Changes in Alcohol-Related Inpatient Care in Stockholm County in Relation to Socioeconomic Status during a Period of Decline in Alcohol Consumption

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Abstract: Alcohol sales in Stockholm County decreased by 18 per cent from 1976 to 1981. The socioeconomic status of inpatients treated for alcohol psychosis, alcoholism, alcohol intoxication, liver cirrhosis, and pancreatitis was studied by linking data from the National Housing and Population Censuses in 1975 and 1980 with the inpatient care registers for 1976 and 1981. In both years, all rates were highest for people outside the labor market and lowest among white collar employees. The employment rate for those aged 25–44 years and treated in 1981 for alcohol psychosis, alcoholism, and alcohol intoxication—already low in 1975—had drifted further downward by 1980. Total rates of inpatient treatment for alcohol-related diagnoses generally declined but the gap between blue collar workers and white collar workers widened. We conclude that the goal for national alcohol policy, suggested by the WHO—a reduction of per capita consumption—should be combined with additional measures that will reach all social groups. (*Am J Public Health* 1989; 79:52–56.)

Introduction

Alcohol sales in Sweden increased from 4.9 liters of 100 per cent ethanol per inhabitant aged 15 and over in 1954 to a peak of 7.7 liters in 1976, but then decreased to 6.3 liters in 1981.[1,2] Alcohol sales in Stockholm County have exceeded national levels, but have also declined 18 per cent since 1976. Patients hospitalized for alcohol-related medical conditions have declined,[1,2] as well as charges for drunkenness and drunken driving in Stockholm County.[3–5] However, there has been no decline in deaths (both sexes) or hospitalization of women due to alcohol psychosis, alcoholism, and alcohol intoxication up to 1984.[3]

Survey data indicate that since the late 1960s, alcohol consumption has increased most in social class III (mainly blue collar workers), possibly because the increased equalization of disposable income from 1967 to 1981 made alcoholic beverages relatively cheaper for blue collar workers.[6] Surveys since the mid-1970s find that frequent intoxication among military conscripts has been more common among those with a low formal education and that its decline from 1978–79 to 1983–84 has been greater among military conscripts with a higher formal education.[4]

We hypothesized that the difference in rates of alcohol-related inpatient care between the manual and the non-manual workers categories has increased. We therefore measured the socioeconomic distribution of alcohol-related inpatient care during a period of decline in alcohol sales. A second aim was to elucidate social mobility among inpatients treated for alcohol-related problems.

Methods

Study Population

Stockholm County is a metropolitan area with a population of around 1.5 million inhabitants in 1975 as well as in 1980. At least 97 per cent of all discharges from hospitals in Stockholm County have been registered in the Inpatient Care Register (ICR),[7] making the ICR valuable for epidemiological studies. The Maria Clinic, which accounts for about one-third of all discharges under the diagnosis of alcoholism in the county, is not included in the ICR. At least 95 per cent of the discharges at the Maria Clinic concern patients living in its geographically limited catchment area.

In Sweden, Population and Housing Censuses have taken place every fifth year. The censuses of 1975 (FoB75) and 1980 (FoB80) were compulsory,[8,9] with a non-response rate less than 1 per cent. The definitions of the variables used in this study from the two censuses were essentially identical.[9] A tape was produced by the National Board of Health and Welfare by linking data in FoB75 for Stockholm County with the ICR for 1976 with the aid of the personal identity number which every Swedish citizen has been assigned.[10] The same procedure was performed with FoB80 and the ICR for 1981.

Diagnoses and Social Variables

We studied alcohol psychosis, alcoholism, alcohol intoxication, and the closely alcohol-related somatic diseases of liver cirrhosis and pancreatitis,[11] pooling data for the first three diagnoses because they overlap,[12] and abbreviated them to "AAA" in this report. Within a specific diagnostic category an individual discharged more than once has been counted only once, but one individual could be an inpatient in each of the three diagnostic categories. The study has been restricted to individuals 15–64 years of age for "AAA" and to individuals 25–64 years of age for the latter two categories; each sex has been studied separately. We grouped occupations on the basis of the most detailed level available in both censuses,[13,14] reaching a 90 per cent agreement with the new socioeconomic classification in FoB80. The categories were: manual (blue-collar) workers; non-manual employees, lower level; non-manual employees, intermediate and higher level, including self-employed persons; disability pensioners; house-wives; and "others" (unemployed, employed persons who were on sick leave or other leave since January 1, 1975 or January 1, 1980; those undergoing vocational rehabilitation; those who had had an occasional job during the year; family workers 15 hours or less). Non-manual employees and self-employed were combined into one category for the calculation of rates. Students and persons employed part time were excluded because numbers were small.

