



**UNIKLINIK  
KÖLN**

Institut für  
Gesundheitsökonomie und  
Klinische Epidemiologie

# Children Affected by Parental Alcohol Problems (ChAPAPs)

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## Economic impact

Anna Marie Passon, Anna Drabik, Markus Lungen

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# 1 Introduction

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Several recent studies dealt with the economic impact of alcohol consumption. A European analysis estimated that total costs of alcohol consumption account for 1.3% of GDP in European Union (WHO, 2005a). Costs of alcohol consumption include direct and indirect costs as for example costs for hospitalization and costs for productivity loss. However, even though cost estimations due to alcohol consumption are increasingly extensive, costs due to alcohol that evolve from adverse affects on family members are not taken into account so far.

It is known that children affected by parental alcohol problems (ChAPAPs) develop several diseases and behaviors that might be cost-relevant in comparison to non-ChAPAPs. This includes e.g. physical damages, developmental disorders, depressions, educational disadvantages and fear. To estimate the full amount of economical damage that is due to alcohol consumption, costs that are due to negative outcome in family members should be kept in mind.

## Work Package 7

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The Institute of Health Economics and Clinical Epidemiology Cologne was commissioned to identify cost aspects that should be taken into account when analyzing costs associated to alcohol consumption. We include direct and indirect costs caused by the alcohol-consuming person on the one hand and direct and indirect costs caused by relatives on the other hand. This analysis is part of the European Commission funded Project "*Reducing Harm and Building Capacities for Children Affected by Parental Alcohol Problems*".

In the first part of the analysis, we give an overview of the types of costs that are relevant for cost studies regarding alcohol consumption and of the methodology of cost of illness analyses. As an example for an extensive evaluation of costs caused by alcohol consumption, we chose alcohol associated costs of delinquency.

## 2 Type of costs

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### 2.1 Direct, indirect, tangible and intangible costs

Costs caused by alcohol consumption consist of much more than costs for medical attendance. Costs also occur in form of a loss of market productivity, higher delinquency, road traffic accidents and family disruptions. Treatment and prevention of alcohol consumption have a share in total costs of alcohol consumption as well. Considering health care, health insurance, law enforcement, public order and the workplace total costs of alcohol consumption account for 1.3% of GDP in European Union (WHO, 2005a). Beside these costs, values for loss of live years, pain and suffering can be taken into account as costs of alcohol consumption.

**Table 2-1: Classification of costs related to alcohol consumption**

	Tangible costs	Intangible costs
<b>Direct costs</b>	<ul style="list-style-type: none"><li>• Costs for treatment of diseases</li><li>• Rehabilitation</li><li>• Damage to property</li><li>• Public authorities</li></ul>	Direct but intangible costs do not exist
<b>Indirect costs</b>	<ul style="list-style-type: none"><li>• Absenteeism from work</li><li>• Premature mortality</li><li>• Unemployment</li><li>• Invalidity pension</li><li>• Loss of efficiency</li></ul>	<ul style="list-style-type: none"><li>• Crime victims' suffering</li><li>• Loss of social prestige</li><li>• Fear</li><li>• Loss of healthy life years</li></ul>

As can be seen in Table 2-1, regarding costs of alcohol consumption, we can distinguish direct and indirect costs. Direct costs are costs, which occur because of the direct usage of resources for treatment and rehabilitation. They denote the money, which was spent by and for the alcohol abusing person for goods and services in health sector. Direct costs include for example personnel costs for medical practitioners, pharmaceuticals, hospital beds, rent and administration in hospital, as well as costs for police operations, property loss and vandalism. Beside direct costs for diseases, alcohol determines indirect costs. They include the value for goods and

services, which cannot be produced because of alcohol abuse. Indirect costs include the loss of output as consequence of absenteeism from work, premature mortality and invalidity pension, as well as the loss of quality of life. The indirect costs can also be characterized as social costs as done in Klingemann (2001) and Anderson et al (2006). Another necessary differentiation of costs is the classification into tangible and intangible costs. Tangible costs are costs, which can be quantified, as for example health care costs, costs of crime and productivity loss. Intangible costs are costs as psychosocial and behavioral effects for drinkers and their dependents and loss of healthy life, for which monetary estimations can be conducted, but no direct costs can be observed. Table 2-1 gives an overview and examples of direct and not disease related costs and of tangible and intangible costs.

