Relationship between psychotic disorders in adolescence and criminally violent behaviour

A retrospective examination

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Background The interaction between psychosis and violence in adults is an important area of research receiving attention. To date there is little available data examining this relationship in adolescence.

Aims To investigate the possible relationships between criminally violent types of behaviour, and psychopathology and social factors, among adolescents suffering from a psychotic disorder.

Method A retrospective case note study of 39 in-patients diagnosed as having a psychotic disorder and admitted to one of two adolescent psychiatry units (one secure, one open). Cases were divided into a 'violent' and a 'non-violent' group, and these two groups were then compared for social and psychopathological variables.

Results There was no association between recorded psychopathology and criminally violent behaviour. Criminally violent behaviour was associated with a history of emotional or physical abuse, contact with social or mental health services, and previous criminal behaviour.

Conclusions These findings fail to echo results of studies in adult schizophrenia; they suggest that violent behaviour in psychosis is associated more closely with social factors than with specific symptoms of the psychotic illness. Potential explanations are discussed.

Declaration of Interest None.

Psychotic disorder in adolescence is uncommon, but often progresses to an enduring and disabling disorder with major health and social implications. Because it is uncommon, there has been little age-specific research, and practitioners are forced to base much of their management upon evidence from adult studies (Clark & Lewis, 1998). Clarifying any relationship between violence and psychosis is important, as it may identify both predictors of risk and possible strategies for intervention. Research into the relationships between psychotic disorders and violent types of behaviour in adults has produced extensive findings, while there is very little literature in the specific field of violence and psychosis in adolescence (Sheldrick, 1999). Adolescence is a time of physical, mental and social change and development, and there is therefore strong argument for researching adolescents as a distinct entity.

LITERATURE REVIEW

Adult studies

Citrome & Volavka (1999) reviewed recent research on violent behaviour in patients with schizophrenia and concluded that there was an increased risk of violence in schizophrenia, particularly when co-occurring with substance misuse. They also highlighted problems that have hindered all research in this area: namely, sampling difficulties and other methodological problems, which overall make it difficult to draw robust conclusions.

Studies to investigate associations between violence and psychosis have ranged from comparing criminal populations (Häfner & Böker, 1973) to twin studies (Coid *et al*, 1993), and have in general demonstrated that individuals suffering from schizophrenia display an increased rate of violence.

Longitudinal studies in Sweden and the UK have drawn broadly similar conclusions: that women with schizophrenia are more likely to be convicted of a criminal offence than women in the general population, but that the increased rate of crime in male schizophrenia sufferers is accounted for by an increase in violent offences (Lindqvist & Allebeck, 1990; Wessely *et al*, 1994). Wessely *et al* conclude that "the strongest associations of criminal conviction remain those recognised in non-schizophrenic subjects".

Any link between violence in psychosis and psychophenomenology remains difficult to study effectively. In a subgroup of male remand prisoners with psychoses, 20% appeared directly driven to offend by their psychotic delusions, and a further 26% were probably driven to, although 93% had shown symptoms at the time of their offence (Taylor, 1985). Data from the Epidemiological Catchment Area study, re-examined by Swanson *et al* (1996), suggested that psychotic symptoms related to threat/control override (TCO) (delusions of passivity, persecution, poisoning, pursuit or possession of thought) were most strongly linked to violent types of behaviour. Interestingly, TCO symptoms appeared to predict violence even in the absence of major psychiatric disorder in the previous year, although they were more predictive in the presence of major psychiatric disorder and even more so with the additional effect of substance misuse. Reviewing the literature on auditory hallucinations and acts of violence, McNeil (1994) concluded that most patients do not comply with their command hallucinations, although this is questioned by Sheldrick (1999). More recently, Cheung *et al* (1997) suggested an association of violence with differences in the tone, content and emotional impact of the hallucinations, and also with persecutory delusions, symptoms suggesting frontal lobe impairment, a history of aggression, and with abnormal personality traits.

