

***The long-term consequences  
of parental alcohol abuse  
A cohort study of children in Denmark***

***Mogens Nygaard Christoffersen***

*The Research Unit on Children, Youth and Families, Ethnic Minorities and Welfare*

*Working Paper 14:2002*



***Working Paper***

*Socialforskningsinstituttet*

*The Danish National Institute of Social Research*

Paper presented at the 52<sup>nd</sup> Alcohol Problems Research Symposium, March 20<sup>th</sup> & 21<sup>st</sup>, 2002 at Macdonald Riverside Hotel, Stramongate Bridge, Beezon Road, Kendal, Cumbria, U. K.

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Mogens Nygaard Christoffersen

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Mogens Nygaard Christoffersen, Senior Researcher, MSc (sociology)  
The Danish National Institute of Social Research  
Herluf Trollesgade 11, DK-1052 København K, Denmark  
phone (direct): +45 33 48 0883 phone (main): +45 33 48 0800 fax: +45 33 48 08 33  
e-mail: [mc@sfi.dk](mailto:mc@sfi.dk) Home page: [www.sfi.dk](http://www.sfi.dk)

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**Abstract**

The aim of this study is to consider whether the parents' abuse of alcohol presents a long-term impact on children during their formative years. The research is based on a database containing data for a total of 155,000 children born in 1966 and 1973. These children and their parents were followed for a 15-year period between 1979 and 1993. Multivariate logistic regression analysis was made on the bases of the discrete-time proportional hazard modelling appropriate for longitudinal cohort methods.

Results show that the parents' abuse of alcohol may influence several long-term consequences for their children. The study ascertained an increased mortality and high occurrence of self-destructive behavioural forms (attempted suicide, drug addiction) among adolescent 14 to 27 year olds with alcoholic parents. Hospitalisation of adolescents because of psychological disturbances is also seen relatively more frequently among cases where the parents are alcohol abusers. Similarly, an increased risk of teenage motherhood and youth unemployment is seen in families where there is evidence of alcohol abuse.

In some respects mothers who are alcohol abusers seem to have a different effect on their children than fathers who are alcohol abusers. So, for example, there is a higher occurrence of violence-related crimes and convictions for sexual offences among adolescents whose mothers abuse alcohol.

## Introduction

A previous Danish register study shows that children who grew up under heavy impact conditions, 30 years later had distanced themselves from the average by having had more hospitalisations in surgical, medical and psychiatric sections. Infringement of the law, imprisonment, unemployment and accidents, drug abuse and personality disturbances were more common in the group with unfavourable growing-up conditions. Different types of psychological ailments, alcoholism, schizophrenia and other psychological illnesses were also more common in the group with the troubled background. Based on this it was predictable that retirement before the age of 40 would have a significantly higher frequency in the research group, just as the number of cases involving child welfare authorities, juvenile delinquency and suicide attempts were also higher compared to the average (Andersen, 1981; 1986).

This type of study encourages further research in the impacts of childhood. Impact factors can therefore be expected to result in a wide range of reactions in children (psychological illness requiring treatment, crime, self-destructive behaviour) – depending on the seriousness of the disease, duration and mitigating circumstances. For example, it must be assumed that the impacts in the domestic environment can become so intense that they block the child's learning ability and complicate relationships with friends and classmates.

The present study focuses on a single impact factor: parental alcohol abuse and the long-term consequences for their children.

The *short-term consequences* have been described in several studies. It has been known for many years that consumption of alcohol during pregnancy can cause permanent damage to the foetus e.g. permanent brain damage and also retarded growth. Even small amounts of alcohol may influence the central nervous system, but how much is needed to cause damage is unknown. The mother's alcohol abuse shows a clear connection to a low birth weight. There will often be more serious, irreversible physical consequences for the child, than if the mother is a drug addict (Broholm, 1999). Prenatal and postnatal death, stillbirth, risk of brain damage were higher among children of alcoholics than others (Rydellius P-A. 1997; Nordberg, L. et al. 1993).

The foetal alcohol syndrome has in 1968 been found to characterise children of mothers who were abusing alcohol during pregnancy. Restrained growth, birth weight, length, visual defects, etc. had been painstakingly investigated (Rasmussen, B.B. & Christensen, N. 1978; Rydellius P-A. 1997; Aronson, M. et al. 1985). Consequently, hyperactivity, motor restlessness, psychomotor delays, distractibility, short attention, acting out (Hansen, S.E. 1985; Aronson, M. et al. 1985; Rydellius P-A. 1997) and a marked perceptual delay (Aronson, M. et al. 1985) was seen relatively more frequently among children of alcoholics.

Devastating parenting e.g. child abuse and neglect, physical abuse (Reich, W., Earls, F. & Powell, J. 1988; Haugland, B.S. et al. 1987), parent-child incest (Rydellius P-A. 1997) was more frequently seen among children from families where there is evidence of alcohol abuse.

Children from families with alcoholic parents displayed more emotional problems as if they were suffering from post-traumatic stress syndrome (Rydellius P-A. 1997), health problems, failure in school, and criminality (Rydellius P-A. 1997) than their contemporaries.

Low self-esteem, feelings of inadequacy were more often found among children of alcoholics than among their contemporaries (Haugland, B.S. et al. 1987; Bush, S.I. et al. 1995; Wallace, J. 1988; Drake, R.E. et al. 1988). Mental health problems, personality disorder (Drake, R.E. et al. 1988), children as psychiatric patients (Rydellius P-A. 1997), psychopathology symptoms e.g. depression (Bush, S.I. et al. 1995; Hansen, S.E. 1985; Nordberg, L. et al. 1993; Rydellius P-A. 1997; Reich, W., Earls, F. & Powell, J. 1988; Haugland, B.S. et al. 1987) was more frequently seen among children of alcoholics' than other children.

In general children of alcoholics were more susceptible to specific illness than other children (Hansen, S.E. 1985). Headache, abnormal pain, sleeping problems etc. were more often seen among children of alcoholics than their peer group (Rydellius P-A. 1997).

Learning disability or cognitive development (Noll, R.B. et al. 1992; Rydellius P-A. 1997), more disturbed school career (Knop, J. et al. 1985; Haugland, B.S. et al. 1987; Rasmussen, B.B. & Christensen, N. 1978) and poorly motivated with respect to education and employment characterised children of alcoholics more frequently than their contemporaries.

While alcoholics' boys had an increased risk of being social excluded from competent peer groups and more often displayed anger, violence, crime (Rydellius P-A. 1997; Buydens-Branchey, L. 1989; Haugland, B.S. et al. 1987; Rasmussen, B.B. & Christensen, N. 1978), girls from families with alcoholic parents had an increased risk experiencing feelings of guilt, anxiety, sexual acting out, promiscuity, prostitution, and self-damaging impulsive sexual behaviour.

Children of alcoholics have an increased risk of self-destructive behaviour e.g. attempted suicide (Buydens-Branchey, L. 1989) and anorexia nervosa (Rydellius P-A. 1997; Hansen, S.E. 1985). A higher incidence of alcohol abuse was seen among children of alcoholics (Miller, D. & Jang, M. 1977; Haugland, B.S. et al. 1987; Jennison, K.M. And Johnson, K.A. 1998; Drake, R.E. et al. 1988) and the self-medication hypothesis was supported by some findings where men were more likely to increase their consumption of alcohol when nervous (Swendsen, J.D. et al. 2000).

For social and developmental reasons it is assumed that children of alcohol abusing mothers live with an extreme risk of developing badly. This view is supported by a Danish study where boys in a treatment home were compared to a group of selected boys from Stockholm (Jonsson, 1967). On the contrary, Velleman & Orford (1999) conclude on basis of their research and other research findings that onset of mothers' drinking problems occurs on average later in childhood and positive family experiences are on average better preserved when mothers rather than fathers have drinking problems.

