient assaults, a separate but related literature, were excluded (see Table 5.7). Though some problems exist in interpreting the results from all 16 studies (from 10 different countries) in aggregate, an interesting picture related to the nature of schizophrenic and psychotic violent crime emerged.

Motivationally (see Table 5.8), 16.0–92.8% of criminally violent and homicidal psychotic offenders across 8 studies were characterized by no apparent motive, 10.4–71.0% across 11 studies by alcohol or drug use before or during the offense, and 3.7–76.9% across 10 studies by an argument or provocation that preceded the crime. Behaviorally (see Table 5.9), the crimes of 22.0–98.2% of criminally violent and homicidal psychotics across 6 studies were characterized by a public offense location, 52.7–99.4% across 5 studies by lack of offense planning, and 0.7–16.0% across 9 studies by use of a firearm. Gudjónnson and Pétursson (1982) and Pétursson and Gudjónsson (1981) reported 56.3% using a sharp instrument or shooting, and the use of sharp and blunt weapons was commonly reported across studies. Also, 0.0–8.0% of these crimes across 5 studies involved offenses with a sexual motivation or of a sexual nature, and 2.7–36.7% across all 16 studies involved victims not known to the offender, which is consistent with reports that homicidal offenders with schizophrenia and other mental illnesses often threaten or target family members and known individuals (Dolan & Parry, 1996; Gottlieb et al., 1987; Gudjónnson & Pétursson, 1982; Nestor & Haycock, 1997; Nestor et al., 1995; Torrey, 2006; Turkat & Buzzell, 1983). Interestingly, however, Nordström, Dahlgren, and Kullgren (2006) found alcohol or drug intoxication was rare for both offenders and victims in homicides involving family victims but common for both in homicides involving nonfamily victims. Finally, 22.0–100.0% of these crimes across 6 studies were excessively violent offenses, and 0.0–98.2% across 4 studies were characterized by unusual post-offense behavior (e.g., no attempt at crime concealment or escaping detection).

Emotionally (see Table 5.10), homicidal and criminally violent psychotic offenders across 3 studies were characterized by lack of emotion (73.0–97.7%), though Golenkov, Large, Nielssen, and Tsymbalova (2011) reported that 24.1% of murderers with schizophrenia were characterized by a "deficit of higher emotion"—a negative symptom of schizophrenia akin to a lack of empathy. In 1 study 100% lacked guilt or regret (Rath & Dash, 1990). These results are consistent with the emotional indifference and lack of remorse observed in violent psychotic individuals in other studies (Green, 1981; Taylor, 1993).

As can be seen, a wide variability was observed in motivational and in some behavioral aspects across studies. Behaviorally, reduced variability was seen for schizophrenic and psychotic offenders in offense planning (generally uncommon), use of firearms (decreased—perhaps due to reduced ability to purchase firearms because of government restrictions against mentally ill individuals), sexually motivated or natured crimes (generally rare), and victimology (generally not strangers). Emotionally, schizophrenic and psychotic offenders tended to be characterized by lack of emotion and guilt across studies. There were some significant methodological limitations. Some studies did not use comparison groups that were not psychotic or mentally ill (Benezech, Yesavage, Addad, Bourgeois, & Mills, 1984; Golenkov et al., 2011; Joyal, Putkonen, Paavola, Tijhonen, 2004; Laajasalo & Häkkänen, 2006; Nijman et al., 2003; Nordström and Kullgren, 2003; Nordström, Dahlgren, & Kullgren, 2006; Planansky & Johnson, 1977; Varma & Jha, 1966). Others had sample diagnostic heterogeneity (i.e., the inclusion of other mental disorders in psychotic disordered groups; Steury & Choinski, 1995). Additionally, one classic and often-cited study from this literature (Varma & Jha, 1966) used murderers with mental illness (as opposed to schizophrenia or psychotic disorders specifically) but did not define what was meant by this term. Overall, results indicate that, although the nature of homicidal and criminally violent behavior in schizophrenia may be qualitatively distinct in some respects, generalizations must be made with caution until more research in this area is completed.

Furthermore, the psychosocial backgrounds of violent schizophrenic individuals may differ from those of violent offenders who do not have schizophrenia. In a study of the forensic psychiatric reports of 183 Finnish homicide offenders, Laajasalo and Häkkänen (2004) found that schizophrenic offenders had relatively well-adjusted childhoods compared to other groups (i.e., drug addicts, alcoholics, and personality disordered offenders). They had fewer problems in school and participated less in special education, though psychopathology in their childhood family members (other than parents) was much more common. Parental alcohol abuse was actually negatively associated with later schizophrenia. Adulthood for the schizophrenic offenders, however, was characterized by more social isolation and withdrawal. Schizophrenic offenders were more likely to be living alone, were less often married, and had fewer children than did other offender groups. Though most (85.7%) had psychiatric contact as adults, only 46.3% had ongoing contact, and 38.9% had current psychiatric medication at the time of the offense. Additionally, they were more likely to be on a sickness pension than were all other groups. All demonstrated symptoms of paranoia, and two-thirds had depression (significantly more than for all groups except drug addicts—though rates were still almost double those of the latter).

Matricide

Matricide—or mother-killing—has been described as *the* "schizophrenic crime" (Gillies, 1965). This description is not surprising, given the taboo associated with mother-murder present for many ages in the mythology and legend of various cultures (Bunker, 1941; Wertham, 1941) and the case histories published beginning several decades ago that demonstrate an early and ongoing psychiatric and psychoanalytic interest in the schizophrenic mother-killer (Schug, 2011). Individuals with schizophrenia or other psychotic disorders do appear to be overrepresented among the modest number of published studies related to matricide. Schug (2011) identified 61 publications (34 case studies, 19 descriptive studies, and 8 comparison studies) involving matricidal offenders. Schizophrenia and other psychotic disorders were mentioned in 26 of the 34 case studies (76.5%), 16 of the 18 descriptive study samples (88.9%), and 7 of the 8 comparison studies (87.5%). Within these, the prevalence rates of psychotic disorders among matricidal offenders varied from 25–100% among case studies, 33.3–100% among descriptive studies, and 46.5–100% among comparison studies. Clearly, these rates are significantly higher compared to the rates of psychotic disorders in the general population and comparable or higher, in some instances, to the rates of schizophrenia observed in populations of general homicidal offenders (see Table 5.5). Negative family dynamics, pathological relationships with mothers (e.g., sexualized, hostile, or overly dependent), and excessive offense violence were commonly reported among matricidal offenders across studies. Generalizations from this integrative review must be made with caution, however, given the convenience sampling methods used to obtain these studies; and further studies of matricidal offenders are needed before any definitive conclusions about a schizophrenia-matricide relationship can be made. Luckily, a more recent publication of case material (Ogunwale & Abayomi, 2012) indicates a continuing worldwide clinical and empirical interest in this area.

Table 5.7 Nature of Violent Crime in Schizophrenia: Sample Characteristics

Source	Sample	N	Location	Offense Type(s)	Method
Varma & Jha (1966)	Criminal mental hospital patients (10:1 male/female ratio).[a] No comparison group. Mental illness not defined.	486	India	Homicide	File review
Planansky & Johnson (1977)	From a larger sample of 205 hospitalized schizophrenia patients, men who threatened to kill or attacked others at some time during their illness. No nonschizophrenic comparison group.	59	United States (New York)	Homicidal assaults, homicidal threatening	File review
Pétursson & Gudjónsson (1981); Gudjónsson & Pétursson (1982)	All known homicide cases in Iceland from 1900–1979 (6.4% female): (1) Psychotic illness,[b] mental subnormality (2) Personality disorder, drug or alcohol dependence, neurosis (3) No psychiatric abnormality	(1) 16 (2) 17 (3) 14	Iceland	Homicide	File review
Häfner & Böker (1982)	From a larger sample of mentally normal offenders (n = 3,808) and mentally abnormal individuals (n = 1,938), male and female:[c] (1) Schizophrenic violent offenders (2) Mood disordered violent offenders[d] (3) Mentally deficient violent offenders No comparisons with mentally normal offenders.	(1) 284 (2) 37 (3) 68	Germany	Homicide, attempted homicide	File review
Benezech et al. (1984)	Forensic hospital psychotic patients (93% male): (1) Schizophrenia (2) Paranoid disorder (3) Mood disorder or other No non-mentally ill comparison group.	(1) 64 (2) 37 (3) 8	France	Homicide	File review
Robertson (1988)	Male remand prisoners (1) Schizophrenia (2) Mood disorder[e] (3) Normal (violent) (4) Normal (nonviolent)	(1) 61 (2) 30 (3) 35 (4) 41	England	Acquisitive, sexual, minor violence, major violence, homicide[f]	Interview
Rath & Dash (1990)	(1) Psychotic murderers[g] referred for psychiatric evaluation (10:3 male/female ratio) (2) Randomly selected nonpsychotic murderer comparisons (12:1 male/female ratio)	(1) 13 (2) 13	India	Homicide	Interview, file review, observation

Source	Sample	N	Location	Offense Type(s)	Method
Taylor (1993)	Prison sample of men remanded on violent charges or in prison hospital wing ("interviewed sample"): (1) Psychotic men[h] (2) Nonpsychotic men	(1) 121 (2) 82	England	Personal violence (including homicide), property violence[i]	Interview, file review
Steury & Choinski (1995)	"Victim-defendant dyads" based on 100 male defendants charged with violent crimes: (1) Psychiatric inpatient/outpatients (50% schizophrenic) (2) Not patients	(1) 32 (2) 82	United States (Wisconsin)	"Dangerous and deadly felonies" (including homicide)	File review
Nijman et al. (2003)	(1) Psychotic disordered forensic hospital patients (2) Nonpsychotic disordered patients Gender not specified. No nondisordered comparison group.	(1) 111 (2) 197	Germany, the Netherlands	Homicide, sexual crimes, assault, arson	File review
Nordström & Kullgren (2003)	Court convictions of male violent offenders with schizophrenia, 1992–2000	382	Sweden	Homicide, violent assault	File review
Joyal et al. (2004)	Male forensic hospital patients—offenders with schizophrenia/schizoaffective psychoses: (1) With ASPD (2) Without ASPD No nonschizophrenic comparison group.	(1) 35 (2) 23	Finland	Homicide	Interview, file review
Häkkänen & Laajasalo (2006)	National medicolegal archive cases (10% female): (1) Schizophrenia (2) Drug addiction (3) Alcoholism (4) Personality disorder (5) No diagnosis	(1) 43 (2) 15 (3) 43 (4) 44 (5) 37	Finland	Homicide	File review
Laajasalo & Häkkänen (2006)	National forensic examination archive cases (113 men, 12 women)—all with schizophrenia: (1) Excessive violence (2) Non-excessive violence No nonschizophrenic comparison group.	(1) 37 (2) 88	Finland	Homicide	File review
Nordström, Dahlgren, & Kullgren (2006)	Male homicide offenders diagnosed with schizophrenia during pretrial forensic psychiatric examination, 1992–2000	48	Sweden	Homicide	File review

(Continued)

(Continued)

Source	Sample	N	Location	Offense Type(s)	Method
Golenkov et al. (2011)	Homicide offenders (120 men, 13 women) with schizophrenia referred for judicial psychiatric examination in Chuvashia, 1981–2010	133	Russia	Homicide	File review

Notes: [a]Mental illness was not actually defined; and though offense characteristics (see below) reflect a disorganized quality characteristic of schizophrenia and psychotic symptoms (i.e., delusions of persecution, jealousy, and auditory hallucinations) were mentioned as motives for the murders in 17 cases, it cannot be assumed that all or even a majority of the offenders suffered from schizophrenia.

