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PAPER

PSYCHIATRY

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Association for Methodology and Documentation in Psychiatry Profiles Predict Later Risk for Criminal Behavior and Violent Crimes in Former Inpatients with Affective Disorder*

ABSTRACT: Few studies have investigated criminal and violent behavior in patients with affective disorders. We reviewed the national crime register for records of criminal offenses committed by 1561 patients with affective disorders and studied the predictive value of certain psychopathological symptoms assessed with the Association for Methodology and Documentation in Psychiatry (AMDP) system concerning future criminal behavior. Sixty-five (4.2%) patients had been convicted in the 7–12 years after discharge (307 cases). Patients with the AMDP syndrome mania had a significantly higher risk for later criminal behavior. The combination with the hostility syndrome further increased the risk. These findings are in line with previous data indicating a higher risk for later criminal behavior in patients with a manic/bipolar disorder compared to depressive disorder. As previously demonstrated in another sample of schizophrenic patients, the AMDP syndromes mania (and hostility) is associated with a higher risk of later criminal behavior.

KEYWORDS: forensic science, forensic psychiatry, aggression, violent crime, AMDP, affective disorder, psychopathology

Recent data indicate a dramatic twofold to threefold increase in patients with mental disorders treated in forensic-psychiatric hospitals over the last decade (1). Previously, numerous studies have suggested an association between major mental disorders, criminal behavior, and violent crimes (2–12). The most robust evidence exists for an association between schizophrenia and violent crimes (13,14). There are less studies on affective disorders and violent behavior (3,8,10,11). Some studies suggest a higher criminality rate in bipolar and manic patients than in patients with unipolar major depression (8). Previously, we reported the risk for nonviolent and violent crimes to be highest in former inpatients with bipolar disorder (15).

Multiple studies aim to define predictors for violence risk in patients with mental disorders. Previous studies identified substance use as a risk factor for later criminal behavior and violent crimes (3,16–21), especially in manic and bipolar disorder (22–24). Other predictors of later criminal behavior in psychotic patients are lack of insight (14,25,26) and medication noncompliance (14,27,28).

As the risk assessment in psychiatric patients cannot be based on clinical diagnosis only, we examined further psychopathological data obtained in a large group of former inpatients with affective disorder studied for the prevalence of criminal behavior and violent crimes in a 7-year to 12-year postdischarge period concerning their predictive value on later criminal risk.

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Methods and Data Analysis

The methods of this study have been described in detail elsewhere (14,15). In brief, we analyzed the prevalence of criminal behavior and violent crimes among former inpatients with affective disorder (ICD-9 criteria) by reviewing the German national crime register of criminal offenses ("Bundeszentralregister"). This register records all convictions and acquittals (but not charges) for nonviolent and violent crimes. We assessed convictions between discharge (1990–1995) and 2002 and separated entries in the register into two groups: nonviolent criminal behavior and violent criminal behavior. In this additional study, we analyzed Association for Methodology and Documentation in Psychiatry (AMDP) syndromes as predictive factors for criminal behavior and violent crimes among former inpatients with affective disorder, i.e., bipolar, manic, and major depressive disorder according to ICD-9 criteria. The ICD-9 diagnosis for a manic disorder (a distinct period of abnormally and persistently elevated, expansive, or irritable mood lasting at least 1 week with or without psychotic symptoms) corresponds to the DSM-IV criteria for a single manic episode that is subsumed under the category of bipolar disorders.

The AMDP system is a comprehensive rating instrument developed by the Association for Methodology and Documentation in Psychiatry and includes more than 200 symptoms (29). Each psychiatric symptom of the AMDP system is scored on a four-point scale from 0 (absent) to 3 (severe) with defined anchor statements

using a semi-structured interview. Pietzcker et al. (30) extracted nine psychopathological syndromes by using a principal component analysis of AMDP ratings to establish possible psychopathological characteristics for future criminal behavior: paranoid-hallucinatory, depressive, psycho-organic, obsessive-compulsive, manic, apathy, hostility, catatonic/stuporous, and autonomic syndrome. For example, the hostility syndrome is composed of seven AMDP symptom items: suspiciousness, dysphoria, irritability, aggressiveness, lack of feeling of illness, lack of insight, and uncooperativeness. As each item can be rated as 0 (absent), 1 (mild), 2 (moderate), or 3 (severe), the total possible score for the hostility syndrome ranges from 0 to 21 (sum scores of all items). In addition to the aforementioned standardized assessment of psychopathological symptoms, the AMDP system also includes a section for the documentation of sociodemographic data like marital status, education, and ethnicity.