Children of alcoholics seemed to have characteristics as if they have had experienced extreme stress. Some of the consequences mentioned in relation to extreme stress reaction in children are sleep disturbances (nightmares, insomnia), increased nervous tension, withdrawal and depression, lack of concentration in school, pessimistic views of the future, monotonous repetition of a game and chronic angst. However, with a secure bond to social support, some might later display a good ability to withstand social impacts (Garmezzy, 1982 quoted from Anthony, 1986).

Firstly, children's conditions in a family with alcohol abuse are marked by neglect on different levels and an existence with a high level of stress. The parents' neglect primarily means that they have limited abilities to help the children to manage the development tasks that are attached to their specific age.

Secondly, the parents' lack of ability to provide care is connected with their reduced emotional resources which leads to ignoring their own needs and their diminished sensitivity and involvement in the children (Broholm, 1999).

Thirdly, alcohol abuse will often be attached to other impacting conditions: psychological illnesses, unemployment, exclusion from general public life, criminality, stigmatisation and a ghetto-like life among other rejects. Alcohol and drug addiction will, combined with these conditions, be impacts, that further deplete human resources and the parents' surplus to meet the children's needs (Broholm, 1999).

Velleman & Orford (1999) conclude on thorough studies and reviews that there is a wide range of negative experiences associated with parental drinking problems: confusion, family violence, aggression or arguments, unpredictability, embarrassment, and relationship difficulties. The problems, which keep appearing, are summarised in terms of anti-social behaviour, emotional and psychological difficulties, and poor school performance.

On the other hand when it comes to *the adulthood outcomes* for children of problem drinkers the most research had been conducted on intergenerational transmission of alcoholism. Velleman & Orford (1999) conclude that the long-term outcome other than problem drinking is fragmentary and inconclusive. Although there were some indications that daughters were more at risk for depression, eating disorders, and psychiatric personality disorder, while both sexes had an increased risk of low self-esteem, depression, and inter-personal skills. They conclude that there are no straightforward paths from childhood to adulthood transmitting childhood adversities.

### **The problem and the theoretical assumptions**

Our assumption is that parents' alcoholism would produce severe impacts on the children, as the children were dependent on the parents' emotional state. It was assumed that children of parents with alcoholism would be especially exposed to degrading and humiliating treatment. Serious consequences should be expected if the children's parents were not able to read and answer their signals.

One of the present study's theoretical assumptions is, that children are dependent on their parents' emotional state. Even young children must try to establish a system or a framework within which the parents' emotions may be foreseen and understood. This is true for both the expressed and the suppressed emotions. The children evolve as specialists in decoding the emotional climate within their own family (Harris, 1994). In this interplay the child's perception of the parents is an important part of building its own identity.

The mentioned studies assumes that among adolescents lack of self-esteem and self-destructive behaviour can be related to them having been exposed to different forms of humiliating or abusive treatment (Christoffersen, 1996). This could occur with an especially high frequency in families with alcohol abuse. Lack of recognition, ignoring the child's remarks and lack of involvement of adults with whom the child identifies, can be destructive for the child's self-confidence and vitality. It is the assumption of this study that lack of sensitivity of the parents, who form the identity network of the child, can lead to the child developing personality disturbances, psychological and somatic illnesses and self-destructive behaviour.

The process of intergenerational transmission is still an open question with a wide range of possible mechanisms which implies a genetic contribution, behaviour modelling,

environmental both alcohol-specific and general environmental processes (Velleman & Orford, 1999).

On this background focus was set on a range of rare behavioural forms that were expected to be found among children of parents with alcoholism. Focus concerned a generally increased rate of mortality, possible mental illness in the child or self-destructive behaviour, children being taken into care, their conviction for violent behaviour and sexual offences. And accordingly, their aspirations and educational careers were supposed to be inflicted. Youth unemployment and teenage childbearing were also studied.

### Data

This study is part of the research programme: Risk factors in childhood; the purpose is to investigate the risk factors for children and adolescents with the aim of describing their youth and mapping their status in life as adults (Christoffersen, 1999 a; b; 2000 a-e; 2001; Christoffersen, Francis & Soothill, 2002).

The present Danish study has several advantages over much previous work. It is based on a large national database of two cohorts of children – those born in 1966 (n=84,765) and in 1973 (n=69,623) a total of 154,388 children. The follow-up is comparatively long-term – a 15-year period taking the 1966 cohort up to the age of 27, and the 1973 cohort up to the age of 20. Furthermore, there is much information taken from population-based registers producing a wide range of independent and outcome variables (table 1). However, there are also serious limitations in relation to studies based on registers.

**Table 1:**  
**Information selected from the population-based registers used in the Danish cohort study.**

Population statistics	gender, age, marital status, address	1980-91
Medical register on vital statistics	cause of death, suicide	1979-93
Unemployment statistics	branch of trade, unemployment	1976-79
Education statistics	grades	1980-93
Educational classification module	schooling, vocational training	1993
Social assistance act statistics	children in care	1976-93
Integrated Database for Labour Market Research	occupation, unemployment	1980-92
Crime statistics	violation, adjudication, imprisonment	1980-93
Income compensation benefits	social benefit, duration	1984-93
Fertility research	no. of siblings, parity, link to parents	1980-91
National inpatient register	ICD-8 diagnoses (somatic)	1979-93
National psychiatric register	ICD-8 diagnoses (psychiatric)	1979-93

Since registers are not produced with the express purpose of research, the registers also include much inaccurate invalid information. Registers cannot tell of the psychological mechanisms that underpin a process, but studies based on registers are effective in identifying those persons who move into the ‘official’ domain in some form. This particular study focuses on parents who can be ‘officially’ identified as having problems with alcohol and considers whether their children as adults are disproportionately more likely to suffer adverse consequences.

The analysis and interpretation of this kind of material must, however, be undertaken with care. Parental alcohol abuse may often be linked with other kinds of difficult

contingencies for children and it is usually difficult to disentangle the effects of alcohol abuse in itself. Multivariate logistic regression on relatively large number of observations may help us towards this goal (see Appendix A), but dangers of trying to reach a definitive conclusion must be recognised. The present study, however, is more modest. The main focus is, firstly, to consider which of the outcomes seem most closely related to parental alcohol abuse, and secondly, to try to distinguish whether a mother's alcohol abuse has more impact on the child than the father's alcohol abuse.

### ***The historical period 1979 to 1993***

The two generations differ historically owing to the economic crisis. The first cohort was born during the economic boom in 1966, whereas the second cohort was born in 1973, one year before the crisis made its significant impact on society. Hence, the experience of the parents around the time of the birth of the child may have been different for both the two cohort. Similar, the two cohorts may have experienced their teenage years differently. The first cohort were teenagers in the period 1979 – 1985 when there was both a rise and a fall in employment rates in Denmark, while the second cohort only experienced increasing unemployment in their teenage years during the period 1986 – 1992.

### ***Independent variables***

While the main focus is on parental alcohol abuse in this study, other features of the parents' economic and social situation and health status are considered. The degree of the parents' unemployment is a measure of their economic situation, while parental education is an indicator of their potential economic resources. The parents' criminality, and any evidence of violence within the family provides an indication of the social context of the upbringing. Health measures include psychological illness as recorded when hospitalised, the attempted and completed suicides of parents as well as any evidence of drug addiction and neurotic ailments.

These indicators are included because of their suspected long-term influence on the children's life in order to try to isolate the long-term influence of parental alcohol abuse.

### ***Measures of alcohol abuse***

The measure of alcohol abuse is derived from inspecting the reasons for hospital admissions. The following diagnoses were expected to be associated with long-term alcohol abuse: alcohol psychosis, alcoholism, esophageal varices, cirrhosis of liver (alcoholic), chronic pancreatitis (alcoholic), delirium, accidental poisoning by alcohol. The sparse and unreliable information from registers make it difficult to differentiate between intentional and unintentional poisoning by alcohol or drugs. An early stage of alcohol abuse may come up as peptic ulcer etc.: ulcer of stomach, ulcer of duodenum, peptic ulcer (site unspecified), gastrojejunal ulcer, gastritis and duodenitis, disorder of function of stomach, other diseases of stomach and duodenum, other diseases of oesophagus. Meanwhile, it was decided not to include these diseases in the definition of alcohol abuse.