[b]Including schizophrenia ($n = 7$), manic-depressive illness ($n = 2$), psychogenic psychosis ($n = 2$), organic psychosis ($n = 1$), and morbid jealousy ($n = 1$).

[c]Additional analyses conducted by gender (410 male, 123 female), though exact gender composition of the smaller diagnostic groups was not reported.

[d]Including affective psychoses.

[e]Described as "usually of psychotic intensity."

[f]Homicide: 13% of schizophrenia group, 7% of mood disordered group, 24% of violent group, 0% of normal group.

[g]Including schizophrenia ($n = 5$), drug-related psychosis ($n = 3$), epilepsy ($n = 1$), affective psychosis—depression ($n = 1$), mental subnormality ($n = 1$), and paranoid illness ($n = 2$).

[h]Schizophrenia (majority), affective psychoses, paranoid disorders.

[i]Psychotic offenders: 48% personal violence, 52%* property violence.

*Significantly increased relative to comparison group.

Table 5.8 Nature of Violent Crime in Schizophrenia: Motivation

Source	Motivation	ETOH/Drugs	Argument
Varma & Jha (1966)	92.8% No apparent motive	—	"Altercations, quarrels, anger-provoking situations and jealousies" listed as motivation among 3.7% of offenders
Planansky & Johnson (1977)	39% delusional misperceptions; 15% irresistible compulsion; 12% ordered by auditory hallucinations; 10% sudden, explosive attacks in a frenzy; 5% paranoid self-defense—systematized; 19% cause unknown, insufficient data	—	—
Pétursson & Gudjónsson (1981); Gudjónsson & Pétursson (1982)	Most common motive for all groups: Quarrel/violent rage (see "Argument" column). Delusional: (1) 31.2%,* (2) 0.0%, (3) 0.0%. Robbery/financial gain: (1) 0.0%,** (2) 17.6%, (3) 28.7%	ETOH intoxication at time of offense: (1) 50.0%, (2) 70.6%, (3) 71.4%	Quarrel/violent rage as motive: (1) 43.8%, (2) 47.1%, (3) 35.7%
Häfner & Böker (1982)	No recognizable motive: (1) 18.8%, (2) 24.0%, (3) 15.0%. Most common by group: (1) Revenge (39.1%), (2) Release from feared suffering (76.0%), (3) Gain, removal of troublesome persons, concealment of offense (66.0%)	No ETOH: (1) 89.6%, (2) 95%, (3) 72% (1* , 2* > 3)	Preceding argument: (1) 26.5%, (2) 6.0%, (3) 30.0%

Source	Motivation	ETOH/Drugs	Argument
Benezech et al. (1984)	—	—	(Entire sample): "… often involved misperceived slights or threats by the victim or the exacerbation of long-standing family quarrels"
Robertson (1988)	—	No ETOH: (1) 86.0%,[a]* (2) 67.0%, (3) 45.0%, (4) 83.0%	—
Rath & Dash (1990)	(1) Not reported (2) 46.2% property dispute, 15.4% monetary gain, 30.8% sexual jealousy, 7.7% murder/suicide	(1) 23.1% cannabis and ETOH abuse-related homicides (2) Not reported	(1) 15.4% external provocation (2) 76.9% external provocation
Taylor (1993)	—	(1) 21% ETOH use before crime** (2) 55% ETOH use before crime	(1) 40% provoked by victim,** 17% history of quarreling with victim** (2) 71% provoked by victim, 38% history of quarreling with victim
Steury & Choinski (1995)	Trivial dispute (most common): (1) 44%, (2) 42%. No apparent motive: (1) 16%, (2) 7%.	(1) 63% no ETOH or drugs (2) 57% no ETOH or drugs	(1) 58% argued with victim at time (2) 49% argued with victim at time
Nijman et al. (2003)	—	—	—
Nordström & Kullgren (2003)	—	—	—
Joyal et al. (2004)	—	(1) 71% ETOH intoxicated* (2) 30% ETOH intoxicated	(1) 34% fight or argument* (2) 9% fight or argument
Häkkänen & Laajasalo (2006)	—	(1) 42% ETOH intoxicated (2, 3, 4, 5 > 1**) Drug use: (1) 24%, (5) 5%	Preceding argument: (1) 42%, (5) 63.6% (3*, 4* > 1)
Laajasalo & Häkkänen (2006)	Psychotic symptoms motivated offense: (1) 54.1%, (2) 71.6%† (total sample 66.4%)	Intoxicated: (1) 51.4%, (2) 47.7% (total sample 48.8%)	—
Nordström, Dahlgren, & Kullgren (2006)	Psychotic symptoms motivated offense: 54.2%	ETOH or drug intoxication: 27.1%	22.9% argument, typically about money
Golenkov et al. (2011)	—	ETOH intoxication: 31.3% (26/83) of positive symptom predominant, 63.8% (37/58) of negative symptom predominant (44.7% total)	—

Notes: [a]Data recoded and reanalyzed by this author. Schizophrenia group also had a significantly higher proportion of no ETOH compared to all non-mentally ill individuals when grouped together, $X^2 = 7.29$, $df = 2$, $p = .026$.

*Significantly increased relative to comparison groups.

**Significantly decreased relative to comparison groups.

†Trend toward significance.

Table 5.9 Nature of Violent Crime in Schizophrenia: Behavior

Source	Location	Planning	Method	Sex	Victimology	Excessive Violence	Post-Offense
Varma & Jha (1966)	98.2% broad daylight	99.4% no planning	Common household articles as weapons	Sexual motive inferred in 1 case	78.5% victim known	Excessive violence in most cases	98.2% no attempt at crime concealment
Planansky & Johnson (1977)	—	—	—	—	Of total threats (n = 48): 47.9% family, 6.3% friend or acquaintance, 4.2% stranger or non-acquaintance, 41.7% unspecified Of total attacks (n = 24): 62.5% family, 8.3% friend or acquaintance, 29.2% stranger or non-acquaintance	—	—
Pétursson & Gudjónsson (1981); Gudjónsson & Pétursson (1982)	—	—	Sharp instrument use or shooting: (1) 56.3%, (2) 41.2%, (3) 21.4%** Blunt instrument or other: (1) 43.7%, (2) 58.8%, (3) 78.6%	Sexual motive: (1) 0.0%, (2) 5.9%, (3) 0.0%	Blood relative: (1) 23.5%,* (2) 5.5%, (3) 7.1% Most common within-group victim: (1) Spouse/girlfriend (35.3%), (2) Stranger (38.9%), (3) Friend/acquaintance (42.8%)	—	No attempt to escape detection: (1) 50.0%, (2) 41.2%, (3) 14.3% Reported offense: (1) 12.5%, (2) 5.9%, (3) 42.9% Suicide or attempted suicide: (1) 25.0%, (2) 0.0%, (3) 7.1%
Häfner & Böker (1982)	—	Planned: (1) 47.3%, (2) 74.0%, (3) 37.0% (2* > 1, 3)	(1) Mostly blunt/sharp instruments, strangulation/choking, followed by firearms, brachial pressure, and poisoning or gas (2) Poisoning or drowning (3) Blunt/sharp instruments	(1) 95% no sex (1 < 3*, 2 < 3)	Victims only adults: (1) 81.7%, (2) 22.0%, (3) 75% (1*, 3* > 2) Victim from within intimate circle: (1) 58.1%, (2) 95.0%, (3) 31.0% (2* > 1, 2* > 3, 1* > 3) Victims strangers: (1) 8.5%, (2) 3.0%, (3) 25.0%	—	—
Benezech et al. (1984)	—	—	(Entire sample): Firearm (33%), stabbing (31%), head injury (11%), strangulation (11%)	—	Victims strangers: (1) 36.7%, (2) 28.9%, (3) 22.2%	—	—

Source	Location	Planning	Method	Sex	Victimology	Excessive Violence	Post-Offense
Robertson (1988)	Shared home of victim: (1) 18%, (2) 41%,* (3) 13%, (4) 15% Public: (1) 38%,[a]* (2) 24%, (3) 23%, (4) 18%	—	—	Sexual nature of offense: (1) 3%, (2) 0%, (3) 6%, (4) 27%	Victim family or close friend: (1) 39%, (2) 61%, (3) 15%[b]	—	Arrested at offense location: (1) 75%,* (2) 70%,* (3) 58%, (4) 32% Presented self to police: (1) 28%, (2) 17%, (3) 9%, (4) 12%
Rath & Dash (1990)	—	(1) 15.4% prior thought of murdering (2) 69.2% prior thought of murdering	(1) Beheading with heavy cutting weapons, repeated chopping; manual strangulation; crushing head with heavy stones, clubs, etc. (2) More exact forms (ropes, sticks for strangulation; stabbing) and non-mutating forms (poisoning) of violence in nonpsychotics	—	(1) Victims: 53.8% family relations, 23.1% acquaintances, 23.1% strangers (2) More family members victims of nonpsychotic murderers	(1) Excessive violence in all cases (2) Excessive violence in 30.8% of cases	—
Taylor (1993)	—	—	—	—	(1) 42% known victims (2) 59% known victims	—	—
Steury & Choinski (1995)	(1) 53% offense at home (2) 39% offense at home	Planning—10 minutes or less: (1) 67%, (2) 46% Planning—more than 2 hours: (1) 6%, (2) 7%	Firearms: (1) 16%, (2) 50% Knives: (1) 44%, (2) 18%	—	(1) 16% strangers as victims (2) 26% strangers as victims	Gratuitous violence: (1) 22%, (2) 14%	—

