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The societal burden of alcohol misuse

***Literature review and cost of alcohol related hospitalisation
in Skåne, Sweden – 2003***

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Contents

Summary	3
1.0 Introduction	4
1.1 Aim	4
2.0 Economics and health	5
2.1 Cost of illness	5
2.2 Criticism against COI	7
3.0 Review	8
3.1 Presentation of studies	8
3.2 Methodological characteristics	10
3.3 Cost categories and results	17
3.4 Healthcare cost components	21
3.5 Discussion	23
4.0 Method	24
4.1 Data material	25
5.0 Cost presentation	26
5.1 Total costs	26
5.2 Costs per clinic	27
5.3 Costs per diagnosis	32
5.4 Costs per municipality	35
6.0 Discussion	37
6.1 Future research	38
References	40
Annexes	
1. Extended list of ICD-10 codes	42
2. Translations used for clinic names	43
3. Costs to psychiatric care, age and gender differentiated	44
4. Costs to somatic care, age and gender differentiated	46
5. Diagnosis costs, age and gender differentiated	54

Summary

This essay estimates the costs of hospitalisation to Region Skåne for fully attributable alcohol related diseases. A review of one older Swedish and six recent COI studies for societal costs of alcohol misuse are included. The review reaches the conclusion that comparability between studies has increased for recent years, much as a result of the establishing of international guidelines and a probable increased awareness of the importance of comparability.

The review also concludes that the comparability is by no means perfect and that increased effort is needed. For example need the included cost components, indirect cost methodology and discount rate move toward increased uniformity.

The estimation of hospitalisation costs fully attributable to alcohol totals to 78.4 millions Swedish kroner. A sensitivity analyse regarding the attributable fraction for acute pancreatitis would reduce the total results in the range of 10.6 to 13.9 millions, result in total costs around 66 millions.

The male proportion of both costs and number of patient cases are in general higher than the female counterpart, normally around 70% for men with patient cases being more dominated than costs. Women's treatments tend to be more costly than men's and median values in general tend to be lower than average, implying a few extreme high cost cases together with a majority of low cost cases

Costs are evenly divided between somatic and psychiatric care, but within these groups are most of the cost burden carried by a few clinics. The highest costs are found for mental and behavioural disorders due to alcohol abuse, especially dependency syndrome.

The cost to Region Skåne divided upon municipalities has characteristics similar to those mentioned above and highest absolute costs are found in larger urban areas. When measuring costs per capita the municipalities with highest costs are a mixture of larger and smaller urban areas. In the case of the lowest costs per capita are a probable relationship found, that small urban areas are necessary but not sufficient for having low per capita costs.

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1.0 Introduction

Alcohol misuse brings along a number of increased costs for society. Among other, alcohol misuse reduces productivity, increases costs for criminal justice systems and for medical care. The later because there are a number of diagnoses fully related to alcohol misuse, as well as diagnoses partial related to misuse.

There are much to gain if a society could measure these costs, for example the effects of different country specific policies could be compared and evaluated, directions could be given to where in society measures needs to be taken and these measures could be evaluated.

This essay should be considered as a beginning of a cost of illness (COI) study with a societal perspective of alcohol misuse. The long term aim is to present cost of the burden of alcohol misuse to society and to define what societal parts are most heavily burdened. This in order to be able to make effective interventions and also to be able to evaluate them.

1.1 Aim

The aim of this essay is to investigate the cost of hospitalisation fully related to alcohol misuse for the healthcare sector in the county Skåne, Sweden, in the year of 2003. In order to do so effectively, the essay also includes a review of relevant recent international studies.

Costs fully related to alcohol misuse means resource use in the healthcare sector resulting from diagnoses where alcohol is considered to be the sole cause of the disease. This is normally expressed as the “attributable fraction” of alcohol for a certain disease/phenomenon is 100%.

It already exists a large number of COI studies over alcohol and alcohol consumption, although only one in the case of Sweden. Despite this, there are a lot of reasons for producing an additional one. First, older COI studies have wide difference in methods used, making comparison difficult or even impossible. Second, since the effect of alcohol consumption can be expected to be influenced by institutional differences between countries, the results from other countries cannot be directly used in another country without extensive discussion.¹ Regarding this, argument can be made that there is a need for new COI study that follows international guidelines and breaks ground in new countries.

¹ Jarl & Gerdtham 2004; WHO 2000

2.0 Economics and health

A considerable part of health economics is evaluation of health care programs. This is done in order to make comparisons between different health care measures possible. Economical evaluations can, for example, help decide which one of different treatments for a certain disease should be used, normally that is the one the most effective related to the cost.

There are four main forms of evaluations; cost-minimisation analysis, cost-effectiveness analysis, cost-utility analysis and cost-benefit analysis.² Which analysis to use, above all, depends on the question addressed. In a cost-effectiveness analysis comparison are made between treatments within a specific disease, the effects could, among other, be measured in a form of an index, life years saved or disease free time. The cost-minimisation analysis is very similar to the cost-effectiveness analysis with the difference that the outcomes of treatments are assumed to be the same. The cost-utility analysis is used in comparison between different diseases, where the effect normally is measured in quality-adjusted life-years (QALYs). The cost-benefit analysis expresses the outcome in monetary terms and makes comparisons between different societal sectors possible, for example investments in health care versus investment in road safety.³

2.1 Cost of illness

Cost of illness studies are not economical evaluations. Instead these studies estimate the burden of diseases/phenomena on society or its parts. The major difference between a COI study and an economic evaluation is that in the former case no specific interventions are dealt with, hence no outcomes are included. In short, COI studies can be said to measure the inputs without measuring the outputs. Therefore cannot a COI study, in it self, guide where resources should be invested in order to gain most societal benefit when regarding health. COI studies should rather be viewed as a foundation for further economical evaluations, since outcomes of a treatment must be compared with an alternative treatment or a case where no measures are taken in order to be able to draw efficiency conclusions.⁴

The burden of disease/phenomenon is normally divided in three different costs, direct-, indirect- and intangible costs. Direct costs are costs related to the disease/phenomenon or its treatment while indirect costs, also termed productivity costs, are related to loss of production caused by the disease/phenomenon. Intangible costs are related to pain and suffering, the

² Drummond et al. 1997

³ Kobelt 2002

⁴ Kobelt 2002; Mänd 2004

reduction in quality of life because of the disease/phenomenon or treatment. This cost is often as large as it is difficult to measure and because of this difficulty it is not often included in COI studies.⁵

The costs could be analysed either on a prevalence basis or an incidence basis. In the former are costs estimated for a certain population for a given period of time. That is, prevalence based studies estimate present and future costs that is a result of diseases/phenomena or treatments that occur during the given period of time. Incidence based studies measure the lifetime cost of disease/phenomenon. Incidence based studies are more appropriate when measuring the effect of certain interventions whereas prevalence based studies are useful for planning and budget decisions. The drawback with incidence based studies is that they require a considerable knowledge and information about the disease/phenomenon in question and the costs that occur as a result thereof. This is a major problem, especially when dealing with societal phenomena, which often makes a prevalence based study the better choice.⁶

COI studies are performed either as top-down studies or as bottom-up studies, depending on the data material. A top-down study estimates costs for a given prevalence sample using statistical databases and/or registers while bottom-up studies measure costs from a patient sample and extrapolate this to the population. Both methods have certain problems, the former because not all costs for a certain disease/phenomenon normally can be found in such sources, the later because the patient sample needs to be unbiased and representative for the whole population.⁷

When measuring costs, the first step is to identify all resources that are used. The second step is to quantify these resources to be able to value them at their opportunity cost in the third step. Finally, costs not occurring in the same period of time need to be discounted. Step one, two and four are rather straight forward even though the magnitude of the discount value is important to discuss since its effect on the results often are considerable. The third step, evaluating the opportunity costs needs further discussion.

If market prices are available when evaluating, these are normally a good representation of the opportunity costs. This is not the case regarding, for example, healthcare in many countries where resources are not subject to market valuations. The solution to this depends on the material and the question posed. Normally the estimation of the costs will be more correct when using “micro costing”, that is applying unit costs to each and every different type of

⁵ Kobelt 2002

⁶ Kobelt 2002

⁷ Kobelt 2002

resource identified. This is often both difficult and expensive and should be weighted against the need for precision. “Macro costing” uses the aggregated measure of resource use to estimate costs, this could be said to be the opposite of “micro costing”.

Human capital-, willingness to pay- and frictioncost methods are most common when valuating indirect costs. These methods differ both in theory and in the results given, where willingness to pay normally yields the highest costs and frictioncost the lowest. Also when measuring intangible costs are different methods available, for example EQ-5D which is a questionnaire for quantifying the reduction of life quality.⁸

2.2 Criticism against COI

The criticism presented against COI can be divided into two different categories, (1) the problem of gaining reliable results and (2) how results are used even if they are reliable.⁹ The first form of criticism focuses on that COI studies not necessarily are comparable because of different methods applied. This is a most relevant criticism and steps have been taken to overcome this problem. For example have international guidelines been created and continuously updated in the area of substance abuse, in order to facilitate comparison.¹⁰ Related to the criticism of incomparability is the criticism that results of COI within the same area are wide and therefore without value for decision-making efforts. These two aspects are relatively easy to correct if care is being taken regarding the choice of materials, methods and definitions as well as good documentation of what is done and following international guidelines, where possible.¹¹

The second category of criticism addresses the fact that COI studies are not helpful when allocating resources, since it is not an economic evaluation. This is not the scope of a COI study but rather to describe how costs for a certain disease/phenomenon are distributed in society and serve as a benchmark for further research, normally economic evaluations. These are examples of some of the criticism expressed against the COI method, a full review would be beyond the scope of this text.¹² The COI method is recommended in international guidelines¹³ and is an effective method for its aims, if used properly.

⁸ Kobelt 2002

⁹ Mänd 2004

¹⁰ Single et al. 1995, 2001

¹¹ Jarl & Gerdtham 2004

¹² See ICAP 1999 for a more extensive review

¹³ Single et al. 1995, 2001

3.0 Review

This review of COI studies for societal cost of alcohol misuse will focus on methodological characteristics. Beginning with a presentation of the included studies it will then discuss methodological choices, cost categories and included cost components.