Studies on adolescence

We have identified only one published study, from America, which specifically examines the relationship between violent behaviours and psychosis in adolescents (Inamdar *et al*, 1982). The authors discuss the possible impact of adolescent developmental crises and how sociocultural factors may mediate the expression of both violence and psychosis. Developmental aspects of violence, criminality and illness are critical

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considerations, as has been nicely illustrated by Taylor and Parrott (1988) at the other end of the developmental spectrum, the elderly. Inamdar *et al* (1982) found a much higher incidence of violence in hospitalised adolescents with psychosis (66.7%) than in their cited adult sample (8%).

There has been more research in the field of violence in adolescence unrelated to psychosis. Reviewing both prospective and retrospective research, Boswell (1997) suggests that victimisation and loss at an early age have consequences for future violent behaviour, and cites the particular association of physical abuse with violence. Stiffman *et al* (1996), in their US longitudinal study, found that a combination of personal variables (gender, substance misuse) and environmental variables (history of child abuse, stressful and traumatic events, rates of unemployment) predicted almost a third of the variance in adolescent violent behaviour.

Summary of previous findings

The above studies suggest a complex relationship between psychosis and violent offending in adults. Many of the variables that show association with violence within a psychosis group would also predict violence in a non-psychosis group. Studies of violence in adolescence reveal a variety of associations to variables related to the adolescent's background, but there is little known about psychosis and violence in adolescence.

METHOD

Units from which the population is drawn

This is a retrospective case note study of young people admitted with a diagnosis of psychotic disorders to one of two adolescent psychiatric units in north-west England between 1990 and 1998. The Adolescent Unit in Prestwich is a 15-bedded open unit for the assessment and treatment of acute psychiatric disorder in young people living in north-west England. The Adolescent Forensic Unit in Prestwich is a secure unit with ten beds for young people with mental illnesses who require a secure setting for assessment and treatment, from anywhere within Great Britain; it is a main UK National Health Service (NHS) provider of secure psychiatric care for adolescents. Both units accept youngsters between the ages of 12 and 18 years. Many of those admitted to the forensic unit were referred by regional adolescent units, while most of the admissions to the adolescent unit were from district child and adolescent services. Several of those admitted to the forensic unit had been referred by social workers, probation officers and solicitors. This difference in referral pattern remained when the 'violent' group was excluded from the data examination. Although each unit has its own distinctive multidisciplinary team, many of the staff rotate between units, and there is frequent dialogue between senior staff, with shared educational meetings and shared education staff.

Case definition and data collection

A single researcher (P.C.) collected the data from case notes, including correspondence, medical and nursing entries. All case notes from January 1990 to July 1998 in which the case note discharge diagnosis was of schizophrenia or of another psychotic disorder (ICD–10 codes of F20.9, F30.2, F31.2, F32.2 or equivalent ICD–9 codes) were included within the study (World Health Organization, 1992). Cases with a diagnosis of a drug-induced psychosis only were not included. No attempt was made to review the diagnosis on the basis of the information in the notes, and the broader category of psychosis was used, as there is a marked diagnostic instability within the psychoses in the adolescent age range (McClellan *et al*, 1993). Low numbers would also preclude separate analysis by diagnosis. Data relating to history of violent criminal behaviour (defined as violent behaviour followed by formal caution or criminal proceedings) and a range of epidemiological, developmental and psychopathological factors were extracted onto a proforma (available from P.C. upon request). Examples of violent criminal behaviour included murder, attempted murder and armed robbery. Symptoms were recorded as present if documented in the case notes, irrespective of their apparent temporal relationship to any violent incidents. When notes did not contain information on a particular variable, it was recorded as missing. An exception was data on ethnic group, where information was collected from staff on what ethnic group (White, Black, Asian) the young people considered themselves to belong to; this was only used if there was agreement from two independent sources.

Hypotheses

Hypothesis 1 was that occurrence of violent behaviour would be associated with specific psychopathology (command hallucination, persecutory delusion); and Hypothesis 2, that it would be associated with specific social factors (abuse, criminality, disrupted parenting).

