Table 1—*Suicide rates* per 100 000 population by sex, age, deprivation category, method of suicide, and year. Values in parentheses are numbers of deaths*

	Year	Deprivation category			
		Affluent	Average	Deprived	All
Men (all methods of suicide)					
Age (years):					
15-29	1981-3	14·1 (43)	17·1 (177)	23·0 (84)	17·8 (304)
	1991-3	20·4 (67)	25·4 (276)	48·7 (193)	29·6 (536)
⩾30	1981-3	22·6 (171)	26·5 (619)	36·4 (264)	27·5 (1054)
	1991-3†	21·5 (187)	27·2 (681)	39·8 (309)	28·3 (1179)
Women (all methods of suicide)					
Age (years):					
15-29	1981-3	2·7 (8)	4·2 (42)	6·8 (23)	4·4 (73)
	1991-3	6·8 (21)	6·3 (21)	13·2 (53)	8·0 (139)
⩾30	1981-3	12·2 (116)	14·0 (382)	16·8 (147)	14·1 (645)
	1991-3	8·0 (76)	10·3 (295)	12·5 (113)	10·2 (484)
Men aged ⩾15					
Method of suicide:					
Poisoning by solids and liquids	1981-3	5·3 (54)	6·1 (204)	10·8 (112)	6·8 (370)
	1991-3	3·2 (39)	7·0 (256)	16·0 (198)	8·1 (493)
Poisoning by gases‡	1981-3	2·5 (28)	2·9 (94)	2·3 (26)	2·7 (148)
	1991-3	5·3 (65)	5·1 (187)	3·4 (39)	4·8 (291)
Hanging and suffocation	1981-3	3·8 (38)	6·0 (200)	6·7 (74)	5·7 (312)
	1991-3	5·2 (64)	6·2 (220)	10·0 (119)	6·7 (403)
Other	1981-3	8·8 (94)	9·1 (298)	13·1 (136)	9·8 (528)
	1991-3†	7·3 (86)	8·4 (294)	12·8 (146)	8·9 (528)
Women aged ⩾15					
Method of suicide:					
Poisoning by solids and liquids	1981-3	5·3 (66)	5·9 (217)	8·0 (95)	6·2 (378)
	1991-3	3·4 (43)	4·7 (182)	7·9 (107)	5·1 (332)
Poisoning by gases‡	1981-3	0·6 (8)	0·1 (3)	0	0·2 (11)
	1991-3	0·5 (7)	0·6 (25)	0·3 (4)	0·5 (36)
Hanging and suffocation	1981-3	0·7 (9)	1·5 (53)	1·4 (16)	1·3 (78)
	1991-3	1·2 (16)	1·1 (40)	1·4 (18)	1·2 (74)
Other	1981-3	3·4 (41)	4·2 (151)	5·1 (59)	4·2 (251)

*Based on 1981 and 1991 censuses.
†Deprivation category unknown in two cases.
‡Car exhaust fumes and other non-domestic gas.

rising rates as an increasing number of people experiencing such stress. To explain the increases in Scotland in the past decade, changes in the wide range of influences associated with an increased risk of suicide and people's different exposure to these influences must be taken into account.[3,4] The fact that the greatest rates of increase have occurred among deprived young men and women is clearly important.

There was a significant increase in deaths from car exhaust fumes during the 1980s, particularly in affluent areas, which suggests increased access to the method and knowledge of its effectiveness. Compulsory emission controls are clearly needed.

Although suicide rates are dependent on the availability and effectiveness of the method chosen, they are clearly an indication of the prevalence of considerable distress. Increasing rates may be the result of a more general experience of social malaise. Some part of the increase may reflect fundamental changes in social structure—for example, security of employment, divorce, and homelessness. More direct effects might be changes in mental health services and the consequence of drug and alcohol misuse and of criminal activity. However, suicide is a fairly rare event and its relation to the population at risk cannot easily be estimated.