3.1 Presentation of studies

The study "The economic cost of alcohol and drug abuse in the United States – 1992"¹⁴ produced for the National Institute on Drug Abuse (NIDA) and National Institute on Alcohol Abuse and Alcoholism (NIAAA), USA, aims at investigating the costs of alcohol and drug abuse in USA in 1992. The report also aims at remaining conservative in their estimations unless otherwise is well founded in research. The study has a societal perspective, meaning that costs burdening the society are estimated. The concept of society includes individuals as well as organisations and governmental institutions. A societal perspective should not be mistaken for a perspective that measures the costs burdening the government (normally third-party-payer perspective). In the end of the report, the estimated societal cost are divided upon different part of the society, among others the government, private insurances and victims of crime. This is not, however, a third-party-payer perspective.

Only the estimations regarding costs of alcohol abuse will be dealt with in this essay, although the methodological methods are the same for both alcohol and drug abuse.

Roar Gjelsvik performs primary a data investigation in "Utredning av de samfunnsmessige kostnadene relatert til alkohol"¹⁵ but societal costs are estimated when and were data are available in the case of Norway. The year of study is 2000-2001 and it takes its starting-point in the English report "Alcohol misuse: how much does it cost"¹⁶ resulting in similarities both in methods and figures used. This study has, as already mentioned, a societal perspective.

Johnson estimates the total societal cost of alcohol consumption in Sweden in 1981 in "50 miljarder kostar supen"¹⁷. The study aims at keeping estimations low, but also to estimate costs where insecurity in data and method are big. Even though the study year is 1981, much

¹⁴ NIDA 2002

¹⁵ Gjelsvik 2004

¹⁶ SU 2003

¹⁷ Johnson 1983

of the data material used originates from the 1970's. This is motivated by that the short term changes in society is not important relative to the natural insecurity of the estimations. Johnson updated his estimations for the year of 1988¹⁸ and 1998¹⁹. The only major change made in these updates is how cost related to healthcare is estimated. The cost to healthcare is estimated in these studies using proportion of patients with alcoholrelated complaint to the total cost for public and private healthcare. In the original study, a proportion of 20% is used. This is in later studies corrected downward, first to 7% and then to 6%. The study uses a societal perspective, but Johnson also discusses and estimates costs using third-party-payer. This, however, could be said to lie outside the investigation and will not be discussed further in this essay.

In "The economic costs of alcohol, tobacco and illicit drugs in Canada, 1992"²⁰, Single et al. estimate the societal costs of substance abuse in Canada in 1992. The authors use, what they call, a conservative operating principle, meaning that only costs are included where there is a well founded relationship between alcohol consumption and external costs. This also implies that estimations are always kept low.

This essay will only focus on the societal cost resulting from alcohol misuse.

The report "Alcohol misuse in Scotland: trends and costs"²¹ to the Scottish Executive has a two-folded aim, (1) to investigate trends in alcohol misuse, and (2) to estimate societal costs associated with alcohol misuse in Scotland. The study does not have a specific study year but estimates costs around 1999-2001 depending on data material. The study aims at monetarise or at least to quantify all costs. This is not however possible in all cases (see below).

Only the aim to estimate societal cost of alcohol misuse is interesting for the purpose of this essay.

"Counting the cost: estimates of the social costs of drug abuse in Australia in 1998-9"²² by Collins & Lapsley estimates the net societal costs in Australia for alcohol, tobacco and illicit drugs for the financial year 1998-9. For the purpose of this essay only alcohol will be dealt

¹⁸ Johnson 1991

¹⁹ Johnson 2000

²⁰ Single et al. 1998

²¹ SE 2001

²² Collins & Lapsley 2002

with, however, the methods applied are basically the same. The authors keep their estimations conservative by using the lowest figure if more than one are available.

This study is the third cost study for Australia by the authors and, even though they are not completely comparable, the three²³ should be read in conjunction. This is because discussions of methodology are not fully repeated in this last study.

Collins & Lapsley also divide their estimations on who are burdened by the costs, the government, business or individuals, as well as budget implications for federal and state governments. This should not be mistaken for a third-party-payer perspective since, for example, not all transferations are included.

The last study in this review is “Alcohol misuse: how much does it cost”²⁴ which investigates the cost of alcohol misuse in England and Wales for the year 2000-1. The perspective is societal and the study starts out by identifying the trends of alcohol consumption in England/UK and defines prevalence for different kinds of consumption patterns.

3.2 Methodological characteristics

COI-studies over a phenomenon as complex as alcohol abuse use many different methods depending on what cost category to estimate. It is beyond the scope of this essay to in detail present and discuss all methodological variations used in different estimations, with the exception of healthcare which will be discussed below. This section will present and compare the methods that could be said to be all-embracing, that is, the methods that influence all or nearly all areas of the study.

Methodological differences can result in widely varying results, especially in complex areas, making the credibility and usefulness of studies limited. Differences in methods also limit, if not completely prevent, comparisons between different studies and thereby making international comparisons impossible. In order to come to terms with this problem different groups and organisations have produced guidelines, with the purpose to establish a coherent methodological field. Four of the seven studies explicitly state the use of guidelines. Three of them use “International guidelines for estimating the economic costs of substance abuse”²⁵, that is, guidelines especially constructed for this kind of study, and one uses guidelines for

²³ Collins & Lapsley 1991; 1996; 2002

²⁴ SU 2003

²⁵ Single 1995; Single et al. 2001

COI-studies adopted by the U.S. Public Health Service²⁶. A fifth one, Gjelsvik (2004), takes its point of reference in another study (SU (2003)) and can therefore be said to, indirectly, follow the international guidelines by Single et al²⁷.

This leaves two studies not following any guidelines. Johnson (1983)'s early publication can serve as explanation of this. In the case of SE (2001), even though not stated, it is reasonable to assume that guidelines have influenced the work, at least indirectly, since the used method is coherent with other published studies.

The majority of the included studies (five out of seven) are prevalence based. This means that the costs that are estimated are the costs that occur during the study period as a result of former and present misuse. The only exception to this is productivity loss resulting from mortality where future productivity losses resulting from a death during the study period are presented as a cost during the study period (more on this below).

The remaining two studies use the demographic approach. This approach estimates costs of misuse by taking the difference between the actual population and a counterfactual population that would exist if no misuse had ever occurred. This means that the counterfactual population is "restored" with respect to premature mortality and morbidity. Both a study that uses prevalence and a study that uses demographic approach compare the actual society with misuse to a counterfactual society without misuse. The difference is that in the prevalence based study the population are not adjusted for former misuse related deaths and morbidity, which is done when using the demographic approach. This difference manifests itself mostly when considering indirect costs, that is, cost resulting from lost productivity.

Both Johnson (1983) and Gjelsvik (2004) refrain from stating what methods are being used. Gjelsvik (2004) choice becomes clear when reading the study. This is not the case with Johnson (1983) where both methods seem to be used alternatively. The study has been labelled demographic even though prevalence base could be argued for in certain areas. With this in mind, care should be taken when drawing conclusion based on this study.

A major part in COI-studies for drug misuse is costs resulting from productivity loss. These costs can arise from different aspects, for example:

- Reduced workforce size (mortality)
- Absenteeism from work

²⁶ Hodgson & Meiners 1979; 1982

²⁷ Single 1995; Single et al. 2001

- Reduced productivity at work
- Loss of production in the household sector (including voluntary work)
- Loss of production due to crime and crime careers
- Increased unemployment

When estimating these costs (all except the first, which will be discussed below) the most commonly used methods are human capital approach (HCA) and willingness to pay (WTP). HCA measures loss of productivity by assigning a monetary value for the loss of production as a result of morbidity or mortality. This value should correspond to the actual economical benefit of production, normally assumed to equal all the cost of employment for the employer as if there were no misuse. That includes wages as well as taxes and fringe benefits paid by the employer. HCA is the most commonly used method for estimating indirect costs.

The WTP method derives from what the individual is willing to pay to change its statistical risks for morbidity and mortality. When HCA captures the loss of productivity, WTP captures both loss of productivity as well as the intangible costs reflecting morbidity and mortality. Only in one situation in the included studies are WTP used and that is for loss of production as a result of premature mortality.

When considering the first of the listed causes for loss of production (above), reduced workforce size resulting from mortality (including production loss in the household sector resulting from mortality), two of the included studies use a third method. The demographic method, as mentioned before, measures loss of production as the difference between the actual population and the counterfactual population that would exist if no misuse had ever occurred. This does not affect the other aspects since, in those cases, the demographic method and the HCA fall together. In short could the HCA be said to measure the present and future production costs of misuse related deaths, occurring during the study period. The demographic method measures the present production costs of misuse related deaths that have occurred in the past and present. This implies that the two methods are complementary rather than competitive.

When using a method which estimates future costs (as the HCA for productivity losses) it is important to discount these costs. This is done considering that future income are less valuable for the individual than present income. A high discount rate implies that the

individual values present income related to future income much higher than if one would have had a low discount rate.

Since the demographic approach does not estimate costs that affect the future, there is no need for discounting any costs.

Three of the remaining five studies use a 6% and two use a 3.5% discount rate. Two of the studies use alternative discount rates for sensitivity analysis or for comparison. SU (2003) decreases the discount rate after 30 years to 3%.

One of the most important and relevant question when comparing COI-studies is if they measure the same thing. In this case this question has two parts, on one hand if the same costs are estimated, this will be discussed below, and on the other hand if the definition of misuse includes the same concept in the different studies.

Alcohol misuse is normally defined as alcohol consumption that results in adverse outcomes. That is, alcohol use that brings along costs for the user or society in excess of private costs. Included in this definition is the narrower definition of alcohol dependence which is a medical condition. Another term often used is alcohol abuse. This is difficult to separate from alcohol misuse and is in many cases denoting the same thing. This essay will use the term misuse, as defined above, for all cases were definitions coincide. That means that if the term abuse is used in the included studies of the review, it will be translated to misuse as long as the denotations are the same.

Five studies measure the societal costs from alcohol misuse and two measure costs resulting from alcohol use above the recommended limits for that specific country. Extreme care should be taken when drawing conclusions from this, since data and methodological difficulties can force the researcher to change measure in individual cost categories. The choice of measurement shown here are to be taken as policy statements. The practical difference between the studies is of this reason smaller than expected. This is also true for Johnson (1983) where costs are measured over consumption, but since costs only occur with misuse is the practical difference small.

The difference in what costs to estimate is also smaller in practice than what a review of methods at first sight would apply. This is a result from different concepts denoting the same definition. All studies agree upon that external costs (costs borne by other individuals or institutions than the consumer) should be estimated, the difference is in how private costs are handled.

