

What is already known on this topic

Chickenpox can be fatal, especially in immunosuppressed people and adults

The age distribution of cases has been shifting upwards for about 30 years

What this study adds

About 80% of deaths certified as due to chickenpox are due to chickenpox

Chickenpox accounts for about 25 deaths annually in England and Wales, more than from measles, mumps, pertussis, and Hib meningitis combined

Mortality in adults has been increasing for at least 30 years and now 80% of deaths from chickenpox are in adults

Deaths were twice as common in men as in women

infection accurately enough for our study to be valid. This study confirms that chickenpox causes considerable mortality in adults and may be increasing in importance.

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Contributors: HR obtained, collated, and analysed the data and contributed to early drafts of the paper. AC contributed to the design and analysis, liaised with the certifying physicians, classified the deaths, and wrote the first draft of the paper. NN conceived and initiated the study, contributed to the interpretation of the data, and wrote the final drafts. NN will act as guarantor.

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Reducing violence in severe mental illness: randomised controlled trial of intensive case management compared with standard care

Elizabeth Walsh, Catherine Gilvarry, Chiara Samele, Kate Harvey, Catherine Manley, Peter Tyrer, Francis Creed, Robin Murray, Thomas Fahy for the UK700 Group

Abstract

Objectives To establish whether intensive case management reduces violence in patients with psychosis in comparison with standard case management.

Design Randomised controlled trial with two year follow up.

Setting Four inner city community mental health services.

Participants 708 patients with established psychotic illness allocated at random to intervention (353) or control (355) group.

Intervention Intensive case management (caseload 10-15 per case manager) for two years compared with standard case management (30-35 per case manager).

Main outcome measure Physical assault over two years measured by interviews with patients and case managers and examination of case notes.

Results No significant reduction in violence was found in the intensive case management group compared with the control group (22.7% v 21.9%, $P = 0.86$).

Conclusions Intensive case management does not reduce the prevalence of violence in psychotic patients in comparison with standard care.

Introduction

Serious acts of violence committed by people with mental illness are statistically rare events.¹ Efforts of community services to prevent violence by the small subgroup at risk may be limited by the lack of effectiveness of standard treatment interventions, inadequate attention to clinical factors associated with violence—for example, drug misuse and poor engagement and treatment adherence by patients—and the difficulty of altering risk associated with impoverished and dangerous living environments.^{2,3} Fragmentation between services compounds the difficulties.

The care programme approach was introduced, partly to address this fragmentation, after several killings by people with severe mental illness were much reported in the media.⁴ The key elements are assessment of need and risk, development of a care plan, nomination of a responsible key worker, and regular review. Case management incorporates these



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Section of Forensic Mental Health, Guy's, King's and St Thomas's School of Medicine, Institute of Psychiatry, London SE5 8AF

Elizabeth Walsh
clinical lecturer
Thomas Fahy
professor of forensic mental health

Division of Psychological Medicine, Institute of Psychiatry
Catherine Gilvarry
research psychologist
Robin Murray
professor of psychiatry
continued over

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Department of
Community
Psychiatry,
St George's
Hospital Medical
School, London
SE17 0RE

Chiara Samele
research fellow

Kate Harvey
research psychologist

Academic Unit of
Psychiatry, St Mary's
Hospital Medical
School, St Charles
Hospital, London
W10 6DZ

Catherine Manley
research associate

Peter Tyrer
*professor of
community psychiatry*

University
Department of
Psychiatry,
Manchester Royal
Infirmary,
Manchester
M13 9WL

Francis Creed
*professor of
psychological medicine*

Correspondence to:
E Walsh
sppmemw@iop.kcl.
ac.uk

principles, with the key worker providing direct care and also organising the delivery of a range of other services tailored to each patient's individual needs. Intensive case management emphasises small caseloads (10-15 patients per case manager), with increased intensity of contact.

Surprisingly, no study has specifically examined the effect on violence of increasing the intensity of treatment in the community. We assessed whether intensive case management reduced the prevalence of violence in comparison with standard case management.

Methods

Study population

The participants in the trial were recruited as part of the UK700 randomised controlled trial of the efficacy of intensive case management in patients with psychosis.⁵ Recruitment took place between February 1994 and April 1996 in four inner city mental health services. Inclusion criteria were age between 18 and 65, a diagnosis of psychosis according to research diagnostic criteria,⁶ and at least two inpatient admissions for psychotic illness, with one in the previous two years. Patients with a primary diagnosis of substance misuse or organic brain damage were excluded.

Intervention

Intensive case management was compared with standard care for two years. Intensive case managers had caseloads of 10-15 patients, whereas standard case managers had 30 or more patients. Case managers were mostly community psychiatric nurses but could also be psychologists, occupational therapists, mental health support workers, or social workers.