Subjects

All patients ($n = 1561$) were included who met the ICD-9 diagnosis of affective disorder and were treated as inpatients in the Psychiatric Hospital of the Ludwig-Maximilian University of Munich between 1990 and 1995. Patients were subdivided into those with bipolar ($n = 756$), manic ($n = 89$), and major depressive disorder ($n = 702$). Fourteen patients with other and unspecified bipolar or episodic mood disorder were not included in the analysis.

Procedure

The psychopathology and clinical history of all included patients had been assessed by an experienced and trained psychiatrist. The AMDP assessment took place at admission to and discharge from inpatient treatment.

Statistical Analysis

Data were analyzed using SPSS, version 16.0. Continuous variables were analyzed by univariate variance analyses, categorical data by chi-square test. To predict later criminal behavior, we used a binary logistic regression with the AMDP syndromes as predicting variables to predict the probability of the event "future criminal behavior" (yes/no). To calculate the impact of co-existing syndromes on later criminal behavior, syndromes were classified as 0 (absent), 1 (mild), or 2 (moderate/severe). The discrimination between 1 and 2 was made by means of a median split. The relative frequency of later criminal patients compared to later noncriminal patients in the presence of co-existing syndromes (e.g., hostility AND manic syndrome) of different severity was calculated by chi-square test.

In a final step, we calculated the odds ratios (OR) to estimate the average change in the odds of the predicted event (criminal behavior after discharge) associated with the presence of the risk factor "psychopathological syndrome."

The two-tailed alpha level was 0.05.

Results

Patient Characteristics

During the observation period, a total of 307 convictions were recorded, among them, 258 nonviolent and 49 violent crimes (for details see [15]). Seventy-four crimes were committed by patients with a manic disorder (65 nonviolent and 9 violent crimes), 76 by patients with a bipolar disorder (62 nonviolent and 14 violent crimes), and 154 by depressive patients (129 nonviolent and 25 violent crimes). A total of 65 patients committed the nonviolent and violent crimes (14 patients with a manic, 17 with a bipolar, and 33 with a major depressive disorder). All 65 patients (4.2% of the whole sample) committed nonviolent crimes; 21 of them committed violent crimes, too. Regarding all 307 convictions, each offender committed 4.72 crimes on average (manic disorder: 5.29; bipolar disorder: 4.47; depressive disorder: 4.67). Seventy proceedings were discontinued because of lack of evidence. They could not be differentiated and were counted as nonviolent crimes.

Sixty-five patients (4.16% of the total sample) committed criminal acts during the follow-up period. Of the 307 convictions, 48 were for violent crimes (physical aggression against other people), which were committed by 21 patients (1.35%). The mean number of violent crimes was 2.33. There were a total of 210 lawsuits, whereby 70 (33.33%) proceedings were discontinued (acquittals). The rate for criminal behavior and violent crimes was especially high in the manic group: 15.73% of these patients were listed in the national crime register during the follow-up period and 5.6% were convicted of physical injury offenses. This rate was four times higher than the rate in the major depressive group (1.42%).

There was a wide range of criminal behavior, with defalcation (11.73%; 36 cases), theft (7.82%; 24 cases), and fraud (6.51%; 20 cases) being the most frequent. There was also a significant number of aggressive and violent crimes (48 cases), with physical assault (46.34%; 19 cases) being the most frequent. One murder was committed by a manic (male) patient.

Sociodemographic Risk Factors for Future Delinquent Behavior

The sociodemographic characteristics of the sample, divided into later noncriminal and criminal patients, are given in Table 1.

As expected, in this study, male gender was a substantial risk factor for nonviolent and violent behavior. Men started a criminal career after discharge nearly twice as often as women ($\chi^2(df) = 31.1$ (1), $p < 0.01$). Also, there were significantly more patients with a manic disorder in the criminal group ($\chi^2(df) = 36.8$ (2), $p < 0.01$). Manic disorder, therefore, seems to be a high-risk diagnosis for later criminal behavior. Furthermore, there were significant differences in marital status and educational status. In the criminal group, more patients were widowed ($\chi^2(df) = 56.9$ (3), $p < 0.01$) and more patients had a higher education ($\chi^2(df) = 6.3$ (2), $p < 0.05$) than in the noncriminal group.

