

divorced men are abolished when those with admissions associated with alcoholism are considered by themselves. By contrast, in those without admissions associated with alcoholism, married men were particularly likely to have admissions associated with myocardial infarction, and to a lesser extent with hypertension, but were less likely than the never married and divorced men to be admitted with diabetes, with no consistent pattern observed for stroke in the two cohorts studied.

Generally, therefore, two sets of factors, one related to marital state and the other associated with alcoholism, seem to affect the incidence of these diseases. By standardising for marital state it was possible to show that in both the cohort born in 1911-22 and that born in 1923-40 alcoholism was particularly associated with stroke and diabetes. Effects associated with myocardial infarction and hypertension were less clear, none being found in the younger cohort, but as age increased an increased incidence of both diseases was detectable.

Data obtained in Australia,³ Sweden,⁴ the United Kingdom,⁵ the United States of America,^{6,8} and Yugoslavia⁹ have generally confirmed that those who consume alcohol are less likely to be admitted to hospital with or to die from coronary heart disease than abstainers. There is less uniformity about the perceived consequence of heavy drinking. In Chicago heavy alcohol consumption was associated inter alia with heavy cigarette smoking and hypertension, and heavy drinkers had increased mortality from cardiovascular disease (ICD undefined) and coronary heart disease (ICD undefined) than lighter (non-problem) drinkers.¹⁰ In Gothenburg itself the 1913 study,⁴ an analysis of risk factors for myocardial infarction in 973 subjects born in 1913, suggested that problem drinkers were more likely to develop myocardial infarction and die from it than those without problems related to alcohol. A similar trend towards increased morbidity or mortality, or both, from cardiovascular disease, and particularly coronary heart disease, with heavy alcohol consumption has been noted in Puerto Rico,¹¹ Auckland,¹² and San Francisco.⁸ In Puerto Rico a "J shaped" relation was noted between alcohol consumption and angina pectoris, non-fatal myocardial infarction, and non-sudden death from coronary heart disease.¹¹ It should be noted, however, that other data, from Yugoslavia⁹ and Hawaii,¹³ seem to suggest a simple inverse relation between the amount of alcohol consumed and the risk of coronary heart disease.

Alcohol consumption has also been associated with a tendency towards raised blood pressure,^{10 14-16} and data from several but not all sources suggest an association with stroke. An increased incidence of stroke, particularly haemorrhagic stroke was noted in consumers of alcohol in Hawaii,¹⁷ and stroke was more common in consumers than in abstainers in San Francisco¹⁸ and Yugoslavia.¹⁵ Furthermore, in Chicago mortality from cardiovascular disease in general, and from coronary heart disease in particular, was raised in problem drinkers.¹⁰ By contrast, in Busselton, western Australia, stroke was not particularly associated with alcohol consumption, although the numbers of cases available for analysis were probably small.³ Multivariate and other analyses suggest that associations of disease with alcohol consumption cannot be more than partially explained by relations with other risk factors, particularly smoking.^{3 10 11 17} Our data are therefore in agreement with the general run of information in suggesting that problem drinkers are more likely to be admitted to hospital with stroke than others. Our data also suggest that older men who are problem drinkers may be at increased risk of coronary heart disease while younger men are not. This pattern conforms with observations in the Puerto Rico heart health programme, suggesting that older men who drank heavily were at increased risk of death from non-sudden coronary heart disease but younger men were not.

The reasons underlying the differential rates of admission according to marital state for the four main diseases we have studied

are unknown. Obviously they could be related in whole or part to other risk factors, such as weight or serum cholesterol concentrations, for coronary heart disease. In addition, it may be that differential rates of admission according to marital state in those without diagnosed alcoholism still reflect a tendency for divorced and never married men to be, on average, rather heavier drinkers or perhaps smokers than married men. However this may be, the existence of the difference suggests that in the assessment of the contribution of individual risk factors during multivariate analysis marital state should be included.

Data systems that link information about personal characteristics and health have been neglected. The substantial numbers of people about whom information has been collected in such systems means that even within subsets there remain what are by ordinary standards large numbers of people, allowing the examination of differences or associations for what would ordinarily be rare diseases. Thus within the population of Gothenburg a considerable clustering of disease within the group of patients with multiple sclerosis was observable.¹⁹ The method therefore has the potential to act as a valuable resource in generating epidemiological hypotheses.

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Correction

Screening for Down's syndrome in the North East Thames region

An error occurred in this paper by Dr Victoria Murday and Dr Joan Slack (9 November, p 1315). In the seventh paragraph of the discussion the second sentence should have read: "Overall, the distortion of the maternal age distribution in the Barking, Havering, and Brentwood district would account for a deficit of at least one baby with Down's syndrome in the year 1982-3 . . ."