Private costs when meaning the costs that the user knowingly and freely accepts should not be included since basic economic theory states that as long as an individual behaves rationally he does not accept higher costs than benefits gained. This implies that a rational consumer that consumes alcohol will gain at least as much benefit from the consumption as the total of his expenditure on alcohol plus personal expenses as a consequences of alcohol consumption that results in misuse. The major point here is costs borne by the user that he was not aware of accepting. There are reasons to believe that a consumer of alcohol is not aware of all costs related to consumption, and therefore unintentionally accepts higher costs. This discrepancy is considered to be an external cost.²⁸ Thus, in practice all studies estimates the same costs, external costs and private costs that are unwillingly borne, and non estimates costs that are borne willingly, even though their terminology differ.

Two exceptions to the discussion above are SE (2001) and Johnson (1983). The former does not discuss the issue but coincide with the other studies in practice. The later claims to measure all costs from consumption why also production costs are included.

Only one study (Collins & Lapsley (2002)) estimates net costs, that is, subtracts the benefits of alcohol consumption from the costs. No other study estimates the benefits resulting from alcohol use even though a few discuss it briefly.

Finally is the subject of sensitivity analysis. SE (2001) uses a numerical analysis where the estimated cases of all diseases and phenomena are increased with 100% and decrease with 50%. Single (1998) uses a methodological analysis, where different methodological choices are changed, such as discount rate and cost aggregation level for diagnoses. Gjelsvik (2004) and SU (2003) estimate, where possible, a high and a low figure for each cost estimate. This method is used by Collins & Lapsley (2002) in some areas. The remaining two studies do not use any kind of sensitivity analysis.

²⁸ For a thorough discussion about private and external costs, see Collins & Lapsley 2002

Table 3.1a *COI-studies on alcoholrelated costs. Summary on study characteristics.*

Study	Country	Study year	Perspective	Guidelines	Incidence / Prevalence	Indirect method	Discount rate
Scottish Executive (2001)	Scotland	Around 99-01	Societal	n/s	Prevalence	HCA (WTP for mortality)	6%
Single et al. (1998)	Canada	1992	Societal	Single et al.	Prevalence	HCA	6% (4; 5 & 10%)
Johnson (1983) ²⁹	Sweden	1981 (1970's)	Societal (Third-party-payer)	n/s	(Demographic approach)	Demographic method	Not needed
Gjelsvik (2004)	Norway	2000-01	Societal	n/s (SU)	(Prevalence)	HCA	3.5%
NIDA (2002)	USA	1992	Societal	U.S. Public Health Service	Prevalence	HCA	6% (3; 4%)
Collins & Lapsley (2002)	Australia	1998-9	Societal	Single et al.	Demographic approach	Demographic approach	Not needed
SU (2003)	England & Wales	2000-01	Societal	Single et al.	Prevalence	HCA	3.5% (decreased to 3% after 30 years)

²⁹ Johnson updates and, in at least on case reviews his method and calculations in later studies. This essay will focus on the original study since the update depends thereon. The change in method and calculation does not affect the methodological part of the review.

Table 3.1b *COI-studies on alcoholrelated costs. Summary on study characteristics.*

Study	Area of measurement	Overall costs	Sensitivity analysis
Scottish Executive (2001)	Exceeding recommended limits	(Private and external costs)	Numerical
Single et al. (1998)	Misuse	Private and external costs	Methodological
Johnson (1983)	Consumption	Private, external and production costs	No
Gjelsvik (2004)	Misuse	External costs	High/low cost
NIDA (2002)	Misuse	Private and external costs	No
Collins & Lapsley (2002)	Misuse	Private and external net costs	(High/low)
SU (2003)	Exceeding recommended limits	External costs	High/low

3.3 Cost categories and results

This paragraph will deal with which cost categories the different studies have estimated as well as with a comparison between the results. The category definitions are sometimes not the same in different studies which makes partial result comparison difficult. The costs presented in this review are not necessarily included in the same cost category as in the original study in order to facilitate comparison. Sometimes though, it is not possible to divide the original categories and therefore should the partial result comparison be interpreted with care and focus should be on total results. Larger dissimilarities in the partial analysis will be explained. To discuss all costs components included within each cost category would be both time-consuming and beyond the scope of this essay and will therefore not be done, except from a smaller discussion in the case of healthcare.

All costs will be converted to U.S. dollars using purchasing power parity³⁰ and updated to 2003 prices using CPI³¹. Comparison will focus on per capita costs.

As can be viewed in table 3.2, large differences exist in the estimation of total costs resulting from alcohol misuse. Cost per capita ranges from US\$ 282 to US\$ 1'911. The highest estimation comes from Johnson (1983), which is by far the oldest of the included studies. Johnson (1983) does not follow any international guidelines, hence it differs significantly in certain methodological areas compared to the other studies. For one thing, Johnson (1983) estimates costs of consumption and therefore includes costs of production of alcohol. This is not the case in more recent studies, production costs are not deemed a cost since the capital involved in producing alcohol could be used in other equal profiting industries. But even if production costs were excluded, Johnson (1983)'s estimations would be extremely high. This results from a combination of factors, (1) more estimated costs, (2) more and higher negative effects of alcohol consumption and (3) insecurity of data material forcing the study to use high abstraction in the estimations.

When not including Johnson (1983) cost per capita still ranges from US\$ 282 to US\$ 760. Part of this could be explained by different costs estimated. Example of this can be seen in the cost category of production loss. Included costs in NIDA (2002) are mortality, shortfall in productivity and employment, medical treatment, Fetal Alcohol Syndrome (FAS), victims of

³⁰ Purchasing power parity provided by OECD (<http://www.oecd.org/dataoecd/61/56/1876133.xls>)

³¹ CPI provided by U.S. Department of Labour; Bureau of Labour Statistics (www.bls.gov/cpi/#tables)

crime and time spent in prison. Compare this to Scottish Executive (2001) where the production loss are a sum of mortality, higher absenteeism and increased unemployment. Obviously NIDA (2002) would be expected to achieve higher estimations in this cost category. Other major differences in cost estimations are included in table 3.2.

Methodological issues can also be expected to influence the results. SU (2003) and Gjelsvik (2004) use HCA with a discount value of 3.5%. Compared to this is the use of 6% discount value, used by, for example, Single et al. (1998). Also the use of different methods for estimating the indirect costs, i.e. HCA, WTP and the demographic approach influences the results in a significant way.

Finally, the question whether or not benefits are included. In the included studies only one estimates benefits, and therefore estimates the net total cost of alcohol consumption to society. Net costs are expected to be lower than gross costs especially in the categories for healthcare and intangible costs. This is true at least for healthcare for Collins & Lapsley (2002). The fact that Collins & Lapsley (2002) does not present the lowest estimation reflects the importance of which costs are estimated since for example intangible costs are not included in the lowest presented estimation.

Even though there are both methodological and practical explanations to differences in estimated costs, it would be faulty to push this issue too far. There are differences between countries in, for example, drinking habits and factual costs incurred by alcohol consumption. Other examples of country specific differences that are expected to influence the estimations are how well the society are organised in dealing with alcohol related problems and social acceptance for driving under influence of alcohol.

Table 3.2a *COI-studies on alcoholrelated costs. Summary on cost categories. (millions)*

Study	Healthcare	Productivity loss	Criminal Justice System	Societal intervention	Intangible costs	Other	Total Societal Cost
Scottish Executive (2001)	US\$158 US\$31 per capita	US\$1,026 (inc. the non-working population) US\$203 per capita	US\$442 US\$87 per capita	US\$142 US\$28 per capita			US\$1,767 US\$349 per capita
Single et al. (1998)	US\$1,385 US\$49 per capita	US\$4,406 US\$155 per capita	US\$1,447 US\$51 per capita	US\$207 (adm. costs and research & prevention) US\$7 per capita		US\$567 (drug testing and promotion programs at work and fire & traffic accidents) US\$20 per capita	US\$8,011 US\$282 per capita
Johnson (1983)	US\$3,267 US\$393 per capita	US\$7,885 US\$948 per capita	US\$408 (criminal care and prevention) US\$49 per capita	US\$1,508 (social care and prevention) US\$181 per capita		US\$2,827 (property damage and alcohol production) US\$340 per capita	US\$15,896 US\$1,911 per capita
Gjelsvik (2004)	US\$98 – 177 US\$22 - 39 per capita	US\$1,298 – 1,405 US\$288 – 312 per capita	US\$593 (included crime expectation) US\$132 per capita	US\$42 US\$9 per capita			US\$2,030 – 2,217 US\$451 - 492 per capita

Table 3.2a *COI-studies on alcoholrelated costs. Summary on cost categories. (millions)*

Study	Healthcare	Productivity loss	Criminal Justice System	Societal intervention	Intangible costs	Other	Total Societal Cost
NIDA (2002)	US\$24,665 US\$97 per capita	US\$140,166 (including crime related) US\$550 per capita	US\$8,269 US\$32 per capita	US\$895 (adm.) US\$4 per capita		US\$19,924 (motor vehicle crashes & fire) US\$78 per capita	US\$193,908 US\$760 per capita
Collins & Lapsley (2002)	US\$192 US\$10 per capita	US\$1,516 US\$80 per capita	US\$944 (nei ³²) US\$50 per capita		US\$1,726 US\$91 per capita	US\$2,084 (road accidents nei and resources used in abusive consumption) US\$110 per capita	US\$6,464 US\$343 per capita
SU (2003)	US\$2,299 – 2,787 US\$44 - 54 per capita	US\$8,538 – 10,532 (inc. loss from drink-driving) US\$164 - 202 per capita	US\$18,675 (inc. intangible costs and crime expectation) US\$359 per capita		US\$580 (Drink-driving) US\$11 per capita		US\$30,090 – 32,572 US\$578 - 626 per capita

³² not elsewhere included

3.4 Healthcare cost components

The cost category for healthcare is, as all the others, compiled by many different costs. This section will take a deeper look at this category in order to present and give a summary of which costs are estimated. Components included in the healthcare category are presented in table 3.3. Components are estimated completely or, to different degrees, partial.

What is obvious is that different studies have different aggregation levels of costs, that is using different costing approaches. The extremes are Johnson (1983) who estimates one figure for the whole category, macro costing, and Scottish Executive (2001) that has the most individual components included and can be said to use micro costing.