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Analyses

We calculated the rates of inpatients in 1976 and in 1981 for the whole population and for each socioeconomic category, using a 5 per cent random sample of the population in Stockholm County for the denominators. The rates and 95 per cent confidence intervals were calculated for 1975 and 1980 after standardization to the age-distribution in 1975 for each sex.[15] Since data on inpatient care for "AAA" did not include the Maria Clinic, we excluded persons living in the catchment area of the Maria Clinic from the denominator for "AAA". We estimated social mobility by comparing socioeconomic category for 1975 and 1980 among the 1981 inpatients aged 25–44 years in 1975 who participated in the 1980 census. Since downward social mobility could be caused by disability and ill health,[16,17] we attempted to measure change from a higher to a lower socioeconomic category between 1975 and 1980. For non-manual employees at an intermediate and higher level, downward drift means a transition to lower level: non-manual work, manual work, disability pension or to the "other" category. Downward drift for a manual worker means a transition to disability pension or to "other".

Results

Persons outside the labor market had the highest rates for all of the alcohol-related diagnoses for both sexes and in both years (Table 1). Rates were higher for men than for women, and for manual workers than non-manual employees. Among male non-manual employees, the rates were higher for those at the lower social level (Figure 1). The changes from 1976 to 1981 varied according to diagnosis (Table 1). Among the employed the decrease was generally greater, or the increase smaller, among non-manual employees than among manual workers in both sexes (Figures 1–2). For both sexes, the rates increased with age (Table 2). The change from 1976 to 1981 also varied with age, with the greatest changes being in younger ages. There was an increase for "AAA" among women.

Figures 3 and 4 show a considerable downward drift for in-patients with "AAA" in all socioeconomic categories. Thirty-four per cent of the male inpatients who were employed in 1975 had become disability pensioners or left the labor market by 1981. The corresponding figure for women was 29 per cent. The percentage becoming disability pensioners or "others" did not generally depend on the patient's 1975 socioeconomic category. (Housewives, students and part-time employees are excluded from the comparisons.)

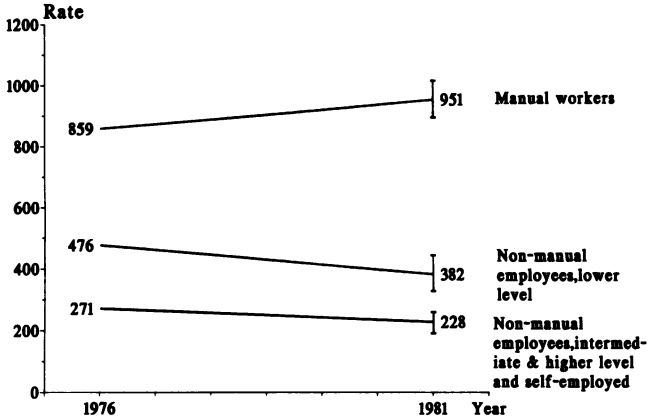


FIGURE 1—Male Inpatients Ages 25–64 Years Treated for Alcohol Psychosis, Alcoholism and Alcohol Intoxication in 1976 and 1981 among Manual Workers and Non-manual Employees (Age-standardized rates per 100,000 men and 95% confidence intervals for standardized rate ratios)

Discussion

Our estimates may reflect biases in the use of diagnostic criteria, selection to inpatient care, criteria for disability pensioning, health-related social mobility, or factors related to working conditions and alcohol availability.

The Use of Diagnostic Criteria—We issued a short questionnaire to the head physicians of all departments of internal medicine, surgery, orthopedics, psychiatry, and

TABLE 1—Age- and Sex-standardized Rates per 100,000 Inhabitants for In Patients Ages 25–64 Years with Alcohol Psychosis/Alcoholism/Alcohol Intoxication ("AAA"), Liver Cirrhosis and Pancreatitis in 1976 Distributed by Socioeconomic Category in 1975 (Standardized rate ratios (SRRs)—rates in 1981 in relation to rates in 1976—with 95% confidence intervals)