The notion of alcohol abuse is a social construction, but using the criteria of hospital admissions helps us to minimise the impact of social differences. Those with greater economic and social resources can more easily mask the fact that alcohol use is affecting their lives. However, a hospital admission for an alcohol-related condition means that the abuse of alcohol is well advanced. There will be many more parents whose own lives and

their dependants may be affected by alcohol use, but who will not be defined as alcohol abusers in this study. This study focuses on the more extreme cases.

### ***Outcome variables***

This study is focusing on what may be termed the *long-term consequences* of serious impacts in childhood. There are a variety of measures used. These can be grouped in terms of damage to self, damage to others, life experiences and life resources. Damage to self can range from death before the age of 27 years, evidence of self-destructive behaviour among the young (drug abuse and suicide attempts) to hospitalisation due to psychological illness. Damage to others focuses on criminal activity, particularly violence and sexual offences. The focus on life experiences is on those that most would regard as unsatisfactory, such as family dissolution, physical abuse and neglect, and the child being placed in residential care (table 2).

However, teenage motherhood is also included here which, while not intrinsically unsatisfactory, but could be regarded as a way of handling disadvantages during childhood. A Danish study based on an interview with 25-year-old teenage-mothers showed that which differentiates them from their contemporaries was a loss of self-esteem. This and other studies (Social Exclusion Unit, 1999; Raley, 1999; Christoffersen, 2000 b) open the way for further investigations in resilience and ways of handling loss during childhood for teenage mothers.

Life resources are considered in terms of education and youth employment; those lacking education or employment opportunities are clearly at a disadvantage in terms of life chances.

**Table 2.**

**The presence of outcomes variables. Children born in 1966 or 1973 followed 1979 until 1993. Shares stated in percentages.**

Outcome variables	Birth cohort 1966	Birth cohort 1973	All
Premature death (N=671) children born in 1966:	0.79	-	
Abuse and neglect (N=582) children born 1973:	-	0.84	
Children in residential care (N=3,514) children born in 1973:	-	5.05	
Family dissolution (N=10,781) 6-18 y old children born in 1973:	-	15.48	
Adolescent's drug addiction (N=172) children born in 1966	0.20	-	
Teenage childbearing (N=1,182) girls born 1966:**	2.86	-	
Teenage childbearing (N=788) girls born 1973:**	-	2.32	
Convicted of a violent crime (N=1,936) boys born in 1966:*	4.46	-	
Convicted for rape (N=96) boys born in 1966:*	0.22	-	
Hospitalised for mental illness (N=544) children born in 1966	0.64	-	
Suicide attempts (N=867) children born in 1966:	1.02	-	
Youth unemployment (N=6,022) children born in 1966:	7.10	-	
Total number of children (percentage based)	84,765	69,623	154,388

Note: \*Only boys: percentage based on 43,403 boys and 35,704 boys, respectively for the years 1966 and 1973.

\*\* Only girls: percentages based on 41,362 girls and 33,919 girls, respectively for the years in focus.

Outcome measures used in the study are a mixed bag, but the interest is whether the selected independent variables, and particularly parental alcohol abuse, are more relevant to some outcome variables than others.

### ***Abuse and neglect***

The present study includes all the Danish children born in 1973 who have been offer to abuse which has led to hospitalisation between the years 1979 and 1991, when the children and adolescents were about 6 to 18 years old (N=582). The study is the first attempt to use registers in a nation-wide study despite inherent errors attached to information in registers. Children and adolescents who are victims of violence, abuse or neglect, which have led to hospitalisations, and the physician had diagnosed the injury purposely inflicted by other persons (E960-E969, 996.89, 796.00, 796.01, 796.02 according to the Danish modification of the ICD-8 classification).

During the period 1979 to 1991 while the children were 6 to 18-years-old about 1 per cent of the 1973-birth-cohort had attempted assaults, abuse or neglect, which had lead to hospitalisation. Among the girls and boys 0.7 and 1.3 percent had attempted maltreatment, “battered child syndrome”, fight, brawl, rape and likewise, respectively.

### ***Family separation***

The present study utilizes the Danish Central Population Register (CPR) and includes information, which connects all children to their parents whether they are married or not. In the present study it was therefore decided to single out family separations involving children, because these families have a substantially different family-relationships whether the parents are actually married or cohabiting. The study includes all the Danish children born in 1973 (N=69,623), and includes information about all children who had experienced family separation between the years 1979 and 1991, or when they were six to eighteen years old (N=10,781). In this part of the study, it must therefore be kept in mind, that the families are studied for the period when children are six to eighteen years old during a time with a relative high and growing unemployment in Denmark.

### ***Teenage motherhood***

The objective of this part of the present survey is to investigate the likely causes of teenage fertility. There are almost always problems of methodology associated with investigations of social effects, but in this survey, attempts have been made to solve these problems by following the 1966 and the 1973-generation and their parents while the children were in the age group 15 to 19 years old. Analyses have been carried out using the total national birth cohorts consisting of these 41,362 and 33,919 girls, respectively, and their parents. The number of teenage mothers were N=1,182 and N=788, respectively, according to birth registers.

### ***Conviction of a violent crime***

The present part of the study includes all boys born in Denmark in 1966 (n=43,403) and goes on to consider those who have been convicted of a violent crime according to national criminal registers between the years 1981 and 1993, when the series were aged between 15 (the age of criminal responsibility in Denmark) and 27 years (N=1,936, that is 4.6 per cent of the birth cohort).

The Criminal Statistic Register provides the possibility to analyse the social background of the young persons convicted of violence. This category consists of a wide

range of criminal behaviour of various degrees of seriousness: Manslaughter, grievous bodily harm, violence, coercion and threats. This category does not include accidental manslaughter in combination with traffic accidents or rape, which belongs to the category of sexual offences.

Although there is much current attention upon immigrants, boys who were born outside Denmark were not included in the study as information about their adolescence and family background was considered likely to be inferior to that known of the native-born population. In so doing we have avoided the danger that the lack of relevant information about foreign workers and their children could have led to a spurious conclusion about influence of nationality or ethnicity.

### ***Conviction of rape***

The present study includes all boys born in 1966 in Denmark who have been committed of rape which has led to conviction according to national criminal registers between the years 1981 and 1993, when the adolescents and men were about 15-to-27 years old (N=96). All though much attention today is upon immigrants, boys who were born outside national borders were not included neither in the case group nor in the risk group, because information about their adolescence and family background may be too inferior specified in accessible registers.

### ***Suicide attempts***

Insufficient information from registers has prevented a nation-wide survey of suicides and somatic or psychiatric diseases (the Danish National Board of Health: Sundhedsstyrelsen, 1998). The present study is the first attempt to use registers in a nation-wide study of adult suicide attempters despite inherent errors attached to information in registers. In the present study weakness and uncertainties about the information included in registers has made it urgent to narrow down the definition of suicide attempts into a homogeneous definition.

Suicidal behaviour must conform to the following three conditions to be included in the present study. (1) Suicide attempts had led to hospitalisations, and (2) the physicians had diagnosed the trauma to be a self-mutilatory act. Moreover, (3) the trauma has also to be included in a specified list of traumas traditionally connected with suicide attempts (e.g. cutting in wrist (carpus), bullet wound, strangulation, poisoning with pesticide or cleaning materials, poisoning by alcohol, carbon monoxide poisoning).

It is in the nature of things that it is difficult to differentiate between suicide attempts and accidents, caused by unconsciously hazardous ventures (drug addicts are excluded from the present analysis). Moreover, it should be kept in mind, that it is only a fraction of the self-characterized suicide attempts, which results in hospitalisation. The conservative limitation of suicide attempts made up a minimum of the most serious suicide attempts, which result in hospitalisation.