There were no significant group differences concerning age, duration of hospital stay, lack of insight at admission, or substance use.

Psychopathological Risk Factors Predicting Criminal Behavior After Discharge

The scores at admission and discharge of the following AMDP syndromes (see Methods and Data Analysis) were analyzed to evaluate the possible impact of psychopathology on future criminality: Paranoid-hallucinatory syndrome (M (admission) = 1.22, SD = 2.99; M (discharge) = 0.10, SD = 0.66), depressive syndrome (M (admission) = 12.42, SD = 7.76; M (discharge) = 2.13, SD = 3.45), psycho-organic syndrome (M (admission) = 1.43, SD = 2.37; M (discharge) = 0.39, SD = 1.40), obsessive-compulsive syndrome (M (admission) = 0.11, SD = 0.58; M (discharge) = 0.03, SD = 0.26), manic syndrome (M (admission) = 2.34, SD = 4.12; M (discharge) = 0.61, SD = 1.69), apathy syndrome (M (admission) = 5.38, SD = 4.42; M (discharge) = 1.29, SD = 2.10), hostility syndrome (M (admission) =2.24, SD = 3.53; M (discharge) = 0.60,

TABLE 1—*Patient characteristics.*

	No Conviction After Discharge	Conviction After Discharge	$\chi^2(df)/F(df)$
N	1496 (100%)	65 (100%)	
Sex			
Male	470 (31.4%)	**42 (64.6%)**	31.1 (1)*
Female	1026 (68.6%)	23 (35.4%)	
Diagnosis			
Bipolar disorder	752 (50.3%)	18 (27.7%)	36.8 (2)*
Manic disorder	75 (5.0%)	**14 (21.5%)**	
Major depressive disorder	669 (44.7%)	33 (50.8%)	
Age	53.2 (SD=16.3)	54.2 (SD=15.8)	0.23 (1)
Marital status			
Single	337 (22.5%)	8 (12.3%)	56.9 (3)*
Married/partnership	726 (48.5%)	21 (32.3%)	
Separated/divorced	284 (19.0%)	10 (15.4%)	
Widowed	149 (10.0%)	**26 (40.0%)**	
Education†			
Low	369 (24.7%)	20 (30.8%)	6.3 (2)**
Moderate	697 (46.6%)	20 (30.8%)	
High	430 (28.7%)	**25 (38.5%)**	
Duration of hospital stay	64.3 (SD=52.0)	66.9 (SD=40.5)	0.16 (1)
Lack of insight			
Yes	21 (1.4%)	1 (4.5%)	0.01 (1)
No	1475 (98.6%)	64 (95.5%)	
Substance use			
Yes	320 (21.4%)	9 (13.8%)	2.1 (1)
No	1176 (78.6%)	56 (86.2%)	

*$p < 0.01$; **$p < 0.05$.
†Low: no graduation, school for mentally handicapped children, ''poor'' CSE. Moderate: ''good'' CSE, O-level. High: A-level, high school graduation.

TABLE 2—*AMDP syndromes predicting overall criminality at admission.*

Syndromes at Admission Predicting Criminality				
Hostility Syndrome	Manic Syndrome	Cases (criminality yes/no)	Observed Probability (%)	*p*
0	0	15/515	2.8	0.66
0	1	6/162	3.6	
0	2	4/84	4.5	
1	0	5/190	2.6	0.42
1	1	0/61	0	
1	2	2/64	3.0	
2	0	7/148	4.5	0.04*
2	1	2/61	3.2	
2	2	24/211	10.2	

0, not present; 1, mild; 2, moderate/severe; AMDP, Association for Methodology and Documentation in Psychiatry.
*$p < 0.05$.

TABLE 3—*Odds ratios for the probability of future noncriminal/criminal behavior for the manic and hostility syndrome at admission and discharge.*

		Odds Ratios	
	Severity*	Admission	Discharge
Manic syndrome	0 vs. 1	0.9	0.8
	0 vs. 2	1.78	3.1
	1 vs. 2	1.41	1.7
Hostility syndrome	0 vs. 1	0.74	1.0
	0 vs. 2	1.6	1.7
	1 vs. 2	1.4	1.3

*0, not present; 1, mild; 2, moderate/severe.