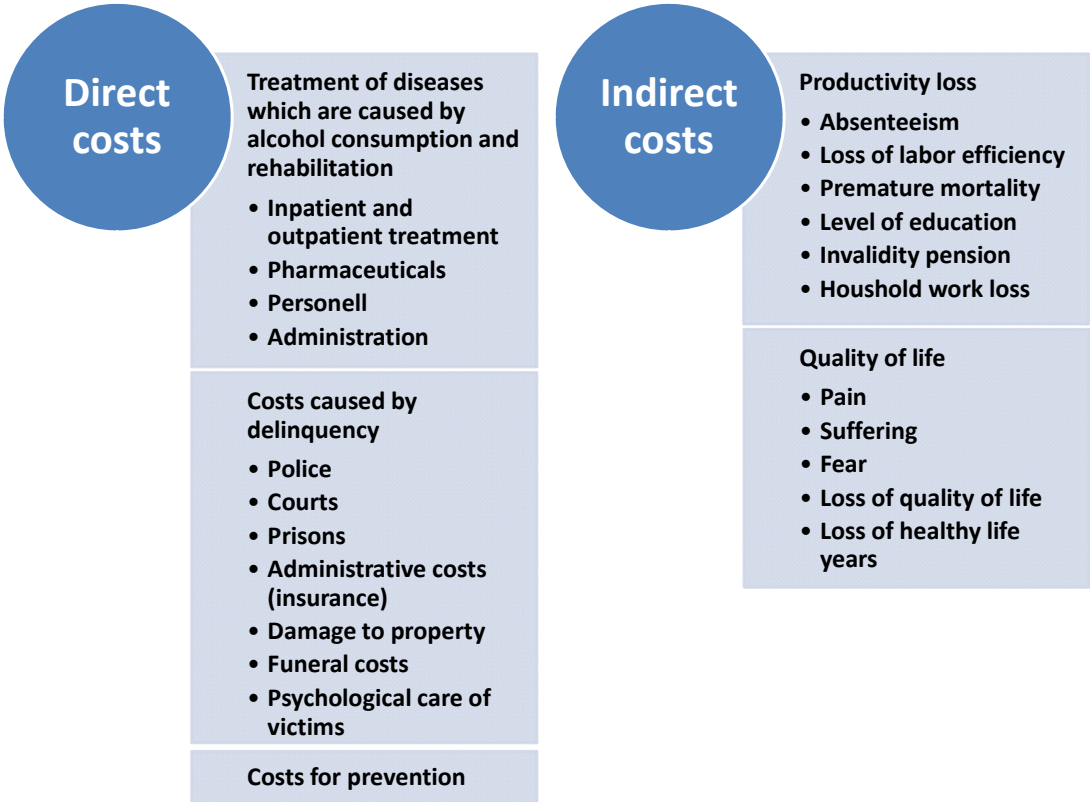
### 3 Costs of alcohol consumption with special regards to family members

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#### 3.1 Costs of alcohol consumption

Anderson et al (2006) estimate the total tangible costs of alcohol to be 125 billion Euros in European Union, which corresponds to 1.3% of GDP. This fourfold outbalances tax revenues in the European Region. Intangible costs were estimated to reach 152 to 764 billion Euros a year. Figure 3-1 describes several dimensions of costs caused by alcohol consumption, which can be attributed directly to the alcohol-consuming people.

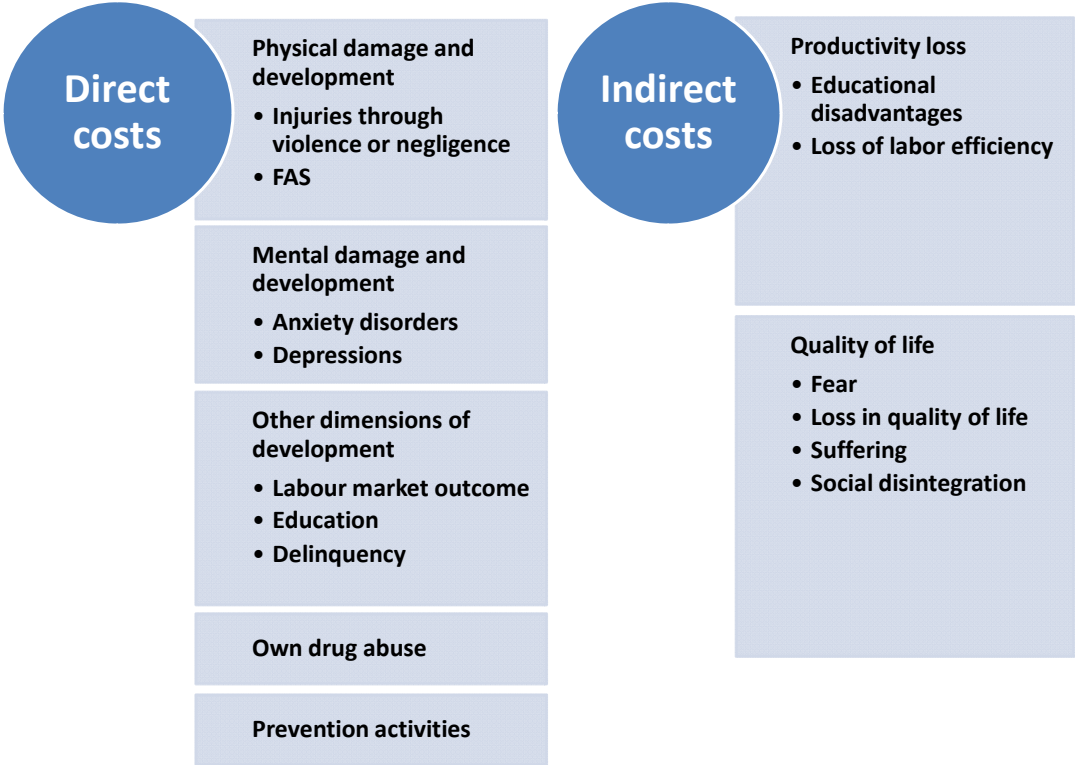
Figure 3-1: Dimensions of costs caused by alcohol consumption