### ***Youth unemployment***

*Youth unemployment* is defined as first time unemployed, not graduated high-school examination, and no vocational training (N=6.022). Other Danish studies had drawn attention to these delimited part of youth unemployment when studying their subsequent achievements and behaviours. The prevalence was only 7 percent of the cohort of children born in 1966 who experienced delimited form of unemployment before their 27th birthday though this period national unemployment rate was rising from 8 to about 12 per cent.

## **Analysis**

The analysis considers whether those persons where there is evidence of parental alcohol abuse differ in terms of consequences compared to those persons where there is no evidence of parental alcohol abuse. This involves considering the family situations in the year(s) prior to the relevant outcome events. Multivariate logistic regression analysis was used on the basis of discrete-time proportional hazard modelling recommended for longitudinal cohort studies. The detail is discussed as Appendix A.

## **Results**

In outlining the results, the strategy is as follows. Firstly, the incidence of the independent variables among the parents of children in the two cohorts is set out; secondly, the incidence of the outcome variables relating to the actual members of the two cohorts. Finally, the relationship between the independent and outcome variables is probed.

### *Incidence*

Formerly, it has been assumed, that in Denmark approximately 100 children are born every year with a foetal alcohol syndrome, while the annual birth rate in Denmark is approximately 60-70,000 births. The present study of the 1966-generation shows that the problem may be significant larger. The number of hospitalisations following an alcohol-related illness, where the parents were observed over a period of 15 years, and the children were between 14 and 27 years of age, showed, that 1.7 per cent of the mothers had been hospitalised with an alcohol-related illness, whereas the same was valid for 2.9 per cent of the fathers (table 3). In this connection it must be mentioned that the outset of the alcohol abuse cannot be established by use of used methodology.

### ***The parents' alcoholism is associated with other disadvantages***

As in other comparative studies the present study also showed a higher than normal occurrence of mental illness in persons who also had an alcohol related illness. Or put differently: People hospitalised for a mental illness often suffered from an alcohol related illness. This led to the conclusion that 40% of the mothers who were hospitalised for an alcohol related illness were also admitted to a psychiatric hospital department in the period 1979 – 1993. For the fathers the number was 33% (Christoffersen 1999 b).

In general a range of mental illnesses among alcoholics was seen, which was many times higher than that found in the general population. However, proving the relation between cause and effect, if such a relation exists, may be very complicated. It is possible that alcohol abuse stems from a patient suffering from a mental illness who tries to alleviate their illness with the aid of the alcohol. One of the reasons why an increased risk of alcohol related illness is often found in psychiatric patients is the angst reducing effect of the alcohol. Another possibility is that the patient's illness is exacerbated by the alcohol's damaging effect on the central nervous system etc. Therefore it is not surprising to find an especially increased risk of attempted suicide among those fathers and mothers who are alcoholics (Velleman & Orford 1990).

**Table 3.**  
**The presence of impact conditions in fathers and mothers who are active on the labour market, with or without professional training or without labour. Children born in 1966 followed until 1993. Shares stated in percentages.**

	Professional training	No training	Prematurely retired	All
The father has received a sentence	3.0	4.8	7.1	3.9
The mother has received a sentence	0.4	0.6	1.1	0.5
The father was convicted of a sexual offence	0.2	0.4	1.1	0.3
The mother was convicted of a sexual offence *)	0.0	0.0	0.0	0.0
The father was convicted of violence	0.8	1.4	2.8	1.2
The mother was convicted of violence	0.1	0.2	0.5	0.1
The mother was a victim of violence (distributed according to mothers)	0.2	0.6	1.7	0.4
The child was a victim of violence, neglect <sup>1)</sup>	0.5	0.9	1.4	0.7
The father is a drug addict	0.1	0.1	1.0	0.1
The mother is a drug addict	0.1	0.2	1.4	0.2
<b>The father is an alcoholic</b>	<b>1.9</b>	<b>3.0</b>	<b>13.3</b>	<b>2.9</b>
<b>The mother is an alcoholic</b>	<b>1.0</b>	<b>1.9</b>	<b>6.3</b>	<b>1.7</b>
The father has committed suicide	0.5	0.7	1.0	0.6
The mother has committed suicide	0.3	0.4	0.8	0.4
The father has attempted suicide	0.6	1.0	3.9	0.9
The mother has attempted suicide	1.1	1.9	6.0	1.7
One or several of the above (according to mothers' employment status)	8.7	13.3	21.2	11.2
One or several of the above (according to fathers' employment status)	8.6	13.3	24.9	11.2

Note: Total number of children (percentage based): 84,765. 1) Hospitalised following exposure to violence or social reasons. Distribution according to mothers gives the same distribution as when fathers are used as criteria.

\*) Apart from this one the others are all significantly different ( $P < 0.001$ ).

### ***Alcoholic parents' suicidal behaviour***

Since suicidal behaviour varies much between stages of family cycles, the present part of the study is narrowed into the group of parents with teenage adolescents, including all Danish parents with children born in 1966 or 1973. The study includes all parents who have made a suicide attempt, which has led to hospitalisation while their children were teenagers. The controls (years at risk) were constructed by the total cohort who didn't attempt suicide during the current period. Statistics for each individual cover psychiatric health aspects, alcohol abuse, criminality, education, family violence, family separation and unemployment. The study analyses in what way the family situation prior to parents' suicide attempt differs from the controls (Christoffersen, 2000 d).

Fathers in both birth cohorts more often commit suicide than mothers, while mothers more often attempt suicide than fathers do, but while the situation seems to stabilize for mothers the trends seems to worsen for fathers between the two birth cohorts in focus.

These differences between fathers and mothers are analysed in the mentioned paper (Christoffersen, 2000 d).

The paper suggests that parental alcohol abuse, parental unemployment and family separation are the pivotal factors which may elevate the risk for a suicide attempt. The paper suggests that damage of the social network (e.g. unemployment, family separation, domestic violence) may deteriorate the self-esteem and cause suicidal behaviour. The reduction of the mothers' alcohol abuse and the improvement of mother's vocational training may count for the reduced number of suicide attempts among the mothers, while the worsening unemployment is the only separate factor which could explain fathers' elevated level of suicide attempts. The odds ratio for fathers committing a suicide attempt were about 21 if the father had been admitted to a hospital because of an alcohol related disease, while odds ratio for alcoholic mothers were about 16 (Christoffersen, 2000 d).

The present study shows that parental alcoholism, besides being related to the increased risk of their suicide, was also closely related to parental violence, crime and limitations in the social network such as long-term unemployment, family dissolution and their mental illnesses, and self-destructive behaviour (Christoffersen, 1999 b).

When, in the following, it is attempted to analyse the impact caused by the parents' alcoholism it was necessary, as far as possible, to isolate alcoholism from the other impacts, including the parents' mental illness.

### ***Children of parents with alcoholism***

The present study showed that a range of impacts influenced the adult life of children: Parents' abuses (hospitalisation due to alcohol related illnesses, drug abuse) and other forms of self-destructive behaviour (attempted suicides and committed suicides). Different forms of violence within the family, resulting in hospitalisation, convictions of violent or sex related crimes or other types of crime resulting in imprisonment also had an influence.

These impacts are extremely rare when seen individually (Table 3). This is also true when seen as they are in this study, over a period of 15 years. However, when seen as a whole, almost one out of ten children born in 1966 experienced at least one of the mentioned impacts in one of their parents. For the children born in 1973, almost one in eight experienced one of the mentioned impacts within the examined period. However, this cannot be taken as a sign of a worsening situation, but only that certain impacts, cannot be immediately observed within the corresponding age limits (6 to 20 or 13 to 27, respectively).

Some children do, however, have a significantly higher risk of being exposed to one or more of the mentioned impacts. It is shown, that children whose parents had no professional education or who had parents who received an early pension, before the child reached the age of 18 years, had a significantly higher risk of exposure than other children. Alcoholism among the parents was also distributed according to the same pattern.

If the mother through her professional education had a close relation to the labour market, it was then one in twelve children who encountered one or more of the mentioned intense impacts. However, if the mother had received an early pension based on social or health related grounds, it was one in every five children who had encountered one of the mentioned impacts within the family. In these families 6.3 percent of the children had a mother with alcohol abuse while this was only the case among 1.0 percent of children whose mothers had a professional training.