	"AAA"			Liver Cirrhosis			Pancreatitis		
	Rate 1976	SRR (1981/1976)	95% CI	Rate 1976	SRR (1981/1976)	95% CI	Rate 1976	SRR (1981/1976)	95% CI
Men									
n 1976	(2,851)			(248)			(476)		
Manual workers	859	1.11	(1.04, 1.18)	31	0.88	(0.64, 1.22)	110	0.78	(0.65, 0.93)
Non-manual employees and self-employed	351	0.79	(0.71, 0.88)	25	0.71	(0.51, 0.99)	63	0.67	(0.54, 0.83)
Disability pensioners	4,642	0.87	(0.77, 0.98)	392	0.54	(0.37, 0.80)	303	1.35	(0.95, 1.91)
"Others"	4,577	0.98	(0.92, 1.05)	292	0.74	(0.62, 0.83)	521	0.74	(0.60, 0.89)
Average	1,055	0.98	(0.94, 1.02)	65	0.71	(0.62, 0.83)	127	0.75	(0.68, 0.83)
Women									
n 1976	(652)			(133)			(147)		
Manual workers	182	1.39	(1.21, 1.61)	20	0.90	(0.58, 1.41)	23	0.65	(0.46, 0.92)
Non-manual employees and self-employed	136	1.09	(0.94, 1.27)	10	1.73	(1.17, 2.56)	28	0.50	(0.33, 0.74)
Housewives	188	1.01	(0.74, 1.36)	27	0.61	(0.25, 1.48)	39	0.28	(0.10, 0.78)
Disability pensioners	923	1.23	(0.94, 1.61)	221	0.57	(0.37, 0.89)	81	0.53	(0.29, 0.97)
"Others"	1,419	1.06	(0.92, 1.22)	181	0.62	(0.37, 1.02)	145	0.69	(0.42, 1.12)
Average	247	1.18	(1.10, 1.26)	43	0.65	(0.54, 0.80)	38	0.63	(0.51, 0.77)

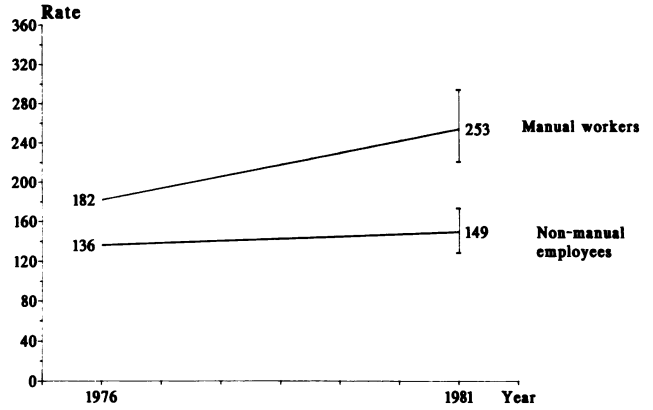
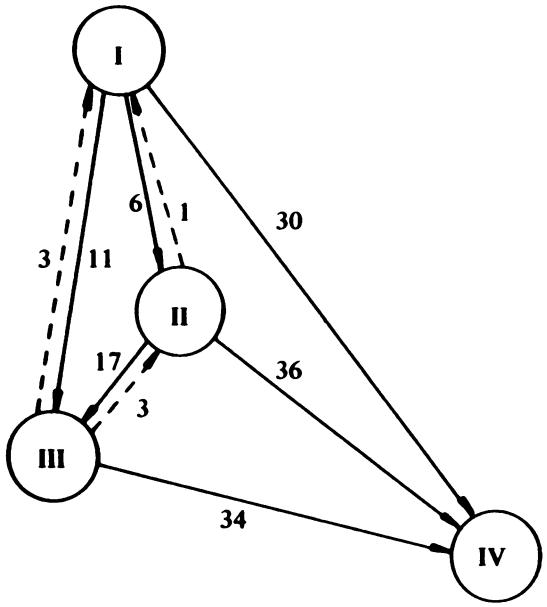


FIGURE 2—Female Inpatients Ages 25–64 Years Treated for Alcohol Psychosis, Alcoholism and Alcohol Intoxication in 1976 and 1981 among Manual Workers and Non-manual Employees (Age-standardized rates per 100,000 women and 95% confidence intervals for standardized rate ratios)

alcoholic diseases in the county, asking for any changes in criteria during 1973–83 for the diagnoses under study. According to the answers from the responding 75 per cent, there had been no such changes. There may have been some social bias in the use of the diagnosis "alcoholism" (and the related diagnoses "alcohol psychosis" and "alcohol intoxication"). Common screening tests (not chemical tests) in the United States have been considered to be biased towards the lower social classes,[18] but the similar patterns we observed for "AAA", liver cirrhosis and pancreatitis suggest that such factors have not been important in this study.

Outpatient Treatment—The changes in inpatient treatment between 1976 and 1981 may have been affected by the increase in outpatient visits from 132,000 to 141,000 visits and greater use of sensitizing agents. These factors were discussed in more detail elsewhere.[3] We lack data on the relation to sex, age, and socioeconomic status for most of those factors, but the rate differences between manual workers and non-manual employees could reflect, in part, greater use of outpatient care and treatment facilities by non-manual employees.

