

## UNDERSTANDING THE RISK FACTORS ASSOCIATED WITH VIOLENT BEHAVIOR IN SCHIZOPHRENIA

Miodrag Zdravković<sup>1,2</sup>, Jovana Petrović<sup>2,3</sup>, Iva Binić<sup>2,3</sup>, Suzana Tošić-Golubović<sup>2,3</sup>, Bogdan Pinterović<sup>1</sup>, Filip Petrović<sup>4</sup>

This review examines the risk factors associated with violent behavior in individuals with schizophrenia, highlighting public perceptions and empirical evidence in this area. While schizophrenia affects approximately 1% of the population, research indicates that 5% of homicide offenders have been diagnosed with the disorder. Public stereotypes link mental illness with aggression, yet studies show only a modest association between schizophrenia and violent behavior. Proposed risk factors include younger age, male gender, unemployment, economic disadvantage, childhood abuse, and poor anger management. Substance misuse, particularly among individuals with schizophrenia, significantly increases the risk of violence, while the duration of untreated psychosis is also correlated with a higher likelihood of violent behavior. Individuals experiencing first-episode psychosis face elevated risks of violence prior to receiving treatment. Research indicates that symptoms such as hallucinations and delusions correlate with aggressive behavior, with personality disorders, particularly antisocial personality disorder, identified as significant predictors. It is important to note that while individuals with schizophrenia typically demonstrate lower rates of violence, the existence of comorbid conditions or acute psychotic symptoms can markedly increase the associated risk. Early identification and appropriate treatment can help reduce these risks and improve community safety.

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<sup>1</sup>Institute of Forensic Medicine, Niš, Serbia

<sup>2</sup>University of Niš, Faculty of Medicine, Niš, Serbia

<sup>3</sup>University Clinical Center Niš, Psychiatry Clinic, Niš, Serbia

<sup>4</sup>University Clinical Center Niš, Radiology Center, Niš, Serbia

Contact: Miodrag Zdravković  
81 dr Zorana Djindjića Blvd., 18108 Nis, Serbia  
E-mail: zdravkovicdrmi@gmail.com

### Introduction

Aggressiveness is an inherent instinct in humans, as in other living organisms. This behavior is essential for the survival of the individual, which in turn contributes to the species' continued existence from an evolutionary perspective (1). Violence represents an extreme manifestation of aggression aimed at inflicting significant physical harm (2). While the prevalence of schizophrenia is generally estimated at around 1% of the population, a study involving 1,594 homicide offenders found that 5% had been diagnosed with schizophrenia (3).

Public perceptions of individuals with psychosis and other severe mental illnesses

continue to be disproportionately damaging (4). The general population frequently associates mental illness, especially psychotic disorders, with aggression, violent behavior, and a perceived threat to safety (5). Despite negative public perceptions and exaggerated beliefs regarding violence in individuals with psychosis and other severe mental illnesses, empirical studies, meta-analyses, and literature reviews indicate a consensus that there is a modest but consistent increase in the risk of aggression and violence among individuals with psychosis (6–8). A meta-analysis of 204 studies, encompassing 166 independent datasets, revealed that psychosis was associated with a 49–68% increase in the likelihood of violent behavior (9).

Several recent systematic reviews and meta-analyses have been conducted in this area. A notable limitation of these studies is the overly broad terminology, particularly in relation to violence and diagnostic categories. Violence encompasses a wide range of behaviors, from verbal threats and aggression to homicide (10). There may be a difference in the psychological characteristics associated with milder aggression and more serious acts of hostility. Studies have shown contradictory findings since the term "violence" has not been defined precisely and

operationally, making it difficult to draw firm conclusions on the factors linked with violence.

The objective of this review was to assess the empirical evidence that supports the relationship between the risk factors associated with severe violence in individuals with schizophrenia and to identify them.