Analysis

Most of the data were in categorical form. The results were analysed using SPSS for Windows (version 8.0), making comparisons, according to the hypotheses, between the 'violent' and 'non-violent' groups. Fisher's exact tests were used in every instance, as numbers were small. Two-sided tests were used on each occasion, as the association would have been of interest whether it went with the null hypothesis or against. In accordance with contemporary statistical practice, no adjustments for making multiple comparisons were made (Rothman, 1990; Perneger, 1998). The value of $P<0.05$ was used to indicate statistical significance.

RESULTS

Comparisons between units

Eighteen cases came from the adolescent unit and 21 from the forensic unit; 25 cases fell in the 'non-violent' category and 14 in the 'violent' category. All the cases in the violent category came from the forensic unit. The gender distribution was equal on the adolescent unit (male:female 9:9), while on the forensic unit there was a preponderance of male cases (violent male: female 12:2, non-violent male:female 4:3). Being male was significantly associated with a history of criminal violence (Fisher's exact (2-sided) test: $P=0.044$). All those admitted to the forensic unit were detained, while almost three-quarters of the adolescent unit cases were informal. There was a non-significant trend to longer admissions within the forensic unit, but this was accounted for almost entirely by the violent subgroup (mean length of stay in the adolescent unit, 152 days; in the forensic unit, 'non-violent' group 187 days, 'violent' group 336 days). The history of local authority care of the youngsters showed marked differences between the two units. Fifteen of the adolescent unit group ($n=18$) had no experience of local authority care, while 14 of the forensic group ($n=21$)

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Table 1 Comparison of historical variables across violent and non-violent groups

Variable	Violent group (n=14)	Non-violent group (n=25)	Fisher's exact P values
History of tantrums	7/14	5/23[1]	0.146
Physical abuse	7/14	2/22[1]	0.014*
Emotional abuse	8/14	3/23[1]	0.008*
Sexual abuse	4/14	4/25	0.424
Recorded drug use	9/14	12/25	0.504
History of local authority care	10/14	7/25	0.017*
Previous contact with social services	12/14	10/24[1]	0.016*
Previous mental health	9/14	7/25	0.043*
Maternal psychiatric history	3/14	5/23[1]	1.00
Previous criminal history	11/14	5/25	0.001*
School truant	11/14	13/25	0.171
Black ethnic group	5/14	4/25	0.238

1. Data on certain variables were not available for all individuals.
*Significant at $P \leqslant 0.05$.

had been in care, nine within secure provision (χ^2=9.87, d.f.=1, P<0.01).

Comparisons between the violent and non-violent groups

Table 1 confirms that histories of experiencing either physical or emotional abuse appear to distinguish criminally violent from non-violent adolescents with psychosis. A history of experiencing sexual abuse shows no significant association, but numbers were very small in both groups. The finding of an association between a history of local authority care and criminal violence is somewhat weakened by the fact that some of the youngsters in the 'violent' group found themselves in secure care as a result of their violent behaviour. Low numbers, however, preclude further statistical examination of this (e.g. by regression analysis). A previous criminal history appears as the strongest association with criminal violence. Most of the violent group had previous contact with social services (86%), and with psychiatry (64%), in contrast with the non-violent group.

Table 2 shows that none of the psychopathological variables discriminated between the violent and non-violent groups. Indeed, looking at the figures, the prevalence of discrete psychopathology appears remarkably similar. A finding not predicted in the hypothesis is the association with response to medication, which appears to suggest a better-perceived response to medication in the non-violent group.

DISCUSSION

Weaknesses of this study

Although information was extracted consistently from the case notes by use of a proforma, some caution is necessary. The initial clinical history, the recording of mental states and the charting of clinical course had not involved the use of standardised instruments but had been undertaken by a number of different clinicians during the 8 years covered by the study. Some potentially useful data had not been systematically recorded, and therefore specific hypotheses related to particular aspects of psychopathology could not be tested. Peculiar to this study was the added problem of collecting data from two separate units with different referral patterns. For this reason the 'violent' group alone was compared with the adolescent unit group. This appeared to demonstrate that, for most of the significant variables, there is an association with referral and admission to the forensic unit. The finding may indicate that clinicians accurately identify, and refer to the forensic unit, youngsters with psychosis in whom violence is more probable, or that referrals and admissions to the forensic unit are associated with these variables for other reasons.