(Continued)

(Continued)

Source	Location	Planning	Method	Sex	Victimology	Excessive Violence	Post-Offense
Nijman et al. (2003)	—	—	—	(1) 8% sexual index offense** (2) 37% sexual index offense (co-occurring sex/violent crimes not assessed)	(1) 69% known victims.* Within psychotics, 100% of lethal offenders* (vs. nonlethal) known victims. (2) 44% known victims.	—	—
Nordström & Kullgren (2003)	57% in someone's home (27% victim's home, 11% offender's home, 15% shared home, 4% other's home)	—	Knife most common weapon (18%). 0.7% firearm.	—	31% unacquainted with victim. 82% of homicide victims known to offender.	—	—
Joyal et al. (2004)	Total sample: 78% private residence, 22% public	—	—	—	Total sample: 86% known victims, 14% strangers as victims Relatives: (1) 69%,* (2) 43% Household members: (1) 77%,* (2) 70%	—	—
Häkkänen & Laajasalo (2006)	Victim found in shared household: 1*, 5* > 2	Weapon taken to scene: (1) 30.2%, (5) 41.7	Blunt weapon: 1 > 5 (O.R. 4.9) Sharp weapon: 1 > 5 (O.R. 2.3), 3 > 5 (O.R. 3.2) No rifles or shotguns used in groups 1 and 2. More hitting and kicking in group 2 than 1. Handgun: 2 (9.3%), 5 (27.0%)	—	Victim relative: 1, 5 > 2, 4 Victim stranger: (1) 7%, (5) 10.8%	Injury to victim's face: (1) 67.9%,* (5) 32%	(1) No "abnormal" behaviors after crime, not likely to remain at crime scene after offense

Source	Location	Planning	Method	Sex	Victimology	Excessive Violence	Post-Offense
Laajasalo & Häkkänen (2006)	—	—	—	—	Victim stranger: (1) 2.7%, (2) 9.4% (total sample 6.4%)	(1) 29.6% (by definition): sadistic/sexual features (binding/ penetration), mutilation, or > 15 stab wounds	—
Nordström, Dahlgren, & Kullgren (2006)	—	—	Weapon used in 92.3% of homicides, most often a knife (also objects including dumbbells, flower pot, and frying pan). Firearm used in only 1 case (2.0%).	—	17.3% (9/52) of victims strangers. 34.6% of victims women.	22.9% extreme violence ("in some cases offender continued to violate victim after victim's death")	—
Golenkov et al. (2011)	3% in company of others	—	52% blade or knife, 21% fists or blunt objects, 11% strangulation, 7% multiple methods, 7%, method not recorded, 2% firearms	—	51% family or close relative, 43% acquaintances or neighbors, 6% strangers	—	—

Notes: [a]Data recoded and reanalyzed by this author. Schizophrenia group had a significantly higher proportion of public location compared to all non-mentally ill individuals when grouped together, $X^2 = 4.84$, $df = 1$, $p = .028$.

[b]Victimology not reported for nonviolent normal group.

*Significant increase relative to comparison groups.

**Significant decrease relative to comparison groups.

Table 5.10 Nature of Violent Crime in Schizophrenia: Affect

Source	Emotion	Regret
Varma & Jha (1966)	97.7% complete emotional indifference	—
Planansky & Johnson (1977)	—	—
Pétursson & Gudjónsson (1981)/ Gudjónsson & Pétursson (1982)	—	—
Häfner & Böker (1982)	—	—
Benezech et al. (1984)	—	—
Rath & Dash (1990)	—	(1) 100% no guilt or hostility toward victim (2) 46.2% had guilt feelings after committing act; 53.8% expressed satisfaction over the act
Robertson (1988)	—	—
Taylor (1993)	(1) 73% no feelings toward victim* (2) 48% no feelings toward victim	—
Steury & Choinski (1995)	—	—
Nijman et al. (2003)	—	—
Nordström & Kullgren (2003)	—	—
Joyal et al. (2004)	—	—
Häkkänen & Laajasalo (2006)	—	—
Laajasalo & Häkkänen (2006)	—	—
Nordström, Dahlgren, & Kullgren (2006)	—	—
Golenkov et al. (2011)	24.1% "deficit of higher emotion" (i.e., a negative symptom of schizophrenia conceptually similar to a lack of empathy)	—

Notes: *Significant increase relative to comparison groups.

Suicide

Many studies have examined rates of suicidal behaviors among individuals with schizophrenia. For example, 9.8% of subjects in a Chinese sample with lifetime schizophrenia reported suicide attempts (Xiang et al., 2008). Studies have also shown that the risk for suicide is influenced by the stage of schizophrenia and that the risk is generally highest during the early phases of the illness, during, for example, the first presentation or episode (Clarke et al., 2006). Taylor (1993), however, found even distributions of previous suicide attempts among psychotic and nonpsychotic offenders (approximately 40% of each group) in an interviewed sample.

Schizophrenia and Nonviolent Crimes

Nonviolent or property offending among schizophrenic persons has, to date, not been systematically studied. Incidental data, however, have been included in some reports of psychotic and mentally ill individuals. In a study of motives for offending among 212 hospital-remanded prisoners, Taylor (1985) describes a small subsample of 21 mentally ill nonviolent offenders (14 psychotic) who engaged in minor offenses with motivations categorized as minor material gain, trivial material gain with other primary motives (e.g., thefts of vehicles to find relatives, theft of food due to hunger, theft to spend Christmas in prison, theft of a public library psychology text for the purposes of self-psychoanalysis), vagrancy (e.g., begging, threatening), and other offenses (e.g., sending threatening letters, making inappropriate emergency services calls, cultivating cannabis, insulting behavior, indecent assault). Among those psychotic patients classified as vagrants, some were behaving in a bizarre manner. One schizoaffective man was arrested while carefully covering a motorcycle in paper while another was "touching car door handles" in an attempt to locate a place to sleep. Despite these reports, reduced property offending rates have been observed in schizophrenic individuals compared to non-mentally ill persons in at least one case linkage study (Wallace et al., 1998). In a large Massachusetts statewide cohort of adults receiving mental health services, McCabe and colleagues (2012) found that, among those with both a diagnosis of schizophrenia (or other psychotic disorders) and criminal histories, 45% were arrested for property crimes (compared to 65% for public order crimes and 50% for serious violent crimes) over a 10-year period. Overall, more work is clearly needed to understand the relationship between schizophrenia and various forms of nonviolent criminal offending.

Schizophrenia and Sexual Crimes

Despite sensationalized media accounts of violent schizophrenic sexual attackers (Phillips, Heads, Taylor, & Hill, 1999) and reports of the bizarre and terrifying nature of these attacks (Craissati & Hodes, 1992), sexual crimes appear comparatively rare among schizophrenic persons. Individuals with schizophrenia and other psychotic disorders comprise only small percentages of sexual offender populations, 2–5% according to Alish et al. (2007). They also demonstrate reduced proportional rates of sexual offense convictions in comparison to non-mentally ill individuals in case linkage studies (Wallace et al., 1998). Additionally, sexual index offenses have been found to be proportionally rare among psychotic offenders (8% of 111) compared to nonpsychotic offenders (39% of 197) in forensic psychiatric hospital samples (Nijman et al., 2003). Rare descriptive reports from small, highly selected samples suggest that the relationship between schizophrenia and sexual offending may be somewhat complex. Table 5.11 lists several descriptive studies of schizophrenia and sexual crimes; it demonstrates the variability among these types of offenders in terms of factors such as victimology, level of violence, and sexual naïveté.

In another descriptive study, Smith and colleagues (Smith, 1999, 2000; Smith & Taylor 1999a, 1999b) used clinical records and author-developed checklists to examine the cases of 80 restricted hospital order inpatients with schizophrenia, all male, who, while psychotic, committed contact sexual offenses (i.e., rape, attempted rape, indecent assault) against women. Researchers examined how specific types of psychotic symptomatology were related to sexual offending in these patients. The relationship of the delusions and hallucinations to the offense were rated as direct, indirect, or coincidental. *Direct delusions* contained sexual elements that were clearly congruent with carrying out the index sex offense (e.g., the sex attack had to be carried out as part of a mission to avert a world catastrophe). Indirect delusions contained sexual components that were not directly congruent (but not entirely unrelated) with the specific sex assault (e.g., a belief that the patient was famous and admired by all women or was developing another penis), or these delusions had no sexual component but were linked in some way to the offense (e.g., a persecutory belief regarding the victim leading to a retaliatory physical assault). *Coincidental delusions* appeared to have no connection to carrying out the sex offense (e.g., a belief that the patient was being monitored by secret governmental services). *Direct hallucinations* were imperative auditory hallucinations that instructed the patient to rape or carry out a sex attack. *Indirect hallucinations* had sexual components that were not directly congruent (but not entirely unrelated) with the sex assault (e.g., voices discussing sexual matters; an *imperative hallucination* instructing the listener to carry out a physical but not specifically sexual assault; a *tactile hallucination* perceived as sexual by the offender, such as the sensation of being

