Changes in drinking habits in middle-aged British men

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SUMMARY. The drinking behaviour of 7735 middle-aged men drawn from general practices in 24 British towns was determined in 1978–80 and five years later in 1983–85. Those with heavier initial drinking were more likely to have reduced consumption after five years. At every level of consumption manual workers showed a greater tendency to decrease drinking than non-manual workers. Of those who became non-drinkers over the five years, 12% had been moderate or heavy drinkers. Men who were told by a doctor that they had developed ischaemic heart disease during the five years were more likely to reduce their alcohol consumption than men who remained free of ischaemic heart disease. Similarly, men who were put on regular medical treatment of any kind or who acquired two or more diagnoses of illness (including ischaemic heart disease) were more likely to become occasional or non-drinkers. Non-drinkers at both reviews had higher rates of diagnosed illness than drinkers. In particular, the ex-drinkers, who comprised 70% of non-drinkers at follow up, had higher rates of ischaemic heart disease and cardiovascular-related problems, such as high blood pressure and diabetes, than drinkers.

It is essential to be aware of the tendency for moderate or heavy drinkers to reduce or stop drinking over time, particularly if illness has been diagnosed. Non-drinkers and ex-drinkers should not be used as a baseline in studies relating alcohol to disease.

Introduction

LIKE all behavioural characteristics, drinking patterns may change over time. A heavy drinker at one survey may have become a lighter drinker or even a non-drinker at a later survey and a person reporting abstinence may on a subsequent occasion record regular drinking. Yet most studies classify individuals on the basis of their current alcohol intake with little concern for past drinking patterns or the reasons for any change. The authors' concern with this issue arises from the familiar pattern of mortality from all causes in which non-drinkers usually show a higher mortality rate than light or moderate drinkers.[1] The reasons for being a non-drinker are not usually examined and it has been suggested that drinking is probably better for health than non-drinking, in particular for ischaemic heart disease.[1,2]

In order to gain some understanding of the dynamics of drinking behaviour over time, and in particular the nature of non-drinking, we have examined the changes in reported drinking behaviour in a cohort of middle-aged British men over a five year period. We have also compared the burden of illness in ex-drinkers and drinkers in order to determine whether giving up drinking is affected by the development of disease, and in particular, cardiovascular or cardiovascular-related disease.

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Method

In 1978–80, 7735 men aged 40–59 years were selected at random from general practices in 24 British towns for a prospective study of cardiovascular disease — the British regional heart study.[3] Research nurses administered to each man a standard questionnaire, which included questions on the frequency and quantity of alcohol consumed, smoking habits, chest pain and medical history.[4] Biochemical and haematological measurements carried out at the same time as the initial questionnaire showed substantial dose–response relationships with the reported alochol consumption, strongly supporting the validity of the reported intakes.[5] Five years later, a similar questionnaire was sent to all 7396 surviving men and detailed information obtained on present and past drinking habits, changes in smoking behaviour and changes in employment status. A total of 7242 men, 98% of the survivors, completed the fifth year questionnaires satisfactorily. The men were divided into five groups on the basis of their estimated average alcohol consumption in units per week — none, occasional (<1 unit), light (1–15), moderate (16–42) and heavy (>42 units). Seventy-six men provided information on frequency but not on quantity consumed, leaving 7166 men for analysis.

In both questionnaires the men were asked to recall whether a doctor had ever told them that they had one or more of the following: ischaemic heart disease (angina, heart attack), other heart trouble, high blood pressure, stroke, gout, gall-bladder disease, thyroid disease, arthritis, bronchitis, asthma, peptic ulcer or diabetes. An open question on 'other conditions' produced further illnesses and a maximum disease score of 13 was possible. The men were also asked for details of any regular medical treatment.

The prevalence of ischaemic heart disease was measured at the initial examination in three ways:

1. A standardized chest pain questionnaire for angina or possible myocardial infarction.[6]
2. A three-lead orthogonal electrocardiogram for myocardial infarction or ischaemia.[6] In this paper, definite and possible myocardial infarction and definite myocardial ischaemia are included; possible myocardial ischaemia is not.
3. Recall of a doctor's diagnosis of angina or heart attack, myocardial infarction or coronary thrombosis.[7]

Chi-square tests were used to assess the statistical significance of differences in the relationship between development of disease and changes in alcohol consumption. Comparisons between ex-drinkers and drinkers were tested in the same manner. Logistic regression analysis was used to achieve adjustment for age.

Results

Changes in drinking behaviour

Comparison of alcohol consumption as reported at the initial screening and five years later revealed considerable changes in the apparent drinking behaviour of these men (Table 1). More than half of the men reported changes in drinking habits after five years. The most striking observation was the reduction in the proportion of heavy drinkers from 10% to 4% of the total. Overall, the heavier the drinking initially, the more likely there

Table 1. Changes in alcohol consumption over five years among 7166 men.

