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(Accepted 24 March 1995)

## Mental disorders in young and middle aged men who commit suicide

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BMJ 1995;310:1366-7

In most European countries men account for about three quarters of people who commit suicide. Suicide rates have generally risen among men under 35 but remained more stable among older men. To our knowledge, no studies specifically compare mental disorders among men of different ages who have committed suicide, although the association between mental disorders and suicide is strong and different secular trends in suicide rates have been reported. We compared the prevalences of mental disorders central to suicide—depressive syndromes, alcoholism, personality disorders, and non-affective psychotic disorders—in men of 20-34 and 35-59 who committed suicide in Finland.

### Subjects, methods, and results

In the research phase of the national suicide prevention project in Finland all deaths between 1 April 1987 and 31 March 1988 that were officially classified as suicide (n=1397) were recorded and carefully analysed retrospectively by the psychological autopsy method.<sup>1</sup> The definition of suicide was based on Finnish law—in every case of violent, sudden, or unexpected death the possibility of suicide is assessed by police and medico-legal examination. Data for psychological autopsies were collected from comprehensive interviews with relatives and health care staff; psychiatric, medical, and social agency records; police investigations; medicolegal examinations at necropsy and toxicological analyses; and suicide notes. Details of the methods have been published.<sup>1</sup>

Mental disorders were retrospectively examined, according to the criteria of the *Diagnostic and Statistical Manual of Mental Disorders*, third edition, revised (DSM-III-R) in the diagnostic study of a random sample of 229 (16.4%) of the people who committed suicide.<sup>1</sup> The diagnostic evaluation was based on weighing and integrating all evidence and took place in two stages. Firstly, two pairs of psychiatrists independently gave provisional diagnoses, the reliability of which was tested with the  $\kappa$  coefficient and found to be good or at least moderate in the relevant

diagnostic categories ( $\kappa=0.52-0.94$ ).<sup>1</sup> Secondly, all cases of diagnostic disagreement were reanalysed by a third psychiatrist to achieve consensus for the final best estimate diagnoses. All men aged 20 to 59 from the random sample were included in the study, those aged 20-34 being compared with those aged 35-59. The table shows that the prevalence of psychotic disorders was significantly higher in the younger men and the prevalence of alcoholism significantly higher in the older.

### Comment

Our study effectively accounted for all cases of suicide in Finland among men aged 20-59 over a year;

*Comparison of retrospective best estimate diagnoses according to DSM-III-R in young and middle aged men from random sample of people who committed suicide in Finland*

Diagnosis	Age 20-34 (n=44)	Age 35-59 (n=87)
<i>Axis I (clinical syndromes)</i>		
Depressive syndromes	26 (59)	56 (64)
Major depression	6 (14)	27 (31)
Depressive disorder not otherwise specified	14 (32)	18 (21)
Bipolar disorder, depressed or mixed	2 (5)	3 (3)
Dysthymia	0	3 (3)
Adjustment disorder with depressed mood	1 (2)	1 (1)
Organic mood disorder	0	2 (2)
95% Confidence interval for difference -23.0 to 12.4 ( $\chi^2=0.35$ ; P=0.55)		
Psychotic disorders*	11 (25)	7 (8)
Schizophrenia	6 (14)	4 (5)
Schizoaffective disorder,† depressive type	3 (7)	2 (2)
Other psychoses	2 (5)	1 (1)
95% Confidence interval for difference 2.9 to 31.0 ( $\chi^2=7.09$ ; P=0.008)		
Alcoholism	17 (39)	54 (62)
Alcohol dependence	7 (16)	49 (56)
Alcohol abuse	10 (23)	5 (6)
95% Confidence interval for difference 5.8 to 41.1 ( $\chi^2=6.46$ ; P=0.01)		
Other:		
Anxiety disorders	4 (9)	11 (13)
Alcohol intoxication	5 (11)	11 (13)
Anxiolytic abuse or dependence	2 (5)	5 (6)
Other organic mental disorders	0	4 (5)
Miscellaneous non-psychotic disorders	2 (5)	4 (5)
No diagnosis	1 (2)	0
Insufficient information	3 (7)	3 (3)
<i>Axis II (personality disorders)</i>		
Personality disorder	19 (43)	27 (31)
No diagnosis	15 (34)	44 (51)
Insufficient information	10 (23)	16 (18)
95% Confidence interval for difference -5.4 to 29.7 ( $\chi^2=1.89$ ; P=0.17)		
<i>Axis III (physical disorders and conditions)</i>		
Any physical disease	12 (27)	37 (43)
Comorbidity:		
No	12 (27)	12 (14)
Psychiatric	30 (68)	58 (67)
Psychiatric or somatopsychiatric	32 (73)	75 (86)

\*Psychotic major depression (three cases in young men and 12 in middle aged men) not included.

†Included under depressive syndromes.