### **Risk Factors**

Several factors were found to predict violent behavior during the follow-up period, including the severity of prior criminal activity, the frequency of previous arrests, younger age, male gender, unemployment, living in an economically disadvantaged neighborhood, and a history of childhood abuse. Other predictors included having a father with a history of substance abuse or who left the family before the child reached the age of 15, poor anger management, violent fantasies, a history of head injuries or loss of consciousness, and involuntary psychiatric hospitalization (11).

### **Substances Misuse**

Contrary to expectations, a diagnosis of schizophrenia was associated with a reduced likelihood of post-hospital violence. In contrast, personality disorders, adjustment disorders, and substance use disorders were associated with an increased risk. Additionally, individuals with schizophrenia showed lower rates of post-hospital violence compared to those with bipolar disorder or depression. These findings have been widely interpreted (11).

Research has shown that substance misuse among people with schizophrenia is associated with the most serious forms of violence. A meta-analysis focusing on violence during the first episode of psychosis (FEP) found that substance use was associated with violence of varying intensity, with an odds ratio (OR) of 2.33. After the first psychotic episode, this increased to 2.74 (8). The OR for pre-hospital drug or alcohol abuse in psychotic patients who committed homicide after discharge was 4.3 in one study, compared to patients who did not engage in violent crime. It was discovered that 73% of psychotic individuals accused of murder reported engaging in substance misuse, even though only 35% reported being under the influence at the time of the crime (12, 13). In addition, a comprehensive analysis that used meta-regression analysis to identify risks of violence found that, when focusing on studies that measured serious violence, the OR for substance misuse was 2.2. Although some argue that substance use is the leading cause of violence in people with schizophrenia and that specific psychotic factors have an almost negligible influence, data show that patients with schizophrenia without comorbid substance abuse also have an increased risk of violent behavior (14). Furthermore, a study conducted in Japan found no association between substance misuse

and violence (15). The most reliable evidence of the link between schizophrenia and violence is substance misuse. Although substance use can explain a significant portion of the variance in violence when comparing patients with violent schizophrenia those who do not, it does not account for all aspects of that behavior. When evaluating independent psychological characteristics that indicate a higher risk of violence, drug misuse is less important because it is more commonly seen as a co-occurring illness within the disease.

### **Duration of Illness and Treatment**

Recent research shows that people who experience a first episode of psychosis are at greater risk of committing serious violent acts compared to those who experience later episodes. A review of violence associated with first-episode psychosis found that approximately one-third of patients exhibit some violent behavior before first receiving treatment, while approximately 16% engage in acts of more serious violence (8, 13). A meta-analysis that analyzed homicide rates in first-episode psychosis cases found that 38.5% of homicides occurred during this critical period (16). Regarding the duration of untreated psychosis (DUP), there is evidence to suggest that longer duration directly increases the likelihood of serious violence (13, 15, 17). Compliance with treatment also plays a significant role in this context. Research indicates that coercive treatment is strongly associated with violent behavior that occurs after initiation of therapy. Non-adherence to prescribed treatment is also linked to serious acts of violence. These findings emphasize the importance of early intervention and effective treatment strategies to reduce the risk of violence during the first episode of psychosis. Addressing the duration of untreated psychosis (DUP) is essential, as prolonged untreated psychosis may increase the likelihood of violent outcomes (8, 12).

About one-third of people with first episode of psychosis commit minor violent acts, putting them at a significantly higher risk of violence overall and especially before they get treatment. Research indicates that the highest risk for homicide occurs in first-episode patients prior to receiving their initial psychotic treatment, with 38.5% of all psychosis-related homicides taking place during this period (18). The objective of one study was to examine whether individuals with first-episode psychosis are more prone to committing violent crimes compared to the general population. They analyzed the annual crime rates recorded for a specific cohort between 2009 and 2016. They compared these with the crime rates of the general population in the same region over the same period. The analysis revealed no significant differences in the types of violent acts committed by people with FEP. However, the most common type of violence observed was intrafamily violence. This finding is consistent with prior research, which indicates that

violence is primarily directed at family members and typically occurs within the home (19). A significant portion of individuals with first-episode psychosis commit violent acts before seeking treatment, including some who engage in more severe violence, resulting in harm to others. However, instances of severe violence leading to serious or permanent injury to the victim are relatively rare in this population (8).