SD = 1.73), catatonic/stuporous syndrome (M (admission) = 7.26, SD = 5.11; M (discharge) = 1.61, SD = 2.46), and autonomic syndrome (M (admission) = 1.14, SD = 2.23; M (discharge) = 0.30, SD = 0.91).

Of the nine AMDP syndromes at admission and discharge, only the manic syndrome at admission and discharge reached statistical significance in the binary regression model to predict later criminality. Patients with affective disorder who had a higher score for the manic syndrome at admission or at discharge showed a greater likelihood for criminal behavior in the future (admission: $p < 0.001$, *odds ratio* = 1.13; discharge: $p < 0.001$, *odds ratio* = 1.15).

The presence of the hostility syndrome seems to be predictive for later criminal behavior in schizophrenic patients (14). Therefore, we compared the co-existence of the hostility and the depressive syndrome or the hostility and manic syndrome respectively in later criminal and noncriminal patients (see Table 2). At admission, the observed probability of future criminality was especially high when the scores for hostility *and* manic syndrome were high (''severe hostility/severe manic syndrome'') ($p < 0.05$).

Odds Ratios

Finally, odds ratios were calculated for the probability of future noncriminal/criminal behavior for the manic and hostility syndrome at admission and discharge (see Table 3).

Patients with a severe manic syndrome showed later criminal behavior more often than patients without a manic syndrome (admission: OR = 1.78; discharge: OR = 3.1) or those with a mild manic syndrome (admission: OR = 1.41; discharge: OR = 1.7). Patients with a severe hostility syndrome also had slightly more convictions after discharge than patients with a mild hostility syndrome (admission: OR = 1.4; discharge: OR = 1.3).

Discussion

Forensic risk assessment plays an important role in the judicial process and for psychiatric expert witnesses. Intuitive or just clinical, nonstandardized assessments are not sufficient in this respect (31). Especially in the area of affective disorders, the diagnostic criteria for the diagnosis of mania or bipolar disorder have dramatically changed over recent years with a widening of the diagnostic criteria for bipolar disorder (32), questioning the role of clinical diagnosis for predicting risk of violence.

Apart from clinical diagnosis and sociodemographic variables, standardized psychopathological scales may help to predict risk for later violence in psychiatric patients. In the present study, we analyzed the predictive value of AMDP symptoms and profiles concerning the risk for later criminal behavior and violent crimes in a group of 1561 patients with affective disorder on the basis of records in the national crime register for a 7-year to 12-year period after discharge.

A previous descriptive analysis already gave evidence for a moderate association between affective disorder and criminality, especially in manic and bipolar patients, respectively (25). These data indicated a significant rate of nonviolent crimes (307 cases), but there were also a number of aggressive and violent crimes (48 cases including one homicide). Criminal behavior and violent crimes were most frequent in patients with unipolar mania, where nearly 16% committed crimes after discharge. Psychopathological data obtained in this sample further emphasize this association. The data of this study indicate that

the AMDP syndrome mania at admission and discharge may predict the long-term risk for later criminal behavior and violence. The AMDP system is a well-established standardized method to record and measure psychopathological symptoms independent from psychiatric diagnosis (29,30). The combination of the manic syndrome with the AMDP hostility syndrome enhanced the predictive value. Other psychopathological syndromes were not found to be predictive in this sense. These findings are basically in line with the pervious data indicating that the clinical diagnosis of mania is associated with higher risk for criminal behavior in patients with affective disorder (15). This analysis showed the highest risk of future nonviolent (15.7%) and violent crimes (5.6%) in patients with manic disorder. In addition, the AMDP profiles had been found to be predictive in another sample of patients with schizophrenia (14) indicating a significant role of this standardized psychopathological scale in risk assessment of criminal behavior.

There is a very limited database concerning the association of violence or criminal behavior in affective disorder. Much of the existing literature is limited to the risk of infanticide in depressed mothers (22,33,34). Corresponding to our data, Dean et al. (35) reported a high rate of aggressive behavior in patients with a diagnosis of mania. Modestin et al. (24) demonstrated that patients with affective disorders and substance abuse were twice as likely to have a criminal record as matched controls from the general population. However, patients with affective disorders without substance abuse had a higher probability of committing crimes against property.

Other risk factors for criminal behavior have basically been studied in patients with schizophrenia, including comorbid substance use (3,19–21,21), also demonstrated in patients with affective disorder (22–24), noncompliance (14,27,28), and lack of insight (25,26).

