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Psychiatric and social aspects of suicidal behaviour in prisons

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ABSTRACT

Background. Suicidal behaviour and completed suicide are serious problems within British prisons, leading to significant morbidity and mortality, and are the focus of major efforts towards their prevention.

Aim. To explore the demographic, social and psychiatric correlates of suicidal behaviour in prisons in England and Wales and their relationship with health service use; and to develop a combined psychosocial model of risk.

Method. This report analyses the prevalence of suicidal ideation and suicide attempts in the ONS National Prison Survey, and their association with the presence of psychiatric disorders, personality disorder, substance abuse and social risk factors. These data were compared with data from the second national survey of psychiatric morbidity in adults living at home. In both surveys, a two-phase interviewing procedure was used, covering general health, health service use, assessment of psychiatric disorders, life events, social supports, suicidal behaviour, activities of daily living, sociodemographic data, substance abuse and intelligence.

Results. Suicidal thoughts and suicide attempts were commoner in prisons than in the general population and these were significantly associated with higher rates of psychosis, neurosis and personality disorder in prisons. In addition, demographic and factors such as being young, single, white, leaving school early and experiencing poor social support and significant social adversity were important risk factors for suicidal thoughts. Crucially, there was no separate category of people at suicidal risk who did not have psychiatric disorders.

Conclusions. The high rates of suicidal behaviour in prisons cannot be addressed without adequate attention to the high rates of psychiatric disorder and vulnerability factors in prisoners.

INTRODUCTION

Prisoners have poor general health and high rates of physical illness (Bridgwood & Malbon, 1995), as well as relatively high rates of mental disorder (Gunn *et al*. 1991; Birmingham *et al*. 1996; Singleton *et al*. 1998; Coid *et al*. 2002). The most recent data indicates that psychosis is present in 7% of men and 15% of women, neurosis in 40% of men and 68% of women, and personality disorder in 64% of men and 50% of women in prisons (Singleton *et al*. 1998).

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This compares with psychosis being present in 0·6% of men and 0·5% women and personality disorder in 5·4% men and 3·4% women in the general population (Singleton *et al*. 2001). An additional complicating feature of high psychiatric morbidity in prisons is co-morbidity with substance misuse disorder (Abram *et al*. 2003). There is substantial concern about the high rates of suicide and suicidal behaviour in prisons.

There has been a pendular swing in explanations put forward for the high suicide rates in prisons, ranging from medical or psychiatric to more sociological ones; there has been an acceptance for some time that mental disorder is a major contributor to suicide in the general population (e.g. Barraclough *et al*. 1974; Hawton & van Heeringen, 2000); it has in contrast been suggested that much of the suicidal behaviour in prisons is socially determined and unrelated to the presence of defined mental disorder (Towl & Crighton, 1997), although related to the concept of 'poor coping' (Liebling, 1999).

Previous studies in the general population have shown that the key social factors associated with actual suicide are also measures of social disadvantage and social exclusion. These factors are more frequent in the prison population than in the general population, and so it is to be expected that suicide rates would tend to be relatively greater in prison than outside, although the high level of supervision should mitigate this effect to some degree. Thus, although commitment to prison is ostensibly for the punishment of crime, in practice prisons also act as a filter for social ills, and contain the most socially deprived groups in the country. There are considerable political and social efforts to reduce social exclusion in Britain, but prison is the ultimate social exclusion.

The suicide rate of prisoners is substantially higher than for the general population, even after differences in the age structures of the two populations have been accounted for (Towl & Crighton, 1998). A study in Dutch prisons (Kerkhoff & Bernaseo, 1990) reported from an examination of the registration files of 198 attempted suicides that significant risk factors were youth, immigrant origin, being charged with murder or manslaughter, a sentence of a year or longer, using psychotropic medication, and making more frequent visits to the doctor. Committing deliberate self harm in the follow-up phase of the study was associated with alcohol and drug addiction, problems with relatives, concern over the legal process, and difficult relationships.

Effective prevention measures depend on understanding the reasons for the high rates of prison suicide. As part of that endeavour, this analysis uses data from the British National Psychiatric Morbidity Survey programme, first to establish the rates of suicidal behaviour, and secondly to examine the social and psychiatric correlates of suicidal behaviour prisoners. We hypothesized that while suicidal thoughts and attempts are more common in prisons, the psychiatric and social characteristics of suicidal thoughts and attempts would be the same as those in adults living at home.

METHOD

The survey programme

The British National Psychiatric Morbidity Survey programme was commissioned by the Department of Health, Scottish Health Executive and the National Assembly for Wales, and has been carried out by the ONS (Office of National Statistics) [formerly OPCS (Office of Populations, Censuses and Surveys)] over the last decade. Two of the surveys were used for this analysis: the National Survey of Psychiatric Morbidity in the prison population and the second National Psychiatric Morbidity survey of people living in private households (Singleton *et al*. 1998, 2001).