### **Abuse in Childhood**

Research that focused on patients with early-onset psychosis found that individuals who were victims of childhood abuse were more likely to display violent behavior later in life. A meta-analysis examining violence in psychosis included studies on both physical and sexual childhood abuse. The results demonstrated is a moderate association between violence and reported cases of physical abuse (20). One study provided strong evidence that various forms of childhood adversity were linked, to different extents, with a higher likelihood of developing psychotic disorders in adulthood. Additionally, exposure to multiple adversities was associated with a gradual increase in the risk of psychosis. In particular, extreme hardship, including aggressiveness, threats, and physical violence, may significantly increase the risk. Also, the timing of specific events during adolescence may be particularly important (e.g., sexual abuse, bullying) (21).

### **Clinical characteristics**

#### **Hallucinations and Delusions**

Research has shown a link between auditory hallucinations and violent behavior, with findings indicating that people who experience such hallucinations are more prone to violence. Also, evidence suggests that there is a significant association between hallucinatory behavior and an increased risk of serious violence. In a study with a sample of 88 psychotic patients who had committed murder, auditory hallucinations that resulted in persecutory delusions were recognized as the most prevalent symptom. Furthermore, another study indicated that 81% of individuals responsible for serious acts of violence reported having experienced auditory hallucinations (13, 22, 23).

Research has identified a significant relationship between serious violence and grandiosity. A study examining patients with psychotic disorders involved in severe violent incidents found that a substantial majority reported experiencing delusions during their offenses (22, 24). When comparing those engaged in serious violence with a non-violent subgroup over two years, a strong correlation emerged between severe violence and delusions that suggested threats. These included beliefs of being monitored, persecutory delusions, and notions of conspiracy.

It is significant to recognize that the anger associated with these delusions appears to be crucial for understanding the relationship between psychosis and violence (25). Participants also showed a high link between excessive violence and paranoia. Paranoid ideation correlated with several forms of violence. In addition, studies investigating the association between paranoia and aggression in psychotic individuals have concluded that there is mixed support for the existence of a link between paranoia and aggression in individuals with schizophrenia. However, when the quality of the studies was considered, those of higher quality tended to show a positive correlation between the two factors (26, 27).

### **Personality Disorder and Impulsivity**

The incidence of violence in individuals with psychosis is often lower compared to other mental health disorders, including personality and substance use disorders. Antisocial personality disorder has been recognized as a significant clinical factor associated with aggressive violence in individuals with comorbid psychosis (28, 29). Research has shown that past suicidal threats and attempts increased the likelihood of violent behavior in male schizophrenia patients by 3.8%, compared to a 2.8% increase in those without a history of suicidal behavior. In female patients, past suicidal threats and attempts raised the odds ratio for violence to 9.4%, compared to a 4.4-fold increase in the non-suicidal group. These findings suggest that both suicidal behavior and violence are linked to a broader tendency toward impulsivity, with severe impulsivity, mainly when expressed as intense aggression toward oneself, potentially serving as an indicator of the risk for violence toward others (30).

Some studies suggest that impulsivity contributes to reactive violence, crime, and antisocial behavior (31–34). Consequently, schizophrenia is consistently associated with an elevated risk of violent behavior compared with the general population and some other psychiatric disorders, across countries and definitions of violence. In schizophrenia, conceptual models of violence propose that the psychopathological symptoms of the disorder (such as hallucinations and delusions) are the cause of the violent behavior in patients. According to a recent literature analysis, violence that is precipitated by a mental illness, such as schizophrenia, is classified as medical. However, aggression that is motivated by delusions or hallucinations can also be classified as impulsive, premeditated, or compulsive (23, 35). In patients with severe violence, weak impulse control, as measured by Positive and Negative Syndrome Scale the (PANSS), was significantly increased (36). One review only identified four studies that investigated the correlation between impulsivity and violence in individuals with psychosis. The

evidence of a link between impulsivity and violence in psychotic patients is equivocal (37). In individuals diagnosed with psychosis, a strong association between weak impulse control and the risk of violence was determined by a meta-analysis (24). Overall, the evidence demonstrates that impulsivity might be an important factor in the violent and aggressive behavior of people with schizophrenia, both forensically and clinically.