As previously stated (14,15), a number of limitations of our study must be addressed. First, data were obtained from a retrospective record search in the national criminal register. Minor forms of assault or nonreported violence, particularly in families and during treatment, were not assessed. The real rate of violence and aggression may therefore even be higher. As this study was retrospective, the impact of interfering variables at the time of criminal offense could not be assessed. Second, a selection bias must be considered because our sample consisted only of former inpatients treated in a university hospital. Patients with severe violent behavior may be more likely to be admitted to a state mental hospital rather than a university. Third, we have no valid information on the course of illness following discharge, such as further hospitalizations, treatments, or suicide rate, which clearly limits the validity of clinical predictors of later violence. Fourth, the average age of patients in our sample was relatively high and patients comparatively well educated. In most forensic studies, younger age (and male sex) was independently associated with criminal behavior and violent crimes. An age-related bias cannot be excluded.

In conclusion, clinical diagnosis does not seem to be sufficient to predict later nonviolent and violent criminality. High scores in the AMDP syndromes mania and hostility may indicate a higher risk for later criminality both in patients with affective disorder and schizophrenia and thus be a valuable clinical instrument for the prediction of later criminality in psychiatric patients. More longitudinal research is needed to further elucidate the interrelationship between affective disorder and criminal behavior and its prediction.

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References

1. Kutscher S, Schiffer B, Seifert D. Patients with schizophrenia in forensic-psychiatric hospitals (§63 German Penal Code) in North Rhine-Westphalia. Fortschr Neurol Psychiatr 2009;77:91–6.
2. Arseneault L, Moffitt TE, Caspi A, Taylor PJ, Silva PA. Mental disorders and violence in a total birth cohort: results from the Dunedin Study. Arch Gen Psychiatry 2000;57(10):979–86.
3. Brennan PA, Mednick SA, Hodgins S. Major mental disorders and criminal violence in a Danish birth cohort. Arch Gen Psychiatry 2000;57 (5):494–500.
4. Fazel S, Grann M. Psychiatric morbidity among homicide offenders: a Swedish population study. Am J Psychiatry 2004;161(11):2129–31.
5. Hodgins S. Mental disorder, intellectual deficiency, and crime. Evidence from a birth cohort. Arch Gen Psychiatry 1992;49(6):476–83.
6. Hodgins S, Mednick SA, Brennan PA, Schulsinger F, Engberg M. Mental disorder and crime. Evidence from a Danish birth cohort. Arch Gen Psychiatry 1996;53(6):489–96.
7. Modestin J, Ammann R. Mental disorder and criminality: male schizophrenia. Schizophr Bull 1996;22(1):69–82.
8. Modestin J, Hug A, Ammann R. Criminal behavior in males with affective disorders. J Affect Disord 1997;42(1):29–38.
9. Mullen PE, Burgess P, Wallace C, Palmer S, Ruschena D. Community care and criminal offending in schizophrenia. Lancet 2000;355(9204): 614–7.
10. Tiihonen J, Isohanni M, Rasanen P, Koiranen M, Moring J. Specific major mental disorders and criminality: a 26-year prospective study of the 1966 northern Finland birth cohort. Am J Psychiatry 1997;154(6): 840–5.
11. Wallace C, Mullen P, Burgess P, Palmer S, Ruschena D, Browne C. Serious criminal offending and mental disorder. Case linkage study. Br J Psychiatry 1998;172:477–84.
12. Wessely SC, Castle D, Douglas AJ, Taylor PJ. The criminal careers of incident cases of schizophrenia. Psychol Med 1994;24(2):483–502.
13. Swanson JW, Swartz MS, Van Dorn RA, Elbogen EB, Wagner HR, Rosenheck RA, et al. A national study of violent behavior in persons with schizophrenia. Arch Gen Psychiatry 2006;63(5):490–9.
14. Soyka M, Graz C, Bottlender R, Dirschedl P, Schoech H. Clinical correlates of later violence and criminal offences in schizophrenia. Schizophr Res 2007;94(1-3):89–98.
15. Graz C, Etschel E, Schoech H, Soyka M. Criminal behaviour and violent crimes in former inpatients with affective disorder. J Affect Disord 2009;117(1-2):98–103.
16. Erkiran M, Oezunalan H, Evren C, Aytaclar S, Kirisci L, Tarter R. Substance abuse amplifies the risk for violence in schizophrenia spectrum disorder. Addict Behav 2006;31(10):1797–805.
17. Munkner R, Haastrup S, Joergensen T, Kramp P. Incipient offending among schizophrenia patients after first contact to the psychiatric hospital system. Eur Psychiatry 2005;20(4):321–6.
18. Soyka M. Substance abuse and dependency as a risk factor for delinquency and violent behaviour in schizophrenic patients—how strong is the evidence? J Clin Forensic Med 1994;1(1):3–7.
19. Soyka M. Substance misuse, psychiatric disorder and violent and disturbed behaviour. Br J Psychiatry 2000;176:345–50.
20. Steadman HJ, Mulvey EP, Monahan J, Robbins PC, Appelbaum PS, Grisso T, et al. Violence by people discharged from acute psychiatric inpatient facilities and by others in the same neighborhoods. Arch Gen Psychiatry 1998;55(5):393–401.
21. Wallace C, Mullen PE, Burgess P. Criminal offending in schizophrenia over a 25-year period marked by deinstitutionalization and increasing prevalence of comorbid substance use disorders. Am J Psychiatry 2004;161(4):716–27.
22. Friedman SH, Shelton MD, Elhaj O, Youngstrom EA, Rapport DJ, Packer KA, et al. Gender differences in criminality: bipolar disorder with co-occurring substance abuse. J Am Acad Psychiatry Law 2005;33(2): 188–95.
23. McDermott BE, Quanbeck CD, Frye MA. Comorbid substance use disorder in women with bipolar disorder associated with criminal arrest. Bipolar Disord 2007;9(5):536–40.
24. Modestin J, Wuermle O. Criminality in men with major mental disorder with and without comorbid substance abuse. Psychiatry Clin Neurosci 2005;59(1):25–9.
25. Arango C, Calcedo BA, Gonzalez S, Calcedo OA. Violence in inpatients with schizophrenia: a prospective study. Schizophr Bull 1999;25(3): 493–503.
26. Foley SR, Kelly BD, Clarke M, McTigue O, Gervin M, Kamali M, et al. Incidence and clinical correlates of aggression and violence at