### 3.2 Costs evolve from adverse effects on family members

There are many papers dealing with medical, social and other economical costs, which are triggered by alcohol consumption. The characteristics shown in Figure 3-1 are mostly used to compute costs of alcohol consumption. One part, however, is often underrepresented. Those are the costs, which arise by the reason of psychological strain and physiological stress for family members. Since family members of people with an alcohol dependence have increased likelihood to become addicted themselves, all former parameters named in Figure 3-1 play a role in heightened costs for family members of dependent persons in comparison to family members of non-dependent persons. Additionally to these costs, further costs can be assumed which are mapped in Figure 3-2.

**Figure 3-2: Dimensions of costs caused by family members of people with alcohol dependence**



There are very few articles dealing with costs caused by family members of people with alcohol dependence. One of these articles compares medical costs caused by family members of people with alcohol or drug dependence (AODD) with medical

costs caused by family members of people with diabetes and asthma as well as family members of non-AODD in Northern California (Ray et al, 2009). The comparison with family members of people with diabetes and asthma was chosen because of the characteristics of alcohol dependence as a chronic disease. For the study AODD people and family members were matched to people with diabetes, asthma or non-AODD people and their family members. The matching included following parameters: age (in five years steps), gender, year of inclusion into the study, membership status (subscriber, spouse or dependent), and medical costs in the year before the inclusion into the study. The estimation of costs for family members was restricted to the year before and the two years after the inclusion into the study. Costs for services were obtained from the Cost Management Information System, an automated system that integrates hospital, emergency department, out-patient visit, laboratory, and radiology databases. After adjusting for all covariables, significant higher total health care costs could be observed for family members of people with AODD than for family members of people with diabetes or asthma on a 95% confidence interval. Overall medical costs for family members of people with AODD were 293 US\$ larger in the first year after inclusion into the study and 283 US\$ larger in the second year. AODD family members had significantly higher total health care costs per person than diabetes family members in each of the 2 year following the inclusion into the study (217 US\$ in the first year and 293 US\$ in the second year) year and significantly higher costs in comparison to asthma family members as well (107 US\$ in the first year and 296 US\$ in the second year).

A study from Woodside et al (1993) analyzed admission rates and total health care costs of children of alcohol dependent parents in US. The study compared inpatient hospital utilization rates for children of alcoholics (COAs) and non-COAs. According to Woodside the hospital admission of COAs in comparison to non-COAs was 24.3% greater. The number of hospital days of COAs outreached those of non-COAs by 61.7%. This results in an increased average length of stay of 1.7 days for COAs. Due to the higher hospitalization rate and the longer average length of stay, COAs cause greater costs than non-COAs of about 36% on average. Studies from Nixon et al (1997) and the Children of alcoholic foundation (1988) achieved similar results. Inpatient admission rates for substance abuse were observed to be triple that of other children and Inpatient admission rates for mental disorders were almost double that of other children. Additionally, injuries were obtained to be more than one and one-half times greater than those of other children. According to the Children of alcoholic foundation (1988) this ends up in 32% greater costs for children of alcoholics compared to children of non-alcoholic families.



## 4 Methodology of estimating costs of alcohol abuse

The most common way to compute costs caused by alcohol consumption is the cost of illness approach. This method includes all kind of costs: direct, indirect, tangible and intangible. The concept behind COI is the concept of opportunity costs, which is used in economics. Opportunity costs are costs, which occur because resources which are used for a defined action, illness etc cannot be used for something else.

