

Predictors of Alcoholism in the Lundby Study

III. Social Risk Factors for Alcoholism*

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Summary. In 1957 all inhabitants (2,612) in a delimited geographical area, Lundby, were examined by a psychiatrist, and social factors were evaluated for each individual. During the following 15 years 58 men became alcoholics. Among the men who in 1957 were in the age group 0–14 years and belonged to a 'gang', the risk of becoming an alcoholic was 100-fold increased. 'Gang' was also an important factor in the age group 15–24 years. 'Crisis' was an important factor among those over 14, and 'disintegrated environment' in the age group 25–59 years. In the latter age group occupations such as 'entrepreneur', became important as a precipitating factor. 'Married' was the only protective factor found.

Key words: Alcoholism – Epidemiology – Social factors – Prospective longitudinal study – The Lundby study

Introduction

The background factors of alcoholism form a complex pattern. In order to be able to handle them, we began this series by dividing them into subgroups: 'personality', 'social' and 'drinking pattern' factors.

This paper deals with the social background factors. We have not followed any of the numerous hypotheses about the social aetiology of alcoholism. At this stage of research on the aetiology of alcoholism we have considered a straight epidemiological description most appropriate. The social circumstances were described concerning every person before anybody knew who would become an alcoholic and who would not.

The various background factors have been assessed in a prospective, longitudinal study of the total population. A

more detailed description of how this study was performed was published earlier.

Material and Methods

Social factors, single or in combinations, that might influence the development of alcoholism are numerous. We have restricted ourselves to work with certain social factors, well-established and known by us in 1957.

With a cross section date of 1 July, 1957, one of us (Hagnell) made a social-psychiatric description of all persons in a delimited area of southern Sweden, Lundby, with 2,612 inhabitants (1,335 men and 1,277 women). In 1972 all persons were examined again, irrespective of domicile, by two psychiatrists (Hagnell and Öjesjö).

The sources of information consisted of our own observations, and also of additional information from other sources as presented in Hagnell et al. (1986a). On the basis of the information collected an evaluation was performed concerning social factors.

For a more exhaustive description of material and methods, see Hagnell (1966) and Hagnell et al. (1986a).

Results

Of the 1,335 examined men in 1957, 107 were or had been alcoholics. A prevalence study of alcoholism in this population was published by Hagnell and Tunving (1972). To the present study 9 more alcoholics were added. Information about them was only available after 1957.

We used the age grouping presented in Table 1, because a preliminary analysis suggested considerable differences

Table 1. Non-alcoholic men of the Lundby 1957 cohort who became alcoholics during the 15-year period, 1957–1972

Age July 1, 1957	Non-alcoholic	Became alcoholic 1957–1972
0–14	299	14 (4.7%)
15–24	166	15 (9.0%)
25–59	574	27 (4.7%)
60+	189	2 (1.1%)
0+	1228	58

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Table 2. Three selected single social background factors with evident prognostic value for the outcome of alcoholism in the age group 0–14 years

With precipitating influence	Odds ratio
Gang	97.5
Heredity	11.4
Stress	7.5

Sp₅₀ = 98.6%**Table 3.** Four selected single social background factors of obvious prognostic value for the outcome of alcoholism in the age group 15–24 years

With precipitating influence	Odds ratio
Gang	36.6
Crisis	20.5
Abnormal family conditions	5.4
Heredity	4.4

Sp₅₀ = 96.3%**Table 4.** Three selected single or combined social background factors of obvious prognostic value for the outcome of alcoholism in the age group 15–24 years

With precipitating influence	Odds ratio
Gang	20.7
Crisis	16.8
Heredity + unskilled labourer	7.9

Sp₅₀ = 96.6%

among these groups. The highest age group, 60 years and over, contained only 2 men and was, because of the small number, excluded.

Age Group 0–14 Years in 1957 (Table 2)

'Gang' shows an almost 100-fold risk. Gang is in this study used in a somewhat wide sense. It means drinking together with companions in various settings.

Within 'heredity' both genetic and social heredity is included.

No statistically significant interaction was found in this youngest age group, nor any background factors with a protective influence.