Prison survey sample

The sample for the prison survey included all prisons in England and Wales and took a sample of prisoners from all locations within each prison.

Prisons

The survey was effectively a census of all prisons and so, by definition, all types of prisons are represented in their actual proportions. Prisons may house male or female prisoners, rarely both. Some prisons may cater solely for young offenders and others for all adult prisoners. Most prisons are closed (where prisoners are allocated to cells and any time out of the cell is supervised by prison officers), but some are open

(where prisoners sleep in dormitories and have greater freedom of movement).

Sampling frame

The most relevant statistics on the prison population to use for determining the appropriate sampling fraction were those for the end of July 1997. These statistics showed an overall prison population of 61 944 in 131 penal establishments. This was made up of 46 872 male sentenced prisoners, 12 302 male remand prisoners including civil prisoners, and 2770 women prisoners. Different sampling fractions were therefore needed in each group to obtain the required number of interviews. The specific sampling fractions chosen were 1 in 34 male sentenced prisoners, 1 in 8 male remand prisoners, and 1 in 3 female prisoners, whether remand or sentenced.

All prisoners in the prison on the day of sampling were deemed eligible for the survey, including prisoners living in attached hostels prior to release, civil prisoners, fine defaulters and juveniles who were aged 16 years and over. Prisoners over 64 years were, however, excluded. The sample in each prison was obtained by the lead interviewer who asked for the alphabetical listing of all prisoners recorded on the daily database on that day. Male remand, male sentenced and female prisoners were then separately identified and the different random starting points and appropriate sampling fractions applied to draw a sample for that prison.

Interviews and interviewer training

Lay interviewers trained in general interviewing techniques by ONS were used for the initial phase of interviews, and then 1 in 5 interviewees were invited to take part in a follow-up clinical interview by psychiatrists specifically trained in the use of the clinical research interview (see below).

Interviewers explained the need to look at health care in prisons and that the survey would help inform policy in this area. The confidentiality of the interview was stressed, and prisoners appreciated the fact that the interviewers themselves were not employed by the Prison Service. Arrangements for interviews varied considerably between prisons, some offering facilities in the health-care centre and others in the wings. In order to meet the need of confidentiality, if a prisoner was considered to pose a physical risk, the interview was either conducted in the presence of a second ONS interviewer or else was recorded as a non-response (advised not to see). A total of 3139 interviews were completed in the prison sample.

Assessment

Overall arrangement of interviews

The survey was carried out in two stages. As mentioned above the initial lay interview consisted of questions to assess sociodemographic data, general health, health service use, the presence of neurotic disorders, the probable presence of psychosis and personality disorder, life events, suicidal behaviour, activities of daily living, social networks, social support, sociodemographic data, substance abuse, and intelligence.

Assessment of psychopathology

To obtain the prevalence of both symptoms and diagnoses of common mental disorders including depressive episodes, the revised version of the Clinical Interview Schedule (CIS-R; Lewis *et al.* 1992) was used. The second stage clinical interview consisted of the Schedules for Clinical Assessment in Neuropsychiatry (SCAN, version 1.0; WHO, 1992) in order to detect the presence of psychoses and severe affective disorders. Personality disorder was assessed by the Structured Clinical Interview for DSM-IV Personality Disorder (SCID-II; Zimmerman, 1994; First *et al.* 1997). Substance abuse was assessed by specific questions about alcohol, cigarettes, cannabis, amphetamine, cocaine, heroin and non-prescribed methadone. Drug dependence was measured using questions based on the Diagnostic Interview Schedule. Hazardous alcohol use and dependence were measured using the Alcohol Use Disorders Identification Test (AUDIT; Babor *et al.* 1992; Bohn *et al.* 1995). Items on smoking behaviour were adapted from those used in the Survey of the Physical Health of Prisoners in 1994 (Bridgwood & Malbon, 1995).

Assessment of suicidal behaviour

Self-harm with suicidal intent was assessed with five questions, the first four of which were

derived from the work of Paykel & Myers (1974). These were:

(1) Have you ever thought life was not worth living?

(2) Have you ever wished you were dead?

(3) Have you ever thought of taking your own life, even though you would not actually do it?

(4) Have you ever made an attempt to take your life, by taking an overdose of tablets or in some other way?

If present, the timing of such thoughts was explored, i.e. whether they were in the previous one week, one month, one year or any other time. Question 3 aimed to measure suicidal ideation, and question 4 suicidal attempts. Question 5 was added to measure self-harm without the intention of suicide.

(5) Since you have been in prison, have you deliberately harmed yourself in any way but not with the intention of killing yourself?

Respondents who answered positively were then asked a series of questions about how they had harmed themselves and for what reasons.

Social support

Social support was assessed on three dimensions: self-perceived support; the extent of social networks; and external contacts such as receipt of visits.