### 4.1 Alcohol attributable fractions

Alcohol-attributable fractions (AAF) indicate the proportion of deaths or diseases traceable directly to alcohol consumption. This method was used in a study with the aim to estimate the direct and indirect costs of morbidity and mortality attributable to alcohol consumption in Germany (Konnopka et al, 2007) and in a study with the aim to estimate health costs of alcohol related problems in France (Reynaud et al, 2001). The method is traced back to Bernard et al (1987) and was used for studies outside Europe as well (e.g. Xie et al, 1998). F1 denotes the calculation formula for AAF.

$$AAF = \frac{P_0 + P_1 \times RR_1 + P_2 \times RR_2 + P_3 \times RR_3 - 1}{P_0 + P_1 \times RR_1 + P_2 \times RR_2 + P_3 \times RR_3} \quad F 1$$

The prevalence of alcohol consumption is denoted as P. The prevalence is observed for different prevalence groups. In F1, we used 4 prevalence groups. 0 Denotes abstainers, thus, the prevalence of alcohol consumption is 0. 1 stands for low risk which is mostly defined as consumption of up to 40 grams pure alcohol a day for men and 20 grams for women. Risky alcohol consumption is denoted by 2 which refer to 40-60 grams pure alcohol a day for men and 20-40 grams for women. 3 represents dangerous alcohol consumption which is defined by more than 601 grams alcohol a day for men and more than 40 grams alcohol a day for women (Rehm et al, 2003). With regard to a comparison of different countries, a differentiation of consumption classes becomes more important because great varieties are conceivable among the consumption classes whereas the accumulated prevalence is similar.

R signifies the relative risk incurred by an alcohol abuser to contract the disease in comparison to a non-abuser. The relative risk differs depending on whether low, middle or high consumption classes are regarded. The relative risk to develop a

disease because of alcohol consumption depends on how much alcohol is consumed. This again makes a differentiation into consumption classes reasonable.

Alcohol attributable fractions can also be considered in case of non-medical costs as delinquency, productivity loss and quality of life.

## **4.2 Cost factors**

There is a broad range of cost factors, which influences costs caused by alcohol consumption. These costs are composed of costs caused by labour utilization for health personnel, medical devices, other determinants of inpatient and outpatient treatment (administration, rent etc), rehabilitation, pharmaceutical products; costs for police, courts and prisons; labour costs of absent employees and other causes of productivity loss and costs for loss of quality of life. Additionally, different concepts can be used. In case of productivity loss we can for instance use wages, values of goods and services or production costs as measures of costs and there are different views on if productivity loss shall be measured over lifetime or should be limited with respect to time, because labour force will presumably be replaced. To complicate matters further, not only dimensions of costs are huge, but costs may also differ widely among countries such that an international comparison of costs is subject to big difficulties and cause of errors.

One major reason for the underrepresentation of associated costs of alcohol consumption, which are not related to only the consumer, is the challenge to estimate social costs. Physical harm done by alcohol consumption, costs through mental disorders and even costs caused by delinquency and productivity loss are more or less quantifiable, measureable and clearly assignable to alcohol consumption. Thus, it is known that alcohol consumption influences motorically skills and many falls and crashes can verifiably be traced back to alcohol consumption. Few social accompaniments of alcohol consumption can be quantified. Although there is evidence that alcohol consumption has influence on the development of mental disorders, own drug abuse, social disintegration and educational disadvantages in children affected by parental alcohol problems, other ChAPAPs develop resiliences. Thus, alcohol consumption is not sufficient to explain negative outcomes.

## 5 Example: Delinquency

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Direct disease-related or injury-related costs can rather easily be computed with the help of the former described Cost of Illness approach. Physical harm done by alcohol consumption with the consequence of hospitalization includes for example alcohol intoxication, gastrointestinal disorders, immunodeficiency, pulmonary disease, reproduction disorders, liver disease, epileptic seizure, pancreatitis, cardiac and circulatory troubles, cancer, Wernicke's encephalopathy, Korsakoff's syndrome and injuries. With the cost of illness method and alcohol attributable fractions, we can measure direct costs quite precisely and can estimate indirect and intangible costs. But this might not be enough to estimate the hospitalization costs due to alcohol. Indirect hospitalization of spouses, children and victims of violence should be taken into account as well. Thus, Woodside et al (1993) analyzed hospitalisation rates of COAs and non-COAs. In COAs, 9.48% of all inpatient admissions were caused to mental disorders whereas in non-COAs only 6.3% of all inpatient admissions were caused to mental disorders. Thus, admission for mental disorders is 1.5 fold greater for COAs. Woodside found out that the biggest part of mental illnesses of COAs were due to adjustment reactions or depressions. In contrast, non-COA's mental illnesses were predominantly caused by neurotic or personality disorders.

