Schizophrenia, Alcohol Abuse, and Violent Behavior: A 26-Year Followup Study of an Unselected Birth Cohort

by Pirkko Räsänen, Jari Tiihonen, Matti Isohanni, Paula Rantakallio, Jari Lehtonen, and Juha Moring

Abstract

It has been suggested that schizophrenia and alcoholism are associated with violent behavior. But so far there are no published studies from unselected cohorts quantifying the actual risk associated with schizophrenia both with and without comorbid alcoholism. In this study, an unselected birth cohort (n = 11,017) was prospectively followed to the age of 26, and data on psychiatric disorders and crimes were collected from national registers. The odds ratios for violent offenses and recidivism were calculated for each diagnostic group. Men who abused alcohol and were diagnosed with schizophrenia were 25.2 (95% confidence interval (CI) 6.1–97.5) times more likely to commit violent crimes than mentally healthy men. The risk for nonalcoholic patients with schizophrenia was 3.6 (95% CI 0.9–12.3) and for other psychoses, 7.7 (95% CI 2.2–23.9). None of the patients with schizophrenia who did not abuse alcohol were recidivists (>2 offenses), but the risk for committing more crimes among alcoholic subjects with schizophrenia was 9.5-fold (95% CI 2.7–30.0). This study suggests that to prevent the crimes being committed by people with schizophrenia, it is important that clinicians watch for comorbid alcohol abuse.

Key words: Alcohol abuse, crime, violence.


Many recent studies suggest an association between schizophrenia and violence (Lindqvist and Allebeck 1990; Cirincione et al. 1992; Hodgins 1992). There is also clear evidence for a relationship between alcohol abuse and violent behavior (Tiihonen et al. 1993; Eronen 1995; Eronen et al. 1996a, 1996b). More recently, attention has been paid to the comorbidity rate of schizophrenia and alcoholism, which has been reported to range from 6 to 44 percent among subjects with schizophrenia (Peace and Mellsop 1987; Regier et al. 1990; Cohen 1995; Rice and Harris 1995). Data obtained from selected populations suggest that subjects with this comorbidity have a more than twofold risk of committing violent crimes than nonalcoholic subjects with schizophrenia (Lindqvist and Allebeck 1989; Swanson et al. 1990; Eronen et al. 1996b).

According to Rice and Harris (1995), who studied 618 criminal offenders, 26 percent of subjects with schizophrenia who abused alcohol were violent offenders, compared with 7 percent of subjects with schizophrenia who did not abuse alcohol.

Many studies concerning psychiatric disorders and criminality have been the subject of fair criticism due to their methodological weaknesses, that is, the study material was limited to criminal offenders or psychiatric patients, the followup periods were short, or the diagnoses were not validated. The first study that can be considered free from this sampling bias was the long-term followup of inpatients with schizophrenia that focused on whether they had committed assault (Lindqvist and Allebeck 1990). The researchers analyzed 644 subjects with schizophrenia and found that 38 (6%) of them had been violent, and of these, 14 (37%) had a drinking problem. Only one of the four violent women in this study abused alcohol, as were five of eight multiple offenders (>2 offenses). The subjects with schizophrenia committed four times as many violent crimes as did the general population.

The largest amount of evidence thus far has been obtained from Hodgins' longitudinal prospective studies of an unselected birth cohort in Stockholm, Sweden (Hodgins 1992), and in Denmark (Hodgins et al. 1996). The Stockholm cohort (n = 15,117) was followed to the age of 30 and the data were collected from national psychiatric and police registers. It was found that men with

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major mental disorders (schizophrenia, major affective disorders, paranoid states, and other psychoses) were 2.5 times more likely to commit a crime than men not suffering from such a disorder and 4 times more likely to commit a violent offense. Women with major mental disorders were 5 times more likely to commit all crimes and 27 times more likely for violent offenses. Alcoholics were also at greater risk for committing crimes. The study did not determine risks for specific mental disorder diagnoses separately. In the Danish cohort, men with major mental disorder (n = 3,130) were 2.4 to 4.5 times more likely to commit a violent crime, and those who also abused alcohol (n = 1,731) were 4.2 to 6.7 times more likely to commit a violent crime than the mentally healthy group.

At present, there are no published data examining extensive bias-free material on the comorbidity of schizophrenia and alcoholism and its relationship to violence. We have tackled this issue by evaluating a methodologically firm, unselected birth cohort.

**Methods**

The Northern Finland 1966 Birth Cohort Study is an unselected, general population birth cohort based on all pregnant women (n = 12,068) in the provinces of Lapland and Oulu who gave birth to 12,058 live-born children in 1966. Study material consisted of cohort members (n = 11,017) who were living in Finland at the age of 16. Variables relating to the subjects' biopsychosocial conditions have been collected prospectively from pregnancy up to the age of 27. The description of the birth cohort has been presented in detail (Rantakallio 1988). Data on psychiatric hospitalizations were collected from the Finnish Hospital Discharge Register (FHDR) until the end of 1993, and all subjects with psychiatric diagnoses according to DSM-III-R (American Psychiatric Association 1987) were identified (n = 561). The FHDR, which was founded in 1967, contains all psychiatric diagnoses of patients treated in all mental and general hospitals, and it has been found to be a valid and reliable tool for epidemiological research (Keskimäki and Aro 1991; Isohanni et al. 1997).