Most components are, more or less, common for all studies, but there are a few that differs. For example, co-morbidity, that measures the excess treatment needed for non-alcohol related cases as a result of alcohol consumption, funding of voluntary organisations and insurance administration. The two later components are somewhat country specific and therefore not necessarily lacking in other studies. In the case of co-morbidity, this component is included in other components for some studies, for example in hospitalisation.

Table 3.3 *COI-studies on alcohol related costs. Summary on cost-components in the healthcare category.*

Johnson (1983)	Single et al. (1998)	Scottish Executive (2001)	Collins & Lapsley (2002)	Gjelsvik (2004)	NIDA (2002)	SU (2003)
<ul style="list-style-type: none"> • Attributable fraction of all healthcare expenditures (public and private) 	<ul style="list-style-type: none"> • General and psychiatric treatment • Co-morbidity • Ambulance • Residential care • Treatment agencies • Ambulatory care • Prescription drugs • Other (home care, rehabilitation equipment etc.) 	<ul style="list-style-type: none"> • GP consultations • Community-dispensed drugs • Laboratory tests • Hospitalisation • Accident and emergency • Outpatient • Community psychiatric team contact • Day hospital • Ambulance • Promotion / prevention • Funding of voluntary org. 	<ul style="list-style-type: none"> • Medical • Hospital (inpatient) • Nursing homes • Pharmaceuticals • Ambulance 	<ul style="list-style-type: none"> • Hospitalisation • Day hospital • Outpatient • General practitioner • Emergency • Ambulance 	<ul style="list-style-type: none"> • Hospitalisation • Outpatient • Nursing home • Pharmaceutical professionals • Other (FAS, Crime) • Treatment services • Training and research • Insurance administration 	<ul style="list-style-type: none"> • Hospitalisation (inc. day cases) • Outpatient • Emergency (inc. ambulance) • Ambulatory services • GP consultations • Practice nurse consultations • Pharmaceuticals • Treatment services • Other (counselling etc.)

3.5 Discussion

Compared to an earlier study³³, recent COI studies of alcohol misuse show a tendency for increased methodological and practical uniformity. The most obvious part of this is the practical uniformity in the area of measurement. The importance of actually measuring the same thing throughout a study and between studies cannot be stressed enough. This is true, among the studies included in this review, both for the definition of misuse and the definition of costs, i.e. private and external costs. Exception to this is Johnson (1983) which belongs to the “old” tradition without a coherent methodology.

A probable cause for this increased methodological and practical uniformity is the better awareness of the importance of comparability between studies and the establishing of international guidelines. The increased knowledge in the areas of COI method and alcohol misuse is also expected to facilitate increased uniformity.

The studies discussed in this review allow crude comparisons between studies and countries. However, there still exist many problems that make comparisons challenging, for example:

- Inclusion of different costs
- Magnitude of the discount factor
- Method for measuring indirect costs (productivity costs)
- Net or gross costs

This leaves the field open for improvements which, if this line of research should be productive, are both necessary and possible. Necessary for effectively compare policies and interventions and possible by further developing this area of research.

³³ Jarl & Gerdtham 2004

4.0 Method

In order to estimate the direct cost of alcohol consumption on hospitalisation, both psychiatric and non-psychiatric, a COI methodology will be used. This will be a prevalence based study using a database containing information about number of patients, diagnoses and costs associated with diagnoses for the county of Skåne. The database includes both the public healthcare sector as well as the only private hospital with inpatient care in the county of Skåne. Patients from other administrative areas, given care in the area of study are also included but not patients belonging to Region Skåne who are treated in other administrative areas. These last two groups will be considered equal in this study and no corrections will be made.

Only the premier diagnosis will be used in order to avoid possible double counting with other diseases/phenomenon.

Diagnoses have been defined under ICD-10 classification codes. The diagnoses in table 4.1 are considered to be directly attributable to alcohol consumption using ICD-10 codes, presented in reduced form, for extended form see Annex 1.

Table 4.1 Diagnoses directly attributable to alcohol consumption, reduced form.

E24.4	Alcohol-induced pseudocushing syndrome
F10.0-F10.9	Mental and behavioural disorders due to alcohol abuse
G31.2	Degeneration of nervous system due to alcohol
G62.1	Alcoholic Poly neuropathy
G72.1	Alcoholic myopathy
I42.6	Alcoholic Cardiomyopathy
K29.2	Alcoholic gastritis
K70.0-70.9	Alcoholic liver disease
K85	Acute pancreatitis
K86.0	Alcohol-induced chronic pancreatitis
O35.4	Maternal care for suspected damage to the foetus from alcohol
P04.3	Foetus and newborn affected by maternal use of alcohol
Q86.0	Foetal alcohol syndrome
T51.0-51.9	Toxic effect of alcohol
X45	Unintentional poisoning and exposure to alcohol

Source: NIDA 2002; SU 2003; Socialstyrelsen 2003; WHO 2000

Not included in this are the following diagnoses (from SU 2003 table 7 p.21):

K73-74 Chronic hepatitis and cirrhosis of liver; K76 Other diseases of the liver; Z50.2 Care involving use of rehabilitation procedures alcohol; Z72.1 Problems related to lifestyle alcohol use; X65 Intentional self-poisoning by and exposure to alcohol; Y15 Poisoning by and

exposure to alcohol undetermined intent; Y90 Evidence of alcohol involvement determined by blood alcohol level; Y91 Evidence of alcohol involvement determined by level of intoxication. K85 Acute pancreatitis is included on the grounds that it is included in the Swedish alcohol-related death statistics as directly attributable to alcohol (Socialstyrelsen 2003). There is, however, some uncertainty whether the diagnosis is fully or only partially attributable to alcohol misuse. It will be considered fully attributable to alcohol misuse in this essay, although a recalculation will be made in a sensitivity analysis in the conclusions. Hospitalisation costs will be presented in Swedish kronor in 2003 year prices. Costs presented in the review are in US dollars in 2003 year prices.

4.1 Data material

Data was provided in special tabulations by Region Skåne.³⁴ This material includes diagnoses according to ICD-10 codes, costs, age and gender among other variables. The database in its original form includes the total cost of healthcare to Region Skåne, for all diagnoses. The database uses the administrative healthcare systems PASiS, AL-system and PRIVA in order to obtain information about patients' contact with the healthcare sector. The actual cost of each case is unknown but diagnoses are weighted to the total cost for the relevant ward, clinical department or hospital for the year of 2003.

For weight are DRG-points (Diagnose Related Groups) used for inpatient care where possible. In practice, every patient case for inpatient care receives a DRG-code. Every such code has a certain weight, DRG-points, which are different between different codes but the same within a certain code. The total number of DRG-points for a ward/clinic are summed and put in relation to the total costs for that ward/clinic giving a certain cost per DRG-point. These are later summed to costs per DRG-codes which are the costs used in this essay. For wards/clinics not using DRG-codes are the costs calculated using the ward's/clinic's cost per care day. Some costs to the healthcare system are not included, for example cost for central administration and research.

18 observations were excluded because of lack of information (i.e. no calculated costs). Costs are expressed in Swedish kronor in prices for 2003 are measured in number of treatment cases and not per patient.

³⁴ This section is heavily indebted to Region Skåne 2003. See publication for a detailed description of the material.

5.0 Presentation of costs

In this section will the results of the cost investigation of alcohol misuse on hospitalisation to Region Skåne be presented. The costs are costs resulting from medical conditions fully attributable to alcohol misuse. All figures on costs are attained from Region Skåne.

5.1 Total costs

The total cost to Region Skåne of alcohol caused diseases sums up to more than 78 millions Swedish kronor (SEK) for the year of 2003. As can be viewed from tables 5.1, men stand for the larger part of these costs. 69% of all costs derive from men's misuse. In number of cases the difference is even greater; men's part of all patient cases is 73%. This also shows which can be seen in table 5.1, that women's average cost is higher by almost 25%. This difference also persists when measuring the median cost. The median costs are significant lower than average costs, implying that there are a number of extreme high cost cases and that the larger part of patient cases are in the lower cost bounds.

Table 5.1 Total alcohol related costs (SEK).

Demographic group	Total cost	Number of observations	Average cost	Median cost
W Total	24 362 311	845	28 831	18 763
M Total	54 022 291	2 341	23 077	15 154
Total	78 384 603	3 186	24 603	15 154

Costs for medical treatment are highest in ages between 45 – 64 for both women and men, see tables 5.2 and 5.3. Average cost increases with age for men and is highest for men older than 85 while it increases up to 65 – 74 and then decreases for the oldest age group for women. The same is true for median costs which again are significant lower than average costs for most age groups. Finally it can be shown that about half of all patient cases are caused by women and men in the 45 – 64 age group.

Table 5.2 Total alcohol related costs for women, age differentiated (SEK).

Demographic group	Total cost	Number of observations	Average cost	Median cost
W 0-4	0	0	0	0
W 5-14	306 813	22	13 946	12 608
W 15-24	1 358 917	78	17 422	12 287
W 25-44	3 560 660	169	21 069	14 973
W 45-64	12 669 134	422	30 022	20 498
W 65-74	3 784 031	76	49 790	29 517
W 75-84	1 883 559	49	38 440	30 017
W 85+	799 198	29	27 559	27 642
W Total	24 362 311	845	28 831	18 763

Table 5.3 Total alcohol related costs for men, age differentiated (SEK).

Demographic group	Total cost	Number of observations	Average cost	Median cost
M 0-4	7 710	1	7 710	7 710
M 5-14	151 485	11	13 771	12 287
M 15-24	1 358 135	92	14 762	12 215
M 25-44	10 344 728	501	20 648	13 816
M 45-64	31 585 659	1 327	23 802	15 154
M 65-74	6 983 377	292	23 916	18 943
M 75-84	2 927 838	97	30 184	26 617
M 85+	663 360	20	33 168	23 853
M Total	54 022 291	2 341	23 077	15 154

5.2 Costs per clinic

Diseases resulting from alcohol misuse fall under a number of different clinics. The costs are rather evenly divided between somatic care and psychiatric care, as can be seen in table 5.4.

Table 5.4 Alcohol related costs for somatic and psychiatric care (SEK).