Educating general practitioners to recognise depression, restricting the availability of drugs used for self poisoning, and modifying car exhaust systems might reduce the numbers of deaths by suicide. Against the background of an association with socioeconomic deprivation,[5] however, these measures will not reduce the number of people with a suicidal motivation.

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1 McLoone P, Boddy FA. Deprivation and mortality in Scotland, 1981 and 1991. *BMJ* 1994;309:1465-74.
2 McLoone P. *Carstairs scores for Scottish postcode sectors from the 1991 census.* Glasgow: Public Health Research Unit, University of Glasgow, 1994.
3 Charlton J, Kelly S, Dunnell K, Evans B, Jenkins R. Suicide deaths in England and Wales: trends in factors associated with suicide deaths. *Population Trends* 1993;No 71:34-42.
4 Gunnell D, Frankel S. Prevention of suicide: aspirations and evidence. *BMJ* 1994;308:1227-33.
5 Gunnell DJ, Peters TJ, Kammerling RM, Brooks J. Relation between parasuicide, suicide, psychiatric admissions, and socioeconomic deprivation. *BMJ* 1995;311:226-30.

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Cohort study of coffee intake and death from coronary heart disease over 12 years

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In our previous study we found that coffee intake was related to death from coronary heart disease and that coffee had an effect that was additional to increasing cholesterol concentrations.[1] Recent meta-analyses of the effect of coffee on myocardial infarction and death from coronary heart disease showed great heterogeneity among the cohort studies.[2,3]

We report the results of a further six years of follow up in our cohort of 38 500 men and women who were aged 35-56 at screening, with a reanalysis according to the two periods of follow up.

Subjects, methods, and results

The study population is described in our previous study.[1] Participants reported that they had no history of cardiovascular disease, diabetes, stroke, hypertension, angina, or intermittent claudication. Follow up started at screening in 1977-82, when data on coffee drinking were obtained from a self administered questionnaire, and ended on 31 December 1992 (mean follow up 12·1 years). The outcome was coronary death according to the ninth revision of the *International Classification of Diseases* (ICD-9) (codes 410-413, 414.0, 414.1, 414.3, and 414.9), including sudden death of unknown cause (codes 798.1-798.2). The response rate was 83%. Data were stratified by sex and analysed by Cox's proportional hazards regression.

The coefficient for the risk of coronary death with coffee drinking during the first six years of follow up was twice that in the second six years (table 1). After six years an increased risk was found only in subjects who drank nine cups or more a day. When total cholesterol concentration was included as a covariate the coefficient for coffee drinking became 0·158 for the first six years of follow up, 0·051 for the second six years, and 0·083 for the whole follow up.

Analysis of follow up for 11 years in each county showed the strongest relation in Oppland, as in our previous study.[1] However, when the first six years of follow up was excluded the relation was much weaker in all counties.

Table 1—*Relative risks of death from coronary heart disease in cohort according to coffee consumption and time of follow up*

	Follow up period								
	First six years			Second six years			Total		
	No of deaths	Relative risk*	Relative risk†	No of deaths	Relative risk*	Relative risk†	No of deaths	Relative risk*	Relative risk†
No of coffee cups daily:									
<1	2	1·0	1·0	9	1·0	1·0	11	1·0	1·0
1-2	8	1·8	1·7	18	0·8	0·8	26	1·0	0·9
3-4	27	1·8	1·6	71	0·9	0·8	98	1·1	0·9
5-6	39	2·2	1·8	103	1·1	0·9	142	1·3	1·0
7-8	34	3·0	2·5	65	1·1	0·8	99	1·4	1·1
⩾9	29	3·3	2·6	71	1·4	1·0	100	1·7	1·3
Coefficient (95% confidence interval)‡	0·200 (0·005 to 0·344)			0·102 (0·009 to 0·196)			0·132 (0·078 to 0·210)		

*Adjusted for age, systolic blood pressure, number of cigarettes a day, and high density lipoprotein cholesterol concentration, with coffee consumption entered as five dummy variables (1-2 cups=1, other consumption=0; 3-4 cups=1, other=0; 5-6 cups=1, other=0; 7-8 cups=1, other=0; ⩾9 cups=1, other=0).
†With total cholesterol concentration as an additional variable.
‡Coffee consumption entered as continuous variable (1-6, where 1 is ⩽1 cup daily and 6 is ⩾9 cups daily) with the same covariates as before but excluding cholesterol concentration.