It is important to be clear which questions this study is able to address. It does not answer the question, "Is violence more common in adolescents with psychotic disorder than those without?". Neither can it address issues of causality, which would require a prospective and longitudinal approach rather than the retrospective and cross-sectional one here. It does however attempt to tease out which factors, in those individuals with both psychosis and criminal violence coexisting, might be related to their coexistence.

Hypothesis 1: comparing across psychopathological variables

The study demonstrated no associations between a history of violent criminal behaviour and the psychopathological variables recorded. The study was designed to look at the individual's propensity to criminal violence, rather than violence occurring specifically within a psychotic episode. The above finding could possibly be explained by the inference that the criminal violence committed by these youngsters was unrelated to their psychotic illness. This potential inference is important, as sentencing and admission decisions may be based upon an assumption that

Table 2 Comparison of psychopathological variables and response to medication for the violent and non-violent groups

Variable	Violent group (n=14)	Non-violent group (n=25)	Fisher's exact P values
Persecutory delusions	12/14	23/25	0.609
Command hallucinations	5/14	11/25	0.740
Passivity	5/14	6/24[1]	0.712
Elevated or fluctuating mood	7/14	8/25	0.318
'Good' response to medication	4/14	16/25	0.048*

1. Data were not available on one individual.
*Significant at $P \leqslant 0.05$.

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the violent behaviour is related to the psychotic disorder. Adult studies tend to support the latter assumption. None of this negates the need for secure psychiatric care for this age group, where the violence and psychosis can be simultaneously managed.

There is a possibility that the numbers in the study were insufficient to show any association that does exist. However, none of the psychopathological variables even showed a trend towards significance in the comparison, and a look at the raw numbers gives no indication of the existence of a possible undetected association. A further possibility was that an association exists, but that the recorded psychopathology was too limited to demonstrate it. Studies in adults suggest that more sophisticated recording of psychopathology, for example using the Maudsley Assessment of Delusions Schedule (Taylor *et al*, 1994) and recording emotional quality to the tone and content of hallucinations, is required in order to see associations with violence (Cheung *et al*, 1997). Additionally, it may not be an individual symptom that is important but rather the coexistence of specific combinations (Swanson *et al*, 1996; Sheldrick, 1999). This may be particularly relevant where the attack is apparently motiveless. We did not have the information to pick out such a subgroup.

The failure of the study to demonstrate any statistical relationship between criminal violence and aspects of psychopathology does not refute the basic premise, derived from adult studies, that violence and psychosis are somehow linked. It is important to reiterate that youngsters behaving violently who are not cautioned or charged or even identified will not fall into the 'violent' group here, and we must keep in mind exactly the population being studied. The apparent demonstration of an association of criminal violence with social factors does not mean that they are the sole determinants of such violent types of behaviour. Rather, it points to a more complex relationship, requiring further exploration of combinations of factors acting in concert rather than in isolation for this developmental group.

Hypothesis 2: comparing across family and background variables

A history of physical abuse and emotional abuse each appeared to be significantly associated with a history of criminal violence within this population. Interestingly, sexual abuse did not show the same association, although this may reflect underreporting. Family variables potentially related to such abuse (paternal or maternal history of violence, alcoholism, or mental illness) did not show the same association, although there was missing data in these categories.

A previous criminal history was strongly associated with criminal violence. Much of the previous offending was of a non-violent nature, and this again broadly fits with the findings of some adult studies (Häfner & Böker, 1973; Wessely *et al*, 1994). There was a significant association between criminal violence and being known to social or mental health services. In their preliminary report of the Edinburgh High Risk Study, Hodges *et al* (1999) suggest that there may be a subgroup in whom offending behaviour types might be a prodromal indicator of psychotic illness. With increasing interest and work on early detection and intervention in schizophrenia (McGlashan, 1998), and taking into consideration ideas on the management of adolescent violence, this raises the possibility of earlier intervention.