An almost similar result was had when dividing the children into groups with the criteria relating to the father's work-related conditions. The study showed that almost every fourth child, where the father was prematurely pensioned, had encountered one of the mentioned intense impacts at a point in their childhood. Among prematurely pensioned fathers 13.3 percent of the children had a father with alcohol abuse.

These social differences in the distribution of the impacts in the group of children are systematically seen as a significant pattern throughout all observed impacts, analysed individually for both mothers and fathers, with one exception. On this background it is not surprising that the mentioned intensive impacts occurred with different frequencies for the children divided into groups according to the parents' professional position. A similar report can be seen for all children born in 1973. Children, whose mother or father held a middle or top management position, had an expected lower risk of being exposed to the intense impacts compared to children whose parents were outside the labour force.

The results of the investigation give rise to new questions, namely how these social differences in the children's growing-up conditions have evolved and been maintained. It is one of the purposes of this study to display whether the social differences behind the impacts explain the possibilities for the children's way of life when they have left home to live on their own.

### ***Premature death***

The mortality among adolescents still forms a social predictor of social difference during their development. In a current study of children born in 1966 who were monitored between the ages of 14 to 27 years, a number of conditions related to the development were analysed on the suspicion that they created serious impacts (N=671). The study initially showed that none of the children whose parents had traditional forms of psychological illnesses (schizophrenia, other psychoses, neuroses or personality disturbances) had a measurable increased mortality rate (Table 4). Nevertheless, the father's neurotic ailments were found to be connected to a higher mortality rate for the children. The mother's suicide attempts provide a statistical security risk for the children, as does the parents' criminality. If the father had been convicted, and especially if the mother had been convicted, an increased mortality rate could be observed for the children, and if the mother or the children had been exposed to violence (neglect) an increased mortality rate could also be determined among the children.

But it was particularly the parents' abuse related problems (drug addiction, alcoholism) that showed an increased risk that the children would have a premature death. Children of alcoholic fathers had odds ratio 2.0 while children of alcoholic mothers had an odds ratio of 2.3 of dying before the age of 27 years old. Taking other risk factors into consideration only the father's alcoholism seems to be associated with an increased risk of premature death (Odds ratio: 1.4) and only about 1 percent of the premature death could be attributed to paternal alcoholism (Christoffersen, 1999 b).

**Table 4.**  
**Parental alcohol abuse as a risk factor for different disadvantages in childhood. Children born in 1966 and 1973.**

	Single risk factors one by one:				Stepwise model:		
	No. of cases	P % among controls	Odds ratio	95% limits	Odds Ratio	95% limits	AF %
<b>Premature death (N=671) children born in 1966:</b>							
Father alcohol abuse	34	2.56	2.0	1.4-2.9	1.4	1.0-2.0	1.0
Mother alcohol abuse	24	1.62	2.3	1.5-3.4			
<b>Abuse and neglect (N=582) children born 1973:</b>							
Father alcohol abuse	36	2.65	2.4	1.7-3.4			
Mother alcohol abuse	27	1.34	3.7	2.5-5.4	1.6	1.1-2.4	0.8
<b>Children in residential care (N=3,514) children born in 1973:</b>							
Father alcohol abuse	301	2.33	3.9	3.5-4.4	1.5	1.3-1.8	1.2
Mother alcohol abuse	246	0.99	7.6	6.5-8.8	3.1	2.5-3.7	2.0
<b>Family dissolution (N=10,781) children born in 1973:</b>							
Father alcohol abuse	607	1.11	5.2	4.7-5.6	2.8	2.5-3.1	2.0
Mother alcohol abuse	286	0.58	4.6	4.1-5.2	2.1	1.9-2.5	0.6

### ***Abuse and neglect***

The study explore the assumption that parental unemployment is a disadvantage in children's living conditions which may be a risk factor for abuse and neglect. This study included all the Danish children born in 1973 who had been hospitalised due to abuse or neglect between the years 1979 and 1991, when the children or adolescents were about 6 to 18 years old (N=582). The controls (years at risk) were constructed by the total birth cohort who weren't exposed to abuse or neglect provoking admission to a hospital during the current period (Christoffersen, 2000 a).

The study analyses in what way the family situation prior to the abuse or neglect differs from the controls. The data were analysed by means of logistic regression to isolate the potential influence from parental alcohol abuse.

The results show that abuse or neglect of children and adolescents are seen more often in families suffering from the following disadvantages: 1) father's neurotic disorder (neurotic anxiety, depression, unspecified neuroses); 2) diminishing social networks (family break-up, and children's placement outside the home); 3) violence in the family and parental criminality; 4) parental lack of vocational training, and mother's long-term unemployment; 5) mother's alcohol or drug abuse. Boys suffered from exactly the same disadvantages in their families as the girls did, but boys were more exposed to abuse and neglect than girls.

Estimation shows that odds ratio for abuse and neglect is 1.3 if the mother was unemployed at least 21 weeks the previous year, while odds ratio of children with alcoholic mothers were 1.6 – also standardised for other risk factors. Less than 1 percent of hospitalised abuse and neglect could be attributed to maternal alcoholism. Unemployment and alcoholism are only two of several damaging factors that may degrade and humiliate parents and therefore strain parents' behaviour towards their children (Christoffersen, 2000 a).

### ***Children in residential care***

Not surprisingly the study showed that parental alcoholism often led to the child being taken into residential care. In cases where the parents were hospitalised due to psychosis, neurotic illness and personality disturbances, the children had often been taken into residential care. However, this was not necessarily a trigger factor, if no other impacts were present. Only if the father suffered from neurotic illness or if the mother had personality disturbances were the psychic illnesses themselves the trigger factor prior to the child's or the adolescent's relocation.

In general it must be concluded that the reactions of the child or the adolescent to the parents' mental illnesses very much depended on the presence of sufficient resources within the home to enable proper care of the child or adolescent. In cases where the parent's mental illness, possibly in conjunction with other impacts (family disbandment, abuse and violence), led to the child's relocation an increased risk of all the examined forms of reactions was seen, i.e. mortality, hospitalisation due to mental illnesses, convictions of violence, drug addiction, suicide attempts and sexual offences. About 5 to 6 percent of the 1973 birth cohort was in residential care for a shorter or longer period during their adolescence according to information in registers (N=3.514). Families with alcoholic mothers had a significant higher risk of children being in residential care. Odds ratio were 1.5 if the father was an alcoholic while odds ratio were 3.1 if the mother had alcohol addiction – also when accounted for other risk factors. About 2.0 percent of the children in residential care could be attributed to mothers' alcohol abuse while only 1.2 percent could be attributed to father's alcoholism, according to calculated attributable fractions (Christoffersen, 1999 b).