The diagnostic validation was made by psychiatrists who scrutinized all hospital case notes for all psychoses, personality disorders, and substance use disorders. The Operational Criteria Checklist for Psychotic Illness (OPCRIT; McGuffin et al. 1991) was used to yield diagnoses according to DSM-III-R criteria. In addition, clinical information was also entered into the proforma for DSM-III-R diagnoses used by the Finnish Adoption Study (Tienari et al. 1993). Concordant diagnoses from these two systems were accepted as valid. Finally, discrepant diagnoses as well as all clinical material were evaluated by two senior clinicians in order to reach a consensus DSM-III-R diagnosis.

Reliability was ensured in the following way: First, in a cross-national reliability exercise, 40 case summaries were reviewed for DSM-III-R criteria and placed into eight hierarchical categories. The kappa for this approach was good—0.77 (M.I. vs. J.M.). Second, all diagnoses of the cohort members were validated for the DSM-III-R criteria until the end of 1993. Reliability was ensured in many phases, having good kappa values, or range of 0.6 to 0.9. Ultimately, 76 subjects with schizophrenia (51 males, 25 females) were identified (Isohanni et al. 1997). Further, a second reevaluation was performed by a psychiatric resident, who collected all the available data on alcohol and drug use habits of subjects with schizophrenia from the case records without knowing the results of the criminal record survey. Of the 76 subjects with schizophrenia, 11 male and 2 female subjects were classified as abusing alcohol or being alcohol dependent (DSM-III-R), termed here as alcoholism. Three of 13 alcoholics were also using cannabis. The diagnoses (n = 13), settled by a junior researcher, went through the diagnostic validation process described above and all were classified as alcoholism. Data on crimes were collected from files maintained by the Ministry of Justice until the end of 1992 (Rantakallio et al. 1995). This national register includes all crimes known to police committed anywhere in Finland. Violent crimes were considered to be homicide, assault, robbery, arson, or violation of domestic peace.

**Results**

The prevalence of violent offenders among nonhospitalized men in the cohort was 2.2 percent and among nonhospitalized women, 0.2 percent before the age of 27. Of the male subjects with schizophrenia and comorbid alcoholism, 36.4 percent had committed violent crimes, compared with 7.5 percent for nonalcoholic subjects with schizophrenia. None of the women with schizophrenia, two of whom were also alcoholics, had committed any crimes.

Table 1 shows the number of subjects, prevalence of violent offenders, odds ratios (OR), 95 percent confidence intervals (CIs), and p-values for each diagnostic group among the male cohort members.

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Subjects</th>
<th>Prevalence of Violent Offenders</th>
<th>Odds Ratio (OR)</th>
<th>95% CI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schizophrenia, concomitant alcoholism</td>
<td>76</td>
<td>36.4%</td>
<td>11.9</td>
<td>6.1-23.9</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Male schizophrenia, alcoholism</td>
<td>13</td>
<td>25.2%</td>
<td>5.2</td>
<td>2.2-12.3</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Female schizophrenia, alcoholism</td>
<td>2</td>
<td>7.5%</td>
<td>0.7</td>
<td>0.1-4.3</td>
<td>0.65</td>
</tr>
</tbody>
</table>

Men with concomitant alcoholism and schizophrenia were 25.2 (95% CI 6.1-97.5) times more likely to commit violent crimes than mentally healthy men. The corresponding risk for nonalcoholic subjects with schizophrenia was 3.6 (95% CI 0.9-12.3) and for other psychoses, 7.7 (95% CI 2.2-23.9).
We also studied the crime recidivism among the male cohort members and found that none of the nonalcoholic subjects with schizophrenia had committed three or more offenses (violent or any other crimes) during the 13-year followup (1981–93). The risk for recurring crimes among alcoholic subjects with schizophrenia was ninefold ($n = 2$, OR 25.2 vs. 3.6). These findings greatly exceed the figures reported in the literature (Lindqvist and Allebeck 1990; Hodgins 1992; Tiitonen et al. 1993). We consider the study findings important because the cohort members are still so young. Eronen and colleagues (1996b) found that concomitant alcoholism increased the risk of violence by over twofold compared with nonalcoholic subjects with schizophrenia, and in our study this risk increase was over sevenfold. This was not the case for the female subjects in our study, which may be because of the cohort's small number of females with psychoses or because of the youth of the cohort members. Also, women may start committing violent offenses than the general population (Hodgins 1992; Hodgins et al. 1996).

The case-record study material might underestimate both alcohol and drug consumption of subjects with schizophrenia. However, in Finland only a small proportion (3%) of people with schizophrenia are treated solely as outpatients, and the hospital case notes are generally good from the diagnostic point of view (Ishohanni et al. 1997). We think that this study succeeded in avoiding the problem of false-negative cases and misdiagnosis of substance-induced psychoses as schizophrenia.

Our most important findings were that one-fifth of male subjects with schizophrenia were already alcoholics before the age of 27, and they were seven times more likely to commit a violent crime than nonalcoholic subjects with schizophrenia (OR 25.2 vs. 3.6). These findings greatly exceed the figures reported in the literature (Lindqvist and Allebeck 1989; Swanson et al. 1990;
Eronen et al. (1996b). We also found that the risk for violence by nonalcoholic subjects with schizophrenia was about half that of subjects with other psychoses. Another important finding was that none of the nonalcoholic subjects with schizophrenia were recidivists, whereas there was about a tenfold risk for alcoholic subjects with schizophrenia compared with the general population. It is essential to remember that deinstitutionalization and reduction of the number of mental hospital beds can increase the substance abuse problems of severely mentally ill persons (Lamb 1993). We think that in the risk evaluation and the prevention of criminality among subjects with major mental disorders, it is important to pay attention to the possibility of coexisting alcoholism. Treatment of this aspect of the patient's condition should not be overlooked.

References


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