	Somatic	Psychiatric
Sum	40 742 802	37 270 517
Observations	1 439	1 684
Average	28 313	22 132
Median	23 853	13 572

The somatic conditions are more costly than psychiatric, both in absolute terms and in average, though psychiatric care treats more patients. As noted above, median cost is much lower than average, implying a few extreme cost cases while the majority of cases are low cost. The costs will be presented per clinic below with differentiation for gender. Age differentiated tables can be viewed in annex 3.

The psychiatric costs are borne by three different clinics, see table 5.5. Most costs fall on alcohol clinics and general psychiatry, for the Swedish clinic terms see annex 2. Men's part of

the psychiatric costs is in all relevance equal to the overall costs, between 73 – 75% for the different clinics. There is, though, a difference from the overall costs when considering the number of patient cases. For psychiatric care, men stand for 88% of the cases in alcohol clinics. For general and regional psychiatry men’s part are only marginally higher than for the overall costs, between 73 – 77%.

Table 5.5 Alcohol related costs for psychiatric care clinics, gender differentiated (SEK).

		Alcohol dependency	General psychiatry	Regional psychiatry
W Total	Sum	4 667 580	4 560 935	353 013
	Observations	112	166	13
	Average	41 675	27 476	27 155
	Median	15 154	22 349	16 949
M Total	Sum	14 218 691	12 407 547	1 062 750
	Observations	797	561	35
	Average	17 840	22 117	30 364
	Median	11 366	18 624	20 564
Total	Sum	18 886 271	16 968 483	1 415 763
	Observations	909	727	48
	Average	20 777	23 340	29 495
	Median	11 366	18 624	20 462

Average costs are generally higher for women in psychiatric care, as for overall costs, with exception for regional psychiatry. Median values are, as above, generally lower than average costs, for both men and women.

The somatic costs are borne by 25 clinics while most only are burdened with a few cases. All clinics are presented in table 5.6 but only clinics with more than 10 cases will be included in the discussion. The reason for this is that with few observations, no conclusions can be drawn. The highest costs fall on surgery, totalling SEK 13.5 millions, and internal medicine, totalling SEK 12.1 millions. Emergency division and emergency room are burdened with SEK 5.3 respectively SEK 4.2 millions. Gastrointestinal, paediatric medicine and infection suffers lower, but substantial costs.

Men’s proportion of the costs is about 70% for emergency division, infection and internal medicine. For paediatric medicine the proportion is only 43%. The rest of the clinics with more than ten observations have a male proportion around 60%.

As noted before are the average cost of the women’s treatments generally higher also for somatic care, than that of men’s, with exception of infection and internal medicine. This difference almost disappears when using median as a measure of distribution which shows

small or no differences. For infection and internal medicine, where men have higher average medical costs, the difference increases when using median values. Also note the large discrepancy between average and median values in emergency division, internal medicine and surgery, implying a few extreme high cost cases.

Table 5.6a Alcohol related costs for somatic care clinics, gender differentiated (SEK).

		Emergency division	Emergency room	Child - and adolescence	Paediatric medicine	Endocrinology	Gastrointestinal	Geriatric psychiatry	Haematology
W Total	Sum	1 836 665	1 578 234	11 193	706 559		1 030 444		20 231
	Observations	70	75	1	53		22		1
	Average	26 238	21 043	11 193	13 331		46 838		20 231
	Median	14 597	20 497	11 193	12 287		47 577		20 231
M Total	Sum	3 497 514	2 651 388	11 736	528 826	38 427	1 485 479	105 429	20 116
	Observations	154	160	1	43	2	32	1	2
	Average	22 711	16 571	11 736	12 299	19 214	46 421	105 429	10 058
	Median	14 274	18 433	11 736	12 287	19 214	47 577	105 429	10 058
Total	Sum	5 334 179	4 229 622	22 929	1 235 385	38 427	2 515 923	105 429	40 346
	Observations	224	235	2	96	2	54	1	3
	Average	23 813	17 998	11 464	12 869	19 214	46 591	105 429	13 449
	Median	14 374	19 422	11 464	12 287	19 214	47 577	105 429	15 404

Table 5.6b Alcohol related costs for somatic care clinics, gender differentiated (SEK).

		Cardiopulmonary division	Hospice	Infection	Internal medicine	Cardiology	Surgery	Women's care	Pulmonary division
W Total	Sum			139 472	3 157 032	25 844	5 840 103	4 124	
	Observations			5	121	1	140	1	
	Average			27 894	26 091	25 844	41 715	4 124	
	Median			32 440	11 859	25 844	30 017	4 124	
M Total	Sum	44 925	28 322	333 981	8 957 942		7 657 050		54 154
	Observations	2	1	9	306		218		1
	Average	22 462	28 322	37 109	29 274		35 124		54 154
	Median	22 462	28 322	44 472	20 473		29 517		54 154
Total	Sum				12 114		13 497		
	Observations	44 925	28 322	473 453	974	25 844	153	4 124	54 154
	Average	22 462	28 322	33 818	28 372	25 844	37 701	4 124	54 154
	Median	22 462	28 322	35 480	19 060	25 844	29 517	4 124	54 154

Table 5.6c Alcohol related costs for somatic care clinics, gender differentiated (SEK).

		Neurology	Nephrology	Oncology	Orthopaedic	Psycho-geriatric	Rehabilitation	Rheumatology	Urology	EMT
W Total	Sum		59 598							
	Observations		1							
	Average		59 598							
	Median		59 598							
M Total	Sum	151 960	50 011	15 184	8 122	520 232	55 425	49 198	46 721	21 161
	Observations	6	2	1	1	2	1	1	1	1
	Average	25 327	25 006	15 184	8 122	260 116	55 425	49 198	46 721	21 161
	Median	20 830	25 006	15 184	8 122	260 116	55 425	49 198	46 721	21 161
Total	Sum	151 960	109 609	15 184	8 122	520 232	55 425	49 198	46 721	21 161
	Observations	6	3	1	1	2	1	1	1	1
	Average	25 327	36 536	15 184	8 122	260 116	55 425	49 198	46 721	21 161
	Median	20 830	40 895	15 184	8 122	260 116	55 425	49 198	46 721	21 161

5.3 Costs per diagnosis

This section will present costs for each diagnosis according to ICD-10 codes, see table 5.7. As was the case with costs to clinics, no conclusions can be drawn with too few observations and will therefore not be discussed, though presented in tables.

Diagnose F10.2 are by far the diagnosis with most cases, over 1'500, followed by K85.9 with 548 cases. Other diagnoses with high number of cases are F10.0, F10.1 and K70.3 with 248, 200 respectively 153 cases. All other diagnoses have fewer than 100 cases during 2003.

As expected, the highest absolute costs come from those diagnoses with the most cases. F10.2 and K85.9 totals to SEK 31.7 respectively SEK 18.3 millions. F10.0 and F10.1 lays around SEK 3.5 millions and K70.3 costs SEK 7.2 millions.

For those diagnoses dealt with above, the proportion between the sexes are about the same for both number of cases and costs as for the total costs. The proportions for number of cases range from 59% for diagnosis F10.0 to 81% for F10.2. The cost proportions lay between those values. An exception exists though, diagnose K85.9 is almost even in the distribution between sexes, the male proportion is 54% for costs and 59% for number of cases.

With exception for diagnose K70.3 are the median values below or much below the average values. This is consistent with the results reported above.

Noteworthy is also the extreme high average cost for diagnose F10.6. The more modest median cost strengthens the explanation of a few extreme high cost cases.

Table 5.7a Alcohol related hospitalisation costs per diagnose, gender differentiated (SEK).

		F10.0	F10.1	F10.2	F10.3	F10.4	F10.5	F10.6	F10.7
W Total	Sum	1 232 819	1 130 029	8 014 042	383 767	261 325	114 554	536 390	111 662
	Observations	102	53	301	21	8	1	5	4
	Average	12 086	21 321	26 625	18 275	32 666	114 554	107 278	27 916
	Median	12 215	11 859	13 811	20 717	35 386	114 554	91 123	18 988
M Total	Sum	2 201 035	2 735 335	23 687 116	1 264 650	1 096 185	224 410	1 258 013	151 715
	Observations	146	147	1 275	64	40	10	11	5
	Average	15 076	18 608	18 578	19 760	27 405	22 441	114 365	30 343
	Median	11 859	11 580	11 366	18 109	21 878	16 676	39 723	13 811
Total	Sum	3 433 854	3 865 365	31 701 157	1 648 418	1 357 510	338 964	1 794 403	263 377
	Observations	248	200	1 576	85	48	11	16	9
	Average	13 846	19 327	20 115	19 393	28 281	30 815	112 150	29 264
	Median	12 215	11 635	11 366	18 358	22 181	21 138	57 748	17 745

Table 5.7b Alcohol related hospitalisation costs per diagnose, gender differentiated (SEK).

		F10.8	F10.9	G31.2	G62.1	I42.6	K29.2	K70.0	K70.1
W Total	Sum	4 436	191 153	34 095			10 799		246 705
	Observations	1	11	1			1		6
	Average	4 436	17 378	34 095			10 799		41 118
	Median	4 436	12 930	34 095			10 799		43 676
M Total	Sum		289 450	75 165	173 237	46 405	32 152	92 184	1 180 362
	Observations		16	2	7	1	2	3	22
	Average		18 091	37 583	24 748	46 405	16 076	30 728	53 653
	Median		12 838	37 583	21 549	46 405	16 076	34 070	44 814
Total	Sum	4 436	480 602	109 260	173 237	46 405	42 951	92 184	1 427 067
	Observations	1	27	3	7	1	3	3	28
	Average	4 436	17 800	36 420	24 748	46 405	14 317	30 728	50 967
	Median	4 436	12 930	34 095	21 549	46 405	10 799	34 070	44 814

Table 5.7c Alcohol related hospitalisation costs per diagnose, gender differentiated (SEK).

		K70.3	K70.4	K70.9	K85.9	K86.0	T51.0	T51.1	T51.9
W Total	Sum	2 330 022	669 752	105 453	8 516 672	103 234	38 482		326 922
	Observations	41	16	3	234	4	3		29
	Average	56 830	41 860	35 151	36 396	25 808	12 827		11 273
	Median	47 577	46 575	33 012	29 517	27 642	9 887		9 661
M Total	Sum	4 890 199	2 353 640	771 704	9 821 956	1 050 721	127 173	6 076	493 409
	Observations	112	54	16	314	40	10	1	43
	Average	43 662	43 586	48 231	31 280	26 268	12 717	6 076	11 475
	Median	45 960	44 495	41 736	29 517	27 642	10 663	6 076	9 895
Total	Sum	7 220 221	3 023 392	877 156	18 338 629	1 153 954	165 655	6 076	820 331
	Observations	153	70	19	548	44	13	1	72
	Average	47 191	43 191	46 166	33 465	26 226	12 743	6 076	11 393
	Median	47 484	44 495	40 046	29 517	27 642	10 663	6 076	9 808

5.4 Costs per municipality

This section will present the alcohol related costs divided upon geographical units, using municipalities.