**Table 5.**  
**Parental alcohol abuse as a risk factor for different reactions of adolescents. Children born in 1966 and 1973.**

	Single risk factors one by one:				Stepwise model:		
	No. of cases	P % among controls	Odds ratio	95% limits	Odds Ratio	95% limits	AF %
<b>Adolescent's drug addiction (N=172)</b>							
<b>children born in 1966:</b>							
Father alcohol abuse	13	2.56	3.1	1.8-5.5			
Mother alcohol abuse	15	1.62	5.8	3.4-9.9			
<b>Teenage childbearing (N=1,182) girls born 1966:</b>							
Father alcohol abuse	52	2.09	1.6	1.2-2.1			
Mother alcohol abuse	56	1.71	3.1	2.3-4.0	1.6	1.2-2.1	1.0
<b>Teenage childbearing (N=788) girls born 1973:</b>							
Father alcohol abuse	55	2.74	2.8	2.1-3.7			
Mother alcohol abuse	31	1.15	3.2	2.2-4.6			
<b>Convicted of a violent crime (N=1,936) boys born in 1966:</b>							
Father alcohol abuse	113	2.96	2.1	1.7-2.6			
Mother alcohol abuse	77	1.49	2.5	2.0-3.0	1.4	1.1-1.7	0.6
<b>Convicted for rape (N=96) boys born in 1966:</b>							
Father alcohol abuse	7	2.98	2.6	1.2-5.5			
Mother alcohol abuse	5	1.50	3.6	1.5-8.9			
<b>Hospitalised for mental illness (N=544) children born in 1966:</b>							
Father alcohol abuse	28	2.54	2.1	1.4-3.0			
Mother alcohol abuse	28	1.62	3.3	2.3-4.8			
<b>Suicide attempts (N=867) children born in 1966:</b>							
Father alcohol abuse	36	2.56	1.7	1.2-2.3			
Mother alcohol abuse	35	1.62	2.6	1.8-3.6			
<b>Youth un employment (N=6,022) children born in 1966:</b>							
Father alcohol abuse	190	1.92	1.4	1.2-1.6	1.2	1.1-1.4	0.4
Mother alcohol abuse	106	1.29	1.4	1.2-1.7	1.2	1.0-1.5	0.3

Note

### ***Family dissolution***

The situation in the family preceding a family separation was also studied in order to identify risk factors for family dissolution (Christoffersen, 2001). Information in registers covering prospective statistics about health aspects, demographic variables, family violence, self-destructive behaviour, unemployment, and the spousal income ratio was analysed using a discrete-time Cox-model (N=10.781) which is described in Appendix A.

Results indicate that mental disorder, substance abuse, and self-destructive and violent behaviour, increase the risk of family separations. However these high risk factors are not widespread and therefore only contribute to a few separations. Unemployment, teenage-motherhood, cohabiting, or having 4 or more children represents a minor increased risk but nevertheless a more widespread risk and, consequently, contributes to several of the family separations. Separation rates are significantly higher in metropolitan area than elsewhere. About 36 per cent of the family separations can be explained by these risk factors, when standardised for other risk factors. The odds ratio of family dissolution among families with alcoholic fathers were 2.8 while these odds ratio in families with alcoholic mothers were 2.1 – also standardised for other risk factors, but because alcoholism were widespread among the fathers more divorces could be attributed to paternal alcoholism (A.F. 2.0) than maternal alcoholism (A.F. 0.6).

### ***Adolescent's drug addiction***

Results from a study of why a person develops a drug addiction show, that it is not due to only one factor but due to a cluster of different concurrent causes that in particular relate to serious impacts and poor development conditions (table 5). Physical and sexual violence, social isolation and school related problems are among those mentioned. Additionally, domestic conflicts, problems related to abuses, influence of friends and the availability of drugs are mentioned (WHO, 1992; Mehlbye, 1999).

The present Danish sequential study of long-term effects (N=172) found that the children's development of drug addiction could partially be explained by a relatively frequent occurrence of alcoholism among the parents. However, it is particularly the mother's alcoholism that is the determining factor of, whether the children will later develop an addiction to drugs – also when an adjustment has been made for other impacting conditions as, for example, the parents' psychological illnesses, violence in the family and the child's displacement. Both inherited and environmental factors can play a role in the children's later development of a drug addiction (Christoffersen, 1999 b).

The alcohol abuse of the parents that led to hospitalisation also increased the risk of addiction for their children. Children of drug abusing parents were also at a higher risk of becoming abusers themselves. This was especially true in cases where the father was a drug abuser or if the mother was an alcoholic, and also, if the mother was hospitalised due to a stomach ulcer or other infection in the gastro-enteric area. These are conditions likely to be caused by an abuse of alcohol. Odds ratio of children becoming drug abusers were 3.1 if the father were alcoholic, while the odds were 5.8 if the mother were addicted to alcohol.

It can therefore be concluded that a intergenerational transmission exists, as children of drug or alcohol abusing parents had a higher risk themselves of becoming abusers. It must also be concluded that other impacts exist which may have increased the risk of adolescents becoming drug abusers (Christoffersen, 1999 b).

### ***Teenage pregnancies***

In the present study, the family background of girls or women who become teenage-mothers are studied on the basis of the birth cohort of girls born in 1966 and 1973 followed until their 20th birthday (N=1.182 and N=788, respectively). Risk factors, which are collected prospectively on the basis of linked registers, include health, early motherhood, education, income, social networks, family violence, parental self-destructive behaviour (attempted suicide, parental alcohol/drug abuse), and parental unemployment. The same stressors were found for the 1966-birth cohort as for the 1973-birth cohort. I) parents' substance abuse II) parents' crime and violence in the family III) diminishing family network (Christoffersen, 2000 b). The mothers' alcohol abuse elevated the odds ratio of teenage childbearing to 1.6 – standardised for other risk factors, while fathers alcohol addiction did not increase the odds when other risk factors were taken into account. Only 1 percent of the teenage pregnancies could be attributed to maternal alcoholism according to the model (table 5).

### ***Young assailants***

Why do some boys develop into troublesome youth who eventually get sentenced for a violent crime? In planning a strategy to fight violent crime it would be useful to know if altering the conditions of children's upbringing and the ways we treat children generally could contribute to a reduction in the incidence of violent behaviour that leads to convictions among adolescents and young men.

The study comprised 1,936 boys born in 1966, equalling 45 per thousand of the children born that year (Christoffersen, Francis and Soothill, 2002). These boys were all convicted of violence in the period 1979 – 1993, i.e. between the ages of 15 – 27 years old. The boys of 1973 have not been included. Girls are, in general, less violent, and the number of convicted girls born in 1966 (160) does not provide valid material for further investigation.

The risk of developing violent behaviour in the children was higher, if the parents suffered from certain mental disorders (the father's psychoses). Furthermore an increased risk was seen where the parents had been hospitalised with personality disturbances, e.g. psychosis, and certain other neurotic disorders.

First time convicted offenders tend to be characterized by unstable education and employment records (e.g. not graduating, no vocational training), occasional work, or long-term unemployment. Lack of vocational training, unemployment and a history of casual labouring are among the factors that may degrade and humiliate adolescents and therefore put an extra stress on vulnerable boys; in turn, these factors may provide a basis for an increased risk of violent behaviour and convictions.

The mother's abuse appeared to be the decisive factor for the boys' later violent behaviour, resulting in conviction. Odds for conviction were 1.4 if the mother had been admitted to a hospital because of an alcoholic disease. Despite the fact that alcoholism was more widespread among the fathers, the consequences seem to be more severe if the mother were alcoholic. The father's alcoholism did not increase the risks if other risk factors were taken into considerations (Christoffersen, Francis and Soothill, 2002).

### ***Adolescents convicted for sexual offences***

The study explores three competing assumptions: A) Violence in the family and a brutalizing childhood may be a significant characteristic of rapists. B) The most significant characteristics of rape offenders is their remote chances on marriage market. They are most

unlikely to be chosen by women because of their unstable employment potentials. C) Rape offenders' psychiatric disorder separates them from the rest of their contemporaries. The recommended steps to combat rape depend on which of these assumptions that will be corroborate by experiences.

This present study included all the Danish boys born in 1966 (N=43.403). Among these adolescents or men, 2 per thousand had been convicted for rape due to Crime statistics-registers between the years 1981 and 1993, when the adolescents or men were about 15-to-27 years old (N=96). The controls (years at risk) were constructed by the total birth cohort who weren't convicted for rape during the current period.

The study analyses in what way the family situation prior to rape offence differs from the controls. The case-cohort data were analysed by means of logistic regression to isolate the potential influence from disadvantage in families and the young men's present employment, education, and vocational training.

It may be concluded that a large number of convicted rapists seems to be characterized by their unstable relation to employment (no vocational training), occasional work, long term unemployment. Their employment and educational situation taken into account most of other characteristics vanish. Primary psychiatric disorder or convictions for violence may count for only very few of the rape offenders, though associations between psychiatric disorder and violence are significant, these risk factors are rare compared to disadvantaged employment. Disproportionately many of the offenders had been in care during childhood or adolescence.