Perceived social support was assessed with seven questions originally used in the 1987 Health and Lifestyle survey and also included in the national surveys of psychiatric morbidity (Jenkins *et al.* 1997*a*, *b*; Singleton *et al.* 2001). For the prison survey, the frame of reference was broadened from family and friends to 'everyone you know' (including those here at prison as well as those elsewhere), in order to reflect the fact that, for some prisoners, the most important sources of support might be people within the prison system who might not have been regarded as family and friends.

Social networks were assessed by the adaptation of questions from the other ONS national surveys (Jenkins *et al.* 1997*a*), originally used in surveys of clinical populations (Brugha *et al.* 1993). Here again, the frame of reference was broadened to include everyone the individual was acquainted with, rather than just friends and relatives. Information was collected about relatives living outside the prison whom respondents felt close to, friends or acquaintances living outside the prison who would be described as good or close friends, and people who live or work in the prison who would be described as close or good friends.

Social functioning

Social functioning was also assessed by questions about activities of daily living, and participation in education, classes and other activities. Prisoners were also asked questions about aspects of their living arrangements that might have an impact on their social functioning, such as how long they were locked in and the opportunities for other activities. These questions were based on those used in the 1991 National Prison Survey (Dodd & Hunter, 1992).

Disciplinary issues

In addition, questions were asked about disciplinary or management problems such as spells in solitary confinement, days added to their minimum time served before consideration for parole, and confinement in stripped conditions.

Risk factors

Questions about potential risk factors covered six different aspects:

(1) Childhood factors, e.g. time spent in local authority care, schooling, etc., based on those used in the 1991 National Prison Survey (Dodd & Hunter, 1992).

(2) Living arrangements. Respondents were asked with whom they were living just prior to coming to prison and, if they had children under 18, whether these children were living with them at that time.

(3) Economic activity. Prisoners were asked two questions to identify economic activity immediately before coming into prison. For this survey, an additional category 'living off crime' was added to the usual categories of employment status: working, unemployed and seeking work, or economically inactive.

(4) Criminal activity was assessed by a single question to identify those who had a prior criminal conviction.

(5) Experience of stressful life events. All respondents were shown a list of 15 stressful life events, 11 of which were drawn from the List of Life Threatening Experiences used in the Household Survey because they are common and likely to be rated as very threatening (Brugha

et al. 1985); and four additional early events of being bullied, being expelled from school, running away from home and being homeless. These were included because they were likely to be common in the prison population and might have a negative impact on a person's mental health. Respondents were asked how long ago the most recent event had occurred.

(6) Victimization during the current prison term. Respondents were asked if they had been threatened with violence, been the victim of actual violence, had belongings stolen, been intimidated to hand over belongings, received unwanted sexual attention or been the victim of forced sexual attention.

Use of services

Information about current medication was initially collected from the respondents themselves who were asked

(*a*) Are you taking any pills or tablets or any other medications by mouth which have been prescribed for you?

(*b*) Are you having a regular course of injections which has been prescribed for you?

Positive responses were followed up by probing for the name of the medicine, or if that was not known, by asking what they were taking it for, and by seeking a description. If respondents gave their consent, information on current medication was also obtained from their prescription card or pharmacy records if these could be located.

Health service use in the year before coming to prison was enquired about from those who had been in prison less than 2 years. This was because prisoners who had been in for longer would be unlikely to recall the information accurately. Prisoners were asked about help from their family doctor; from a psychiatric health professional (psychiatrist, psychologist, psychotherapist and community psychiatric nurse); and from any other source (e.g. psychiatric social worker, counsellor, drugs worker/counsellor, probation officer). Similar questions were asked regarding health service use in prison. Prisoners were asked about help from the prison doctor; from any psychiatric health professional (psychiatrist, psychotherapist, psychiatric nurse, psychologist); and any other source of support or help (pastor/chaplain, counsellor, voluntary worker, probation officer, other source).

Data analysis and weighting

In the original analyses (Singleton *et al*. 1998), weighting was applied to the male sentenced group to correct for the change in sampling fraction for the last 4 weeks of the field work from 1 in 34 to 1 in 50. For this analysis, the data for the different sample groups of male and female, remand and sentenced prisoners were analysed together for each of the relevant variables. It was therefore necessary to weight for the different sampling fractions.

The data were analysed using SPSS (SPSS Inc., Chicago, IL, USA). Logistic regression analysis was used to provide a measure of the independent association between sociodemographic, psychiatric and social functioning variable and non-fatal suicidal behaviour. This effect is measured in terms of odds, and the amount which the odds actually increase is shown by the adjusted odds ratio.

The private household sample

The data from prison were compared with those from the private household survey, which was carried out in 2000 on a population of 8886 people aged 16–74 years living in private households (see Singleton *et al*. 2001). The method is described briefly below.