Table 5.11 Descriptive Studies of Schizophrenia and Sexual Crimes

Source	N	Sample Description	Sexual Offense Characteristics	Participant Characteristics
Craissati & Hodes (1992)	11	Psychotic sexual offender inpatients (10 with schizophrenia)	• Included rape, indecent assault, and buggery—alone or in combination with other crimes (i.e., robbery, grievous bodily harm, battery) • Overall relatively nonviolent, triggered by feelings of sexual disinhibition (some reports of pre-offense offense-related masturbatory fantasies) • Generally occurred in early phases of illness when florid symptoms remained concealed • Victims known by offenders in over 50% of cases, received minimal physical harm	• Sexual naïveté. Over 50% had either limited or no previous sexual experience with a partner. • Comparatively low antisociality • Minimal offense-related or histories of substance abuse • Often not identified as psychotic until after offense
Jones et al. (1992)	4	Male schizophrenia patients	• Attempted rape, indecent assault • In response to auditory command hallucinations	• Minimal or no sexual experience prior to assaults • Marked social or interpersonal deficits • Dominant mother and absent or emotionally distant father in childhood • Pharmacological treatment resistance
Chesterman & Sahota (1998)	20	In secure unit of hospital, mentally ill sex offender patients (17 of 20 with schizophrenia)	• Rape, indecent assault, buggery, attempted rape • Over 50% of offenders engaged in excessive violence • Victims mostly strangers, female, and over 14 years of age • Only one schizophrenia patient reported specific delusional and hallucinatory drive; others reported motivations including revenge, sexual frustration, anger and arousal	• Comparatively more violent, antisocial, and sexually knowledgeable • Most were heterosexual, and the majority had relationships lasting over 12 weeks. Only 25% of sample reported no or low numbers of sexual partners. • 30% history of drug abuse, 25% history of alcohol abuse, majority reported substance abuse at time of offense • Extensive criminal histories: most had convictions for previous violent offenses, and nearly 50% had past sexual offending history (the majority of these prior to contact with psychiatric services). • Low rates of family psychiatric and criminal history

Source	N	Sample Description	Sexual Offense Characteristics	Participant Characteristics
				• Many reported histories of childhood psychosocial deprivation (i.e., families with 5 or more children, physical and sexual abuse, parental discord, parental separation or divorce, inadequate parental nurturance), educational problems (i.e., feeling alienated and excluded by education system, attending special schools), and adult psychosocial deficits (i.e., unstable work histories, lengthy unemployment, social isolation at the time of the offense). • Majority had previous inpatient treatment; over 50% had no psychiatric contact at time of offense. • Low rates of being on medication and medication compliance at time of offense • Over 50% considered psychotic at time of offense—predominant symptoms were irritability, cognitive disturbance, and paranoid ideation
Phillips et al. (1999)	15	Male sexual offenders at secure hospital, and sexually antisocial inpatients with schizophrenia at secure hospital.	• Nonspecific definitions of sexual offenses (i.e., "of a sexual nature") and antisocial sexual behavior (i.e., "seriously disinhibited, inappropriate, or offensive sexual behavior") • In 12 of 15 cases, sexual offenses occurred after the onset of schizophrenia and in the context of psychotic symptoms.	• Relatively high rates of previous contact with psychiatric services • Low rates of medication compliance at the time of the index offense

touched in the genital region). Finally, *coincidental hallucinations* appeared to have no connection with carrying out the sex offense (Smith & Taylor, 1999a). Although half the patients had delusions or hallucinations related to the offenses, a specific delusional or hallucinatory drive was pertinent in only 18 cases. In the majority of cases, schizophrenia onset predated sexual offending, victims were complete strangers, and exclusive sexual offending was uncommon (Smith & Taylor, 1999a, 1999b).

Psychosexual, motivational, and psychosocial variables were also examined. For example, only about one-quarter of the sample was characterized by aggressive sexual fantasies at the time of their offenses, and these patients were more likely to have a history of sexual offending that predated schizophrenia onset (Smith, 1999). Clinical records indicated that, for some patients, the intensity of aggressive sexual fantasies appeared to fluctuate in unison with schizophrenia symptom severity; others experienced these fantasies only when psychotic (Smith, 1999). Primary motivations for offending among this sample were sexual (54%), opportunistic (29%), vindictive (11%), and pervasive anger (6%). Among the 18 cases in which delusional and hallucinatory drives

were present during the offense, higher percentages of sexual motivations (i.e., 78%) and significantly higher proportions of sexual, non-sadistic motivations (i.e., not containing features of excessive violence or humiliation) were seen in comparison to the 62 cases in which these drives were not present (Smith, 2000). Most offenders characterized by sexual, non-sadistic motivations appeared preoccupied with feelings of sexual arousal or fantasy and with a desire to have physical contact with women. These men reportedly expressed frustration and desperation regarding their perceived social isolation, low self-esteem, inability to approach or form intimate relationships with women, and the negative impact of their illness upon their social functioning (Smith, 2000). Overall, the sample experienced significant social and sexual functional decline after the onset of schizophrenia. Preschizophrenia sex offenders were more likely to have pre-onset social and sexual impairment compared with post-onset offenders—though only pre-onset social isolation remained significantly associated with pre-onset sex offending when other variables were controlled (Smith & Taylor, 1999b).

Specific facets of sexual offending in schizophrenia also became the focus of subsequent comparative investigations. For example, in the Sahota and Chesterman (1998a) sample, both mentally ill and non-mentally ill sexual offenders were found to have similar levels of cognitive distortions, whereas mentally ill offenders were characterized by significantly higher levels of sexual obsession, sexual dysfunction, and faulty sexual knowledge and beliefs in comparison to non-mentally ill offenders. Cultural factors may be relevant, however, as the London catchment area served by this regional secure unit has a high proportion of persons of Afro-Caribbean descent, who were overrepresented in this sample (Smith & Taylor, 1999b).

More recently, in the first comparison study of its kind, Alish et al. (2007) compared 36 schizophrenic sex offenders, 80 schizophrenia patients who had committed nonsexual offenses, and 57 nonschizophrenic sex offenders on various clinical, sociodemographic, and sexual variables. Sexual offenses included those related to paraphilia (e.g., pedophilia, exhibitionism, sexual sadism—see Chapter 8), sex crimes not related to paraphilia (e.g., sexual offenses carried out under the influence of drugs or alcohol and related to general antisocial behavior), and deviant—though not necessarily illegal—sexual behaviors (e.g., compulsive masturbation, protracted heterosexual or homosexual promiscuity, pornography dependence, telephone-sex dependence, severe sexual desire incompatibility). In comparison to schizophrenic patients who had committed nonsexual offenses, schizophrenic sex offenders were (1) sociodemographically more likely to be married, employed, and nonheterosexual and (2) clinically characterized by lower percentages of psychiatric hospitalization, antisocial personality, substance abuse, negative symptoms, and less overall illness severity with more improvement over time of hospitalization. Additionally, schizophrenic sex offenders demonstrated a tendency toward female assault while their nonschizophrenic counterparts tended toward male assault. Nonschizophrenic sex offenders demonstrated a greater tendency toward nonadult (i.e., child and adolescent) victims than schizophrenic sex offenders, though differences only approached significance. Among incest offenders, schizophrenic subjects attacked higher percentages of female relatives, whereas nonschizophrenic offenders attacked male and female relatives similarly. Results appear to suggest a schizophrenic sex-offender group that is somewhat higher in functioning both socially and clinically in comparison to the group committing nonsexual offenses; or perhaps those in the first group are in earlier stages of illness than those in the second.

Theoretical explanations for the causes of sexual offending among schizophrenic persons are varied. First, one must consider etiological mechanisms not necessarily related to schizophrenia itself and thought to be involved in sexual offending in general (e.g., childhood abuse, deviant sexual preferences and behaviors, and antisocial personality traits). In such cases, offending may predate the onset of schizophrenia.

Second, schizophrenia-related factors such as psychotic symptoms, disinhibition, and psychosocial or psychosexual impairment may cause or predispose a schizophrenic individual to sexual offending. Delusions and hallucinations occurring at the time of sexual offending have been reported by almost all schizophrenic sex offenders in some samples (e.g., Smith & Taylor, 1999a). High occurrences of sexual content in schizophrenic delusions and hallucinations have been reported (e.g., Klaf & Davis, 1960), along with sexual identity confusion and genital hallucinations (Drake & Pathé, 2004). Additionally, delusions or command hallucinations may directly influence behavior and serve to exacerbate preexisting deviant sexuality in some schizophrenic sex offenders (Drake & Pathé, 2004).

Third, schizophrenia symptomatology and associated executive functioning deficits may lead to disinhibition and impulsivity, which could facilitate the expression of deviant sexual behavior or the exacerbation of preexisting deviant sexual thoughts and urges (Craissati & Hodes, 1992; Drake & Pathé, 2004; Phillips et al.,

1999; Sahota & Chesterman, 1998b). Impulsivity and disorganization may also lead to opportunistic offending. For example, Smith (2000) reports a variety of opportunistic sexual offenses among psychotic men stemming from complex situational factors—from an offender with enough behavioral control to engage in robbery or burglary before impulsively sexually offending to the more disorganized thought-disordered individual, whose impaired judgment and poor social cue-reading ability facilitate an impulsive attempt at forced sexual intercourse with a known female during a chance encounter.

Schizophrenia-related social and sexual functioning deficits may also play a role in schizophrenic sex offending. For example, schizophrenia-related attentional and verbal memory deficits associated with social cue misperception and poor social problem solving may contribute to context-inappropriate sexual behavior. Additionally, hypersexuality has been associated with early stages of schizophrenia (Phillips et al., 1999), which may contribute to sexual offending in these patients. Later stages and prolonged untreated schizophrenia have been associated with hyposexuality (Drake & Pathé, 2004; Phillips et al., 1999). Also, negative symptoms, along with schizophrenia-related psychosexual deficits (i.e., poorly communicated and primitively enacted sexual behaviors and intense confusion and preoccupation with body and boundaries) and associated pharmacotherapeutic effects (e.g., antipsychotic drug-related sexual dysfunction and unsuppressed sexual urges or behaviors), may lead to an inability to satisfy sexual needs in an appropriate manner and thus subsequent deviant sexual behavior (Drake & Pathé, 2004). In such cases, sexual offending may occur after the onset of schizophrenia; though long-standing pre-morbid social and sexual dysfunction—rather than the deleterious effects of schizophrenia—may contribute more to offending in some patients (Smith & Taylor, 1999b).

Finally, schizophrenic symptomatology may interact with other *potentiators* to sexual offending at the time of the offense rather than operating as an isolated causal factor (Sahota & Chesterman, 1998b). Other factors such as brain injury and substance misuse must be considered—though the exact nature of the combined effects of these factors with schizophrenia in sexual offending is not entirely clear. For example, though it has been suggested that deviant sexuality among schizophrenic persons may be a manifestation of more generalized antisociality, such as substance abuse or ASPD (Chesterman & Sahota, 1998; Drake and Pathé, 2004), Alish et al. (2007) report lower rates of substance abuse and ASPD among schizophrenic sex offenders in comparison to schizophrenic nonsexual offenders, and Wallace et al. (1998) found twice as many schizophrenic sexual offenders (operationalization of sexual offenses not specified) without histories of substance misuse in comparison to those with histories of substance misuse. The indirect effects of schizophrenia may increase the likelihood of general criminal offending in a number of ways, but why this results in sexual offending is only partially understood (Chesterman & Sahota, 1998). Ultimately, however, schizophrenic sex offenders comprise a small subgroup of schizophrenic criminals requiring highly specialized treatment (Drake and Pathé, 2004).

