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The Prevalence of Problem Drinking and Alcoholism in the West of Scotland

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SUMMARY A 10 per cent probability sample of the population of Clydebank was interviewed, using an indirect questionnaire, to assess the extent of alcohol-related disabilities. Eighty-two per cent of 4,397 persons gave information and weighted symptom-scoring analysis showed 5.0 per cent of adult males and 1.1 per cent of adult females could be classified as problem drinkers and 5.2 per cent and 0.5 per cent respectively could be labelled alcoholics. These figures are compared to existing Scottish and English alcoholism prevalence statistics.

Although indirect figures, such as alcohol-related convictions, hospital admissions and deaths from cirrhosis, strongly suggest that the Scottish experience of alcoholism is worse than that of England and Wales, the available epidemiological data indicate otherwise. For example, Edwards *et al* (1973), Cartwright *et al* (1975) and Wilkins (1974) working in England have all reported higher rates of alcoholism, or problem drinking, than have such Scottish studies as Parr (1957), Primrose (1962), the College of General Practitioners (1963) and Whittet (1970).

The reason for this discrepancy may lie in the methodology used in these studies to detect alcoholics. For, as Edwards (1973) has shown, the agency report study, when compared to community surveys, markedly under-reports the prevalence of alcoholism. All the Scottish studies to date have been of agency report type, in which a count of the number of persons approaching alcoholism treatment services is made, and the English studies noted above all involved survey methodology. It was therefore considered that a Scottish community survey was an important research investigation to undertake, since it could clarify this confused situation. Therefore from May 1976 until April 1977 the following community survey into alcoholism and problem drinking was conducted in Clydebank, a town of some 40,000 inhabitants situated to the immediate west of Glasgow.

Method

The District of Clydebank was selected for study as it is representative, in terms of major demographic variables of the Central Clydeside conurbation, and in addition is wholly within the catchment area of the hospital from which the survey was conducted. The local Council on Alcoholism were keen to have the study undertaken, and the local authority also cooperated.

A 10 per cent random sample was taken from the electoral register which resulted in just under 4,000 names being selected for interview. An additional 1 per cent sample was used as a pilot sample to test out the acceptability and reliability of the questionnaire. As electoral roll samples always have the inherent flaw of excluding those very people that alcohol-orientated surveys are attempting to detect, i.e. the homeless, or socially unstable, the Blyth and Marchant (1972) self-weighting random sampling method was used to minimize the defect. This technique allows for persons living in an approached house, but not on the electoral register, to be considered for interviewing, and also allowed for a randomized sample of 15- to 18-year-olds to be included in the sample. A total of 4,397 persons were approached to complete the questionnaire.

Each target person was approached at least four times to complete the questionnaire and if unsuccessful at this stage was classified as a 'non-contact'. Target persons who had moved

away from home, or who had died, plus those whose homes had been demolished, were replaced by new randomly drawn names. Persons who were deaf, too old or infirm, or unable to understand the questions were counted as refusals, as were those who blatantly rejected the interviewer's approach.

The questionnaire used was based on the work of Wilkins (1974) and also included questions similar to those asked by Cartwright *et al* (1975) in Camberwell. It was decided that an indirect approach was the appropriate one to use, and the questionnaire included items requested by the local authority Planning Department as well as alcohol-related questions. The first half of the questionnaire included demographic details plus questions relating to such activities as television viewing, church attendance, and frequency of taking part in sporting activities or other leisure pursuits. Additional questions related to the satisfaction of residents with their homes, location, and local amenities. Interspersed amongst these were questions relating to frequency and location of alcohol consumption. The second half of the questionnaire was concerned with the amount of alcohol consumed in the past seven days plus questions pertaining to alcohol-related problems. Questions were also asked about the respondents' general health and smoking and eating habits. The investigation was publicized locally as a survey into the health and leisure activities of Clydebank residents, and, if asked, the interviewers stated that the survey was concerned with both the health and leisure pursuits of the respondent, of which alcohol consumption or smoking were aspects.

The data concerning alcohol-related problems was analysed in a similar manner to that used by Wilkins (1974). Table I outlines the symptoms included in our analysis, and we arbitrarily weighted the symptoms as a measure of severity, with those indicative of physical alcohol addiction being considered more important than those pertaining to alcohol-induced domestic troubles. Symptoms weighted with a value of one half were only added if a score of three or more was present. We also used Wilkins' categories of 'problem drinker' and 'alcohol addict', though our criteria for inclusion in these categories were stricter, and we preferred the use of the term alcoholic instead of alcohol addict. For the purposes of this analysis a problem drinker was any respondent with a score of three or greater on the symptom list, and if a score of five or more was achieved the respondent was categorized as an alcoholic provided this included one symptom of physical addiction. All questions related to symptoms experienced in the past year.

