Background
It has been stated that rates of homicide due to mental disorder are constant over time. Aims
To examine whether there were changes in the rates of homicide due to mental disorder over time, and whether changes in these rates were associated with changes in the rates of other homicides in England and Wales. Method
Examination of four sets of official homicide statistics from England and Wales from 1946 to 2004.

Results
The rate of total homicide and the rate of homicide due to mental disorder rose steadily until the mid-1970s. From then there was a reversal in the rate of homicides attributed to mental disorder, which declined to historically low levels, while other homicides continued to rise.

Conclusions
The reasons for the rise and fall in homicides attributed to mental disorder are not clear. The earlier increase in such homicides may have been due to the same sociological factors that caused the increase in other homicides over that time. The subsequent decline may have been due to improvements in psychiatric treatments and service organisation. Another possibility is that there has been an informal change to the legal tests for the finding of homicide due to mental disorder.

Declaration of interest
None.

Method
We located four sets of homicide statistics for England and Wales; Taylor & Gunn,4 Gibson & Klein,14,15 Richards16 and Coleman et al.17

Statistics for homicides due to mental disorder are more complete after 1957, when the defence of diminished responsibility was introduced and the mandatory death penalty was abolished.

For the purpose of consistency we used the same definition of mental disorder as Taylor & Gunn,4 which is the total of the findings of Section 2 under the Homicide Act 1957 (diminished responsibility), infanticide, not guilty by reason of insanity, and permanent unfitness to stand trial (see Appendix). We also chart the trends in the components of homicide due to mental disorder (Figs 1 and 2) and homicide–suicides (Fig. 3). Taylor & Gunn did not include homicide–suicides in the mental disorder group, as it is not known what proportion of homicide–suicide offenders are also ‘mentally abnormal’ (e.g. those unfit to stand trial, not guilty by reason of insanity, with diminished responsibility or infanticide).18 Homicide–suicide statistics are examined separately in this paper. Non-age-adjusted homicide rates per 100 000 were calculated using population figures from census data,19 using an assumption of linear population growth between each census.

Independent data extraction by M.L. and G.S. did not result in any discrepancies. The annual number of homicides attributed to mental disorder was taken from Taylor & Gunn (1957–1992)4 and Coleman et al (1993–2004).17 The annual numbers of offences initially recorded as homicide were taken from Richards16 (1946–1993), and Coleman et al17 (1993–2004), and total murder convictions were taken from Gibson & Klein4,15 (1946–1956), Taylor & Gunn4 (1957–1992) and Coleman et al17 (1993–2004). Figures for the finding of not guilty by reason of insanity, unfit to stand trial, infanticide and homicide–suicide were taken from Gibson & Klein14,15 (1952–1956), Taylor & Gunn4 (1957–1992) and Coleman et al17 (1993–2004). The 172 victims of Dr Harold
Shipman, most of whom died in preceding years, were included in official statistics in 2003.\textsuperscript{17}

Later legal redetermination of cases may have caused some discrepancies in homicide numbers between the four sets of homicide statistics. The total number of annual homicides after 1967 taken from statistics held by the House of Commons library and reported by Richards\textsuperscript{16} were 17\% (s.d.=14) greater than the Home Office statistics reported in Taylor & Gunn.\textsuperscript{4} However, an analysis of the trends and associations using total homicide figures from Richard\textsuperscript{16} was very similar to that of Taylor & Gunn\textsuperscript{4} and was hence not reported. There were only minor differences between the figures reported by Gibson & Klein,\textsuperscript{14,15} Coleman \textit{et al}\textsuperscript{17} and Taylor & Gunn\textsuperscript{4} for the periods in which the statistics overlapped. Where there was a discrepancy, the most recent statistics were used.

We examined changes in mentally disordered homicide over time using Kendall's tau, and in relation to total homicide using linear regression. Statistics were performed using SPSS version 15.0 for Windows.

### Results

#### Changes in homicide due to mental disorder over time

The annual number of homicides due to mental disorder rose from under 50 in 1957 to well above 100 by the 1970s. The highest annual rate of 0.245 per 100,000 population was in 1973 and the absolute number peaked in 1979. During this period (1957–1980), homicides due to mental disorder and total homicides were strongly correlated (Kendall's tau=0.747, two-tailed significance \(P<0.0001\)).

In the subsequent 24 years (1981–2004) homicides due to mental disorder declined and were negatively correlated with the rate of homicide by people without mental disorder (Kendall's tau=-0.829, two-tailed significance \(P<0.0001\)). The absolute number of homicides due to mental disorder fell to levels not seen since the early 1950s and the rate has been at historic lows of 0.07 per 100,000 or lower since 2000 (Fig. 1).

Most of the increase in homicides that were recorded as being due to mental disorder was a result of an increase in verdicts of diminished responsibility. However, there were also peaks in infanticide, homicide offenders who were found not guilty by reason of insanity and among those found unfit for trial in the late 1960s and early 1970s (Fig. 1).