Schizophrenia and Arson

The literature on schizophrenia and the crime of arson is scant, though initial evidence suggests between the two. For example, several studies from different countries dating back to the early twentieth century have reported rates of schizophrenic individuals among samples of arsonists between 2.4 and 30.0% (Repo & Virkkunen, 1997; Virkkunen, 1974). Furthermore, in a recent national case-control study of 1,689 male and female convicted arson offenders in Sweden, Anwar and colleagues (2011) found arson offenders were likely to be diagnosed with schizophrenia (with an adjusted odds ratio of 22.6 for men and 38.7 for women) or with other psychoses (adjusted odds ratio of 14.4 for men and 30.8 for women). These risk estimates were higher than those reported for other violent crimes, making arson comparable to homicide in terms of the strength of its association with psychotic disorders.

Some attention has also been paid in the literature to motivations for arson, and a handful of studies have attempted to describe these motivations as they occur in schizophrenic persons in order to ascertain if they might be in any way qualitatively different from those of nonpsychotic arsonists. In one study, Virkkunen (1974) examined the mental examination statements of individuals who had committed the crime of arson and had been admitted to a Finnish university psychiatric hospital for evaluation between 1918 and 1972. Thirty individuals with diagnoses of schizophrenia were identified, as were 30 controls without schizophrenia (27 males and

3 females comprised each group). Results indicated that hate was the principal motive for arson in 15 (50.0%) of the schizophrenic individuals and in 18 (60.0%) of the controls (essentially equal rates, statistically speaking). However, among those where hate was present as a motive, controls were significantly more likely to direct their hate toward family, relatives, and acquaintances while individuals with schizophrenia more often directed their hate against outsiders or the entire community (fueled by aggressive reactions to difficulties with housing or work, for example). This finding would appear to be an interesting contrast to the results of studies mentioned earlier, which have shown that schizophrenic individuals are more likely to target family members and acquaintances with other violent crimes such as physical assault or homicide. One explanation may be that an individual with schizophrenia may be more likely to be living with a family member (i.e., who is acting as a caretaker) and may be reluctant to destroy with fire a residence that they both shared. Or, if the schizophrenic offender was in fact homeless and living alone at the time of the offense, the opportunity to target intimates as opposed to the community as a whole may not have presented itself.

The offenses of nonschizophrenic arsonists were significantly more likely to be associated with alcohol use compared to those of schizophrenic arsonists (70.0% versus 30.0%, respectively), and those with schizophrenia were, of course, more likely to be motivated by hallucinations and delusions (30.0%). Additionally, schizophrenic arsonists were more likely to choose uninhabited structures and objects (e.g., bars, laundry rooms, saunas, garbage heaps, forest vegetation, and, in one case, telephone poles) while controls most often targeted residential houses. For schizophrenic individuals, 43.3% remained at the scene of the fire after setting it, as did 50.0% of controls; and one third of each offender group stayed to watch the fire burn. Only two cases of schizophrenic offenders and one control case reported sexual pleasure associated with setting the fires.

Repo and Virkkunen (1997) examined criminal recidivism and family histories in a later hospital record review of 304 male fire setters referred for forensic psychiatric evaluation. Results indicated that both schizophrenic fire setters comorbid for alcohol dependence and nonschizophrenic fire setters had high rates of criminal recidivism, and the family histories of schizophrenic fire setters were more often characterized by an alcoholic father and a psychotic mother (in fact, familial alcoholism was associated with increased life-long criminal recidivism in schizophrenic fire setters). Results also indicated that a high proportion of schizophrenia patients committed violent offenses, multiple fire-setting offenses, and property offenses, suggesting that these schizophrenic fire setters are as dangerous for these other reasons as they are for fire setting. Interestingly, in contrast to the previously mentioned study, this research found that the schizophrenic fire setters in this sample targeted their own apartments as often as had nonschizophrenic fire setters.

Psychological Factors: Schizophrenia Symptoms

Individual psychological symptoms may explain the criminal and violent behavior observed in individuals with schizophrenia and other psychotic disorders, and research on delusions and hallucinations in the mentally ill have provided some evidence for this explanation. (The subjects of this research are not only schizophrenia patients but also those with mood and substance use disorders, which may also be characterized by secondary psychotic symptomatology.) Positive psychotic symptoms have been correlated with violence (Bjorkly, 2002a, 2002b; Krakowski, 2005), homicidal ideation (Schwartz et al., 2001), and homicidal aggression (Planansky & Johnston, 1977). In fact, Bo and colleagues (2011) proposed two different trajectories toward violence in individuals with schizophrenia: (1) patients with no prior history of violence or crime, for which violence appears to stem from positive symptoms, and (2) patients in whom comorbid personality pathology (e.g., psychopathy—see Chapter 10) predicts violence, regardless of other schizophrenia symptoms (see Hodgins, 2008, below). A fair amount of research in this area has focused on delusions, hallucinations, the syndrome of disorganization, and negative symptoms.

Delusions

Herbert Mullin's delusional belief systems are quite apparent and undeniable. In fact, delusional motivations for violent crimes such as homicide can seem quite bizarre. Gillies (1965), for example, lists several, including these: "I wanted to be a fourteen-year-old homosexual but my wife laughed at the idea," "Because my

wife was putting powder in my tea," or "A mysterious power told me she was being unfaithful." Previous research indicates a general association between delusions and violence among individuals with mental illness; and although one hospital and criminal record review of 1,740 special high-security hospital patients found more than 75% of psychotic patients to be driven to violent offending by their delusions (Taylor et al., 1998), it is generally believed that only a small proportion of violence committed by psychotic persons appears to be driven by delusional beliefs (Appelbaum, Robbins, & Monahan, 2000; Taylor, 2006). Specific delusions may contribute more to violence risk, such as **persecutory delusions** (Bjorkly, 2002a; Catanesi et al., 2011) or *passivity delusions* (Taylor, 1998). Other symptoms, such as the perception of being threatened or harmed by others or that one's self-control is being overridden, perhaps by mind control or thought insertion (threat/control-override symptoms), have been shown to be separately associated with violent behaviors (Link, Stueve, & Phelan, 1998).

Also noted have been several rare content-specific delusional syndromes involving the reduplication of elements in the environment—such as places (e.g., *reduplicative paramnesia*, the replacement of a physical location by a duplicate) and persons. Reduplicative delusions involving people have demonstrated a relationship with violence. These **delusions of misidentification** include **Capgras syndrome** (the belief that familiar persons have been replaced by physically identical imposters), ***subjective doubles*** or **Doppelgänger syndrome** (the belief that oneself has a double or impersonator), **Fregoli syndrome** (the belief that another person has changed his or her physical identity while his or her psychological identity remains the same), and **intermetamorphosis** (the belief that others have undergone radical physical and psychological changes to become persecutors; Bullock & Arrigo, 2006; Malloy, Cimino, & Westlake, 1992). Misidentification syndromes in general are associated with anger and suspiciousness toward the misidentified other. Hostility and paranoid ideation directed toward the misidentified object have the potential to lead to violence and have been associated with completed homicides (Bullock & Arrigo, 2006). For example, in one case, a Capgras patient decapitated his father—whom he thought to be a robot imposter—in order to find the "batteries in his head" (De Pauw & Szulecka, 1988). Studies of differential diagnoses of primary and secondary Capgras syndromes (Malloy et al., 1992) indicate that the former—characterized by earlier, insidious onset and positive psychiatric history—is more associated with paranoia and violence; but the latter—characterized by later, sudden onset and neurological dysfunction—is not.

Though many patients with schizophrenia and other psychotic disorders will not act on their delusions, the risk of them doing so may increase with accompanying emotional distress (Bjorkly, 2002a), fear (Kennedy et al., 1992), sadness (Douglas & Skeem, 2005), anxiety or anger (Kennedy et al., 1992; Buchanan et al., 1993; Silva et al., 1996; Appelbaum et al., 1999), challenge to the delusion by others (Taylor, 2006), or the absence of protective social support networks and professional supervision (Douglas & Skeem, 2005). Junginger (1996) has even proposed the use of content analysis (i.e., counting the number of logical elaborations of the central theme—the who, what, where, when, why, and how) to assess the degree to which a delusion is systematized and to understand its relationship with violence.

How this body of research necessarily applies to the schizophrenia-violence relationship may still be somewhat unclear, as Bjorkly's (2002a) review largely encompasses studies with samples containing disorders other than schizophrenia (e.g., Appelbaum et al. [2000] included only 17.2 % schizophrenia or schizoaffective disordered patients). In fact, only three studies in this review utilized schizophrenia-only samples (Cheung, Schweitzer, Crowley, & Tuckwell, 1997; Humphreys, Johnstone, MacMillan, & Taylor, 1992; Smith & Taylor, 1999a, 1999b). One of these (Smith & Taylor, 1999a, 1999b) studied a sex offender population not characterized entirely by violence *per se* (see below). These three studies noted a prevalence of persecutory delusions among subjects and found a positive relationship between these delusions and violence. Furthermore, in a national case-control study of discharged patients with schizophrenia and other psychotic disorders, Fazel, Buxrud, and colleagues (2010) found no relationship between homicide and the presence of delusions or hallucinations. Controlled studies of violent persons with schizophrenia that compare those who acted upon delusions to those who did not would help to clarify the relationship of delusions and violence in schizophrenia specifically—as would comparing offender and non-offender samples. In summary, though delusions in general and persecutory delusions in particular may be related to violence in only some mentally ill patients, this relationship may be somewhat different in patients with schizophrenia specifically.