Sample

The sample of 12 792 households was drawn from the small-user Postcode Address File using a two-stage approach. Initially postcode sectors were stratified on the basis of socio-economic status within region and 438 sectors selected with a probability proportional to size. Then within each selected sector, 36 addresses were randomly selected for inclusion in the survey. Interviewers visited each address to identify private households with at least one person aged 16–74 years and then one person per household was randomly selected for interview. All those aged above 64 years were excluded from this analysis.

Interviews and assessments

The interviews were carried out in two phases, as in the prison survey, and using the same instruments, the first phase, by lay interviewers trained by ONS, and the second stage by trained psychiatrists. The initial lay interview consisted

Table 1. *Prevalence of suicidal thoughts and attempts among prisoners and those living at home (cumulative percentages)*

	Male remand	Male sentenced	Males at home	Female remand	Female sentenced	Females at home
Suicidal thoughts						
Past week	11·9	3·8	0·3	23·0	8·4	0·5
Past year	34·6	19·4	3·6	49·7	33·9	4·1
Lifetime	46·1	36·1	12·7	58·8	51·9	17·1
Base	*1248*	*1120*	*3848*	*187*	*584*	*4724*
Suicide attempts						
Past week	1·8	0·4	0·0	2·1	1·4	0·0
Past year	15·0	6·6	0·5	27·3	16·5	0·5
Lifetime	27·0	20·1	3·6	43·9	37·2	5·3
Base	*1248*	*1120*	*3848*	*187*	*584*	*4724*

of questions to assess sociodemographic data, general health, health service use, assessment of neurotic disorders, the probable presence of psychosis, substance misuse, personality disorder, life events, suicidal behaviour, activities of daily living, and social support. The second stage comprised SCAN, version 2.1 (WHO, 1999).

A total of 8886 initial lay interviews were completed in the private household sample, giving a response rate of 69%. The data for this analysis were drawn from the first-stage interviews.

RESULTS

The prevalence of mental disorder in the prisons is as follows: psychosis, 7% in men and 15% in women; neurosis, 40% in men and 68% in women; and personality disorder, 64% in men and 50% in women (Singleton *et al.* 1998).

Prevalence of suicidal ideation and attempts

Table 1 shows the prevalence of suicidal thoughts and suicide attempts among prisoners and those living at home. The prevalence of suicidal thoughts in prisoners was greatly increased compared with people living at home. Forty per cent of male prisoners and 55% of female prisoners had experienced suicidal thoughts in their lifetime compared with around 14% of men and 4% of women living at home. Thus, the lifetime prevalence of suicidal thoughts in prisoners was increased by a factor of 3, the 1-year prevalence by between 5 and 12, and the 1-week prevalence by a factor of more than 20 (see Table 1). Over a quarter of male remand prisoners had attempted suicide in their lifetime, and one sixth in the previous year. For female remand prisoners, the figures were even higher, with nearly one half having attempted suicide in their lifetime and over a quarter in the past year. The proportions of male and female sentenced prisoners who had tried to kill themselves was less than in the remand population (one twelfth of male and one sixth of female sentenced prisoners in the last year), It was, nonetheless, much higher than in the general household population, where only 1% of men and women had tried to kill themselves in the last year.

Sociodemographic features

Prisoners who had had suicidal thoughts or had actually attempted suicide in the last week, the last year, or over the course of their lifetime tended to be young, white, single, and UK-born, and to have left school early and to be more less well educated than non-suicidal prisoners (see Table 2). Ethnicity and age were the most significant of these relationships.

Social support and previous adversity

Prisoners who had had suicidal thoughts and attempted suicide in the last week, last year, or over their lifetime were more likely to have very small primary support groups, to report a severe lack of social support, and to have experienced a variety of adverse life events, particularly violence or sexual abuse (Table 3). Thus, two fifths of male remand prisoners who had tried to kill themselves in the last year had been threatened with violence, compared with less than one fifth of the group who had never attempted suicide.

Table 2. *Sociodemographic characteristics of prisoners who have suicidal thoughts and prisoners who make suicide attempts*

	Past week %	Past year %	Lifetime %	Never %	All %
Suicidal thoughts					
Proportion of prisoners with suicidal thoughts who are					
Men	91·0	93·1	94·2	96·8	95·8
White	84·2	88·3	88·0	78·9	82·5
Aged 16–20 years	23·4	18·0	14·2	19·7	17·6
Single	47·3	51·7	50·4	47·3	48·5
Mean age of leaving school (years)	15·1	15·3	15·3	15·5	15·4
Base	*175*	*729*	*1224*	*1914*	*3138*
Suicide attempts					
Proportion of prisoners who make suicide attempts who are					
Men	90·7	90·8	92·6	96·7	95·8
White	94·3	93·0	93·7	79·3	82·5
Aged 16–20 years	28·1	27·5	14·1	18·6	17·6
Single	56·4	53·7	51·0	47·7	48·5
Mean age of leaving school (years)	14·1	15·1	15·3	15·4	15·4
Base	*22*	*269*	*690*	*2414*	*3104*