Table 5.8 Alcohol related hospitalisation cost per municipality (SEK).

Municipality	Sum	Observations	Average	Median	Cost per capita
Svalöv	576 374	27	21 347	12 287	45
Staffanstorps	1 157 119	45	25 714	15 070	57
Burlöv	1 095 213	43	25 470	20 065	72
Vellinge	1 172 271	49	23 924	15 154	37
Östra Göinge	496 795	20	24 840	30 017	35
Örkelljunga	343 531	14	24 538	24 015	36
Bjuv	746 904	27	27 663	26 074	54
Kävlinge	1 134 970	52	21 826	14 412	45
Lomma	508 652	25	20 346	13 855	28
Svedala	639 909	27	23 700	18 433	35
Skurup	796 769	45	17 706	10 716	57
Sjöbo	821 574	39	21 066	18 448	48
Hörby	1 153 345	42	27 461	17 248	82
Höör	1 230 834	37	33 266	12 086	86
Tomelilla	1 152 829	33	34 934	30 273	92
Bromölla	354 994	14	25 357	23 584	30
Osby	295 889	19	15 573	12 215	23
Perstorp	326 090	17	19 182	13 309	48
Klippan	1 435 376	59	24 328	21 352	90
Åstorp	857 115	37	23 165	21 352	64
Båstad	659 881	32	20 621	18 795	47
Malmö	25 076 091	984	25 484	11 366	94
Lund	4 439 243	157	28 275	14 509	44
Landskrona	3 383 003	166	20 380	15 154	88
Helsingborg	9 774 005	367	26 632	23 853	81
Höganäs	1 521 989	55	27 673	23 853	66
Eslöv	3 008 993	67	44 910	21 138	103
Ystad	1 133 010	48	23 604	18 871	43
Trelleborg	2 723 654	141	19 317	11 366	70
Kristianstad	3 157 639	154	20 504	13 309	42
Simrishamn	1 444 599	55	26 265	24 170	74
Ängelholm	1 790 265	72	24 865	21 352	47
Hässleholm	2 164 249	118	18 341	13 309	44
Outside Skåne	1 811 429	99	18 297	11 859	

As can be viewed in table 5.8 the most cases and highest total costs are found in the larger urban areas. Malmö are found to have, by far, the highest total costs followed by Helsingborg and Lund. Measured in number of cases, Malmö comes first, followed this time by Helsingborg and Landskrona.

As before, the median costs are lower or much lower than the average costs. Exception from this is Östra Göinge where median costs are 1.2 times higher than average costs. With only 20 observations no certain conclusions can be drawn. The lowest costs in relative terms can be

found in Osby and Skurup. Also note that 99 cases, totalling 1.8 millions are costs for patients not residing in the administrative area of Region Skåne.

Observe that cost per capita in the municipalities is the cost to Region Skåne per patient case differentiated for home location. This value has a very wide range, from 23 to 103 Swedish kroner. Those municipalities with the highest (>89) per capita costs are Eslöv, Malmö, Tomelilla and Klippan. Those with the lowest (<40) are Osby, Loma, Bromölla, Östra Göinge, Svedala, Örkelljunga and Vällinge.

6.0 Discussion

Men as a group are more costly than women as a group as a result of alcohol misuse, which also gives further evidence of the male dominance of alcohol consumption. Around 70% of both patient cases and total costs can be attributed to men. This proportion persists, in all relevance, throughout the cost presentation. Women as a group tend to have more costly treatments, based on higher average and median costs. A probable cause for this is that women that actually end up in the healthcare sector as a result of misuse have more serious conditions than men have.

The age distribution shows the greatest costs in the late middle age. The average and median values are increasing over the whole lifespan for men, implying that with increasing age treatments are more costly and, it is rather safe to assume, conditions more serious. This is also true for women up to the age group of 65 – 74 years.

For the age and gender differentiated total costs, as for most costs presented, the median costs are lower than the average costs. This implies that the average costs are driven up high by a few high cost cases and that the majority of the patient cases are in the lower bound of cost distribution.

The population in Skåne in 2003 was 1 150 994³⁵, giving a total cost per capita of SEK 68. This value in itself is not comparable to other cost estimates for healthcare of alcohol misuse since conditions partial related to alcohol are not included as well as non-hospitalisation costs.

There is no relevant difference between total costs for somatic and psychiatric care, although somatic conditions are more costly to treat on a per patient basis. Alcohol dependency units are burdened with the highest individual cost under psychiatric care as would be expected, but general psychiatry are burdened with an almost equal sized cost.

Even though the somatic care costs are divided upon 25 different clinics, almost all costs fall on seven of them, and more than half on surgery and internal medicine alone. Emergency services stand for more than one fifth of all costs, giving that acute conditions caused by alcohol, for example acute intoxication, are a significant cost effect of alcohol misuse.

The above observed higher cost per patient case for women, are lower in somatic care and almost disappears when using median cost as distribution measure. For some somatic clinics even, men show higher costs per patient. This would imply that in somatic care the conditions are more equal in severity between the sexes or more equality in care given.

³⁵ SCB (http://www.scb.se/templates/tableOrChart____25872.asp)

As expected is F10 diagnose, mental and behavioural disorders due to alcohol abuse, dominant, and especially F10.2, dependency syndrome. F10.2 together with K85.9, acute pancreatitis, stand for more than half of both patient cases and total costs.

Care should be taken when drawing conclusions regarding K85.9. This diagnose is included on the grounds that the Swedish social board has included it in its official alcohol related mortality statistics. Other studies³⁶ has deemed the diagnosis to be only partial attributable to alcohol, and used attributable fraction between 24 – 42%. There is some confusion in the recoding from ICD-9 system to ICD-10, which could serve as an explanation for the problem. A sensitivity analyse using attributable fraction of 24% and 42% would result in between SEK 10.6 and SEK 13.9 millions lower total result for the K85.9 diagnosis. This would also reduce the total cost to Region Skåne with an equal amount. It would have no other significant effects on the results other than maybe increase the proportional differences between the sexes since a rather equal distributed diagnosis is reduced in magnitude.

Costs in municipalities for Region Skåne shows that higher absolute costs are experienced in more dense populated areas. For per capita cost in municipalities this does not hold. No conclusions can be drawn regarding similarities between the high cost municipalities, for that the group are too differentiated including, among others, both Malmö and Tomelilla. The group containing the municipalities with the lowest per capita costs is more homogenous. No larger urban areas are included giving the conclusion that in order to experience lower per capita costs a smaller urban area are necessary but not sufficient characteristic. Further investigation is needed in this area but plausible explanations are age and gender structure within municipalities and within the patients of alcohol related diagnoses.

6.1 Future research

This essay is to be considered as a first start for a COI study over alcohol misuse for Sweden. It started of with a review of recent international COI studies over alcohol misuse in order to compare methods. In the second part of the essay, a first presentation of hospitalisation costs fully attributable to alcohol misuse were presented for the healthcare sector, represented by Region Skåne, these costs were also differentiated for gender and, in some part, for age. The immediate continuation would be to estimate the costs to other sectors of healthcare, such as outpatient care, and costs of medical conditions not fully attributable to alcohol misuse.

³⁶ For example NIDA 2002 and SU 2003

Included in this would also conditions resulting from accidents. In order to accomplish this, attributable fractions for each condition would be needed to be calculated for Sweden, as is recommended by the WHO.

To complete the COI study, alcohol related costs in the sectors of productivity, criminal justice system, societal intervention and intangible costs must be estimated, as well as other costs not covered by those categories.

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Annex 1

Table A1 Diagnoses directly attributable to alcohol consumption, extended form.

E24.4	Alcohol-induced pseudo-Cushing's syndrome
F10	Mental and behavioural disorders due to alcohol abuse
F10.0	Acute intoxication
F10.1	Harmful use
F10.2	Dependency syndrome
F10.3	Withdrawal state
F10.4	Withdrawal state with delirium
F10.5	Psychotic disorder
F10.6	Amnesic syndrome
F10.7	Psychotic disorder as remnant condition or with late first appearance
F10.8	Other mental and behavioural disorders
F10.9	Unspecified mental and behavioural disorders
G31.2	Degeneration of nervous system due to alcohol
G62.1	Alcoholic polyneuropathy
G72.1	Alcoholic myopathy
I42.6	Alcoholic Cardiomyopathy
K29.2	Alcoholic gastritis
K70	Alcoholic liver disease due to alcohol
K70.0	Alcoholic fatty liver
K70.1	Alcohol hepatitis
K70.2	Alcoholic fibrosis and sclerosis of liver
K70.3	Alcoholic cirrhosis of liver
K70.4	Alcoholic hepatic failure
K70.9	Alcoholic liver diseases, unspecified
K85	Acute pancreatitis
K86.0	Alcohol-induced chronic pancreatitis
O35.4	Maternal care for suspected damage to the foetus from alcohol
P04.3	Foetus and newborn affected by maternal use of alcohol
Q86.0	Foetal alcohol syndrome
T51	Toxic effect of alcohol
T51.0	Ethanol
T51.1	Methanol
T51.2	2-propanol
T51.3	Fusel oil
T51.8	Other alcohols
T51.9	Alcohol, unspecified
X45	Unintentional poisoning and exposure to alcohol

Source: NIDA; SU (2003); Socialstyrelsen (2003); WHO (2000)

Annex 2

Translations used for clinic names. In order of appearance in tables.