About 8% of the study population with the highest coronary risk (3080 subjects) was referred to a doctor. When this group was excluded the coefficient for coffee drinking was 0·143 for the whole follow up period and 0.118 after six years of follow up.

In 61% of the study population (23 485 subjects) we had data from an identical study conducted five to 10 years after this study. The coefficient for coffee drinking became slightly higher when we used the risk factors, including coffee consumption, from the latest study for this group in the analysis.

Comment

The fairly strong association between coffee consumption and mortality from coronary heart disease in Norway has been distinctly weakened by six more years of follow up. The association was completely absent when the first six years of observation were excluded and cholesterol concentration was adjusted for.

Neither the high risk strategy nor changes in coffee consumption is likely to explain the weaker relations during the last part of the study. During the follow up a nationwide cholesterol campaign was also initiated, but this campaign is unlikely to have substantially influenced the relation between coffee consumption and coronary death.

Our finding may be explained by a change in the type of coffee consumed. A lipid rich fraction from boiled coffee seems to increase serum cholesterol concentration.[4] When the boiled coffee is filtered the lipid rich factor is retained in the filter paper[5] and the effect on cholesterol is reduced substantially. From unpublished data in Norway we know that the proportion consuming boiled coffee has been declining from 1985, the first year the type of coffee drunk was recorded. In this study we had no information on type of coffee, but in a few years we will have sufficient data for Norway to assess both dose and type of coffee in relation to coronary death.

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1 Tverdal A, Stensvold I, Solvoll K, Foss OP, Lund-Larsen PG, Bjartveit K. Coffee consumption and death from coronary heart disease in middle aged Norwegian men and women. *BMJ* 1990;300:566-9.
2 Greenland S. A meta-analysis of coffee, myocardial infarction, and coronary death. *Epidemiology* 1993;4:366-74.
3 Kawachi I, Colditz GA, Stone CB. Does coffee drinking increase the risk of coronary heart disease? Results from a meta-analysis. *Br Heart J* 1994;72: 269-75.
4 Zock PL, Katan MB, Merkus MP, van Dusseldorp M, Harryvan JL. Effect of a lipid-rich fraction from boiled coffee on serum cholesterol. *Lancet* 1990;335:1235-7.
5 Ahola I, Jauhiainen M, Aro A. The hypercholesterolaemic factor in boiled coffee is retained by a paper filter. *J Intern Med* 1991;230:293-7.

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A MEMORABLE PATIENT

No need to worry

Sally (not her real name), who was a girl of unusual bounce and cheerfulness, must have been about 7 when she developed leukaemia. Chemotherapy had just been introduced and she was treated with skill and total success by the haematology department. After a fairly rough time from the illness and the chemotherapy she was soon ready to go back to school. The trouble was that she had lost all her hair. Children can be cruel and the thought of Sally being teased by her schoolmates after all she had been through was awful. We were all concerned.

So a wig was made. It was a masterpiece. You would never have guessed. Sally was reassured that the wig was a closely kept secret. No one, apart from her doctors, her family, and the staff at her school would know about it. She really did look her old self.

The day came and she went back to school. At the end of assembly the headmistress took Sally by the hand and led her up to the platform. The whole school was told that "Sally has been very ill and had to go to hospital, but she has been very very brave and she is now much better, so let's give three cheers for Sally."

When the cheers died down, with a wicked grin on her face, Sally yelled, "Look!" and yanked off her wig, holding it high in the air. The children were thrilled. Sally was the centre of attention as all her friends queued up to try on her wig and peer at her bald as a coot head. She had a marvellous day. Sally is now at university and remains well. She is a patient I remember with great affection.—IRVINE LOUDON *is a medical historian and former general practitioner in Wantage*