‡Cases having more than one diagnosis of mental disorder (axes I and II).

||Cases having mental disorder in conjunction with physical disease.

methodological limitations have been discussed.<sup>1</sup> As applies generally,<sup>1,2</sup> suicide among both young and middle aged men was almost always associated with mental disorders, and complicated comorbid conditions were common. At death the younger men more often suffered from some psychotic disorder and the middle aged men from alcoholism.

The prevalence of psychotic disorders among the younger men (25%) was higher than that found in a similar age group in Greater Montreal and Quebec City (9%; men who committed suicide in hospital were excluded)<sup>3</sup> and in two studies of suicide among young people in San Diego and Gothenburg (17% in both studies).<sup>2,4</sup> The prevalence of personality disorders among the younger men (43%, or 56% when undetermined cases were excluded) accords with other studies (36% and 42%) among young adult victims<sup>5</sup> and 57% among young men with axis II disorders.<sup>3</sup> Overall, these results suggest that about half of the young people (35%<sup>2</sup> and 64%<sup>4</sup>) or young men (59% and 60%<sup>3</sup>) who commit suicide are suffering from a depressive syndrome. The notable exception to the rather uniform view of mental disorders among suicide victims in all these studies is the prevalence of psychoactive substance use disorders other than alcoholism. The prevalence of such disorders was high in San Diego (66%)<sup>2</sup> but lower in Quebec (28%)<sup>3</sup> and Gothenburg (16%).<sup>4</sup> It was rare in our study (5%),

reflecting the relatively low prevalence of drug misuse in Finland, particularly in rural areas.

Suicide among the older men was typically related to alcohol dependence (56%) or depressive syndromes (64%), or both, and more severe forms of these diagnoses (major depression and alcohol dependence) were more common than among the younger men. The distribution of mental disorders among the middle aged men accords more with earlier psychological autopsy studies of suicide. These differences between men of different ages have implications for the planning of treatment programmes aimed at suicide prevention.

This study was supported by a grant from the Academy of Finland.

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(Accepted 17 February 1995)

## Children who miss immunisation: implications for eliminating measles

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BMJ 1995;310:1367-8

The United Kingdom aims to eliminate indigenous measles by the year 2000. National coverage of measles, mumps, and rubella immunisation is currently 92%, and protective efficacy of measles vaccine is around 90-95%.<sup>1,2</sup> Even with high immunisation coverage, however, primary vaccine failure will continue to sustain measles transmission in the community.<sup>2</sup> Thus a two dose measles immunisation schedule has been used for several years in the United States and is now proposed for the United Kingdom.<sup>3</sup> Most (97%) children who fail to respond to a single dose will produce antibody after reimmunisation.<sup>4</sup> The most cost effective option is probably to give a second dose at the same time as the existing preschool booster of diphtheria-tetanus and polio.

For this strategy to be successful it is important to know what proportion of children who miss out on measles, mumps, and rubella immunisation are likely to attend for a preschool booster, and how many will miss out on both. I examined data on children in South Glamorgan to answer these questions.

### Subjects, methods, and results

I carried out a retrospective cohort study of all children resident in South Glamorgan who had been born in 1989, using immunisation records held on the child health computer. These records are initially generated from birth notifications and are regularly updated. Information on immunisation status is provided by general practitioners and child health clinics. In South Glamorgan the computer record is used to validate doctors' claims for payment for reaching immunisation targets, so the data are accurate and up to date.

I analysed whether children had been immunised

against measles, mumps, and rubella by their second birthday and whether they had received the preschool booster. The relation between the two immunisations was analysed by calculating relative risks and 95% confidence intervals.

Information on 6136 children was available; there were 5868 live births in 1989, the discrepancy being due to transfers in and out of the district (table).

Relation between uptake of measles, mumps, and rubella vaccine and preschool booster

	Preschool booster	No preschool booster	Total
Measles, mumps, and rubella vaccine	4868	332	5200
No measles, mumps, and rubella vaccine	516	420	936
Total	5384	752	6136

Uptake of measles, mumps, and rubella immunisation in the birth cohort was 84.7% by the age of 2 years and that of the preschool booster 87.8% by the age of 5. Of the 936 children who had not had measles, mumps, and rubella immunisation, 420 had not received the booster. Overall, 5200 children were immunised against measles, mumps, and rubella, but 332 of them did not receive the booster. Children who had been immunised against measles, mumps, and rubella were almost twice as likely to receive a preschool booster as those who had not (relative risk 1.70, 95% confidence interval 1.60 to 1.80). Given that all children receiving the booster would also receive measles immunisation if it were offered as a preschool booster, 4868 (79.3%) of the birth cohort would receive two measles doses, 848 (13.8%) would get one measles dose, and 420 (6.8%) would get none.

### Comment

Concerns over the growing number of older children susceptible to measles have prompted the recent nationwide school immunisation campaign.<sup>2</sup> Although this short term measure should prevent the