#### Relationship between rates and proportions of homicide due to mental disorder and other homicides

The proportion of homicides due to mental disorder fell over the period 1957–2004 as a result of two separate trends (Fig. 2). In the first 24 years (1957–1980) there was a very strong relationship between the rates of homicide due to mental disorder and other homicides (\(r=0.898, r^2=0.806, t=6.877, P<0.0001\)). In this period, the proportion of homicide offenders who were mentally ill fell, despite the rise in homicides due to mental disorder, as the total homicide rates also increased. In the second period (1981–2004), the rates of homicide due to mental disorder and other homicides were negatively correlated (\(r=-0.920, r^2=0.846, t=-11.00, P<0.0001\)) and the proportion of homicides due to mental disorder also fell because the annual number declined significantly, whereas the rate of other homicides continued to rise.

#### Homicide followed by suicide

Homicide followed by suicide was considered separately and did not follow the pattern of homicide due to mental disorder. There was a small but significant fall in murder–suicides in the period after the abolition of the death penalty in November 1965. Between 1952 and 1965 there were 1928 homicides of which 521 (27\%) were homicide–suicides, whereas between 1966 and 2004 there were 19236 homicides of which 1357 were homicide–suicides (7.1\%) (\(\chi^2=865, d.f.=1, P<0.001\)). The fall in the proportion of homicide–suicides is mainly explained by the rise in total homicides, but the total number of homicide–suicides also fell from 37.2 per year (s.d.=3.76) in the 14 years before the abolition of the death penalty to 30.9 per year (s.d.=8.32) during the following 14 years (unpaired two-tailed \(t\)-test, \(t=2.57, d.f.=26, P=0.016\)) (Fig. 3).

The true figures from 2000 onwards may eventually be higher as about 10\% of legal proceedings from 2000 and 20\% from 2003 were not concluded.\textsuperscript{17}

![Fig. 1] Homicides due to mental disorder in England and Wales, 1952–2004.

![Fig. 2] Homicide rates in England and Wales, 1946–2004.
Large et al

substantial empirical evidence. However, neither of these hypotheses is supported by misuse may have resulted in a peak in homicides due to mental disorder. One possible explanation for both the rise and fall in homicides from these data.

Explanations for changes in homicide rates

One possible explanation for both the rise and fall in homicides due to mental disorder may have been changes in the threshold for the finding of a verdict of diminished responsibility, the largest rise in the rate of homicide due to mental disorder also rose from the mid-1950s, but reached a peak in 1973 and then steadily declined to reach historically low levels. However, the reasons for the rise and fall in the rate of homicide by people who were legally classified as being mentally disordered after committing a homicide cannot be determined from these data.

There may be separate explanations for the rise and the subsequent fall in homicide due to mental disorder. First, it is likely that rates of abnormal homicide increased because of the same sociological factors (e.g. the availability of weapons, patterns of substance misuse, and patterns of internal and external migration) that caused the increase in total homicide. This is consistent with the finding that regions with a high total homicide rate also have larger numbers of homicides by people who are mentally ill and by those with schizophrenia.

Effect of treatment on homicide rates

The subsequent fall may well be due to improvements in treatment. The introduction and increasing use of antipsychotic medication, the greater awareness of the treatment of psychosis by primary care providers after deinstitutionalisation, and the creation of regional health authorities with responsibility for defined populations, may have all contributed to the observed decline in abnormal homicide since the 1970s. This is consistent with the findings of recent studies in the UK and Australia, which suggest that initial treatment of psychosis may reduce the risk of homicide.

Regardless of the reason for the change, the main finding of this study is that rates of homicide due to mental disorder are not fixed. This finding counteracts previous views about the potential to reduce this form of homicide and should encourage further research to examine the causes of homicides by the mentally ill, which in turn could inform clinical practice and save lives.

Appendix

Types of homicide due to mental disorder

<table>
<thead>
<tr>
<th>Legal outcome</th>
<th>Approximate definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not guilty by reason of insanity</td>
<td>At the time of the commission of the acts constituting the offence, the defendant, as a result of a severe mental disease or defect, was unable to appreciate the nature and quality or the wrongfulness of his acts.</td>
</tr>
<tr>
<td>Diminished responsibility</td>
<td>Where a person kills or is a party to the killing of another, he shall not be convicted of murder if he was suffering from such an abnormality of mind (whether arising from a condition of arrested or retarded development of mind or any inherent causes or induced by disease or injury) as substantially impairing his mental responsibility for his acts and omission in doing or being party to the killing.</td>
</tr>
<tr>
<td>Unfit to plead</td>
<td>Where the accused is unable to understand the charge and possible penalties, or unable to understand court proceedings, or unable to give instructions to a defence lawyer.</td>
</tr>
<tr>
<td>Infanticide</td>
<td>When a woman or girl who unlawfully kills her child (under 12 months) under circumstances which, but for this section, would constitute wilful murder or murder, does the act which causes death when the balance of her mind is disturbed because she is not fully recovered from...</td>
</tr>
</tbody>
</table>
Infanticide

(continued)

the effect of giving birth to the child or because of the effect of lactation consequent upon the birth of the child, she is guilty of infanticide only.

Homicide–suicide

When the homicide offender completes a suicide at the same time or after the homicide. Most suicides after homicide occur within a week of the homicide and suicides that occur after a conviction are not included in official statistics. It is not known what proportion of homicide–suicide offenders might have had a mental illness defence available to them to had they survived.

References

Homicide due to mental disorder in England and Wales over 50 years
Matthew Large, Glen Smith, Nicola Swinson, Jenny Shaw and Olav Nielsen
Access the most recent version at DOI: 10.1192/bjp.bp.107.046581

References
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