Table 3. *Social characteristics of prisoners who have suicidal thoughts, and prisoners who make suicide attempts*

	Past week %	Past year %	Lifetime %	Never %	All %
Suicidal thoughts					
Proportion of prisoners with suicidal thoughts who have					
Been in an institution (e.g. borstal)	48·5	46·8	43·4	31·9	36·4
Been in local authority care	34·3	36·6	34·2	23·5	27·7
Attended special school	39·1	32·2	28·9	19·9	23·4
Small primary support group (<4)	30·4	26·5	22·9	12·0	16·3
Stressful life event in past 6 months	52·0	35·5	29·3	19·5	23·3
Mean number of stressful life events	6·3	6·0	5·9	4·1	4·8
Base	*175*	*729*	*1224*	*1914*	*3138*
Suicide attempts					
Proportion of prisoners who make suicide attempts who have					
Been in an institution (e.g. borstal)	55·2	45·8	44·0	34·1	36·4
Been in local authority care	42·3	34·0	38·3	24·6	27·6
Attended special school	56·2	31·7	30·1	21·5	23·4
Severe lack of perceived social support	43·3	39·5	35·3	23·4	26·1
Stressful life event in past 6 months	55·7	38·3	28·6	21·8	23·3
Mean number of stressful life events	6·8	6·2	6·3	4·4	4·8
Base	*22*	*269*	*690*	*2414*	*3104*

Being in local authority care is a common antecedent to prison, and between a third and a quarter of all prisoners had been in such care. However, it is striking that prisoners who had attempted suicide in the last year were twice as likely to have been placed in care than the non-suicidal prisoners. Thus, people who have been in local authority care are over-represented in the prison population, but even more so in the suicidal prison population.

Type of conviction

Prisoners alleged to have committed or who had been convicted of drugs offences were less likely

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to have attempted suicide than those in prison for other offences.

Location

There were significant differences between male and female, and between remand and sentenced prisoners, but within each of these groups the type of prison profile was not significant. Neither was length of sentence in convicted prisoners.

Psychiatric characteristics

Table 4 shows the psychiatric characteristics of the prisoners who had experienced suicidal thoughts or attempted suicide. Of those with suicidal thoughts in the last year, 56% had antisocial and one other personality disorder combined (i.e. two diagnoses of personality disorder), 16% had a psychosis, 73% had a neurotic disorder, 37% had an AUDIT score of over 16, and 49% were dependent on stimulants or opiates or both. Of prisoners with suicidal thoughts in the past week, the proportion with psychosis increased to 26%, and the proportion with a neurotic disorder increased to 95%, of which nearly three quarters suffered from depression or mixed anxiety/depression. On the key question of whether suicidal thoughts occur in the absence of psychiatric disorder, only 0·5% of those with suicidal thoughts in the last week, 2·1% of those with suicidal thoughts in the last year, and 3% of those with suicidal thoughts in their lifetime had no identifiable disorder at the time of the interview.

Like suicidal thoughts, attempted suicide was also highly related to the presence of mental disorder. Of those who made suicidal attempts in the last year, 57% had antisocial and other personality disorder combined, 27% had a psychosis, 83% had a neurotic disorder, 40% had an AUDIT score of over 16, and 50% were dependent on stimulants or opiates or both. Of prisoners with suicidal attempts in last week, the relationship with mental disorder was even more marked, with 67% having an antisocial and another personality disorder combined, 41% having psychosis, 86% a neurotic disorder, and 55% an AUDIT score of over 16, while 64% were dependent on opiates or stimulants. There were no attempts in the past week in the absence of psychiatric disorder. Of those making an attempt in the last year, 2% had no disorder, and of those who had ever made an attempt, only 3% had no current disorder.

It is of particular interest that the suicidal group were four or five times more likely to have extensive co-morbidity (i.e. four or five categories of psychiatric disorder simultaneously) than non-suicidal prisoners. Indeed, 94% of those attempting suicide in the last week had three or more psychiatric disorders.

Logistic regression

Logistic regression was used to produce estimates of the risk contributed by social and psychiatric variables to suicidal thoughts and suicidal attempts. Both psychiatric risk factors and social risk factors were included in the final clinical model of risk for last-year and lifetime risk. A final clinical model of risk for the last week was not produced because the numbers were too small for such a predictive model.

Table 5 gives the social and psychiatric correlates of lifetime suicidal attempts, using a stepwise analysis. This model includes the social variables found in this paper to make a significant contribution to suicidal attempts, namely the number of stressful life events, lack of social support, small primary support groups, being female, and being young. It also includes the psychiatric variables found to make a significant contribution to suicidal attempts, namely probable psychosis, all kinds of neurotic disorder, and personality disorder/other than antisocial.