We monitored activity of case managers throughout the trial and recorded five types of event: face to face contact with patient, contact by telephone (> 15 minutes), contact with carer (> 15 minutes), coordination (contact with other professional agencies) (> 15 minutes), and attempted (failed) face to face contact.⁷

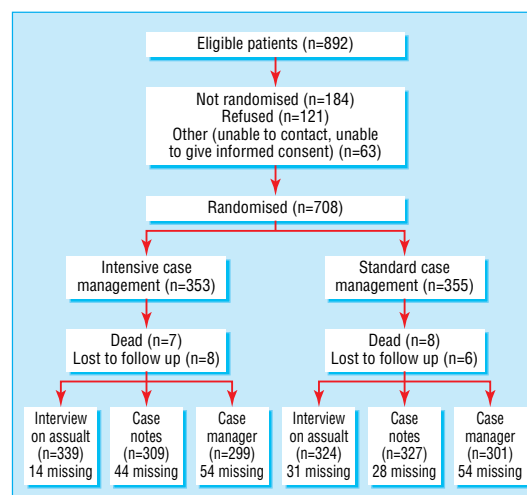
Assignment

After giving written informed consent and being interviewed, patients were individually randomised to intensive case management or standard care. Randomisation was stratified by centre, ethnic origin, and source of recruitment.

Outcomes and follow up

Participants were interviewed by independent researchers at baseline and two years after randomisation. Researchers were senior trainee psychiatrists or psychology graduates who were totally independent of clinical care but, for safety purposes, were not always masked to treatment allocation. For the current study the outcome of interest was physical assault in the two years of the trial.

Three data sources were combined to produce a binary outcome measure for each patient. A positive score on any of these sources indicated a positive score for assault. The frequency or seriousness of assault was not recorded. Firstly, patients were asked whether they had physically assaulted anyone in the two year period.⁸ Where an interview with a participant was not possible, an attempt was made to complete the record with information from a carer. Secondly, case



Flowchart of trial

managers were interviewed in person or by telephone and asked about any physical assault committed by their patients. Thirdly, case notes at all sites were individually inspected for evidence of physical assault.

Possible sociodemographic ($n=12$) and clinical ($n=13$) risk factors for violence, chosen a priori on the basis of previous research, were estimated at baseline interview by using a battery of instruments.⁸⁻¹¹

Power calculation and statistical analysis

The trial with 350 patients randomised to each group would be able to detect a 20% reduction in total violence in the intensive case management group as statistically significant at the 5% level with a high probability (power > 80%). We compared treatment groups by using the χ^2 test. We used logistic regression to perform univariate and multivariate analyses to identify predictors of assault during the two years of the trial.

Results

Recruitment

Eighty per cent of patients approached agreed to participate (figure). Details of the sociodemographic and clinical features of the participants in the UK700 trial have been described in detail elsewhere.⁵

Intervention

Patients in the intensive case management group received more than twice as much care as control patients, with a mean of 4.41 events per 30 days compared with 1.94 in the standard arm. The mean duration of face to face contacts was 40.6 (SD 0.3) minutes in the intensive management group and 37.4 (24.8) minutes in the standard group. Patients managed intensively had significantly more of each type of event apart from failed contacts and received significantly more contacts related to the criminal justice system, engagement, finance, and medication—all variables that might influence the prevalence of violent behaviour.

Prevalence of violence

Information on assault was available for all patients from at least one data source. During the two years of the trial 80 (23%) of the intervention group and 78 (22%) of the control group committed assault, representing no significant difference (relative risk 1.03 (95% confidence interval 0.72 to 1.46), $\chi^2=0.048$,

$P=0.86$). Identified risk factors for violence included previous violence, younger age, drug misuse, victimisation, and learning difficulties (table). After adjustment for these factors, the difference in prevalence of violence between the groups remained non-significant.

Discussion

In the largest randomised trial to date comparing intensive case management with standard care in psychosis, no significant reduction in violence was found. Risk factors for violence included previous violence, drug misuse, younger age, and victimisation, confirming the results of previous studies in psychotic patients.^{12 13} Violence was also associated with a history of learning difficulties, a factor previously identified in non-psychotic populations.¹⁴

Strengths and weaknesses of the study

Different methods for measuring violence can produce very different prevalences.¹⁵ The recent use of multiple combined measures, as in this study, has highlighted the limitations of most previous studies, which relied on a single source. Our results support the observation that self report methods consistently produce a higher frequency of violence than use of other records (see full version on *BMJ's* website).¹⁶

One possible source of bias in this study is that intensive case managers may have detected more violent acts and that standard case managers may have under-reported violence. This could conceal an actual reduction in violence in the intensive group. This is unlikely to be the case as the interviews with case managers added only 15 participants who had not been identified by self report or review of case notes. These cases were evenly distributed between the groups. Additionally, we included only actual assaults, and not threats, in our definition so it is likely that most of these more serious incidents will have been detected irrespective of treatment allocation.

Possible bias arising from interviewers not always being blind to treatment group will have been

What is already known on this topic

Psychosis and violence are known to be associated

Community psychiatric interventions aimed at reducing the risk of violence have not been evaluated

What this study adds

Increasing the intensity of contact between patients and case managers does not reduce the prevalence of violent behaviour in patients with psychosis

Younger age, learning difficulties, and a history of violence, drug misuse, and victimisation predict violent behaviour in psychotic patients

minimised by the use of multiple data sources. The use of validated questionnaires and continual data monitoring at each centre and centrally will have maximised the robustness of the data. Participants were recruited from inner city locations, and results may not be generalisable to other settings. The multicentre design with over 700 patients should, however, increase the external validity.