Emergency Division	Akutdivision
Emergency Room	Akutmott
Child and Adolescence Care	Barn- och ungdomssjukvård
Paediatric Medicine	Barnmedicin
Endocrinology	Endokrinologi
Gastrointestinal	Gastro
Geriatric Psychiatry	Geropsykiatri
Haematology	Hematologi
Cardiopulmonary division	Hjärt- och lungdivision
Hospice	Hospice
Infection	Infektion
Internal Medicine	Internmedicin
Cardiology	Kardiologi
Surgery	Kirurgi
Women's Care	Kvinnosjukvård
Pulmonary Division	Lungmedicin
Neurology	Neurologi
Nephrology	Njursjukvård
Oncology	Onkologi
Orthopaedic	Ortopedi
Psychogeriatric	Psykogeriatrisk
Rehabilitation	Rehabmedicin
Rheumatology	Reumatologi
Urology	Urologi
EMT	Öron
Alcohol Dependence	Alkoholklirik
General psychiatry	Allmänpsykiatri
Regional psychiatry	Regionpsykiatri

Annex 3

Table A3.1 Costs to psychiatric care, age and gender differentiated (SEK)

Psychiatric care		Alcohol dependency	General psychiatry	Regional psychiatry
W 5-14	Sum			
	Observations			
	Average			
	Median			
W 15-24	Sum	26 520	28 0770	
	Observations	3	8	
	Average	8 840	35 096	
	Median	7 577	9 615	
W 25-44	Sum	818 342	920 213	27 748
	Observations	40	42	2
	Average	20 459	21 910	13 874
	Median	11 366	15 542	13 874
W 45-64	Sum	3 417 335	2 884 541	279 865
	Observations	60	103	9
	Average	56 956	28 005	31 096
	Median	18 943	24 041	24 899
W 65-74	Sum	405 382	389 739	45 398
	Observations	9	12	2
	Average	45 042	32 478	22 699
	Median	15 154	29 799	22 699
W 75-84	Sum		85 672	
	Observations		1	
	Average		85 672	
	Median		85 672	
W 85+	Sum			
	Observations			
	Average			
	Median			

Table A3.2 Costs to psychiatric care, age and gender differentiated (SEK)

Psychiatric care		Alcohol dependency	General psychiatry	Regional psychiatry
M 0-4	Sum			
	Observations			
	Average			
	Median			
M 5-14	Sum			
	Observations			
	Average			
	Median			
M 15-24	Sum	22 732	107 508	
	Observations	5	7	
	Average	4 546	15 358	
	Median	3 789	8 872	
M 25-44	Sum	2 235 286	3 806 799	150 674
	Observations	171	159	10
	Average	13 072	23 942	15 067
	Median	7 577	18 624	10 769
M 45-64	Sum	9 960 282	7 107 345	774 076
	Observations	516	337	21
	Average	19 303	21 090	36 861
	Median	11 366	18 624	27 579
M 65-74	Sum	1 826 115	1 125 881	138 000
	Observations	93	51	4
	Average	19 636	22 076	34 500
	Median	11 366	22 349	24 358
M 75-84	Sum	174 277	260 014	
	Observations	12	7	
	Average	14 523	37 145	
	Median	7 577	26 617	
M 85+	Sum			
	Observations			
	Average			
	Median			

Annex 4

Table A4.1a Costs to somatic care, age and gender differentiated (SEK)

Somatic care		Emergency division	Emergency room	Child and adolescence	Paediatric medicine	Endocrinology	Gastrointestinal	Geriatric Psychiatry
W 5-14	Sum	13 665			230 106			
	Observations	1			18			
	Average	13 665			12 784			
	Median	13 665			12 287			
W 15-24	Sum	116 943	87 021	11 193	476 453			
	Observations	7	4	1	35			
	Average	16 706	21 755	11 193	13 613			
	Median	10 410	21 143	11 193	12 287			
W 25-44	Sum	230 618	188 570				47 577	
	Observations	15	12				1	
	Average	15 375	15 714				47 577	
	Median	14 446	18 681				47 577	
W 45-64	Sum	490 020	677 487				887 714	
	Observations	29	29				19	
	Average	16 897	23 362				46 722	
	Median	14 262	20 497				47 577	
W 65-74	Sum	633 942	141 206				95 153	
	Observations	5	8				2	
	Average	126 788	17 651				47 577	
	Median	50 885	18 433				47 577	
W 75-84	Sum	195 805	362 058					
	Observations	6	15					
	Average	32 634	24 137					
	Median	25 276	23 853					
W 85+	Sum	155 673	121 892					
	Observations	7	7					
	Average	22 239	17 413					
	Median	23 029	19 422					

Table A4.1b Costs to somatic care, age and gender differentiated (SEK)

Somatic care		Haematology	Caridopulmonary division	Hospice	Infection	Internal medicine	Cardiology	Surgery	Women's care
W 5-14	Sum					7 759		55 283	
	Observations					1		2	
	Average					7 759		27 642	
	Median					7 759		27 642	
W 15-24	Sum					150 197		209 820	
	Observations					13		7	
	Average					11 554		29 974	
	Median					10 716		29 517	
W 25-44	Sum				32 440	333 463		957 566	4124
	Observations				1	26		29	1
	Average				32 440	12 826		33 020	4124
	Median				32 440	10 577		29 517	4124
W 45-64	Sum				74 593	1 471 887		2 054 809	
	Observations				3	54		52	
	Average				24 864	27 257		39 516	
	Median				27 101	18 218		30 017	
W 65-74	Sum				32 440	1 039 170		1 001 599	
	Observations				1	21		16	
	Average				32 440	49 484		62 600	
	Median				32 440	29 307		29 517	
W 75-84	Sum	20 231				122 894	25 844	1 071 055	
	Observations	1				5	1	20	
	Average	20 231				24 579	25 844	53 552	
	Median	20 231				11 859	25 844	30 017	
W 85+	Sum					31 662		489 971	
	Observations					1		14	
	Average					31 662		34 998	
	Median					31 662		30 017	

Table A4.1c Costs to somatic care, age and gender differentiated (SEK)

Somatic care		Pulmonary division	Neurology	Nephrology	Oncology	Orthopaedic	Psykoogeriatric	Rehabilitation	Rheumatology
W 5-14	Sum								
	Observations								
	Average								
	Median								
W 15-24	Sum								
	Observations								
	Average								
	Median								
W 25-44	Sum								
	Observations								
	Average								
	Median								
W 45-64	Sum			595 98					
	Observations			1					
	Average			59 598					
	Median			59 598					
W 65-74	Sum								
	Observations								
	Average								
	Median								
W 75-84	Sum								
	Observations								
	Average								
	Median								
W 85+	Sum								
	Observations								
	Average								
	Median								

Table A4.1d Costs to somatic care, age and gender differentiated (SEK)

Somatic care	Urology	EMT
W 5-14	Sum	
	Observations	
	Average	
	Median	
W 15-24	Sum	
	Observations	
	Average	
	Median	
W 25-44	Sum	
	Observations	
	Average	
	Median	
W 45-64	Sum	
	Observations	
	Average	
	Median	
W 65-74	Sum	
	Observations	
	Average	
	Median	
W 75-84	Sum	
	Observations	
	Average	
	Median	
W 85+	Sum	
	Observations	
	Average	
	Median	

Table A4.2a Costs to somatic care, age and gender differentiated (SEK)

Somatic care		Emergency division	Emergency room	Child and adolescence	Paediatric	Endocrinology	Gastrointestinal	Geriatric psychiatry
M 0-4	Sum	7 710						
	Observations	1						
	Average	7 710						
	Median	7 710						
M 5-14	Sum				113 079			
	Observations				9			
	Average				12 564			
	Median				12 287			
M 15-24	Sum	323 609	76 163	11 736	415 746			
	Observations	15	8	1	34			
	Average	21 574	9 520	11 736	12 228			
	Median	13 291	6 239	11 736	12 287			
M 25-44	Sum	650 744	273 877			28 901		
	Observations	45	17			1		
	Average	14 461	16 110			28 901		
	Median	13 816	18 433			28 901		
M 45-64	Sum	1 925 549	1 111 055				1 152 443	
	Observations	72	76				25	
	Average	26 744	14 619				46 098	
	Median	14 382	14 018				47 577	
M 65-74	Sum	177 371	518 426			9 527	285 459	105 429
	Observations	11	29			1	6	1
	Average	16 125	17 877			9 527	47 577	105 429
	Median	11 639	20 444			9 527	47 577	105 429
M 75-84	Sum	161 547	504 893				47 577	
	Observations	6	23				1	
	Average	26 925	21 952				47 577	
	Median	21 565	23 853				47 577	
M 85+	Sum	250 983	166 973					
	Observations	4	7					
	Average	62 746	23 853					
	Median	48 810	23 853					

Table A4.2b Costs to somatic care, age and gender differentiated (SEK)

		Haematology	Cardiopulmonary division	Hospice	Infection	Internal medicine	Cardiology	Surgery
M 0-4	Sum							
	Observations							
	Average							
	Median							
M 5-14	Sum					8 888		29 517
	Observations					1		1
	Average					8 888		29 517
	Median					8 888		29 517
M 15-24	Sum					183 310		217 331
	Observations					16		6
	Average					11 457		36 222
	Median					10 395		30 017
M 25-44	Sum				149 006	1 251 129		1 753 697
	Observations				4	50		43
	Average				37 252	25 023		40 784
	Median				41 497	16 074		29 517
M 45-64	Sum	20 116	33 327	28 322	13 038	5 492 440		3 371 819
	Observations	2	1	1	1	168		96
	Average	10 058	33 327	28 322	13 038	32 693		35 123
	Median	10 058	33 327	28 322	13 038	26 406		29 517
M 65-74	Sum		11 598		127 465	1 438 536		1 109 337
	Observations		1		3	54		35
	Average		11 598		42 488	26 640		31 695
	Median		11 598		44 472	19 469		30 017
M 75-84	Sum				44 472	560 200		953 384
	Observations				1	15		30
	Average				44 472	37 347		31 779
	Median				44 472	41 191		29 517
M 85+	Sum					23 439		221 965
	Observations					2		7
	Average					11 720		31 709
	Median					11 720		30 017

Table A4.2c Costs to somatic care, age and gender differentiated (SEK)

		Women's care	Pulmonary division	Neurology	Nephrology	Oncology	Orthopaedic	Psykogeriatric
M 0-4	Sum							
	Observations							
	Average							
	Median							
M 5-14	Sum							
	Observations							
	Average							
	Median							
M 15-24	Sum							
	Observations							
	Average							
	Median							
M 25-44	Sum			44 616				
	Observations			1				
	Average			44 616				
	Median			44 616				
M 45-64	Sum			94 364	9 117		8 122	311 739
	Observations			4	1		1	1
	Average			23 591	9 117		8 122	311 739
	Median			20 830	9 117		8 122	311 739
M 65-74	Sum		54 154		40 895	15 184		
	Observations		1		1	1		
	Average		54 154		40 895	15 184		
	Median		54 154		40 895	15 184		
M 75-84	Sum			12 980				208 493
	Observations			1				1
	Average			12 980				208 493
	Median			12 980				208 493
M 85+	Sum							
	Observations							
	Average							
	Median							

Table A4.2d Costs to somatic care, age and gender differentiated (SEK)

		Rehabilitation	Rheumatology	Urology	EMT
M 0-4	Sum				
	Observations				
	Average				
	Median				
M 5-14	Sum				
	Observations				
	Average				
	Median				
M 15-24	Sum				
	Observations				
	Average				
	Median				
M 25-44	Sum				
	Observations				
	Average				
	Median				
M 45-64	Sum	55 425	49 198	46 721	21 161
	Observations	1	1	1	1
	Average	55 425	49 198	46 721	21 161
	Median	55 425	49 198	46 721	21 161
M 65-74	Sum				
	Observations				
	Average				
	Median				
M 75-84	Sum				
	Observations				
	Average				
	Median				
M 85+	Sum				
	Observations				
	Average				
	Median				

Annex 5

Table 5.1a Alcohol related hospitalisation costs per diagnose for women, age differentiated (SEK).