Table 6 illustrates the social and psychiatric correlates of suicide attempts in the last year, again using a stepwise analysis. It can be seen that this model is very similar to that for lifetime risk. Among male remand prisoners, the odds of suicidal behaviour in the last year was increased by 2·75 for those who had no contact with family or friends compared with those who had received letters, telephone calls or visits from both groups.

Of all the different psychiatric disorders, the most predictive of previous suicide attempts were psychosis and neurosis. Thus the presence of psychosis increased the odds of having attempted suicide in the last year by a factor of 7. Similarly, the presence of severe neurosis (CIS-R score of 30+) increased the odds of having attempted suicide by 2. The presence of suicidal

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Table 4. *Psychiatric diagnoses of prisoners who have suicidal thoughts and of prisoners who make suicide attempts*

	Past week %	Past year %	Lifetime %	Never %	All %
Suicidal thoughts					
Proportion of prisoners who have					
Neurotic disorders					
Depressive episode	42·4	24·7	17·1	5·9	10·3
General anxiety disorder	25·7	19·0	15·4	4·4	8·6
Obsessive–compulsive disorder	26·5	19·4	14·5	3·3	7·7
Phobia	28·8	17·7	12·9	2·5	6·6
Panic disorder	7·6	7·4	5·1	2·1	3·3
Mixed anxiety/depressive disorder	25·4	29·4	26·7	17·3	20·9
Any neurotic disorder	***95·5***	***80·8***	***66·5***	***30·4***	***44·4***
Psychotic disorder	26·1	16·3	12·0	1·6	5·7
Personality disorder					
Antisocial personality disorder	13·3	11·7	14·8	24·6	20·8
Other personality disorder	21·4	20·2	18·9	16·9	17·7
Antisocial and other personality disorder	54·9	55·7	51·6	26·1	36·0
Alcohol dependence					
AUDIT score of ⩾16	40·5	37·3	37·1	25·0	29·7
Drug dependence					
Dependence on cannabis only	10·2	10·5	10·1	7·2	8·3
Dependence on stimulants only	18·6	21·2	19·9	14·0	16·3
Dependence on opiates only	4·7	9·9	9·5	8·5	8·9
Dependence on opiates and stimulants	21·7	17·2	14·4	9·3	11·3
Number of disorders					
5	10·4	5·9	4·3	0·5	2·0
4	30·4	28·9	22·4	8·3	13·8
3	38·8	37·8	35·9	25·9	29·8
2	18·1	19·9	24·9	30·3	28·2
1	1·5	5·4	9·6	24·2	18·5
0	0·5	2·1	3·0	10·8	7·7
Base	*175*	*729*	*1224*	*1914*	*3138*
Suicide attempts					
Proportion of prisoners who have					
Neurotic disorders					
Depressive episode	42·5	25·6	18·9	7·9	10·4
General anxiety disorder	20·9	20·3	16·2	6·4	8·6
Obsessive–compulsive disorder	30·4	22·5	16·6	5·1	7·7
Phobia	29·1	21·1	15·1	4·1	6·6
Panic disorder	19·8	9·9	5·7	2·6	3·3
Mixed anxiety/depressive disorder	17·8	28·4	25·6	19·6	20·9
Any neurotic disorder	***85·1***	***83·9***	***68·7***	***37·6***	***44·5***
Psychotic disorder	41·2	27·0	19·2	1·8	5·7
Personality disorder					
Antisocial personality disorder	2·1	8·9	14·0	22·8	20·8
Other personality disorder	30·7	23·4	20·7	16·9	17·7
Antisocial and other personality disorder	67·3	57·0	51·4	31·6	36·0
Alcohol dependence					
AUDIT score of ⩾16	54·6	39·5	39·2	27·0	29·7
Drug dependence					
Dependence on cannabis only	2·8	11·5	9·7	7·9	8·3
Dependence on stimulants only	24·2	23·6	21·2	14·9	16·3
Dependence on opiates only	6·2	8·1	8·8	8·9	8·9
Dependence on opiates and stimulants	33·5	19·0	15·6	10·0	11·3
Number of disorders					
5	11·3	9·4	7·2	0·5	2·0
4	39·7	32·5	23·1	11·2	13·8
3	42·8	39·2	37·4	27·7	29·8
2	4·1	13·2	20·7	30·3	28·2
1	2·1	4·3	8·7	21·2	18·5
0	—	1·6	2·9	9·1	7·7
Base	*22*	*269*	*690*	*2414*	*3104*

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Table 5. *Logistic regression of social and psychiatric risk factor correlates of suicide attempts in past year*