Initial alcohol consumption	Total no. (%) of men	Alcohol consumption at five-year follow up (% of no. of men in each category initially)				
		None	Occasional[a]	Light[b]	Moderate[c]	Heavy[d]
None	433 (6)	72	22	4	1	0
Occasional	1730 (24)	15	67	16	2	0
Light	2371 (33)	4	26	58	11	1
Moderate	1873 (26)	2	11	41	40	5
Heavy	749 (10)	1	4	22	48	25
Total no. (%) of men	7166	702 (10)	2131 (30)	2662 (37)	1381 (19)	294 (4)

[a]<1 unit per week. [b]1–15 units per week. [c]16–42 units per week. [d]>42 units per week.

was to be a reduction in the reported drinking behaviour after five years. Only a small percentage of men (10%) increased their alcohol intake. Of those claiming to be non-drinkers on the initial questionnaire, 28% reported drinking occasionally or regularly after five years. Of those who became non-drinkers over the five years, 12% had initially been moderate or heavy drinkers. When the men were separated into non-manual and manual workers it was observed that non-manual workers had been more stable in their drinking habits than manual workers. At every level of drinking manual workers showed a greater tendency to decrease, particularly to non-drinking status. There was an increase in the proportion of regular drinkers (at least one drink each week) at the initial examination who had become non-drinkers after five years in the four successive age-groups 40–44, 45–49, 50–54 and 55–59 years — 1.7%, 2.1%, 3.6% and 3.3% respectively.

The majority of men who had given up drinking over the five years claimed to be occasional drinkers on the initial questionnaire. However, information on past drinking habits from the follow-up questionnaire revealed that only half of these (51%) had always been occasional drinkers: 33% had been light drinkers, 10% moderate and 6% heavy drinkers.

Disease and change in alcohol consumption

The relationship between acquiring a diagnosis of disease and making a change in alcohol consumption has been examined in a group of 3772 men who did not recall a diagnosis of a cardiovascular disease (ischaemic heart disease, 'heart trouble', stroke, high blood pressure) or a cardiovascular-related disease (diabetes, gout, gall-bladder disease, bronchitis or asthma) at the initial examination and who were not receiving regular medical treatment. In this group there were 1338 men who initially reported moderate or heavy drinking and after five years 133 (10%) had become occasional or non-drinkers. This degree of change reflects a major alteration in drinking behaviour, and should reduce the possible bias in classification from self-reporting.

Among the 1338 moderate or heavy drinkers with no doctor diagnosis and no regular medical treatment there were statistically significant differences in the rate of change to occasional or non-drinkers between men developing and not developing various criteria of disease over the five-year period.

Ischaemic heart disease. A diagnosis of ischaemic heart disease was recalled in the second questionnaire by 53 of the initially moderate or heavy drinkers, of whom 10 (19%) had become occasional or non-drinkers. Among the 1285 men not acquiring such a diagnosis, 123 (10%) had become occasional or non-drinkers ($P<0.05$).

Regular medical treatment. This was reported in the second questionnaire by 223 men, of whom 34 (15%) had become occasional or non-drinkers. Among the 1115 men not reporting regular medical treatment, 99 (9%) had become occasional or non-drinkers ($P<0.01$).

Burden of disease. Over the five-year period, 1084 men remained without a diagnosis of one of the listed disorders (including ischaemic heart disease) and without regular medical treatment. Of these men 9% became occasional or non-drinkers. Among the 220 men who acquired one diagnosis there was only a slightly higher proportion (11%) who became occasional or non-drinkers. However, among the 34 men who acquired two or more diagnoses, 27% became occasional or non-drinkers. This trend with increasing burden of disease was significant ($P<0.01$).

Age and disease. The 241 moderate or heavy drinkers who developed ischaemic heart disease, who were put on regular treatment or who acquired two or more diagnoses were more likely to become occasional or non-drinkers irrespective of age ($P<0.01$). Among the remaining 1097 moderate or heavy drinkers there was only a slight tendency to become occasional or non-drinkers as age increased.

Disease in ex-drinkers

The ex-drinkers, who comprised 70% of non-drinkers at follow up, had significantly more disease and medical treatment initially than drinkers ($P<0.001$) (Table 2). High blood pressure and diabetes were more frequently diagnosed in the ex-drinkers and every measure of ischaemic heart disease was significantly greater in the ex-drinkers than in the drinkers ($P<0.01$) (Table 2).

Life long abstainers

This small group of men had, in general, slightly lower rates of disease initially than drinkers (Table 2). However, they had slightly higher rates of regular treatment, diabetes and recall of a doctor's diagnosis of ischaemic heart disease.