This example delivers insight in the complexity of a broad cost accounting that includes family members. To show the multitude of parameters that we need to include in order to compute an extensive charging of costs, we chose the case of costs caused by crime under the influence of alcohol.

### 5.1 Costs caused by crime under the influence of alcohol

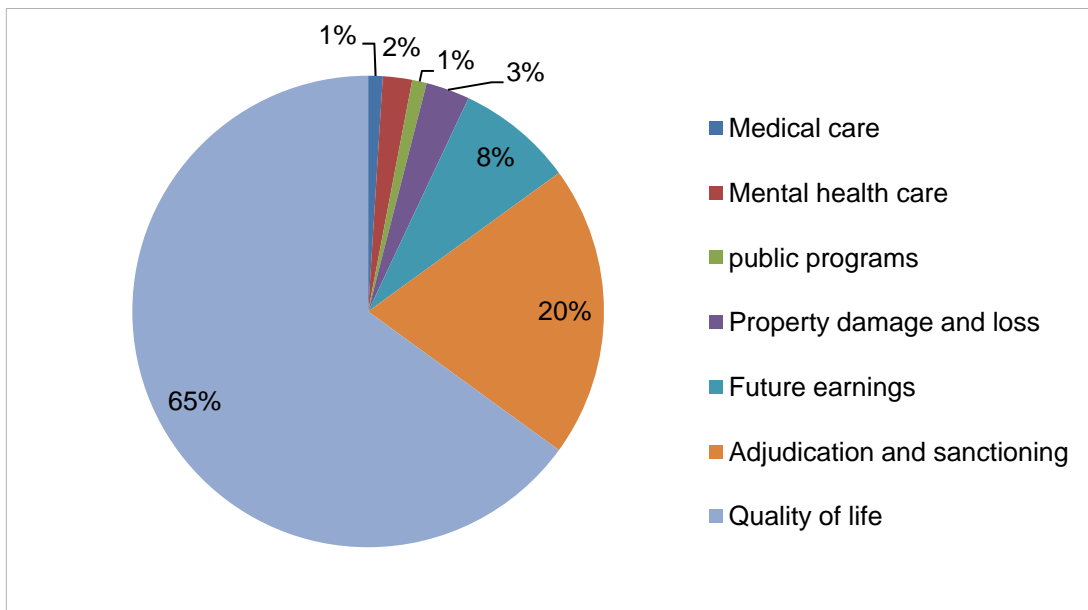
A lot of violent and property crimes involve alcohol. The heightened risk for violent behavior under the influence of alcohol was proven by several studies (e.g. Lipsey et al, 1996). Following parameters have to be regarded for an estimation of costs of alcohol involved violence:

**Table 5-1: Direct and indirect costs caused by crime under the influence of alcohol**

Direct costs	Indirect costs
<ul style="list-style-type: none"> <li>• Property loss</li> <li>• Vandalism</li> <li>• Medical care</li> <li>• Psychological care</li> <li>• Police and other public services</li> <li>• Adjudication (e.g. prison costs)</li> <li>• Sanctioning</li> <li>• Compensating the victim</li> <li>• Funeral expenses</li> <li>• Processing and administration costs</li> </ul>	<ul style="list-style-type: none"> <li>• Pain</li> <li>• Suffering</li> <li>• Fear</li> <li>• Loss in quality of life</li> <li>• Absenteeism from work for both, victim and delinquent and further productivity loss</li> <li>• Household work loss</li> </ul>

Furthermore, it has to be taken into account that a share of alcohol-involved crimes is not attributable to alcohol but would have occurred absent alcohol consumption. A Scottish study divides the types of crime into serious assaults (homicide, attempted murder), rape and attempted rape and minor assaults for which 40% are estimated to be done under the influence of alcohol. For all other recorded crime, it is assumed that alcohol is involved in around 25% of offences (ASD Health, 2008). Taken these both estimates together, 27% of recorded crime is done under the influence of alcohol. For England, 50% of all crime is estimated to be done under the influence of alcohol (Centre for Crime and Justice Studies, 2004). Additionally, there are crimes or offences, which by nature have a share of 100% of offenders, which are under the influence of alcohol. Drunkenness and drunk driving fall into this category. A study from Miller et al (2006) estimate the share of alcohol involved crime attributable to alcohol consumption to be almost 60% in US. Interestingly, Miller also accounts for intangible costs. According to Miller the costs of alcohol and drug-involved crime for the US reached 205 billion US\$ in 1999. With regard on the sources of costs, pain, suffering and loss of quality of life are declared the largest components of costs with an overall amount of 65% of all costs. Figure 5-1 shows the proportions of costs of alcohol and drug involved crime as computed by Miller (2006). With regard to the kind of crime, the highest share of costs is caused by violent crimes as rape, robbery, assault and murder with 85% of total costs (Miller, 2006).