Social variables	Adjusted odds ratio	95% CI
No. of stressful life events		
None	1	—
1	0·58	0·21–1·60
2	1·32	0·50–3·50
3	1·26	0·47–3·39
4	2·21	0·82–5·95
5	2·16	0·68–6·81
Perceived social support		
No lack	1	—
Moderate lack	1·37*	1·02–1·86
Severe lack	1·33	0·97–1·82
Primary support group		
⩾9	1	—
4–8	1·23	0·93–1·64
⩽3	1·52*	1·10–2·11
Type of school attended		
Ordinary school	1	—
Special school	1·11	0·83–1·47
Sex		
Male	1	—
Female	1·91***	1·43–2·56
Age (years)		
⩾40	1	—
30–39	1·36	0·84–2·20
21–29	1·86**	1·17–2·97
16–20	3·00***	1·80–4·98
Ethnicity		
White	1	—
Black	0·33***	0·20–0·54
Other	0·8	0·47–1·34
Type of prisoner		
Sentenced	1	—
Remand	1·56**	1·20–2·02

Psychiatric variables	Adjusted odds ratio	95% CI
Depressive episode		
No	1	—
Yes	1·68**	1·20–2·35
OCD		
No	1	—
Yes	1·80**	1·25–2·59
Generalized anxiety		
No	1	—
Yes	1·66**	1·17–2·37
Phobia		
No	1	—
Yes	1·44	1·00–2·01
Panic disorder		
No	1	—
Yes	2·69***	1·68–4·30
Mixed anxiety/depression		
No	1	—
Yes	2·14***	1·57–2·93
Probable psychosis		
No	1	—
Yes	4·87***	3·53–6·72
Personality disorder		
No disorder	1	—
Antisocial only	0·65	0·37–1·15
Antisocial and other	1·22	0·78–1·94
Other only	1·98**	1·26–3·11
Alcohol dependence		
AUDIT score 0–7	1	—
AUDIT score 8–15	0·8	0·58–1·11
AUDIT score ⩾16	1·05	0·78–1·40
Drug dependence		
No dependence	1	—
Cannabis only	1·08	0·67–1·74
Stimulants only	1·19	0·84–1·69
Opiates and stimulants	1·51*	1·05–2·17
Opiates only	0·99	0·64–1·53

*** $p<0·001$, ** $p<0·01$, * $p<0·05$.

thoughts increased the odds of attempting suicide in the last year by 5.

DISCUSSION

The national psychiatric morbidity survey in prisons provides the first comprehensive national survey of prison suicidal behaviour, and is, therefore, important for the light it sheds on the psychiatric contribution to the high rate of suicide and on opportunities for prevention in prisons. The national adult psychiatric morbidity survey in general households asked similar information about suicidal behaviour, and thus provides an opportunity for comparison. Causal relationships can only be speculated here as the data are cross sectional. It is worth emphasizing that the two surveys were conducted some time apart, the prison survey in 1997 and the household survey in 2000, and this 3-year time lag must be taken into account in assessing the findings.

Our analysis demonstrated that suicidal behaviour was several times more common in prison than in the general population and was related to the presence of psychosis, neurosis, personality disorder, heavy drinking, dependence on opiates and stimulants combined, and dependence on stimulants alone. Only 0·6% of suicide attempts occurred in the absence of

Table 6. *Logistic regression of social and psychiatric risk factor correlates of lifetime suicide attempts*

Social variables	Adjusted odds ratio	95% CI
No. of stressful life events		
None	1	—
1	0·98	0·44–2·21
2	2·04	0·93–4·46
3	3·18**	1·45–7·00
4	5·98***	2·70–13·23
5	10·42***	3·85–28·23
Perceived social support		
No lack	1	—
Moderate lack	1·12	0·89–1·41
Severe lack	1·37*	1·08–1·75
Primary support group		
⩾9	1	—
4–8	1·22	0·91–1·41
⩽3	1·32*	1·02–1·72
Type of school attended		
Ordinary school	1	—
Special school	1·23	0·98–1·55
Sex		
Male	1	—
Female	2·13***	1·69–2·68
Age (years)		
⩾40	1	—
30–39	1·43*	1·03–1·99
21–29	1·48*	1·07–2·04
16–20	1·14	0·78–1·67
Ethnicity		
White	1	—
Black	0·22***	0·15–0·32
Other	0·63*	0·41–0·96
Type of prisoner		
Sentenced	1	—
Remand	1·02	0·83–1·25