Hallucinations

The literature on **command hallucinations** (i.e., voices ordering action—either nonviolent, such as "Play the record player," or violent, such as "Kill everyone in the house!") is disparate—with some studies examining the relationship between command hallucinations and compliance, some the factors associated with acting on command hallucinations, and some the relationship between command hallucinations and dangerous behavior. Although methodological problems have been noted, evidence indicates that some individuals who experience violent command auditory hallucinations will act on them; however, these hallucinations do not produce action in isolation, and other factors mediate the process (Braham, Trower, & Birchwood, 2004). Compliance with auditory command hallucinations may depend upon a variety of different factors. Increased compliance may be associated with beliefs about the voices. Are they malevolent or benevolent, powerful, trustworthy? Whose voice is it? Is it recognizable or familiar? Also important are voice quality, such as how pressuring, persistent, or emotional it is, and voice content, such as how aggressive or self-punishing the instructions are. Other factors of significance to compliance are the person's general reasoning processes leading to action (including beliefs about disobedience in general), his or her mood, the hospital environment, the consistency of the instructions with the individual's delusional beliefs, and the presence of a concurrent delusional belief (Bjorkly, 2002b; Braham et al., 2004; Junginger, 2006). Compliance may also depend upon various personal, situational (e.g., outside versus inside hospital setting), and clinician variables (McNiel, Binder, & Greenfield, 1988).

One recent study of 75 psychotic-disordered adults recruited from community and forensic services (Shawyer et al., 2008) found compliance with harmful command hallucinations to be driven by a complex interaction of beliefs and personal characteristics. Compliance (reported by 79% of the sample) was associated with increased age, viewing the command hallucination as positive, congruent delusions, and low maternal control in childhood. Antipsychotic medication reduced the likelihood of compliance while increased anger and violence history actually reduced odds of compliance with command hallucinations viewed as threatening. Other studies have shown that most command hallucinations urge the person to commit suicide rather than attack others (Häkkänen & Laajasalo, 2006). One study using content analysis of the command hallucinations of 58 inpatients (Hellerstein, Frosch, & Koenigsberg, 1987, in Häkkänen & Laajasalo, 2006) found that, in only 5%, the instruction was to kill another person, and there is evidence that most ignore these commands.

Syndrome of Disorganization and Negative Symptoms

Delusions may not account for all of the excess violence observed in schizophrenia (Baxter, 1997). A three-syndrome model of schizophrenia based on reality distortion, disorganization, and *psychomotor poverty* (Liddle, 1987) may account for the remaining schizophrenia-associated violence; and it has been proposed that thought disorder—the primary feature of the **disorganization syndrome**—may contribute to violence in schizophrenia (Baxter, 1997), though to date this relationship has not been empirically established. Finally, one national antipsychotic clinical-trials study (Swanson et al., 2006) found that negative symptoms of schizophrenia, such as social withdrawal, actually reduced the risk of serious violence. Other authors have also reported a lower risk of violence associated with patients with negative symptoms (Markowitz, 2011).

Other Factors

Poor insight and medication noncompliance have been associated with an increased risk for violence in inpatients with schizophrenia (Arango et al., 1999; Carroll, Pantelis, & Harvey, 2004), and lack of insight at discharge has predicted criminal recidivism in released schizophrenia inpatients (Soyka et al., 2007). Carroll and colleagues (2004) administered measures of insight, hopelessness, and schizophrenia symptomatology to an Australian sample of forensic psychiatric hospital inpatients and outpatients with schizophrenia (25 men and 3 women)—23 of whom were found not guilty by reason of insanity (see Chapter 11) for the crime of murder. (The diagnoses were rendered using DSM-IV criteria for schizophrenia and made by the consulting psychiatrist using file review and interviews.) Results indicated that insight scores did not differ significantly between patients with a history of violence prior to their index offense compared to those without. Awareness of illness, but not compliance, was positively correlated with level of hopelessness; and a higher level of awareness of

having a mental illness was thus related to feeling more hopeless about the future. Additionally, forensic patients demonstrated comparable levels of insight to those shown by general psychiatry (nonforensic) outpatients from samples in Canada and Taiwan (better insight, in fact, compared to the latter)—though the size and characteristics of these samples are not discussed and thus the validity of such comparisons is not entirely clear, nor is the statistical significance of the Taiwanese sample comparison.

Laajasalo and Häkkänen (2006) suggest that situational variables and violent behavioral history rather than psychotic symptomatology may be associated with excessive violence in homicidal schizophrenic persons. In a study of Florida psychiatric clinic patients with schizophrenia who underwent emergency evaluation, Schwartz, Petersen, and Skaggs (2001) found that global level of functioning, manic symptomatology (see Chapter 6), and disturbed thought processes all significantly predicted the degree of homicidal ideation. A decrease in the first and an increase in the latter two variables were associated with increased homicidality. However, correlation does not imply causation, and no nonschizophrenic control groups were used in this study. Results were replicated in a later study (Schwartz et al., 2003), where substance abuse was also found to be positively correlated with extreme homicidality.

Crime in schizophrenia and in other psychotic disorders may reflect the coexistence of additional mental illnesses associated with criminal behavior, such as psychopathy (Laajasalo, Salenius, Lindberg, Repo-Tiihonen, & Häkkänen-Nyholm, 2011; Tengström et al., 2004—see Chapter 10), substance use disorders (McCabe et al., 2012; Tengström et al., 2004—see below), conduct disorder (Hodgins, Tiihonen, & Ross, 2005), and antisocial personality disorder (ASPD; McCabe et al., 2012; Moran & Hodgins, 2004; Schug, Raine, & Wilcox, 2007—see Chapter 10). Joyal and colleagues (2004) found that homicidal offenders in Finland with both schizophrenia and ASPD were less likely to be triggered by psychotic symptoms, more likely to assault victims who were not family or household members, more likely to be intoxicated at the time of the offense, and more likely to be involved in a fight or argument with the victim prior to the homicide than were offenders without ASPD (though these results may merely reflect characteristics associated with ASPD offenders rather than with a subgroup of schizophrenic offenders with ASPD—as nonschizophrenic offenders both with and without ASPD were not used in this study). In a community sample, Schug et al. (2007) found significantly increased rates of self-reported crime in individuals with both schizophrenia-spectrum personality disorders (SSPDs) and ASPD compared to those with either condition alone and to normal controls. Also, both the SSPD and ASPD group and the ASPD-only group were characterized by significantly more official record criminal charges and convictions than were either SSPD-only individuals or normal controls. (Though the SSPD and ASPD group had almost double the number of charges and convictions as the ASPD-only group, these differences were not statistically significant.) Interestingly, Fazel, Buxrud, and colleagues (2010) found depression to be inversely associated with homicide in a national case-control study of discharged psychotic-disordered hospital patients.

Gender

Although both men and women have been included in studies of schizophrenia and crime and violence, gender-specific factors associated with schizophrenic violence have largely gone understudied. Some evidence, however, suggests that schizophrenia may interact with gender to produce elevated rates of violence in schizophrenic women. For example, in a study of a Danish birth cohort, schizophrenic men were found to be 4.6 times more likely to be convicted of violent offenses than men with no psychiatric admissions whereas schizophrenic women were 23.2 times more likely to have violent convictions than their counterparts with no psychiatric admissions (Hodgins, 2004). Similarly, rates of homicide convictions in Copenhagen over a 25-year period (Gottlieb et al., 1987) and of homicidal assaults in West Germany over a 10-year period (Häfner & Böker, 1982) appear comparatively elevated among schizophrenic women (6–44%) versus men (8–20%) and may reflect gender differences.

Studies of violence in samples of women that have included those with psychotic disorders may shed additional light on the nature of violence in women with schizophrenia. For example, in a national sample of 125 Finnish women prosecuted for homicide or attempted homicide who underwent forensic psychiatric evaluation, Putkonen, Collander, Honkasalo, and Lönnqvist (2001) found that those with personality disorders and those with psychoses formed two distinct subgroups of homicidal female offenders. Psychotic women ($n = 34$) were significantly more likely to target children, drown or suffocate victims, and engage in extended suicide;

personality disordered women ($n = 77$) more often targeted adults, stabbed victims, were involved in a quarrel with or were provoked by the victim, and were intoxicated with alcohol at the time of the offense. Finally, one prospective community study of 304 psychotic women (Dean et al., 2006) found one-fifth to have committed assault over a two-year period. Six independent risk factors predicted violence in this sample: history of violence, nonviolent conviction, African-Caribbean ethnicity, victimization, high levels of unmet need, and comorbid Cluster B personality disorder. However, no men were included for comparison, so it is difficult to know if these are gender-specific factors associated with violence in women with schizophrenia.

Origins of Crime and Violence in Schizophrenia: Theoretical Explanations and Etiological Mechanisms

Psychoanalytic Factors

Psychoanalytic interpretations of case material from schizophrenic murderers can be found in the literature (Arieti & Schreiber, 1981; Lehrman, 1939), and some authors have speculated that people with schizophrenia commit violent acts such as homicide as an unconscious defense against an oncoming outbreak of psychosis (Reichard & Tillman, 1950; Sugai, 1999; Wertham, 1937). Others do not agree, stating that *psychodynamic defense mechanisms* are usually employed habitually whereas schizophrenic violence tends to be committed only once (Guttmacher, 1960, in Arieti & Schreiber, 1981). Karpman (1951) interpreted murder within the context of psychoses as being a symbolic murder of one's own homosexuality. According to Blackman et al. (1963), the personality profiles of "sudden murderers" (i.e., individuals who, without prior history of serious aggressive antisocial acts, suddenly and intentionally kill) indicate they are dependent, schizoid, or borderline (see Chapter 10) schizophrenic males with weak masculine identification who are easily provoked into rage. Their homicides follow periods of profound struggling against dependency, feelings of helplessness, inner disequilibrium, and impending psychotic episodes.

Neurobiological Factors

Recent findings suggest that antisocial individuals with schizophrenia may represent a biologically distinct subgroup of schizophrenic individuals. For example, brain imaging studies indicate structural and functional differences in frontal and temporal regions among aggressive, violent, and antisocial schizophrenia patients in comparison to those who are not (e.g., Hoptman et al., 2005; Joyal, Putkonen et al., 2007; Kumari et al., 2006; Spalletta et al., 2001; Wong et al., 1997). Using structural magnetic resonance imaging in a Chinese forensic sample of 92 males and females, Yang, Raine, and colleagues (2010) found differential patterns of volumetric reductions among murderers with schizophrenia, murderers without schizophrenia, and nonviolent schizophrenia inpatients compared to normal controls. These reductions were found in the right hippocampus and parahippocampal gyrus for murderers with schizophrenia, in the right parahippocampal gyrus for murderers without schizophrenia, and in the bilateral medial frontal cortex for nonviolent schizophrenia patients. For murderers with schizophrenia, these gray matter reductions in the right hippocampus were also significant relative to those found in murderers without schizophrenia and in nonviolent schizophrenia inpatients.