TABLE I
Symptoms of alcoholism

Symptom	Value
Excessive drinking (560 grammes + in past week)	1
Visited G.P. because of drink	1
Arguments with family about drinking	1
Drink too much now (own opinion)	1
Drink too much now (family opinion)	1
Blackouts	1
Shakes	2
Tried to stop drinking	1
Felt unable to stop	2
Drinking resulted in trouble	1
Tried to conceal amount	1
Early morning drinking	2
Advised to stop	1
Unable to work because of drinking	1
Arguments with family after drinking	1
Spending £10 + on alcohol per week	1
Hangover in past week	½*
Stomach pains in past week	½*
'Depression' in past week	½*
'Nerves' in past week	½*

* Only included if three other alcohol symptoms present.

Classification
0–2 Ignored
3+ Problem drinker
5+ Alcoholic (must include a 2 value symptom)

Results

The total sample comprized 4,397 target persons. This total was made up of the initial 10 per cent random sample, plus 176 additional adults located by use of the Blyth Marchant technique, and the inclusion of 204 15- to 18-year-olds. New randomly drawn target persons replaced 516 failed contacts. Table II shows the outcome of the survey in terms of completion, non-contact and refusal rates, and also compares

the achieved completed sample in terms of age distribution to that of the 1971 Census for the Central Clydeside conurbation.

The overall completion rate of 82 per cent was very satisfactory, as was the low refusal rate. There was a slight bias in locating and successfully interviewing female respondents, and the male to female ratio, in terms of completion, was 1:1.18. The national figure for Scotland is 1:1.14, but this female imbalance is not critical since the data have been analysed in terms of sex differences. In terms of age and sex the Clydebank sample under-represented persons of both sexes in the 15- to 24-year-old category. As electoral roll sampling always under-includes 17- to 21-year-olds and excludes under 17s altogether, this was not surprising. The use of the Blyth Marchant sampling technique minimized this loss but still resulted in the male 15- to 24-year-old age category being 4 per cent under-represented when compared to the 1971 Census for the Central Clydeside conurbation. Although changes in age structure will have occurred since 1971, and our sample may be reflecting the developing trend, this lack of young adults inflated the percentage rates in the remaining age groups of the achieved sample.

Drinking behaviour

Several recent investigations have reported data on alcohol intake in terms of consumption in the past seven days, and this approach was used in this study. Interviewees were asked whether they had taken alcohol in the past week. If this was answered in the negative then the respondent was asked whether he or she had consumed alcohol in the past year. Another negative answer resulted in the respondent being categorized a 'non drinker'. The category of 'occasional drinker' was used to describe persons who had drunk alcohol in the past year but not in the past week, and a regular drinker was someone who had taken alcohol in the past seven days. Table III shows the analysis of adult drinking behaviour in the sample area.

There are marked differences between the sexes in drinking behaviour. Males were twice as likely to be regular drinkers, whereas females reported an abstinence rate three times that of their male counterparts. As may be seen sex is an important influence in determining drinking status, as also is age.

Although the rates of regular drinking in Table III are somewhat less than those reported by Dight (1976) the trends in both studies are identical. Regular drinking is primarily undertaken by young adult males and diminishes after the age of 35. All regular drinkers were asked to report on the amount they had consumed in the previous week, and as is shown

TABLE II

Sample outcome rates and representativeness of sample to 1971 census, by age and sex

	Males		Females		Total	
	N	%	N	%	N	%
Completed	1,650	81.1	1,958	82.9	3,608	82.1
Non-contacts	224	11.0	192	8.1	416	9.5
Refusals	161	7.9	212	9.0	373	8.4
	2,035		2,362		4,397	
Age groups	Clydebank sample	1971 census	Clydebank sample	1971 census		
15–24	18.9%	22.7%	17.5%	19.7%		
25–34	17.2%	16.9%	18.1%	15.3%		
35–49	26.7%	25.5%	21.6%	23.9%		
50.64	24.8%	22.8%	24.9%	23.3%		
65+	12.4%	12.2%	17.9%	17.8%		

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TABLE III

Drinking disposition by age and sex (figures are percentages)
Males n = 1,560. Females n = 1,865