Age Group 15–24 Years (Tables 3 and 4)

Drinking together with companions, in a 'gang', had the highest risk among the four single social background factors that were statistically significant (Table 3). 'Personal crisis', in the family or at work, had a risk over 20. 'Abnormal family conditions' included shift work, long distance commuting, and other circumstances that inhibit a regular, normal family life. In this age group 'heredity' had a certain precipitating influence. When single and combined social background factors of obvious prognostic value for the outcome of alcoholism were calculated, 'heredity' in combination with an occupation such as

Table 5. Seven selected single social background factors of obvious prognostic value for the outcome of alcoholism in the age group 25–59 years

With precipitating influence	Odds ratio
Disintegrated environment	18.8
Crisis	9.4
Heredity	8.8
Entrepreneur	6.5
Employee of state or community	6.2
Abnormal family conditions	4.7
<i>With protective influence</i>	
Married	0.16

Sp₅₀ = 96.3%**Table 6.** Six selected single or combined social background factors of obvious prognostic value for the outcome of alcoholism in the age group 25–59 years

With precipitating influence	Odds ratio
Married + crisis	22.1
Disintegrated environment	19.3
Heredity	7.4
Abnormal family conditions	4.3
Skilled worker, artisan, etc.	3.4
<i>With protective influence</i>	
Married	0.10

Sp₅₀ = 95.3%

'unskilled labourer' increased the risk (Table 4). 'Gang' and 'crisis' decreased in importance, and 'abnormal family conditions' disappeared.

Age Group 25–59 Years (Tables 5 and 6)

'Social disintegrated environment' was characterized by e.g. high frequency of hostility, poverty, cultural confusion, few and weak associations with little or no grouping of people, either formally or informally (Leighton, 1959).

To 'crisis' and 'heredity', earlier observed in the younger age groups, were now added two occupational groups, 'entrepreneurs' and 'employees of state or community'.

The only social background factor with a protective influence was 'married', either calculated among the single background factors alone or among single or combined ones. However, as can be expected, the combination of 'married' and 'crisis' resulted in a high risk for precipitating alcoholism.

Success of Prediction

The success of predicting alcoholism by the social factors is given in Tables 2–6 (Hagnell et al. 1986a).

With a sensitivity of 50% the specificity Sp₅₀ was 95.3%–98.6%. That these values were not due to chance was controlled through tests of simulation. Hence, by simulating (Lanke, 1986) the 166 persons, of whom 15 became alcoholics, (that is the numbers we have in the age group 15–24) with 24 background factors, one obtained the result Sp₅₀ ≈ 76%. Our result,

96.3%, when calculated with the original data, surpassed this level with wide margins, indicating the existence of a true predictive power in our data set.

Discussion

Aetiological discussions concerning alcohol abuse have always been hampered by fruitless arguments concerning causality. In spite of the fact that alcohol abuse is commonly recognized as a complication of mental health and social problems, and since excessive use of alcohol will cause health and social problems, there has been slow progress in research in the field. The uniqueness of the present study is that the background factors described precede the beginning of alcohol problems and the development of alcoholism. The possibility of predicting the outcome of alcoholism in a healthy individual (= non-alcoholic) with the aid of the suggested method meets demands for a high sensitivity with surprising specificity.

However, when interpreting the results we must bear in mind that there is a danger in separating the material by different kinds of background factors. It is easy to minimize or exaggerate the role of certain factors. Bearing this in mind,

and also that no mass disease of man has ever been adequately controlled by attempting to treat the affected individuals, the results of this study may be useful both for practical alcohol programmes and for further research.

References

- Hagnell O (1966) A prospective study of the incidence of mental disorder. Scand Univ Books, Svenska Bokförlaget/Norstedts-Bonniers, Stockholm
- Hagnell O, Tunving K (1972) Prevalence and nature of alcoholism in a total population. *Soc Psychiatry* 7:190–201
- Hagnell O, Lanke J, Rorsman B, Öhman R (1986a) Predictors of alcoholism in the Lundby Study (I). Material and methods. *Eur Arch Psychiatr neurol Sci* 235:187–191
- Lanke J (1986) On nominal and true predictive power for logistic regression models with many explanatory variables. Techn Rep Dept of Statistics, Univ of Lund
- Leighton AH (1959) The Stirling County study. Volume I. My name is legion. Basic Books Inc, New York

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