EEG anomalies have been shown to characterize violent but not nonviolent schizophrenia patients and controls. For example, violent schizophrenia patients failed to demonstrate P50 auditory evoked potential suppression, suggesting they have disturbed information sensory gating in comparison to nonviolent patients and to controls (Fresán et al., 2007). Additionally, Schug and colleagues (2011) found murderers with schizophrenia to be characterized by increased left-hemispheric *fast-wave* resting EEG activity relative to nonviolent schizophrenia patients; instead, nonviolent schizophrenia patients demonstrated increased diffuse *slow-wave* activity compared to all other groups.

Psychophysiological investigations have produced evidence for a biologically based antisocial schizophrenia subtype. For example, in a study of 101 male schoolchildren (age 14–16 years), Raine and Venables (1984) identified a subgroup of antisocial schoolchildren with schizoid tendencies that were characterized by *skin conductance nonresponding*—suggestive of a disturbance in attentional processes—relative to other antisocial (responding) and prosocial children. In a study of 37 adult, male, top-security English prisoners, Raine (1987) found reduced skin conductance in those characterized by high schizotypy compared to those with low schizotypy. In a later

prospective longitudinal study of 134 males from a Danish birth cohort, Raine, Bihrle, Venables, Mednick, and Pollock (1999) found a subgroup of schizotypal criminals in whom schizotypy was assessed at ages 18–19 and criminality at ages 30–33 years to be characterized by SC-orienting deficits relative to schizotypal noncriminals. These schizotypal criminals also had increased alcoholism relative to criminals, schizotypal noncriminals, and normal controls. Additionally, in an adult community sample, Schug, Raine, and Wilcox (2007) found reduced SC orienting to neutral tones in individuals with both schizophrenia spectrum personality disorders and antisocial personality disorder relative to those with either condition alone or to normal controls.

Specific neuropsychological deficits also appear to distinguish antisocial individuals with schizophrenia from their non-antisocial and nonschizophrenic counterparts. A recent series of meta-analyses of 45 studies (Schug & Raine, 2009) compared the neuropsychological performance of antisocial schizophrenic individuals to that of non-antisocial schizophrenic individuals and to antisocial individuals without schizophrenia. Performance was evaluated across several different domains of neuropsychological functioning for both types of comparisons. Results indicated antisocial schizophrenic individuals, compared to their antisocial counterparts, demonstrated widespread deficits across multiple domains (Full Scale IQ, Verbal and Performance IQ, attention, broadly defined executive function, and memory). However, in comparison to their schizophrenic counterparts, persons with antisocial schizophrenia were characterized instead by reduced general intellectual functioning and memory dysfunction (as opposed to hypothesized Verbal IQ and executive function deficits). More recent data continue to indicate similar deficits in murderers with schizophrenia who commit domestic homicide (Hanlon et al., 2011).

Additionally, molecular genetic studies report that homozygosity of the low-activity *catechol O-methyltransferase (COMT)* genotype differentiates schizophrenia patients characterized by aggressive, dangerous, violent, and homicidal behaviors from those who are not (Kotler et al., 1999; Lachman et al., 1998; Strous et al., 1997), and various forms of antisociality are reportedly elevated among relatives of schizophrenics compared to relatives of nonschizophrenic individuals (Hodgins, 2004). Furthermore, obstetrical factors, such as higher birth weight and larger head circumference, have been associated with later adult criminality in schizophrenia patients (Cannon et al., 2002). Last, Schug and colleagues (2010) found murderers with schizophrenia to be characterized by significantly increased (i.e., later) *birth order* relative to both nonviolent schizophrenia patients and murderers without schizophrenia. Birth order was also negatively correlated with gray matter volume in key frontal subregions for schizophrenic murderers and was negatively correlated with parental socioeconomic status. These findings may suggest that biological, psychosocial, or interactional trajectories may lead to homicidal violence in schizophrenia. Overall, although the findings are still preliminary, the prospect of identifying the distinct biological characteristics of antisocial schizophrenia appears promising.

Theory of Mind

Theory of mind (ToM) is the ability to represent the mental states of one's self and of others (Murphy, 1998; see Chapter 3). It is believed that deficits in ToM functioning might explain the social withdrawal, poverty of speech, and repetitive behaviors seen in schizophrenia. Thought insertion and delusions of control may also reflect impairments in the ability to represent one's own intentions to act, and reference and persecutory delusions may reflect difficulties in representing the mental states of others. Theory of mind research in hospitalized forensic patients has shown that violent individuals with paranoid schizophrenia demonstrated poor empathy but good mentalizing abilities compared to patients who were nonviolent (Abu-Akel & Abushua'leh, 2004). Also, in forensic samples, unique ToM deficits differentiate schizophrenia patients from those without schizophrenia (i.e., those with personality disorders or Asperger's syndrome) and differentiate among subtypes of schizophrenia patients characterized by specific symptoms (Murphy, 1998, 2006).

Substance Use

Police referred to Herbert Mullin as a "whacked-out druggie," and on his abdomen were the tattoos "LEGALIZE ACID" and "Eagle Eyes Marijuana," reflecting his consumption of both substances, which may have exacerbated his illness (Newton, 2000). In fact, rates of substance use among individuals with schizophrenia are high, possibly representing efforts to use legal and illegal substances to self-medicate and reduce psychotic symptoms. Schizophrenic persons are more likely than others to abuse substances and be criminal and violent

(Douglas & Skeem, 2005; Wallace et al., 1998), and substance abuse appears to contribute to increased crime and violence in schizophrenic individuals over and beyond levels seen in those without substance use disorders (e.g., Fazel et al., 2009b, 2009c; Yates et al., 2010). For example, though schizophrenic men without substance use disorders are more than 4 times more likely to violently offend than men with no mental illness or substance abuse, those with alcohol abuse were shown to be more than 25 times more likely to commit violent offenses in comparison to men with no mental disorders or alcohol problems (Tengström et al., 2004). Similarly, in a meta-analysis of 20 studies (incorporating a combined total of 18,423 participants), Fazel and colleagues (2009a) found a nearly four-fold increased risk of violent crime among schizophrenia patients comorbid for substance abuse compared to those without substance abuse. Furthermore, Swanson et al. (1996) found the combination of substance use disorders with **threat/control-override (TCO) symptoms** added significantly to the risk of violent behavior. Finally, Dumais and colleagues (2011) tested their "clinical specificity hypothesis" using a sample of male patients with schizophrenia-spectrum disorders. (The hypothesis is that it is possible to define a specific group of individuals with schizophrenia associated with substance use, impulsivity, and serious violence.) Four subgroups were identified, with substance use disorders being associated with risk for serious violence and incarceration. Furthermore, comorbid alcohol and substance abuse are among the five items on a novel and brief screening tool used for violence prediction in discharged hospital patients with schizophrenia; other items include male gender, previous conviction, and young age at assessment (Singh et al., 2012). Ultimately, it appears that schizophrenia and substance use are often inextricably intertwined, and the effects of such use on crime and violence in schizophrenia continues to be a promising area of study.

Psychosocial Factors

Herbert Mullin did not appear to be characterized by any significant social or interpersonal difficulties in the years leading up to his disorder; in fact—other than his oppressive religious upbringing—the opposite appears to be true. Nevertheless, evidence suggests that psychosocial factors may play a key role in the etiology of crime and violence in schizophrenia. For example, Flannery, Penk, Irvin, and Gallagher (1998) compared violent and nonviolent schizophrenia patients (and, in a subsequent analysis, interpersonally violent versus non-interpersonally violent schizophrenia patients) in several areas of social and personal adjustments in a statewide sample of 847 hospital inpatients (56% males, 44% females). Violence was defined using medical histories, as well as reports and observations made during patient hospitalization, which lasted up to one year. Violence ratings were made by treatment teams of mental health professionals. Violent schizophrenia patients—particularly those who were interpersonally violent (i.e., those that harmed others)—were characterized by deficits in basic daily self-care and in family and community social adjustment; nonviolent patients were characterized by intact social role functioning but with impairments in cognition and affect, including internal confusion, restless agitation, and depression. These authors discuss findings in terms of interpersonal skills and conflict resolution: interpersonally violent schizophrenia patients appear to lack the skills to resolve conflicts with others adaptively while non-interpersonally violent patients may be distracted by internal cognitive confusion and psychotic symptoms, which limit or preclude social interactions and opportunities for conflicts that may tax their limited social skills. In a 14-year prospective follow-up study of a rural Chinese cohort, Ran and colleagues (2010) found the risk of criminality among individuals with schizophrenia to be associated with similar psychosocial risk factors (i.e., being male, unmarried, previous violence, homelessness, no family caregivers, and illness symptom severity). Other psychosocial factors such as stress have been considered in the manifestation of aggressive and violent behaviors in schizophrenia (Volavka & Citrome, 2011). Ultimately, it may be key social factors, such as interpersonal skills and social support networks, that act as important protective mechanisms against violence in schizophrenia.

Other studies have examined psychosocial functioning and early childhood psychosocial deprivation in violent offenders with schizophrenia and other psychotic disorders. Homelessness, for example, is a noted problem among the severely and persistently mentally ill—including those with schizophrenia. Homelessness can impede access to treatment, contribute to deterioration in social functioning, and attenuate social bonds and family support (Felix, Herman, & Susser, 2008). In a sample of English prisoners, Taylor (1993) found psychotic violent offenders more likely to be socially isolated (living alone, homelessness) than their nonpsychotic counterparts. In a Chinese brain hospital sample (see Schug et al., 2011), Schug (2009) found murderers with schizophrenia to be characterized by more recent homelessness in comparison to both normal controls and to nonviolent

schizophrenia patients (though group differences with the latter only approached significance) and more likely to be living alone than murderers without schizophrenia. Additionally, Moran and Hodgins (2004) used four indices of psychosocial functioning in a sample of 232 men with schizophrenic disorders (including 38 murderers). They found more deficits in the GAF (see Chapter 1, and remember that the GAF has been eliminated in the DSM-5) and in intimate relationships, employment history, and "successfully completed military service" in those with ASPD compared to those without ASPD—though these differences were not significant.