**Figure 5-1: Percent of total costs of alcohol and drug involved crimes in US**



Source: Miller et al (2006).

Medical care costs include payments for hospital and physician care and emergency medical transport as well as rehabilitations, prescriptions, allied health services. Medical devices, and associated insurance claims processing costs. For murder victims coroner services and funeral expenses are included.

Mental health services include costs for psychiatrists and psychologists, social workers, pastoral counselors, and the associated insurance claims processing costs.

Property damage and lost includes the costs of property taken and property damage and not recovered, plus administrative costs of property insurance claims.

Public services include police, victim services child protective services, foster care for maltreated children removed from their homes, special education for maltreated children and reintegration services.

Future earnings include wages, fringe benefits, and housework lost by victims and their families as well as life insurance by workers' compensation claims processing costs.

Quality of life is computed placing a dollar value on pain, suffering and lost of quality of life.

In European Union, tangible costs of crime under the influence of alcohol consumption were estimated by Anderson et al (2006) to add up to 33 billion Euros in 2003, which is equivalent to more than 26% of all tangible costs of alcohol consumption. Crime cost is split between police, courts and prisons (15 billion Euros), crime prevention expenditure and insurance administration (12 billion Euros), as well as property damage (6 billion Euros). The intangible costs of crime due to alcohol consumption are estimated between 9 and 37 billion Euros.

## **5.2 Delinquency costs caused by ChAPAPs**

There is additionally evidence, that children growing up with an alcohol dependent parent have a higher likelihood to become delinquent themselves. Barnow et al

(2004) for example tested the relation of the presence of a positive family history of alcoholism (FH+), obstetric complications (Ocs), and negative parenting practices to aggression/ delinquency and attention problems in an untreated population sample of 154 adolescents in Pomerania. They evaluated the predictive strength of a FH+, Ocs and negative parenting styles in a prospective subsample of 127 adolescents using a hierarchical regression analysis. Results of this analysis show that rejection by the parents was significantly more often reported by teenagers with higher measures on aggression/ delinquency and on attention problems. Another study from Grekin et al (2005) examined the relationship between parental alcohol use disorders and child violent and nonviolent delinquency. Grekin found out that paternal alcohol use disorders predicted child violent and nonviolent delinquency. A study from Schonfeld et al (2005) evaluated moral maturity and delinquency in 27 participants with prenatal alcohol exposure (ALC group) and 29 no exposed controls (CON group) matched on age (range: 10-18), gender, handedness, socioeconomic status and ethnicity. Moral maturity was evaluated using the Sociomoral Reflection Measure-Short Form, and delinquency was evaluated with the Conduct Disorder (CD) Questionnaire. Schonfeld could find out that a deficit on the moral value judgment having to do with relationships with others was specific to prenatal alcohol exposure and that delinquency was higher in the ALC group.

Some of the explanation of increased delinquent behavior of ChAPAPs and adult children of alcoholics may be explained by a higher share of own alcohol consumption. However, it can also be assumed that a share of the heightened delinquency can be explained by negative family outcome without own drug abuse of the affected child. The dimension of raised delinquency in children of alcoholics is not considered in studies on costs of alcohol and drug involved crime. Therefore, it can be assumed that existing studies on costs caused by crime done under the influence of alcohol or which are related to alcohol consumption are underestimated. Thus, the total costs of alcohol involved crime (CA) comprise direct costs ( $DCA_{NC}$ ) caused by the delinquent under the influence of alcohol, indirect costs (ICA) caused by delinquents under the influence of alcohol, and direct and indirect costs of delinquency caused by ChAPAPs who are not under the influence of alcohol ( $DCN_C$ ,  $ICN_C$ ) since costs due to ChAPAPs who are under the influence of alcohol are already included in  $DCA_{NC}$  and  $ICA_{NC}$ .

$$CA = DCA_{NC} + ICA_{NC} + DCN_C + ICN_C \quad F2$$

The share of costs caused by ChAPAPs is composed of the costs caused by crime under the influence of alcohol, since ChAPAPs have a higher probability to drink alcohol, and the costs caused by a higher probability of delinquency as a result of negative family outcome. Therefore, following information is needed to indicate the costs of crime, which is done by ChAPAPs.