Psychiatric variables	Adjusted odds ratio	95% CI
Depressive episode		
No	1	—
Yes	1·58**	1·19- 2·11
OCD		
No	1	—
Yes	1·75**	1·26–2·42
Generalized anxiety		
No	1	—
Yes	1·67**	1·23–2·27
Phobia		
No	1	—
Yes	1·45*	1·04–2·02
Panic disorder		
No	1	—
Yes	1·78**	1·16–2·72
Mixed anxiety/depression		
No	1	—
Yes	1·84***	1·46–2·32
Probable psychosis		
No	1	—
Yes	6·26***	4·40–8·90
Personality disorder		
No disorder	1	—
Antisocial only	0·79	0·55–1·15
Antisocial and other	1·23	0·89–1·70
Other only	1·80***	1·31–2·47
Alcohol dependence		
AUDIT score 0–7	1	—
AUDIT score 8–15	0·85	0·66–1·08
AUDIT score ⩾16	1·03	0·81–1·30
Drug dependence		
No dependence	1	—
Cannabis only	1·06	0·73–1·54
Stimulants only	1·00	0·75–1·33
Opiates and stimulants	1·00	0·74–1·36
Opiates only	0·87	0·62–1·22

*** $p<0·001$, ** $p<0·01$, * $p<0·05$.

either neurosis or psychosis. Thus, to all intents and purposes, suicidal attempts do not occur in the absence of mental disorder in this population, and the risk of suicide attempts in the presence of mental disorder was increased still further by co-morbidity of personality disorder and substance abuse.

Drug and alcohol withdrawal in the initial phase of improvement may contribute to self-harm risk, but it was not possible to measure in this cross-sectional survey. Future longitudinal studies may explore this as an additional risk factor.

The analysis also showed that, not only is psychiatric disorder highly related to suicidal behaviour in prison, but the strength of the relationship is even greater for last-year risk than for the lifetime risk, suggesting that the contribution of psychiatric disorder is likely to be even more important inside prisons than outside.

The low rates of suicidal thoughts and suicidal attempts in those convicted of drug offences may be accounted for by the fact that people convicted of drug offences tend to be drug couriers rather than people themselves dependent on drugs.

There are longstanding and substantial concerns about the quality of prison health care in general and also about whether the psychiatric health services in Britain are effective in

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identifying and diverting offenders in need of specialist psychiatric treatment from prison (Fryers *et al*. 1998). Aside from the pressing issue of the large numbers of people with psychosis who remain in prisons, there is the very high proportion of people with neurosis who need systematic primary mental health care, with or without advice from specialist services. The Confidential Inquiry into suicides and homicides in the UK has found that, in 22% of cases, staff felt the suicide was preventable, and in two thirds of cases might have been made less likely. The Confidential Inquiry has now been extended into prisons, and has made similar recommendations for explicit training in suicide prevention and risk management (Shaw *et al*. 2003).

This analysis also found that suicidal thoughts and attempts in prisoners were associated with being young, white, single, leaving school early and having a poor education, having a very small primary support group and a severe lack of social support, together with significant previous adversity, particularly having been in local authority care as a child. These are similar to the social risk factors for suicidal behaviour found in the general population (Meltzer *et al*. 2002). Wool & Dooley (1987) reported that a high risk of attempted suicide was associated with being young, being on remand or recently sentenced, and having a history of mental and physical illness.

Inch *et al*. (1995) found that the most common reason for self-harm in a young offenders institution was bullying, followed by feelings of being locked in ('banged up'), or claustrophobia. Family and relationship worries were also important: losing contact, being disowned, the ending of relationships and the feelings of the family.

In addition to the implications of the psychiatric correlates of suicidal behaviour in prisons, the analysis of the social correlates gives a number of avenues worthy of further exploration in the prevention of suicide and attempted suicide in prisons. Prisoners come into prison with major social disadvantages, which would in any event predispose to increased rates of mental illness and suicidal behaviour. These social disadvantages are exacerbated by the prison environment, which leads to even higher levels of problems. Thus, there are opportunities for prevention in the social pathway to prisons, the prison environment itself, the screening capacity for individuals with health and social high risk factors, and in the response to high-risk individuals.

In the time antecedent to prison, local authority care is clearly a major risk factor, and improving the quality of that care is of key long-term importance to suicide prevention in young people both within and outside the prison environment.

Our analyses imply that if suicide risk-screening tools in prisons are to be successful, they will need to be able to detect the possibility of common mental disorders, psychosis, suicidal ideation and substance misuse as well as, lack of social supports, life events, and other social risk factors, because it would appear that risk arises both from the severity and from the combination of psychiatric and social factors.

CONCLUSIONS

The analyses in this paper support the view that instead of the historical policy pendulum swinging from an emphasis on individual medical care to one of improving the prison social milieu, we urgently need an approach recognizing the importance of both psychiatric and social risk factors, and hence of both health and social care. The importance of the impact of the prison environment on social networks and availability of social support, and hence on psychiatric morbidity, must be recognized; and both clinical and social needs should be addressed in an integrated and proactive way.

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The lead author, Rachel Jenkins, is on secondment from the Department of Health to the Institute of Psychiatry, and advisor to the Prison Service Safer Custody Group on suicide prevention.

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