Prevalence of violent behaviour

The finding that 22% of patients committed assault over the two year period is of concern but concurs with previous work. Studies indicate that between 10% and 40% of patients commit assault before admission to hospital, and the MacArthur risk assessment study found that 28% of discharged psychiatric patients committed at least one violent act within a year of discharge.^{17 18}

We found no evidence that intensive case management reduced the prevalence of violent behaviour over two years. This finding is not challenged by any of the published trials in this field. There have been at least seven randomised controlled trials examining the efficacy of assertive community treatment—the form of intensive case management favoured in the United States—that have included time in jail or legal contacts as an outcome measure.^{19–25} None has examined violence specifically, and only two of the seven reported reductions in time in jail.^{21 22} Differences in the organisation of services, in particular the absence of coordinated care in American standard practice, limit the generalisability of these findings to the British setting.

Implications of the study

Despite the lack of empirical studies on the effect of increasing the intensity of treatment in the community on violence in general psychiatric or forensic populations, research in the United States is now focusing on the effect of combining community treatment with legally enforceable interventions to reduce violence. A recent study, with some important limitations in its methods, found that outpatient commitment (enforced community treatment) for longer than six months combined with regular services resulted in a significant reduction in community violence in severely mentally ill patients at risk of violence. Neither outpatient commitment nor regular services alone was effective.²⁶ Similar legislation for compulsory community treatment in England and Wales has recently been proposed in a government

Sociodemographic and clinical predictors of violent behaviour

Factor	Risk ratio (95% CI) adjusted for all other variables in table
Age:	
19-39 years	1.53 (1.12 to 2.02)*
40-64 years	1
Special education:	
No	1
Yes	1.61 (1.08 to 2.20)*
Victimised in past year:	
No	1
Yes	1.50 (1.08 to 2.02)*
Drug use/misuse:	
None	1
One or more	1.49 (1.09 to 1.95)**
Assault (past 2 years):	
No	1
Yes	2.04 (1.54 to 2.56)***
History of conviction for violence:	
No	1
Yes	1.44 (1.02 to 2.61)*
Randomisation:	
Standard case management	1
Intensive case management	1.08 (0.78 to 1.44)

* $P<0.05$, ** $P<0.01$, *** $P<0.001$.

white paper.²⁷ Future research may have the challenging task of evaluating the effectiveness of combining specific clinical interventions within or without a protective legal framework.

The UK700 Group is a collaborative study team involving four clinical centres. Manchester: Tom Butler, Francis Creed, Janelle Fraser, Peter Huxley, Nicholas Tarrier, Theresa Tattan. King's/Maudsley, London: Tom Fahy, Karyna Gilvarry, Kwame McKenzie, Robin Murray, Jim van Os, Elizabeth Walsh. St Mary's/St Charles' Hospitals, London: John Green, Anna Higgitt, Elizabeth van Horn, Donal Leddy, Catherine Manley, Patricia Thornton, Peter Tyrer. St George's Hospital, London: Rob Bale, Tom Burns, Matthew Fiander, Kate Harvey, Andy Kent, Chiara Samele. York (health economics): Sarah Byford, David Torgerson, Ken Wright. London School of Hygiene and Tropical Medicine (statistical centre): Simon Thompson, Ian White.

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Impact of Effective Health Care bulletin on treatment of persistent glue ear in children: time series analysis

James Mason, Nick Freemantle, George Browning

Centre for Services Research, University of Newcastle upon Tyne, Newcastle upon Tyne NE2 4AA
James Mason
professor of health economics

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During the 1980s, surgery for chronic otitis media with effusion (glue ear) increased greatly without obvious reason.¹ "Dry taps"—absence of effusion upon incision—were common, probably because the surgery was performed without the surgeon confirming that the condition had not already resolved.² An *Effective Health Care* bulletin on the treatment of persistent glue ear in children was distributed nationally to NHS decision makers in 1992.² Based on systematic review, the bulletin concluded that surgery should be restricted to children with an extended period of substantial hearing impairment, with persistence and severity established by watchful waiting. We evaluated surgery rates before and after distribution of the bulletin.

Methods and results

Quarterly numbers of D151 procedures—insertion of a ventilation tube through the tympanic membrane—performed in children aged under 15 in England from

1989 to 1996 were obtained from the hospital episodes system. We calculated per capita regional and national rates for this procedure.³

We applied a generalised linear model with a heterogeneous first order autoregressive structure and repeated measures by region. The effect of the introduction of the bulletin was nested into the model using 'proc mixed' in SAS version 8 (SAS Institute, Cary, NC). This approach consistently identifies the best autoregressive structure (the model adjusts for the relatedness of sequential observations over time). We investigated regional variations in surgical rates by comparing standard error terms from the model before and after distribution of the bulletin. Overall, the model included data from 14 regions, each of which provided results from 28 quarters, half before and half after distribution of the bulletin.

In 1992, 77 766 grommet insertions were conducted; this was equivalent to a quarterly rate of 2.1 per