The total costs (TC) of delinquency can be split up in costs caused by delinquency under the influence of alcohol (CA) and costs caused by delinquency not associated to alcohol (CN).

$$TC = CA + CN \quad F3$$

The costs caused by delinquency under the influence of alcohol (CA) can again be split up into a share of costs due to delinquency by alcoholized person who are not ChAPAPs ( $CA_{nC}$ ) and a share of costs due to delinquency by alcoholized person who are ChAPAPs ( $CA_C$ ). The costs caused by delinquency not associated to alcohol (CN) can likewise be split up into a share of costs due to delinquency by non-alcoholized persons who are not ChAPAPs ( $CN_{nC}$ ) and a share of costs due to delinquency by non-alcoholized person who are ChAPAPs ( $CN_C$ ).

$$TC = CA_{nC} + CA_C + CN_{nC} + CN_C \quad F4$$

We are interested in the costs of delinquency caused by ChAPAPs only (CC).

$$CC = CA_C + CN_C \quad F5$$

Firstly, we analyze the parameters  $CA_C$  and  $CN_C$  separately.

### Costs due to delinquency by alcoholized person who are ChAPAPs ( $CA_C$ ):

$$CA_C = \frac{CA \times SA_C \times 100}{100} \quad F6$$

With  
 $CA = 100\%$   
 $CA_C = (SA_C \cdot 100)\%$

Under the assumption that the cost share of delinquency done under the influence of alcohol (CA) is known, we need the share of delinquency under the influence of alcohol that is done by ChAPAPs ( $SA_C$ ).

### Costs due to delinquency by non- alcoholized person who are ChAPAPs ( $CN_C$ ):

$$CN_C = \frac{CN \times SN_C \times 100}{100} \quad F7$$

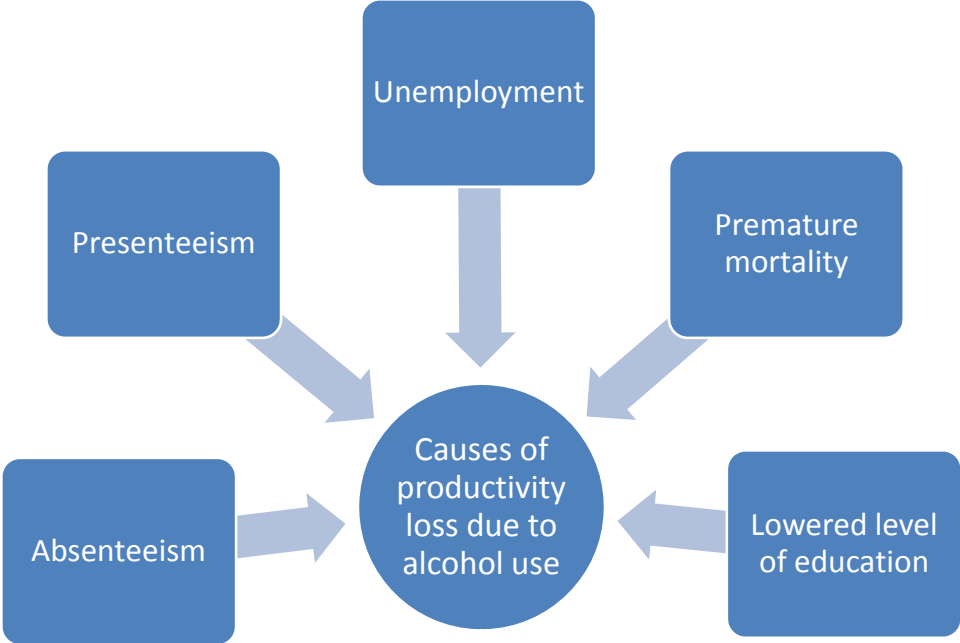
With  
 $CN = 100\%$   
 $CN_C = (SN_C \cdot 100)\%$

## 5.3 Productivity loss

A big share of indirect costs of alcohol use is due to loss of productivity. Productivity loss means that production is beneath the production possibility frontier, which denotes the amount of products that efficiently can be produced by having a certain amount of work force and other resources. If the work force cannot be employed as it could be in a world without alcohol, productivity losses occur. There are four reasons why work force may be limited due to alcohol, which are shown in Figure 5-2:



**Figure 5-2: Reasons for limited work force due to alcohol**



**5.3.1 Absenteeism**

Absenteeism from work as a result of psychological or physical sickness can be triggered by alcohol consumption. A 2003 UK study estimated that 6 to 15% of 176 million lost working days due to sickness in 2001 in UK could be attributed to alcohol related illness (Cabinet Office, 2003). This sums up to costs of alcohol related absenteeism of 1.6billion £. In Anderson et al (2006) costs caused by absenteeism of work were put at 9 billion Euros in 2003 in European Union. This number is subject to restrictions, because it excludes the opportunity of transfer of work from the absent employee to another employee.