## Conclusion

Patients diagnosed with schizophrenia exhibit low rates of violent behavior, both in terms of minor and severe violence. However, the presence of comorbid conditions such as dual pathology, substance abuse, or positive symptoms at the time of an aggressive act—categorized as hostility, impulsivity, persecutory delusions, and plausible hallucinations—interpunkcija significantly associated with aggressive behavior. Aggressive behavior in newly admitted acute psychiatric inpatients with untreated or insufficiently treated psychosis is mainly driven by psychotic symptoms and disrupted impulse regulation. Many patients are incarcerated in forensic psychiatric institutions, jails, or prisons, where substantial obstacles exist in accessing appropriate mental health care.

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## RAZUMEVANJE FAKTORA RIZIKA POVEZANIH SA NASILNIM PONAŠANJEM U SHIZOFRENIJI

Miodrag Zdravković<sup>1,2</sup>, Jovana Petrović<sup>2,3</sup>, Iva Binić<sup>2,3</sup>, Suzana Tošić Golubović<sup>2,3</sup>, Bogdan Pinterović<sup>1</sup>, Filip Petrović<sup>4</sup>

<sup>1</sup>Zavod za sudsku medicinu, Niš, Srbija

<sup>2</sup>Univerzitet u Nišu, Medicinski fakultet, Niš, Srbija

<sup>3</sup>Univerzitetski klinički centar Niš, Klinika za psihijatriju, Niš, Srbija

<sup>4</sup>Univerzitetski klinički centar Niš, Centar za radiologiju, Niš, Srbija

Kontakt: Miodrag Zdravković  
Bulevar dr Zorana Đinđića 81, 18108 Niš, Srbija  
E-mail: zdravkovicdrmiomdrag@gmail.com

U ovom radu se ispituju faktori rizika povezani sa nasilnim ponašanjem osoba koje boluju od shizofrenije. Shizofrenija pogađa otprilike 1% populacije, a istraživanja pokazuju da je kod 5% počinitelja ubistava dijagnostikovana upravo ova bolest. Prema stereotipi povezuju mentalne bolesti sa agresijom, studije ukazuju na to da postoji samo neznatna povezanost između shizofrenije i nasilnog ponašanja. Predloženi faktori rizika uključuju mlađi uzrast, muški pol, nezaposlenost, nepovoljnu ekonomsku situaciju, zlostavljanje u detinjstvu i lošu kontrolu impulsa. Zloupotreba supstanci, posebno među osobama koje boluju od shizofrenije, značajno povećava rizik od ispoljavanja nasilnog ponašanja. Što se duže psihoza ne leči, veća je verovatnoća da će doći do pojave nasilja. Kod osoba sa prvom psihotičnom epizodom postoji povećan rizik od ispoljavanja nasilja, naročito pre početka tretmana. Istraživanja pokazuju da su simptomi poput halucinacija i deluzija u korelaciji sa agresivnim ponašanjem, sa poremećajima ličnosti, posebno sa antisocijalnim poremećajem ličnosti, koji su identifikovani kao značajni prediktori. Važno je istaći da je kod osoba koje boluju od shizofrenije stopa ispoljavanja nasilnog ponašanja niža, ali i da postojanje komorbiditeta ili akutnih psihotičnih simptoma može značajno povećati rizik da će doći do pojave nasilja. Rana identifikacija pomenutih faktora rizika i odgovarajući tretman mogu pomoći da se osigura bezbednost i zajednice.

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**Ključne reči:** nasilje, shizofrenija, faktori rizika

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