Other findings

Two interesting findings unrelated to the initial hypotheses were the differences in length of in-patient stay and response to treatment between the two groups. Clearly some interaction between these two variables is likely. The 'non-violent' youngsters with psychosis had a broadly similar length of stay on whichever unit, while the 'violent' group had a longer average stay. Those in the latter group were also significantly more likely to show a poor, or variable, response to treatment recorded. This association was not present between the units when the 'violent' group was removed from the analysis. It is not possible to infer from this whether the violent group are experiencing a more severe form of psychosis, whether their violence is directly affecting their treatment, or whether their differing backgrounds somehow predispose them to responding more slowly (e.g. poorer compliance, greater psychological arousal, less social support).

The issue of ethnic group raises some interesting questions. Adult studies have suggested that African–Caribbean patients with schizophrenia are more likely to be detained (McGovern & Cope, 1987). The Black ethnic group was overrepresented in the violent group, which might have reached statistical significance in a larger sample. When comparisons were made across the units without the violent group, the Black group was not overrepresented on the secure unit. Our criterion for inclusion within the violent group is dependent on police having taken action, and the possible influence of 'institutional racism' must be borne in mind.

Clinical implications

This is the first study to investigate the association between adolescent psychosis and criminally violent behaviour. Despite its inherent flaws, it gives a description of some of the characteristics of adolescents with psychosis who have a history of criminally violent behaviour, a group which is the subject of considerable social and medical concern. For many of the youngsters, this behaviour has been very destructive and has often led to their incarceration. Since in a number of cases in this study, the act of violent behaviour was murder or attempted murder, it would be very valuable if we could increase our ability to identify this group before the violent event occurred. The study makes a start by discussing the very difficult art of risk assessment in this age group (Sheldrick, 1999), although the apparent lack of specific associations with aspects of psychopathology is surprising, and at variance both with practice and with much of the adult literature. Criminally violent adolescents suffering from psychosis appear from this study to be more likely to be in contact with services prior to the event that may lead to their incarceration than do non-violent adolescent sufferers. These two findings emphasise the need for co-operation and collaboration between agencies, within the frameworks of both a Care Programme Approach and the principles of the Children Act 1989.

Recommendations for future research

The best way of answering some of the questions that this study raises would be a prospective longitudinal study of psychosis in adolescence, recruiting every incident case within a defined geographical area and having a general population control group for comparison purposes. Recording

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of psychopathology should be more sophisticated. A more complete history of acts of violence as well as criminal behaviour, with careful recording of events surrounding these, would be desirable. Formal psychometry, assessing personality traits and frontal lobe impairment, should be included. Further investigation of lifestyle and of social and cultural influences, including those related to ethnic group, should not be neglected. Low numbers, problems of ascertainment and issues of compliance are all likely to militate against this. None the less there is value in having a clinical and needs-based perspective in addition to that derived from epidemiological and criminological approaches. Perhaps more feasibly, a longitudinal study at a single service such as the Adolescent Forensic Service could partially answer some of the questions raised here, despite its selected sample and the small numbers involved, particularly if compared to a matched group of violent adolescents without psychosis.

CLINICAL IMPLICATIONS

- Many adolescents with the combination of criminally violent behaviour and a psychotic disorder have had considerable contact with both health and social agencies prior to diagnosis, thereby raising the possibility of earlier recognition and intervention.
- Factors associated with criminal violence in this study were primarily developmental and social rather than related to the recorded psychopathology, possibly identifying targets for preventive interventions.
- Criminal violence by individuals suffering from psychosis may be an indicator of a poorer short-term outcome.

LIMITATIONS

- This was a retrospective study, based on case note material obtained for clinical rather than research purposes.
- Referral factors may have introduced some potential bias, particularly regarding those adolescents referred for forensic assessment.
- Small numbers limit the conclusions that can be drawn.

REFERENCES

Boswell, G. (1997) The backgrounds of violent young offenders: the present picture. In *Violence in Children and Adolescents* (ed. V. Varma), pp. 23–36. London: Jessica Kingsley.