Individuals who later become schizophrenic are disproportionately likely to have suffered the disadvantages of social deprivation (i.e., to have low *SES*) both *in utero* and in early life (Venables, Raine, Dalais, Liu, & Mednick, 2006). Schizophrenic murderers in the aforementioned Chinese brain hospital sample (see Schug et al., 2011) have been characterized by significant increases in total amounts of childhood psychosocial deprivation compared to normal controls; examples of deprivation include lacking one or both parents; parental divorce, criminality, discord, alcohol use, and mental and physical health problems; having parents on welfare; large family size; childhood abuse; low parental SES, resulting in moving to many different homes; and childhood institutionalization (Schug, 2009). Indeed, childhood psychosocial deprivation has been reported in psychotic offenders in other studies (Taylor, 1993). In fact, in a 35-year longitudinal study of a Swedish male birth cohort, Eriksson and colleagues (2011) found four factors (at age 18) strongly associated with lifetime criminal offending among those later diagnosed with schizophrenia (i.e., in 377 of 49,398): poor conduct in school, contact with police or child care authorities, crowded living conditions, and arrest for public drinking. In another large Swedish cohort study, Fazel and colleagues (2009a) found parental violent crime to be associated with violent criminality in offspring hospitalized for schizophrenia. In a retrospective interview and records case-control study of English high-security hospital patients with schizophrenia, Jones and colleagues (2010) found paternal criminal convictions, larger family size, and younger age of first cigarette and illegal drug use and of maternal separation, along with younger and more frequent criminal justice system contact, to be associated with preadmission offending compared to postadmission offending (which was associated with younger and more frequent hospitalization). It is noteworthy that many of these social factors are also commonly observed among individuals in the general population who become criminal and violent—reemphasizing that potential pathways to crime and violence among those with schizophrenia may not necessarily be illness related.

Other etiological mechanisms associated with crime and violence in schizophrenia and reflecting a developmental perspective have been proposed by researchers. For example, integrative biological and social (i.e., biosocial) risk factors have been examined in longitudinal studies of crime and schizophrenia. More specifically, Finnish longitudinal health-care and criminal-register data indicate that poor educational attainment and poor grades for attention at school, along with the previously mentioned obstetric factors, were significantly associated with adult criminal offending in a sample of schizophrenia patients (Cannon et al., 2002). Additionally, several studies indicate the existence of what may be a distinct subgroup of "early start" schizophrenic offenders characterized by preschizophrenia criminality (Naudts & Hodgins, 2006). In fact, Hodgins (2008) later proposed three distinct subtypes of violent offenders with schizophrenia based upon the age of onset of antisociality and violence: (1) **early starters**, wherein antisocial behavior emerges in childhood or adolescence, well before the onset of schizophrenia, and remains stable throughout the lifespan; (2) the most common offenders, who are not violent prior to the onset of schizophrenia but are repeatedly aggressive towards others once the illness develops; and (3) a small group with chronic schizophrenia who are not aggressive for one or two decades after the illness develops but who then become seriously violent—often killing those who care for them. Overall, this developmental perspective is crucial in understanding the numerous ways in which schizophrenia and crime may be chronologically related, and it could have enormous implications in the prevention of various forms of schizophrenic violence.

Applied Issues

The last section of this chapter is devoted to various applied issues that have been addressed in the literature on the schizophrenia-crime relationship; they are related to treatment (including medication adherence and treatment alliance), involvement with the criminal justice system, and victimization. Issues related to standard biosocial treatment and management approaches (i.e., pharmacological and psychosocial therapies) may directly influence violence and criminality in individuals with schizophrenia and other psychotic disorders. Violence in

schizophrenic outpatients has been associated with difficulties in basic social areas, including psychosocial treatment adherence, medication compliance, and treatment alliance (Douglas & Skeem, 2005). In fact, Yates and colleagues (2010) found medication compliance to be the single most enduring factor associated with clinical stability and the prevention of crime and violence in a long-term cognitive skills inpatient program for individuals with mental illness (including schizophrenia). Additionally, both biological and social factors are thought to affect the management and treatment of aggression and violence in schizophrenia patients (Volavka & Citrome, 2011); and new biosocial research into the prevention and treatment of schizophrenia indicates that early environmental enrichment approaches that emphasized nutritional, educational, and physical exercise enhancements at ages 3–5 reduced a mild form of schizophrenia and antisocial behavior 14–20 years later (Raine et al., 2006). Furthermore, long-term patient care and mental health service applications may play a significant role in reducing violence in schizophrenic individuals. For example, Erb, Hodgins, Freese, Müller-Isberner, and Jöckel (2001) found that the risk of homicide by persons in Germany with schizophrenia was not significantly different in time periods before and after that country instituted a policy of deinstitutionalization (in the study, 1955–1964 and 1992–1996, respectively). This result suggests that either specialized long-term care or mental health services use (which characterized the latter period) may have a preventative effect and reduce homicides by these individuals.

Researchers have also recently begun to assess the extent and nature of the involvement of schizophrenic persons with the criminal justice system. Such involvement in the United States and other countries is both highly prevalent and costly (Ascher-Svanum, Nyhuis, Faries, Ball, & Kinon, 2010). In fact, Ascher-Svanum and colleagues found being a victim of a crime and being on parole or probation to be the most common encounters with the criminal justice system among individuals with schizophrenia and that the mean annual per-patient cost of this involvement was $1,429. Schizophrenic individuals with criminal justice system involvement were more likely to be substance users and less likely to be compliant with antipsychotic medication regimes compared to those without involvement. Likewise, data from the Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE), a large medication trial treating 1,460 individuals with schizophrenia, indicate several variables associated with criminal justice system involvement: past adolescent conduct disorder, being younger and male, movement disorder symptoms (*Akathisia*) developing as a side effect of antipsychotic medications, and drug abuse (Greenberg et al., 2011). Heinrichs and Sam (2012) found context variables (employment status, education, substance use) and illness symptoms (paranoia, depression, low energy) but not neuropsychological performance to predict criminal charges (i.e., contact with law enforcement). Neither predicted violence or convictions (i.e., involvement with courts) in individuals with schizophrenia, however, suggesting that specific contextual and illness aspects of schizophrenia are associated with particular criminal justice system outcomes. Ultimately, the extreme financial and personal costs related to the interactions with the criminal justice system of individuals with schizophrenia, along with the complex nature of this involvement, further underscore the dire need for a greater scientific understanding of the relationship between schizophrenia and crime.

Finally, a related literature on the association between schizophrenia and criminal victimization has burgeoned in the past decade. Self-reported data from studies in Australia and Finland indicate that patients with schizophrenia and other psychotic disorders are at an increased risk for violent and nonviolent victimization (Chapple et al., 2004; Fitzgerald et al., 2005; Honkonen, Henriksson, Koivisto, Stengård, & Salokangas, 2004). Increased odds are associated with specific victimological characteristics: female gender, homelessness, lifetime history of substance abuse, recent arrest, poorer social and occupational functioning, and increased symptoms of disorganization (Chapple et al., 2004). Furthermore, a recent first-of-its-kind Australian case-linkage study using official victimization records (Short et al., 2013) found patients with schizophrenia-spectrum disorders to be at increased risk for violent and sexually violent but not overall victimization compared to the general community. Interestingly, schizophrenia-spectrum disordered patients who had been charged with a criminal offense were also 4.80 times more likely to have a record of violent victimization and 3.07 times more likely to have a record of nonviolent victimization compared to those without criminal histories. Together, results may suggest a complex interplay between offending and victimization, psychotic illness and substance use, and psychosocial and environmental factors predisposing one to criminality and being victimized (e.g., homelessness) in the relationship between schizophrenia and crime victimization. More work is needed in this important area of research, which will contribute significantly to the current understanding of the overarching schizophrenia-crime relationship.

Conclusion

The case of Herbert Mullin illustrates how acts of extreme violence may manifest within the psychotic experience. In the study of the relationship between mental illness and crime, the scientific literature on schizophrenia is among the largest and most developed relative to that on other mental illness categories. Although prevalence-rate studies have produced variable results, overall, the rates of schizophrenia in criminal populations and of criminal behavior in schizophrenic populations appear to be elevated relative to those for comparison groups without schizophrenia and for the general population. Many studies have focused upon violence in patient samples of schizophrenic persons and on homicide within the context of the disorder. Fewer studies have addressed nonviolent crimes such as property and drug offenses or other more violent crimes such as sexual offenses and arson. Specific psychological factors—psychotic symptoms, such as delusions, hallucinations, syndrome of disorganization, and negative symptoms, along with other factors—have been examined in their relationship with crime and violence. Explanatory mechanisms for crime in schizophrenia have been offered in the form of psychoanalytic theory, neurobiological research, and social explanations. Despite this relative abundance of acquired scientific information about schizophrenia and other psychotic disorders and crime, much more research is needed to understand fully the nature, scope, and implications of the relationship between the two phenomena.

KEY TERMS

Capgras syndrome
catatonic behavior
command hallucinations
delusion
delusions of misidentification
disorganization syndrome
disorganized speech
Doppelgänger syndrome
early starters
Fregoli syndrome
hallucination
intermetamorphosis
negative symptoms
persecutory delusions
positive symptoms
psychotic disorders
schizophrenia
thought disorder
threat/control-override (TCO) symptoms

REVIEW QUESTIONS

1. Compare and contrast the theoretical perspectives regarding the etiology of schizophrenia outlined in this chapter. Identify and describe areas of conceptual overlap.
2. Examine Tables 5.5 and 5.6 and the summaries of research studies in the "A Closer Look" sections for each disorder in this chapter. Discuss how prevalence rates of crime in the disordered populations and of the disorder in criminal populations differ among these disorders, if at all. Using the information in the tables, speculate as to how these differences in prevalence rates may have been caused by methodology (e.g., in terms of study types, sample characteristics, methodological issues, or other concerns).
3. Compare and contrast the associations between schizophrenia and the crimes of homicide, arson, property offenses, and sexual crimes. Critically evaluate the research in each of these areas.
4. Compare and contrast the symptoms of schizophrenia in terms of their potentially differential contributions toward crime and violence.
5. Reflect on research that concerns the theoretical explanations of and the etiological mechanisms involved in the origins of crime and violence in schizophrenia. Identify the strengths and weaknesses of each perspective. From which theoretical perspective does the research hold up best to critical evaluation? Explain your answer.