presentation in patients with first episode psychosis. Schizophr Res 2005;72(2-3):161–8.
27. Swanson JW, Swartz MS, Borum R, Hiday VA, Wagner HR, Burns BJ. Involuntary out-patient commitment and reduction of violent behaviour in persons with severe mental illness. Br J Psychiatry 2000;176:324–31.
28. Swartz MS, Swanson JW, Hiday VA, Borum R, Wagner HR, Burns BJ. Violence and severe mental illness: the effects of substance abuse and nonadherence to medication. Am J Psychiatry 1998;155(2):226–31.
29. Guy W, Ban TA. The AMDP-system. Berlin: Springer, 1982.
30. Pietzcker A, Gebhard R, Strauss A, Stockel M, Langer C, Freudenthal K. The syndrome scales in the AMDP-system. Mod Probl Pharmacopsychiatry 1983;20:88–99.
31. Urbaniok F, Endrass J, Rossegger A, Noll T, Gallo WT, Angst J. The prediction of criminal recidivism. The implication of sampling in prognostic models. Eur Arch Psychiatry Clin Neurosci 2007;257:129–34.
32. Angst J, Gamma A, Benazzi F, Ajdacic V, Eich D, Rössler W. Toward a redefinition of subthreshold bipolarity: epidemiology and proposed criteria for bipola-II, minor bipolar disorders and hypomania. J Affect Dis 2003;73:133–46.
33. Friedman SH, Hrouda DR, Holden CE, Noffsinger SG, Resnick PJ. Child murder committed by severely mentally ill mothers: an examination of mothers found not guilty by reason of insanity. 2005 Honorable Mention/Richard Rosner Award for the best paper by a fellow in forensic psychiatry or forensic psychology. J Forensic Sci 2005;50(6):1466–71.
34. Krischer MK, Stone MH, Sevecke K, Steinmeyer EM. Motives for maternal filicide: results from a study with female forensic patients. Int J Law Psychiatry 2007;30(3):191–200.
35. Dean K, Walsh E, Morgan C, Demjaha A, Dazzan P, Morgan K, et al. Aggressive behaviour at first contact with services: findings from the AESOP First Episode Psychosis Study. Psychol Med 2007;37(4):547–57.

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