Consistency in reported intakes

To determine the consistency of the information on past drinking provided at the five-year follow up, this information was compared with that obtained from the initial questionnaire, for those 211 men who were drinkers initially but non-drinkers at follow-up. Half of these men (49%) provided completely consistent information on the two occasions while 35% reported heavier past drinking at follow up than had been recorded on the first questionnaire, suggesting that they had reduced their alcohol intake over time. Only 15% reported lighter past drinking at follow up than had been recorded on the first questionnaire and it must be presumed that this group had altered their drinking history rather than their actual drinking pattern. However, only three men (1%) reported moderate or heavy

Table 2. Burden of disease and medical treatment at the initial examination among 7242 men.

	Percentage of men with disease		
	Lifelong abstainers[a] ($n=204$)	Drinkers[b] ($n=6542$)	Ex-drinkers[c] ($n=496$)
Three or more diagnoses	7.4	9.0	14.5
Regular treatment	31.6	26.4	36.7
High blood pressure	10.1	12.1	14.9
Diabetes	1.9	1.4	2.4
Ischaemic heart disease			
Questionnaire	12.9	13.1	18.6
Electrocardiogram	6.0	6.8	8.9
Recall of doctor's diagnosis	8.2	4.6	7.0
Mean disease score	0.96	1.00	1.27

n = number of men. [a]Men not drinking initially and at the five-year follow up and who reported no previous drinking. [b]Men drinking even occasionally at five-year follow up. [c]Men not drinking at five-year follow up who had a previous history of drinking.

drinking on the first questionnaire and occasional past drinking at follow up and these represent a major misclassification.

Discussion

We have no way of knowing whether the self-reported estimates at the five-year follow up are valid, but the overall pattern indicates a tendency for middle-aged drinkers to decrease their alcohol intake over time and this tendency increases with age. Data from the general household survey[8] show that a far lower proportion of men over 65 years of age are heavy drinkers than men aged 45–64 years (4% versus 16%) and that a lower proportion are moderate drinkers (7% versus 14%). Correspondingly higher proportions of older men are occasional drinkers (18% versus 11%) and abstainers (11% versus 5%). These cross-sectional data support the longitudinal data of the British regional heart study.

An analysis of a number of American longitudinal and cohort studies indicates that the incidence of heavy drinking and alcohol problems decreases with age and that movement out of the heavy drinking category increases with age.[9] However, this analysis provides no information on possible reasons for such changes in drinking behaviour. In a more informative study from Boston, USA, 5320 men and women (age and sex distribution not stated) were interviewed in 1977 for alcohol consumption and 'life satisfaction' in a number of areas.[10] The subjects were classified into lifetime abstainers, current abstainers and three current drinking categories. Current abstainers included a substantial proportion of those who had been drinking in the recent past (39%) and indeed, 21% of all current abstainers had been frequent drinkers, mostly taking more than five drinks per session. One-fifth of current abstainers felt they previously or currently had a drinking problem, a similar proportion to that seen among frequent drinkers (24%). A large proportion of current abstainers (41%) said they had decided to stop drinking because of health reasons directly or indirectly related to their alcohol intake. The authors emphasize that abstainers are not a homogeneous group and that the characteristics of current abstainers suggest that they come from the moderate to frequent alcohol consumption groups.

The British regional heart study data provide further evidence that men who reduce their alcohol consumption as they get older often do so in response to the development of illness. This certainly appears to be true for new ischaemic heart disease in these men. It is apparent that a fair proportion of non-drinkers and occasional drinkers were previously moderate or heavy drinkers, many of whom have changed because of ill health. In particular it appears that the greater the burden of acquired disease the more likely they are to give up or become occasional drinkers. The predominance of certain doctor diagnoses in ex-drinkers compared with current drinkers both initially and at the five-year follow up makes it seem likely that many of these men have been advised to stop drinking, have made their own decision to stop drinking or have been compelled to reduce their alcohol intake through loss of employment and income. A detailed analysis of the specific nature of disease at initial screening in the several drinking categories has been published, emphasizing the heavy burden of ill health in ex-drinkers.[11] Overall, the evidence indicates that non-drinkers are a mixed group, including a large proportion of ex-drinkers, many of whom have been moderate or heavy drinkers in the past. Non-drinkers are therefore not a suitable group for use as a baseline in studies of the effects of alcohol on disease, specifically in studies concerned with mortality.

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Acknowledgements

The British regional heart study is a British Heart Foundation research group and is also supported by the Medical Research Council, the Department of Health and Social Security and the Chest, Heart and Stroke Association. The Institute of Alcohol Studies supports those studies relating to the effects of alcohol.

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