The mother's alcoholism forms an additionally increased impact that seems to increase the risk of the boys' committing sexual offences in the future. The statistical correlations with the parents' mental illness (neurotic illness, psychosis and personality disturbances) lost their strength of impact when other impacts were taken into consideration, e.g. the parents' alcoholism and violent behaviour, the child being taken into care and their lack of professional training and employment. Fathers' alcoholism increased the risks to odds ratio 2.6, while mothers' alcoholism gave an odds ratio of 3.6, but when other risk factors were taken into considerations, the effects of mothers' alcoholism was not significant (Christoffersen, 2000 c).

#### ***Adolescents' hospitalisation for mental illness***

Regarding children's hospitalisation for mental illness (N=544) clear connections with the parents' mental illness could be expected as several incidences proved the important role played by the biologically inherited conditions in this matter. The environment within the family was also expected to play an important role. A higher than normal occurrence was found of hospitalisation in psychiatric sections of children whose parents suffered from neurotic illness, personality disturbances and in cases where the mother suffered from psychosis. However, their number and statistical correlations were not strong when other impacts, such as parental suicide attempts and parental violence and alcoholism, were included. All though the fathers' alcoholism were more widespread the odds ratio were 2.1 while mothers' alcoholism gave an odds ratio 3.3, but the parental alcoholism were not significant when other risk factors were take into account (Christoffersen, 1999 b).

#### ***Adolescents' suicide attempts***

The study explore the assumption that disadvantage in children's living conditions may be a risk factor for later suicide attempts in adolescence.

This study includes all the Danish children born in 1966 who have made a suicide attempt which has led to hospitalisation between the years 1979 and 1993, when the adolescents were about 13 to 27 years old (N=867). The controls (years at risk) were constructed by years the total cohort the years they didn't attempt suicide during the current period (Christoffersen, 1999 a).

Statistics cover several health aspects, education, social networks, family violence, parental self-destructive behaviour. The study analyses in what way the family situation prior to the adolescents' suicide attempt differs from the controls. The case-cohort data were analysed by means of logistic regression.

The highest risk factor was seen among adolescents who had been admitted to a hospital for psychiatric disorder (Odds ratio: 7.4 standardized for other risk factors). The results show that suicide attempts among the adolescents are seen more often in families suffering from the following disadvantages: 1) parental neurotic problems; 2) diminishing social networks (parental unemployment, family break-up, and especially children's placement outside the home); 3) violence in the family and parental criminality; 4) parents suicidal behaviour; 5) parental abuse and especially the mother's alcohol abuse or drug-addiction. Odds ratio: 1.7 for fathers' alcohol abuse and 2.6 for mothers' alcoholism, but the parental alcoholism were not significant when other risk factors were taken into account (Christoffersen, 1999 a).

The paper suggests that one of several damaging factors may be degrading and humiliating behaviour towards children that might intrude the personal integrity and dignity. If this damage to the self-esteem is done by parents, peer group or significant others, the suicidal behaviour of the dependent adolescents may be the one of more possible outcomes. Since teenagers or adolescents, who have been treated for psychiatric illness, are most at risk this group may be in focus when measures for prevention of suicide are discussed.

### ***Youth unemployment***

The subject of this draft is the transformation from youth to adulthood. Who will get an education? Who will be unemployed? Will the disadvantaged children have an increased risk of being unemployed and having no vocational training compared to their contemporaries?

These questions are also illuminated in the longitudinal study of all the Danish children born in 1966 (N=84.765) and followed in a 15 years period (1979-93) until their 27th birthday. Here information is gathered prospectively by means of linking the 15 population registers, too. A number of risk factors are included in order to illuminate parental alcohol abuse together with other disadvantages during childhood and adolescence: parental resources (education, employment). Teenage parenthood, parental unemployment, parental sickness e.g. mental illness, violence, parental crime, parental self-destructive behaviour (suicide behaviour), family dissolution, and children in care may indicate lack of parental resources, while information about adolescence lack of resources are indicated by the child's psychiatric illness, criminal records, and teenage pregnancy.

The study analyses in what way the family situation the year(s) prior to youth unemployment differ from controls e.g. years at risk for the total birth cohort who at the same age were having school education, job training, or being employed. Likewise, multivariate logistic regression analysis is made on the basis of the discrete-time proportional hazard modelling of a cohort longitudinal study-cohort (N=6.022).

Results show that parental lack of resources (no vocational training, unemployment, family dissolution, teenage motherhood, and children in custody) make use of statistical predictors of their adolescents' early failure in the labour market. In addition, these effects remained significant after controlling for other risk factors. While parental psychiatric illness or suicidal behaviour had no significant influence on their adolescents' risks of youth unemployment, the parental alcohol abuse seemed to handicap their children. The odds ratio for children of alcoholic fathers was 1.2, while odds ratio for children of alcoholic mothers also was 1.2 – standardized for other risk factors.

## **Conclusion**

The delimitation of alcohol abuse causes problems if only because there are no objective measures of alcoholism (Knop, 1989; 1991; 1998). Of pragmatic reasons the present study is based on hospitals admission and include only a few diseases of which long-term alcohol abuse is an obviously cause. About 2.9 percent of the children have a father applicable to the chosen definition of alcohol abuse, while 1.7 percent of the children have a mother who likewise lives up to the definitions. About 4 percent of the 1966-birth cohort had had at least one alcoholic parent but since the definition is conservative, this can only be a calculated minimum of the total number.

Alcoholism is unequally distributed in the population according to well-known patterns, and consequently families with alcoholism will have many other difficulties to contend with (e.g. unemployment, no vocational training, prematurely retirement, mental illness, suicidal behaviour, sentenced, family dissolution, domestic violence). In order to disentangle consequences of alcoholism from these disadvantages, a large number of cases are needed and that is the reason why it was chosen to obtain information from registers covering the total birth cohort of children born in 1966 and 1973.

With regard to *short-term disadvantages* in childhood (e.g. premature death, abuse and neglect, being in residential care, and family dissolution) a significant higher risk was found in families with alcoholic parents than other families. Odds ratios were more than 2 this means that the risk of the mentioned disadvantages was two times higher (or more) for children with an alcoholic mother or an alcoholic father. Mothers' alcohol abuse seemed to form a constituent part of children's disadvantages, thus the risks for children's premature death, abuse and neglect, or being in residential care significantly increased to a higher level if the mother abused alcohol than if father abused alcohol. Only in cases of family dissolution the alcohol abuse among fathers seemed to constitute a better predictive factor than maternal alcohol abuse.

The adolescents' *long-term reactions* (e.g. drug addiction, teenage childbearing, conviction of a violent crime, conviction of rape, hospitalisation of a mental illness, and suicide attempts) were more severe if the family contend with maternal alcohol abuse than if the problem were alcohol abuse among the fathers. An explanation could be that if the father was abusing alcohol and the mother was a person who functions well, she could make up a buffer, but if the mother was abusing alcohol, the father was not able to constitute a sufficient bulwark against the unpredictable and degrading behaviour against the children.

When other confounding factors, usually associated with parental alcohol abuse, were incorporated into the model, the correlations between parental alcohol abuse and the long-term consequences seemed to fade away. Adolescents' drug addiction, teenage childbearing for girls in the 1973 cohort, convictions for rape, suicide attempts, and adolescents' hospitalisation for mental illness did not reveal any association to parental

alcohol abuse. These results corroborate the assumption, that the short-term consequences of parental alcohol are stronger than the long-term consequences.

## **Discussion**

One of our theoretical assumptions is that children are dependent on their parents' emotional state. Even young children must try to establish a system or a framework within which the parents' emotions may be foreseen and understood. This is true for both the expressed and the suppressed emotions. The children evolve as specialists in decoding the emotional climate within their own family. In this interplay the child's perception of the parents is an important part of building its own identity.

It is the assumption of this study that a lack of sensitivity of parents, who form the identity network of the child, can lead to the child developing personality disturbances, psychological and somatic illnesses and self-destructive behaviour. Lack of recognition, ignoring the child's remarks and lack of involvement from adults with whom the child identifies, can be destructive for the child's self-confidence and vitality.