		F10.0	F10.1	F10.2	F10.3	F10.4	F10.5	F10.6	F10.7
K 5-14	Sum	236 657							
	Observations	18							
	Average	13 148							
	Median	12 608							
K 15-24	Sum	592 022	283 531	47 252					
	Observations	47	7	5					
	Average	12 596	40 504	9 450					
	Median	12 287	19 903	8 872					
K 25-44	Sum	117 672	280 850	1 489 272	90 316	45 463		4 436	
	Observations	13	12	74	6	1		1	
	Average	9 052	23 404	20 125	15 053	45 463		4 436	
	Median	8 888	13 416	14 306	13 052	45 463		4 436	
K 45-64	Sum	245 651	383 526	5 985 116	242 935	200 962	114 554	215 951	79 851
	Observations	21	25	205	13	6	1	1	2
	Average	11 698	15 341	29 196	18 687	33 494	114 554	215 951	39 926
	Median	10 586	11 859	12 423	22 349	35 386	114 554	215 951	39 926
K 65-74	Sum	40 818	160 082	394 870	50 516	14 899		316 002	
	Observations	3	6	15	2	1		3	
	Average	13 606	26 680	26 325	25 258	14 899		105 334	
	Median	11 843	11 299	15 154	25 258	14 899		91 123	
K 75-84	Sum		15 802	97 531					31 811
	Observations		2	2					2
	Average		7 901	48 766					15 905
	Median		7 901	48 766					15 905
K 85+	Sum		6 239						
	Observations		1						
	Average		6 239						
	Median		6 239						

Table 5.1b Alcohol related hospitalisation costs per diagnose for women, age differentiated (SEK).

Kategori		F10.8	F10.9	G31.2	G62.1	I42.6	K29.2	K70.0	K70.1
K 5-14	Sum								
	Observations								
	Average								
	Median								
K 15-24	Sum		31 979						
	Observations		2						
	Average		15 990						
	Median		15 990						
K 25-44	Sum		27 676						
	Observations		3						
	Average		9 224						
	Median		10 716						
K 45-64	Sum	4 436	77 680	34 095					199 129
	Observations	1	3	1					5
	Average	4 436	25 893	34 095					39 826
	Median	4 436	27 623	34 095					39 868
K 65-74	Sum		47 583				10 799		47 577
	Observations		2				1		1
	Average		23 792				10 799		47 577
	Median		23 792				10 799		47 577
K 75-84	Sum								
	Observations								
	Average								
	Median								
K 85+	Sum		6 239						
	Observations		1						
	Average		6 239						
	Median		6 239						

Table 5.1c Alcohol related hospitalisation costs per diagnose for women, age differentiated (SEK).

Kategori		K70.3	K70.4	K70.9	K85.9	K86.0	T51.0	T51.1	T51.9
K 5-14	Sum				55 283		7 114		7 759
	Observations				2		1		1
	Average				27 642		7 114		7 759
	Median				27 642		7 114		7 759
K 15-24	Sum				340 549		2 147 980		42 105
	Observations				11		1		5
	Average				30 959		21 480		8 421
	Median				29 517		21 480		8 656
K 25-44	Sum	41 191	47 577		1 173 295	84 801			158 116
	Observations	1	1		40	3			14
	Average	41 191	47 577		29 332	28 267			11 294
	Median	41 191	47 577		29 517	27 642			9 491
K 45-64	Sum	1 374 407	574 106	72 441	2 764 117	18 433	9 887		71 857
	Observations	28	14	2	85	1	1		7
	Average	49 086	41 008	36 220	32 519	18 433	9 887		10 265
	Median	47 577	45 034	36 220	29 517	18 433	9 887		9 855
K 65-74	Sum	893 927	48 070		1 747 338				11 550
	Observations	11	1		29				1
	Average	81 266	48 070		60 253				11 550
	Median	47 577	48 070		29 517				11 550
K 75-84	Sum	20 497		33 012	1 649 370				35 535
	Observations	1		1	40				1
	Average	20 497		33 012	41 234				35 535
	Median	20 497		33 012	30 017				35 535
K 85+	Sum				786 720				
	Observations				27				
	Average				29 138				
	Median				27 724				

Table 5.2a Alcohol related hospitalisation costs per diagnose for men, age differentiated (SEK).

		F10.0	F10.1	F10.2	F10.3	F10.4	F10.5	F10.6	F10.7
M 0-4	Sum	7 710							
	Observations	1							
	Average	7 710							
	Median	7 710							
M 5-14	Sum	121 967							
	Observations	10							
	Average	12 197							
	Median	12 287							
M 15-24	Sum	584 476	95 935	63 027					
	Observations	52	6	6					
	Average	11 240	15 989	10 505					
	Median	12 287	12 753	7 513					
M 25-44	Sum	448 483	665 785	5 230 581	223 408	164 475	49 145	18 624	86 321
	Observations	35	32	299	14	9	4	1	2
	Average	12 814	20 806	17 494	15 958	18 275	12 286	18 624	43 160
	Median	11 221	11 499	11 366	14 095	22 181	11 786	18 624	43 160
M 45-64	Sum	893 329	1 625 982	15 285 129	909 616	774 749	175 265	774 716	20 508
	Observations	36	87	803	42	29	6	6	2
	Average	24 815	18 689	19 035	21 658	26 715	29 211	129 119	10 254
	Median	9 919	11 366	11 366	18 624	21 352	22 841	25165	10 254
M 65-74	Sum	113 916	274 796	2 775 648	78 237	156 961		256 180	
	Observations	10	17	152	4	2		3	
	Average	11 392	16 164	18 261	19 559	78 480		85 393	
	Median	10 651	11 639	11 859	14 288	78 480		75 772	
M 75-84	Sum	19 295	72 838	332 730	41 809			208 493	44 887
	Observations	1	5	15	3			1	1
	Average	19 295	14 568	22 182	13 936			208 493	44 887
	Median	19 295	12 980	11 366	11 233			208 493	44 887
M 85+	Sum	11 859			11 580				
	Observations	1			1				
	Average	11 859			11 580				
	Median	11 859			11 580				

Table 5.2b Alcohol related hospitalisation costs per diagnose for men, age differentiated (SEK).

		F10.8	F10.9	G31.2	G62.1	I42.6	K29.2	K70.0	K70.1
M 0-4	Sum								
	Observations								
	Average								
	Median								
M 5-14	Sum								
	Observations								
	Average								
	Median								
M 15-24	Sum		21 433						
	Observations		2						
	Average		10 716						
	Median		10 716						
M 25-44	Sum		179 544	44 616				34 070	227 446
	Observations		8	1				1	5
	Average		22 443	44 616				34 070	45 489
	Median		14 882	44 616				34 070	44 814
M 45-64	Sum		26 675	30 550		46 405	9 977	58 114	870 741
	Observations		2	1		1	1	2	15
	Average		13 338	30 550		46 405	9 977	29 057	58 049
	Median		13 338	30 550		46 405	9 977	29 057	44 814
M 65-74	Sum		61 798		173 237				45 960
	Observations		4		7				1
	Average		15 450		24 748				45 960
	Median		14 645		21 549				45 960
M 75-84	Sum						22 175		36 214
	Observations						1		1
	Average						22 175		36 214
	Median						22 175		36 214
M 85+	Sum								
	Observations								
	Average								
	Median								

Table 5.2c Alcohol related hospitalisation costs per diagnose for men, age differentiated (SEK).

		K70.3	K70.4	K70.9	K85.9	K86.0	T51.0	T51.1	T51.9
M 0-4	Sum								
	Observations								
	Average								
	Median								
M 5-14	Sum				29 517				
	Observations				1				
	Average				29 517				
	Median				29 517				
M 15-24	Sum				398 121		57 533	6 076	131 534
	Observations				8		5	1	12
	Average				49 765		11 507	6 076	10 961
	Median				30 017		10 663	6 076	10 100
M 25-44	Sum	132 523	430 839	57 286	2 164 683	43 927	31 141		111 833
	Observations	2	9	1	65	2	2		9
	Average	66 261	47 871	57 286	33 303	21 963	15 570		12 426
	Median	66 261	39 868	57 286	28 941	21 963	15 570		10 063
M 45-64	Sum	3 036 279	1 621 781	714 418	3 550 201	954 778	28 973		177 476
	Observations	70	37	15	117	36	2		17
	Average	43 375	43 832	47 628	30 344	26 522	14 486		10 440
	Median	47 103	44 495	40 047	29 517	27 642	14 486		9 428
M 65-74	Sum	1 144 566	280 522		1 519 628	52 017	9 527		40 384
	Observations	26	7		53	2	1		3
	Average	44 022	40 075		28 672	26 008	9 527		13 461
	Median	47 577	44 495		29 517	26 008	9 527		9 760
M 75-84	Sum	576 832	20 497		1 542 406				9 661
	Observations	14	1		53				1
	Average	41 202	20 497		29 102				9 661
	Median	42 843	20 497		28 941				9 661
M 85+	Sum				617 401				22 520
	Observations				17				1
	Average				36 318				22 520
	Median				27 642				22 520