	Regular		Occasional		Non Drinker	
	Male	Female	Male	Female	Male	Female
15–17	16	20	23	22	60	58
18–24	79	47	14	42	7	11
25–34	78	44	18	45	4	11
35–49	69	36	23	44	8	19
50–64	59	24	28	48	13	28
65+	36	6	38	37	26	58
Total all ages	67%	30%	24%	44%	9%	26%

Males n = 1,560. Females n = 1,865

TABLE IV

Average consumption of regular drinkers by age and sex

	Grammes/week*	
Age group	Males	Females
18–24	204	53
25–34	198	61
35–49	153	47
50–64	125	34
65+	69	22
Average all ages	159	49

* 1 ounce spirit = 8 grammes of absolute alcohol; 1 pint beer = 16 grammes of absolute alcohol). (From Mellor, 1970).

in Table IV age and sex differences are again important variables.

As may be seen from Table IV, persons aged 18–34 were the heaviest drinkers for their respective sexes, but throughout males reported that they consumed three to four times the amount of their female peers. The overall average when compared to Dight's (1976) survey (undertaken in 1972) shows our males were drinking a similar amount. The females' total is higher in this study by 25 per cent, increasing from 39 to 49 grammes per week. Although the figures above suggest that for young males the average week's intake is in the order of a bottle of whisky or 12–13 pints of beer, it should be noted that there were marked variations in the distribution of these figures. Table V compares the distribution of male and female drinking behaviour and also compares the figures obtained in this study with those obtained by Dight (1976). As may be seen, both studies show that whereas only about 12 per cent of women drink over 10 units per week (approximately 5 pints of beer or 10 ounces of spirits), the majority of male drinkers consume more than this. The overall impression of these figures is that female drinking in Clydeside is low especially when compared to the male behaviour.

Problems of under-reporting or lying obviously need to be considered, but all the interviewers involved in this study were convinced that in the vast majority of interview, respondents were giving accurate and honest reports of their behaviour.

The prevalence of 'alcoholism' and 'problem drinking'

Each interview schedule was checked for alcohol symtomatology and a cumulative score obtained. We found that 78 adult males scored three or more points and that 82 males scored five or more, including an alcohol addiction symptom. Thus for all the adult males interviewed 5.0 per cent were labelled as 'problem drinkers' and 5.2 per cent achieved 'alcoholic' status. In terms of the adult male *drinking* population 11.2 per cent of males experienced

TABLE V

Adult male and female drinking disposition in units of alcohol, compared to Dight (1976)
(1 unit = ½ pint of beer or 1 ounce of spirit)
(1 unit = ½ pint of beer or 1 ounce of spirit)

	Males %			Females %	
	Dight	Clydebank		Dight	Clydebank
1– 2 units	11	7	1– 2 units	41	40
3— 5 units	13	14	3– 5 units	30	30
6–10 units	20	27	6–10 units	20	18
11–20 units	21	24	11 + units	9	12
21–50 units	25	21			
50 + units	9	8			

significant alcohol-related symptoms in the twelve months prior to their interview. For women the rates were lower. Twenty adult females reported sufficient symptoms to be labelled 'problem drinkers' and only nine qualified as 'alcoholics'. This gives a rate for the total adult females of 'problem drinking' and 'alcoholism' as 1.1 per cent and 0.5 per cent respectively. In terms of adult females who drink, two per cent experienced alcohol-related problems in the past year. Extending these figures to cover the Central Clydeside conurbation it is possible to argue that approximately 55,000 males and 9,000 females have significant alcohol problems, and that about 30,000 adults may be considered as alcoholics. These figures should be compared with the Clayson Committee (1973) estimate of 25,000 alcoholics for Scotland as a whole. It is also relevant to note that in Dight's study the Clydeside conurbation was not an area found to be excessive in terms of individual alcohol intake. In fact the mean *per capita* intake for residents of this area was very close to the national average.

Discussion

As Edwards *et al* (1977) have noted, there are many difficulties encountered in attempting to assess the prevalence of alcoholism by the use of questionnaires. One of the major problems is caused by the very nature of alcoholism itself. There is still no one universally accepted definition of alcoholism, and there is no agreement as to what may be considered as pathognomonic symptoms of the condition. Investigations of alcohol problems in the community have relied on operational definitions of alcoholism deduced from questionnaire items such as the Trouble Index, or Preoccupation with Alcohol Scale (Mulford and Miller, 1960), or the Spare Time Activities Questionnaire (Wilkins, 1974). These indices have always reflected their authors' views of the nature of alcoholism, and not surprisingly show considerable variations.