Cheung, P., Schweitzer, L., Crowley, K., *et al* (1997) Violence in schizophrenia: role of hallucinations and delusions. *Schizophrenia Research*, **26**, 181–190.

Citrome, L. & Volavka, J. (1999) Schizophrenia: violence and comorbidity. *Current Opinion in Psychiatry*, **12**, 47–51.

Clark, A. F. & Lewis, S. W. (1998) Practitioner review: treatment of schizophrenia in childhood and adolescence. *Journal of Child Psychology and Psychiatry*, **39**, 1071–1081.

Coid, B., Lewis, S. W. & Reveley, A. M. (1993) A twin study of psychosis and criminality. *British Journal of Psychiatry*, **162**, 87–92.

Häfner, H. & Böker, W. (1973) Mentally disordered violent offenders. *Social Psychiatry*, **8**, 220–229.

Hodges, A., Byrne, M., Grant, E., *et al* (1999) People at risk of schizophrenia. Sample characteristics of the first 100 cases in the Edinburgh High-Risk Study. *British Journal of Psychiatry*, **174**, 547–553.

Inamdar, S. C., Lewis, D. O., Siomopoulos, G., *et al* (1982) Violent and suicidal behaviour in psychotic adolescents. *American Journal of Psychiatry*, **139**, 932–935.

Lindqvist, P. & Allebeck, P. (1990) Schizophrenia and crime. A longitudinal follow-up of 644 schizophrenics in Stockholm. *British Journal of Psychiatry*, **157**, 345–350.

McClellan, J. M., Werry, J. S. & Ham, M. (1993) A follow-up study of early onset psychosis: comparison between outcome diagnoses of schizophrenia, mood disorders and personality disorders. *Journal of Autism & Development Disorders*, **23**, 243–262.

McGlashan, T. (1998) Early detection and intervention of schizophrenia: rationale and research. *British Journal of Psychiatry*, **172** (suppl. 33), 3–6.

McGovern, D. & Cope, R. (1987) The compulsory detention of males of different ethnic groups, with special reference to offender patients. *British Journal of Psychiatry*, **150**, 505–512.

McNeil, D. E. (1994) Hallucinations and violence. In *Violence and Mental Disorder: Developments in Risk Assessment* (eds J. Monahan & J. Steadman), pp. 183–202. London: University of Chicago Press.

Perneger, T. V. (1998) What's wrong with Bonferroni adjustments? *British Medical Journal*, **316**, 1236–1238.

Rothman, K. J. (1990) No adjustments are needed for multiple comparisons. *Epidemiology*, **1**, 43–50.

Sheldrick, C. (1999) Practitioner review: the assessment and management of risk in adolescents. *Journal of Child Psychology and Psychiatry*, **40**, 507–518.

Stiffman, A. R., Dore, P. & Cunningham, R. M. (1996) Violent behaviour in adolescents and young adults: a person and environmental model. *Journal of Child and Family Studies*, **5**, 487–450.

Swanson, J. W., Borum, R., Swartz, M. S., *et al* (1996) Psychotic symptoms and disorders and the risk of violent behaviour in the community. *Criminal Behaviour and Mental Health*, **6**, 309–329.

Taylor, P. J. (1985) Motives for offending among violent and psychotic men. *British Journal of Psychiatry*, **147**, 491–498.

___ & Parrott, J. M. (1988) Elderly offenders. A study of age-related factors among custodially remanded prisoners. *British Journal of Psychiatry*, **152**, 340–346.

___, Garety, P., Buchanan, A., *et al* (1994) Delusions and violence. In *Violence and Mental Disorder: Developments in Risk Assessment* (eds J. Monahan & J. Steadman), pp. 183–202. London: University of Chicago Press.

Wessely, S. C., Castle, D., Douglas, A. G., *et al* (1994) The criminal careers of incident cases of schizophrenia. *Psychological Medicine*, **24**, 483–502.

World Health Organization (1992) *The ICD–10 Classification of Mental and Behavioural Disorders*. Geneva: World Health Organization.

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