Absenteeism can also be proven in ChAPAPs. Balsa (2008) examined the National Longitudinal Survey of Health and could find out that ChAPAPs are significantly more weeks out of labor force than non-ChAPAPs (7.41 weeks, 4.89 weeks respectively for men, 12.55 weeks, and 11.58 weeks respectively for women).

### 5.3.2 Presenteeism

Presenteeism describes a lowered productivity due to a bad constitution. Alcohol use can for example result in hangover, which causes tiredness, limpness, headache and muscle pain, nausea, vomiting, dizziness, lowered concentration and depressive moods. All these symptoms lower the productive efficiency.

### 5.3.3 Unemployment

The relation of alcohol abuse and unemployment is ambiguous. No study could provide evidence that alcohol abuse leads to unemployment (Gumus, 2006). It is rather common practice to show that unemployed people tend to drink more often than employed people, thus the interdependency is shown the other way around. Anyway, it is difficult to state the direction of the interdependency, thus we cannot definitely say if people tend to drink more because of unemployment or if people get unemployed because of alcohol consumption.

Apart from the difficulties in specifying the direction of interdependencies of alcohol use and unemployment, Christoffersen et al (2003) estimated for ChAPAPs that the adjusted odds ratio for youth unemployment of ChAPAPs and non-ChAPAPs is 1.3. That means that the chance for ChAPAPs to suffer from youth unemployment is 1.3 times higher than for non-ChAPAPs. A higher unemployment in ChAPAPs may e.g. be caused by lower academic achievement or own drug abuse. Additionally, as is shown in Chapter 0, a lower educational achievement could be found in several studies about ChAPAPs. In case of situations vacant, which cannot be staffed with sufficient skilled labor force, lowered academic achievement of ChAPAPs may have an influence on a country's economical performance. This is the case because of a loss of output of goods and services, which could have been produced in case of employment.

Beyond that, it is important to bear in mind that unemployment has not only impact on a country's economical achievement because of reduced productivity. Unemployment also has impact on taxation and government expenditure, because unemployed people do not pay income tax and the government has to pay benefits.

### 5.3.4 Premature mortality

According to a study from Rehm et al (2006), alcohol consumption was responsible for 14.6% of all premature adult mortality in 8 European countries, 17.3% in men and 8.0% in women. Premature mortality again has consequences on market production and on home production since future possible working years fall away.

### 5.3.5 Lowered level of education

Several studies analyzing the long-term effects of parental alcohol abuse found a significant correlation of parental alcohol abuse and bad academic achievement of ChAPAPs (McGrath et al, 1999; Christoffersen et al 2003; Balsa, 2008). Reasons for a worse academic achievement of ChAPAPs can for example be a prenatal exposure to alcohol due to maternal alcohol consumption during pregnancy as could be shown in Sood (2001). Social factors which are a consequence of parental alcohol consumption may result in a worse academic performance, too, as e.g. a higher rate of delinquency (Grekin et al, 2005), a greater number of life stressors (Harter, 2000), insecure family relations (Harter, 2000), or own drug abuse (Chalder et al, 2006).

McGrath et al (1999) tested whether adolescent children of alcoholics (ACOAs) showed a poorer academic performance than did demographically matched controls. McGrath adjusted for parent education and examined whether relations between parental alcohol consumption and academic performance could be accounted to lower level of task orientation of ACOAs, heightened levels of environmental stress, lower levels of family organization and less parental involvement in school activities. 221 ACOAs and 196 demographically matched controls and their parents were included in the study. The results of the study show that school grades of ACOAs are averagely lower than of demographically matched non-ACOAs. Significant influence could particularly be found in the case of adolescent task achievement as a mediator for the relation between parental alcohol dependence and adolescent grades.

Consequences of lowered academic achievements can be decreased self-esteem and deviant behavior, which again can lead to antisocial behavior and substance use (McGrath et al, 1999). On the other hand, poor academic achievement also results in worse career opportunities and in the worst case in unemployment.

## 6 Resume

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Extensive cost analyses of alcohol consumption require a large data pool. This includes data about direct and indirect costs of physical and mental damage in the alcohol-consuming individual, costs of crime, costs of productivity loss and costs for loss in quality of life. These data alone demands for an accurate and elaborated data collection. An overarching coverage of all costs that are associated with alcohol consumption must include costs evolve from negative outcome in family members of the alcohol misusing individual.

However, many uncertainties about the real costs must be accepted when estimating the costs of alcohol consumption. How do we know about the real value of loss in quality of life? How can we realistically display the costs due to loss in productivity? What is the share of costs caused by relatives of alcohol-misusing individuals that really can be traced back to the family history of alcohol? According to these numerous uncertainties, costs estimations and country comparisons must be understood as approximations of the real costs that are due to alcohol misuse.

## 7 Literature

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