It is our assumption, that among adolescents lack of self-esteem and self-destructive behaviour can be related to them having been exposed to different forms of humiliating and abusive treatment. This could occur with an especially high frequency in families with alcoholism or other impacts such as long-term unemployment.

However, alcoholism is only one of many impacts influencing parental ability. The parents' alcoholism was therefore part of the analyses, in which it competed with many other impacts such as the parents' psychological illness, unemployment, criminality, self-destructive behaviour etc.

Resent studies emphasize that a sharp distinction must be made between short-term and long-term consequences of parental alcohol abuse. The intergenerational transmission of adversities may very well be impeded by emotionally supported relationships later on in life: sources of self-esteem, satisfaction, and accomplishment, for example support from spouse or significant others (Velleman & Orford, 1999). A Danish study of children in residential care repeat that gain of self-esteem can be associated with having a supportive spouse even for children who had experienced considerable adversities during childhood (Christoffersen, 1996).

Nevertheless, an increased risk can be determined of the children of alcoholics later in their adult life developing a similar dependency. Earlier studies of alcoholism conclude, that sons of alcoholic fathers possess a 3 to 4 times higher risk of developing alcoholism in their adulthood, and this risk seems to be partially independent of influence from the environment. This gives rise to a number of questions: is it the alcoholism in itself that is inherited, or is it specific personality features that in combination with impacting life conditions lead to the development of alcoholism? Or can the impacting conditions that follow the abuse themselves form fertile ground for the children's later dependency (Broholm, 1999).

Some studies support a theory that there are two forms of alcoholism, where one is attached to an alcohol abuse and the other has an inherited component, resulting in a dependency (Broholm, 1999).

The present study was not supposed to single out the environmental consequences from the genetic consequences. Even when using relevant methods to highlight heredity conditions, the results may show that *only some of the cases* may be explained by the heredity conditions. For example, studies of identical twins show that if only one of the

twins develop schizophrenia, only half of the other twins will also develop the illness. According to Lublin (1998) this shows that factors other than the genetic factors must be involved. Environmental conditions may also explain differences in the extent of the symptoms. The definition of the heredity conditions will often be based on statistical methods, and *that is why the heredity conditions may also be regarded as non-determinable*. In spite of very clear indices of heredity conditions it should not be disregarded that the illness may be cured and prevented (Kallmann, 1946; Lublin, 1998). What remains to be determined is the environmental factors that can be manipulated to achieve this.

The present study was designed neither with the purpose of clarifying these very difficult conditions, nor to differ between biological heredity conditions and environmental risk factors. In accordance with a long tradition within the field, the heredity impacting conditions will first be regarded as potential risk conditions together with environmental impacts.

### ***Appendix A: Statistical analyse methods***

The statistical method used in the present study is recommended by statisticians Allison (1982) and demographers as Hoem and Hoem (1992) to analyse event histories. The applied regression-analysis described by Hosmer and Lemeshow (1989), and Breslow and Day (1980, 1987). Breslow (1992) describes this discrete-time Cox modelling of a longitudinal study and the demographers Arjas and Kangas (1992) have demonstrated the use of this discrete-time method in demographic longitudinal studies of event histories according to Allison (1982).

The available event history data contains information on events that fell within a calendar year during 1979 until 1991. These discrete time unit is calendar year, so, the time intervals are very large, which exclude the use of continuous-time methods, since more than one individual experiences an event in the same time interval. The problem will, therefore, be covered by discrete-time methods, which allows us to estimate parameters in the model by treating each individual history as a set of independent observations. We can benefit from earlier findings where it has been shown that the Maximum Likelihood estimator can be obtained by treating all the time units for all individuals as though they were independent (Allison 1982).

Individuals' event history is broken up into a set of discrete time units in which an event either did or did not occur. Each individual is observed until time  $t$ , at which point an event occurs or the observation is censored either because of emigration, death, or the individual is lost for observation for other reasons. Consequently, families were excluded from the case group and controls after the first event, or if the child had died, or the child in question had emigrated. Pooling the non-censored years of all individuals the controls made up the number of person-years, while the number of events was only the first-time occurrences.

A most popular choice is the logistic regression function which is readily understood and methodologically unsophisticated according to Paul D. Allison (1982). In the notation for the model it is assumed that time take only positive integers values ( $t=1,2,3,\dots$ ) and we examine  $n$  independent individuals ( $i=1,2,3,\dots,n$ ) while the observed explanatory variables  $x_{it}$  may take on different values at different discrete times.  $P_{it}$  expresses the conditional probability that an event occurs at time  $t$ , given that it has not already occurred.  $\alpha_t$  is a set of constants for each calendar year.

This logistic regression function specify how the hazard rate depends on time and the explanatory variables can be written in logit form:

$$\log \frac{P_{it}}{1 - P_{it}} = \alpha_t + \beta x_{it}$$

The study analyses in what way the family situation, prior to the occurrence differs from the controls. The cohort data were analyzed by means of logistic regression to isolate the potential influence from exposed risk factors, beta-coefficients. The model is based on the proportional hazards model, so called, because they assume that the ratio of the hazards rates for any two individuals at any point in time is a constant over time.

A dummy variable for each year under observation is created in order to estimate the parameters (alpha). Since all individuals in the cohort are born in the same year, this

constant also includes information on age and therefore estimation of beta-parameters is taken age into account.

The log-likelihood function  $L$  of the data may thus be written as,

$$\log L = \sum_{i=1}^n \sum_{j=1}^{t_i} y_{it} \log \left\{ \frac{P_{ij}}{1 - P_{ij}} \right\} + \sum_{i=1}^n \sum_{j=1}^{t_i} \log(1 - P_{ij})$$

while  $y_{it}$  is a dummy variable equal to 1 if a person experiences the event at time  $t$ , otherwise zero, according to Allison (1982). Maximum Likelihood estimators for the regression models are then calculated on the basis of pooling all the time units over all individuals. Controls were constituted by person-years under risk for the event in focus within the chosen period.

The purpose of the present analysis is to identify relevant risk factors and describe both the strength of different risk factors, which could be represented by the estimates of the beta-parameters, or the odds ratio, which is more easily understood. The odds ratio is the fraction between the odds for the event if exposed to a risk factor and the odds, if non-exposure. The interpretation of the odds ratio is approximately the relative risk, for rare risk factors. In order to estimate the uncertainty of the estimated odds ratios, the 95%-limits are also calculated. In case of rare incidents or colinearity, the numerical problems will eventually manifest itself by extraordinary large estimated standard errors (Hosmer and Lemeshow 1989), and therefore consequently by extraordinary large range between the 95%-limits of estimated odds ratio.

The over all exposure of risk factors among children and adolescents is named (P). In order to evaluate the risk-factors contribution to the number of children experiencing an event (outcome), attributable fractions (A.F.) are calculated for each risk factor in the final model according to Greenland (1998). The attributable fractions (A.F.) are seen as the reduction in incidence that would be achieved if the population had been entirely unexposed, compared with the current exposure pattern.

In the literature it has been recommended to use general population samples as control-group, because it gives a good standard of reference and the possibility of generalizing the results (Breslow and Day 1980). Only few studies have followed national randomised samples or total birth cohorts because of costs of production, as a rule. Generally, it is also difficult to obtain data based on prospective data-information as is the case with the present study, which is following the period 1979 to 1993. By following the risk factors prior to the adolescents' experience of the event in focus, this method offers better opportunities than other survey methods to judge the consequences.

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### ***Acknowledgements***

We thank The Danish National Board of Health, The Danish National Council of Social Research, Egmont Foundation, Health Insurance Found, and the Ministry of Social Affairs for generous research support and Gerda Engholm, Center for Research in Health & Social Statistics, The Danish National Research Foundation for her assistance and detailed comments of the use of the statistical models. I thank professor Keith Soothill for his helpful and thorough comments on earlier versions of the paper.

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