Stefansson and Cullberg have reported that a substantial expansion of psychiatric outpatient treatment facilities in two municipalities in Stockholm County in the mid-1970s was followed by a substantial increase in the proportion of the population receiving psychiatric outpatient care including patients with alcoholism.[19] The total consultation rate, related to population size, was greater for patients from social class III, but greatest for social class II. There was a decrease in hospital admissions for all social classes. Data on social class distribution for outpatients and inpatients with alcoholism were not presented. The proportion of all outpatient visits to doctors was roughly the same for all social classes in 1974 and in 1981 in Sweden.[20] Thus, we have no indication of changes in the social pattern of outpatient visits for alcohol-related problems in Stockholm County from 1976 to 1981, but the data are scanty.



I Non-manual employees, intermediate & higher level and self-employed, n = 149 in 1975

II Non-manual employees, lower level, n = 128 in 1975

III Workers, n = 680 in 1975

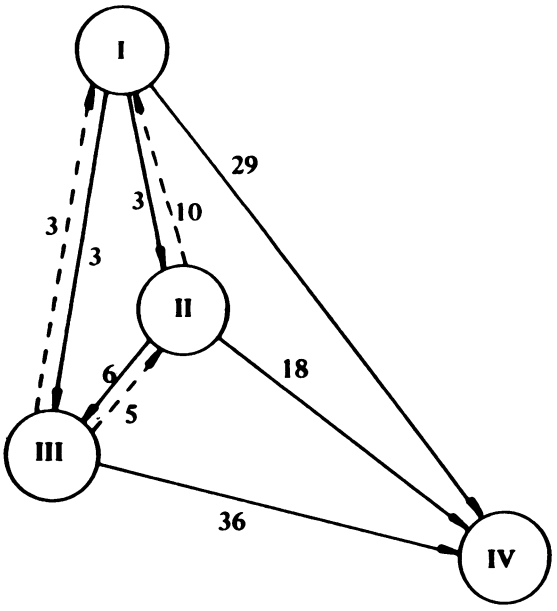
IV Disability pensioners and »others»

FIGURE 3—Social Mobility from 1975 to 1980 for Male Inpatients Ages 25–44 Years in 1981 with Alcohol Psychosis, Alcoholism and Alcohol Intoxication, Who Were Gainfully Employed in 1975

Disability Pensions—After new legislation in the beginning of the 1970s it became easier to get a disability pension, and from 1977 on to get disability pension due to alcoholism as a main diagnosis.[21] Alcohol-related diagnoses were thus

TABLE 2—Age- and Sex-specific Rates per 100,000 Inhabitants for Inpatients with Alcohol Psychosis/Alcoholism/Alcohol Intoxication ("AAA") Liver Cirrhosis and Pancreatitis in 1976 Distributed by Age in 1975 (Standardized rate ratios (SRRs)—rates in 1976 in relation to rates in 1981—with 95% confidence intervals)

	"AAA"			Liver Cirrhosis			Pancreatitis		
	Rate 1976	RR (1981/1976)	95% CI	Rate 1976	RR (1981/1976)	95% CI	Rate 1976	RR (1981/1976)	95% CI
Men									
15–24 years	257	0.41	(0.32, 0.52)						
25–44 years	933	0.90	(0.85, 0.94)	31	0.57	(0.42, 0.77)	111	0.67	(0.58, 0.78)
45–64 years	1,216	1.04	(0.98, 1.10)	113	0.77	(0.65, 0.91)	148	0.76	(0.66, 0.89)
Women									
15–24 years	106	0.80	(0.57, 1.10)						
25–44 years	245	1.14	(1.04, 1.25)	16	0.69	(0.46, 1.03)	31	0.58	(0.43, 0.79)
45–64 years	251	1.22	(1.10, 1.37)	58	0.76	(0.60, 0.96)	48	0.67	(0.51, 0.88)



I Non-manual employees, intermediate & higher level and self-employed, n = 34 in 1975

II Non-manual employees, lower level, n = 82 in 1975

III Workers, n = 176 in 1975

IV Disability pensioners and »others»

FIGURE 4—Social Mobility from 1975 to 1980 for Female Inpatients Ages 25–44 Years in 1981 with Alcohol Psychosis, Alcoholism and Alcohol Intoxication, Who Were Gainfully Employed in 1975

artefactually increased among disability pensioners, but the extent of this effect is not clear.