Since the questionnaire used in this study was based largely on that of Wilkins (1974), it was considered that a similar analysis in terms of 'problem drinkers' and 'alcoholics' was justified, even though Edwards *et al* (1977) have strongly criticized the use of such terms as 'problem drinker' and consider that they give a spurious concreteness to the nature of alcoholism. However, since, in this case, the category 'problem drinker' has been operationally defined, we defend its use, and consider that it represents a situation where an individual's habitual consumption of alcohol is associated with some inimical consequences.

Difficulties of validation are also encountered in alcohol-related surveys and this is especially so because the symptoms of alcoholism are, in the main, socially unacceptable. In order to reduce this sensitivity there has been a generally accepted idea that the use of disguised questionnaires, in which alcohol-related questions are asked along with other less sensitive material, may encourage respondents to be more truthful. Such an indirect approach was first suggested by the World Health Organization in the early

1950s. However, Edwards *et al* (1972) found no advantage in using a disguised questionnaire in Camberwell, and more recently Plant and Miller (1977) have reported a comparative investigation between a disguised and an undisguised survey approach concerning alcohol consumption. They concluded that there was no advantage in terms of contact, completion or refusal rates resulting from the disguised nature of the questionnaire. They did find, however, that in working class areas the disguised approach resulted in higher consumption totals being reported, whereas in middle class areas the reverse was true. However, we were impressed by the arguments of the World Health Organization and also the study by Wilkins who used an indirect approach in his general practice study. The interviewers' collective impression was that describing the interview as a leisure and health survey encouraged people to start the questionnaire, and develop at least minimal rapport, before the more sensitive material was encountered. We consider that this indirect technique resulted in our low refusal rate, and it was certainly welcomed by the interviewers, most of whom would have been extremely reluctant to approach people about their drinking and alcohol symptoms directly.

Several aspects of our results warrant comment. As regards the frequency of drinking behaviour one of the surprising facts is that only 20 per cent of adolescents, aged 15 to 18 admitted to consuming alcohol in the previous week. Considered against the current media coverage of a supposed epidemic of teenage drinking, this finding was considered suspect, especially as the majority of teenagers were interviewed in the presence of their parents. However, a recent survey investigation undertaken in schools by the Medical Council on Alcoholism (1978), determined an identical figure of regular drinking, and thus it is open to debate whether our figure is an accurate, or markedly under-reported, one. As with the Medical Council survey, we found no evidence of alcoholism in the 15 to 18 year old age range.

Another aspect which may be a factor of under-reporting was the consumption totals admitted to by female respondents. As the drinking disposition figures (Table III) show, the regular consumption of alcohol is still very much a male behaviour in Scotland, and if women do admit to drinking their intake is of very modest dimensions. A recent survey by Plant and Pirie (1978) comparing the alcohol intake of persons resident in four Scottish towns found that 31 per cent of Glaswegian females reported themselves to be abstinent, and of those admitting to alcohol intake their weekly consumption was only 26 grammes per drinker. Thus the overall impression from surveys, remains that, in Scotland at least, females are apparently very modest users of alcohol.

Although such comparisons must always be considered with great caution it is possible to compare our figures with those produced by Wilkins (1974). The categories of 'problem drinker' and 'alcoholic' used in our study are not identical to those of Wilkins, since they are harder than his criteria, but this in fact makes a comparison of the data more acceptable. Wilkins found that, when using a past year prevalence measure, 0.7 per cent of Mancunian males between 15–65 years of age and 0.2 per cent of women of similar age were 'problem drinkers'. In the present study using the same age groups the rates are 5.4 per cent and 1.2 per cent for Clydeside males and females respectively. For the category 'alcoholic' the figures from Wilkins' study are 1.0 per cent and 0.3 per cent for males and females, whereas the comparable Clydebank figures are 5.5 per cent and 0.6 per cent respectively. Thus when comparing Clydebank with Manchester the figures suggest that problem drinking is approximately seven times more frequent in Scotland, and that the frequency of alcoholism is twice as great in women and five times greater in men. Such crude comparisons can be supported from the indirect evidence of admission for alcoholism which show that in Scotland the rate is approximately five times greater than the figure for England and Wales. Therefore this current study does go some way to resolving the previously noted discrepancy between the English and Scottish indirect and research data, and supports the widespread belief that in the West of Scotland the rates of problem drinking and alcoholism are very high.

It is relevant to note that the prevalence rates determined in this investigation are considerably higher than those reported in earlier Scottish studies. It is of course not possible to say whether our figures show a real increase in the extent of alcohol problems, or reflect the defects of the previously utilized methodology, but the work of Edwards (1973) suggests that the latter explanation is the most likely.

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