The total number of newly granted temporary or permanent disability pensions in Stockholm County decreased from 9,071 during the period 1973–75 to 7,881 during the period 1978–80, partly because the retirement age was lowered from 67 to 65 years in 1976.[22] We lack data on disability pensioning for alcoholism in Stockholm County, but we have data for Sweden as a whole. The number of newly granted disability pensions in Sweden with alcoholism or alcohol psychosis as the main diagnosis was 18 per cent higher in 1978–80 than in 1974–76 among men and 25 per cent higher among women (Information from Lena Eriksson, the National Social Insurance Board). Less than 5 per cent of all newly granted disability pensions in men and less than 1 per cent in women were due to alcoholism or alcohol psychosis as the main diagnosis in Sweden, during the 1970s. However, many alcoholics receive a disability pension under other main diagnoses.[23,24] The decline in disability pensioning and the small number of disability pensioners with a diagnosis of alcoholism suggest that changes in legislation and routines do not markedly bias a comparison of socioeconomic categories in 1976 with those in 1981.

Health-related Social Mobility—The much higher rates of alcohol-related inpatient care for disability pensioners and "others" can be explained in part by downward social drift of people unable to work due to alcohol-related disabilities.[16,17] Perhaps the educational requirements and experience needed to reach some of the positions in the category of non-manual work also may be more incompatible with alcohol abuse. In a 40-year follow-up of the Core City sample in Boston, Vaillant found a correlation between progressive course for alcohol abusers and membership in social class IV or V and concluded "that low social class does not cause alcoholism as much as severe alcoholism causes low social class."[25]

On the other hand, two Swedish studies suggest the opposite. Öjesjö, Hagnell and Lanke[26] found that the cumulative probability of developing alcoholism for males in the Lundby cohort in Sweden from 1957 to 1972 was roughly twice as high for manual workers as for middle strata. (Data on social class concerned 1957.) Romelsjö and Ågren[27] found that the mortality in Sweden from alcohol psychosis, alcoholism, alcohol intoxication, and liver cirrhosis was higher among manual workers than among other main occupational categories, but highest among disability pensioners and those who had left the labor market. Poikolainen[28] has reported that the relative risk for inpatient care among men aged 25–64 years in Finland during 1970–75 treated for alcohol psychosis, alcoholism, and alcohol intoxication was higher for manual workers than for clerical workers while the relative risk for liver cirrhosis and pancreatitis showed smaller differences between occupational groups.

Working Conditions—The differences in alcoholism among occupations may also reflect differences in the working environment, possibly because occupations with a greater risk of stress and monotony also carry a greater risk of alcohol abuse. Alfredsson, Spetz and Theorell[29] reported such correlations in the same linked data from 1975–76 used in the present study. Other studies have shown an increased risk of alcohol-related problems in specific occupations,[30,31] but it is not clear whether socioeconomic status relates to alcohol availability.

In sum, available data do not indicate any significant bias in the comparison of rates for various categories and for comparisons over time, and differentials between blue collar and white collar workers in alcohol-related disease appear to have widened. Reduced alcohol consumption has been advocated by the World Health Organization[32] and many countries—among them Sweden[33]—as an important goal for national alcohol policy. Our data show that although the decrease in sales and consumption was followed by a general decrease in alcohol-related problems,[1–4] the decreases were far from uniform across social groups. It seems necessary to combine a further reduction in alcohol consumption with additional measures to reach all social groups.[32–34]

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Publication Announcement: Child Studies Survey Available

A Survey of Sources for the Study of the History of Child Studies at the Rockefeller Archive Center (86 pp.) is the latest publication in a series of subject surveys of manuscript sources located at the Rockefeller Archive Center. Compiled by archivist Melissa A. Smith, the survey is available free of charge to interested researchers.

Over the past 80 years, American philanthropic foundations have responded to issues ranging from clean milk campaigns to jobs for unemployed youth. These two diverse causes illustrate the scope of these philanthropies' concern for the health, safety, mental and social development of children in American society.

Materials from the Commonwealth Fund, the General Education Board, and the Laura Spelman Rockefeller Memorial collections comprise the bulk of the survey. Other collections represented include those of the Rockefeller Brothers Fund, the Rockefeller Family, the Russell Sage Foundation, and the Bureau of Social Hygiene. The survey lists folder titles, box and folder numbers, and, when available, brief descriptions of the folder contents.

Researchers and institutions who want a copy of the free survey should contact the Director, Rockefeller Archive Center, 15 Dayton Avenue, Pocantico Hills, North Tarrytown, NY 10591-1598; Tel: (914) 631-4505.