Introduction

Klara Hradilova Selin

THE CONCEPT AND DIMENSIONS OF ALCOHOL-RELATED HARM

We drink alcohol because we like the taste, in order to relax, to forget all our daily troubles, to celebrate an event, to feel glad and cheerful…. For most of us, drinking is associated with pleasure. However, as research shows, there is a positive relationship between the pros and cons of drinking. Those who experience more positive consequences of their alcohol consumption tend to experience more of its drawbacks as well (e.g. Room & Hradilova Selin, 2004). Thus, alcohol issues are complex and ambiguous; while a majority of drinkers can handle drinking without any particular inconvenience, for some of them the balance between the benefits and harm gets, for diverse reasons, disarranged and alcohol becomes a major problem to them, as well as to those around them.

Drinking as such is a social phenomenon and, accordingly, excessive and problematic drinking seldom affects only the drinker him- or herself. The social dimension of alcohol-related harm, particularly the effect on others, contributes to making it a political issue, an issue of everybody’s interest. Yet, this is a dimension not very often in focus when the overall harm from alcohol is estimated and dealt with. In modern societies, drinking consequences get typically associated with health problems – both physical and psychological – attributed to alcohol (Room, 1996; Rehm et al., 2003). When measuring harm from drinking, the dependent variables usually referred to are dependence, addiction and alcoholism, but also abuse, risky drinking, harmful and hazardous drinking. These concepts are commonly associated with physical harm, but even though there might be a clear conceptual dividing line between physical and social harm, in real life these consequences of drinking often get compounded (Pernanen, 2001). The impaired health of an alcohol addict inevitably affects also those around
him/her, not to mention generating various social costs paid by the society – for health care, for production loss, etc.

Although the borderlines, on the empirical level, are fluid between different kinds of alcohol-related harm, when we talk about social harm from drinking in the following, we mean particularly harm involving some kind of interaction between individuals, but also failing social responsibilities because of drinking (e.g. work problems, financial problems, etc). Physical or psychological harm will also be referred to as ‘personal’, as contrasted to the ‘social’.

Historically, the view of harm from alcohol as a social issue dates back a long way, at least in some cultures. While there were earlier interventions, e.g. criminalization of loitering in taverns in medieval Europe, the social consequences of drinking received increased attention during the late 19th century in the context of the temperance movement of that time (Room, 1996). As Bruun (1983) argues, in countries with a strong temperance movement, like Sweden, there were particularly marked tendencies towards defining alcohol as a social issue. The contribution of alcohol to delinquent and criminal behavior was emphasized, as well as, for instance, the negative consequences of drinking for work efficiency. Domestic violence was given a special space in the alcohol debate (Levine, 1980 and 1983). Later, during the post-war period, drinking and driving also came into focus in western countries, although this is a good example of a drinking problem that cannot easily be classified as either personal/physical or social.

According to Hauge (1999), the introduction of the total consumption model at the end of 1960s, followed by a rise of the new public health perspective at the beginning of 1980s, contributed to an increased liberalization of alcohol policy in the Nordic countries. It might feel peculiar to associate these perspectives with liberal ideas, since when we today talk about the ‘traditional restrictive alcohol policy’ in Sweden, being weakened due to Sweden’s EU-membership, it is the drift away from the total consumption model we actually refer to. What Hauge means by ‘liberalization’ is the increased protection of individual privacy connected with the transition to more general alcohol policy measures. He argues that, before the total consumption model became influential, the harm alcohol caused to a third party – crime, child neglect, violence, etc. – had been the driving force
in the control systems. As social science developed more sophisticated, computerized statistical methods, the possibility appeared to study correlations between alcohol use and diverse health consequences, supporting the public health view and alcohol policies inspired by it. The focus shifted from harm to others towards harm to the drinker, emphasizing everybody’s individual responsibility for his or her drinking and its consequences but still keeping individual integrity and privacy protected. As Hauge points out, this was rather unfortunate, considering the Nordic pattern of drinking, characterized by more binge drinking with harm to others as result -- in contrast to Southern European countries, where frequent drinking of smaller amounts of alcohol causes more health-related problems.

Today, the total consumption model and the public health perspective are much less dominant as the ideas behind the Swedish alcohol policy than they were about fifteen years ago. Although in an international political context Sweden brings up alcohol mainly as a public health issue, the national alcohol debate has concentrated on welfare, safety and order (Room, 2001) – i.e. the social aspects. But even though the view of alcohol as a social phenomenon has a long tradition in the Swedish alcohol discourse (Sutton, 1998), the social dimension has been given surprisingly little space in research, both in and outside Sweden. This is recognized for instance by Klingemann & Gmel (2001) in a chapter title: “Social consequences of alcohol – the forgotten dimension?”.

A BRIEF HISTORY OF STUDYING HARM FROM DRINKING IN SWEDEN

While alcohol consumption, at least in terms of volume of drinking, has been studied for decades in Sweden, less is known about the consequences of drinking and, as noted, particularly the area of social harm. Health problems have been and still can be examined using different sorts of register data, but the possibility to study social problems from drinking by analyzing register-based information has become limited in recent decades, with the increased demands for individual privacy protection and the stronger emphasis on individual responsibility for drinking, discussed above. As analyzed by
Leifman (2000), in the 1950s-70s the individualized control system (e.g. the rationing system and passbook) shifted gradually towards a general control system for alcohol. In 1977, public drunkenness was decriminalized, and subsequently, the Penal Register was discontinued in 1978. Moreover, in the late 1970s the so-called ‘black lists’ were stopped, which had been used to prevent heavy drinkers from buying alcohol in the state monopoly stores. Also, in 1982, the Social Services Act came into force and replaced, among other laws, the 1954 Temperance Act, which included an open recommendation to use register information on alcohol abuse to administer individual corrective measures. After all these changes, general population survey studies, with all their limitations in measuring drinking problems (Kühlhorn et al., 1999), have become essentially the only sources to rely on when measuring social harm from drinking (Leifman, 2000).

Since the beginning of the 1980s, more or less regular national surveys on adult drinking habits have been conducted at least every second year. However, until 1998, when the Alcohol Use Disorder Identification Test, the AUDIT (Babor et al., 1989), was introduced in Swedish surveys for the first time, asking problem questions was rare. Besides these regular surveys, a number of other studies from the 1990s included a few problem items in their questionnaires (Helmersson Bergmark, 2001; Kühlhorn et al., 1999; Hvitfeldt et al., 1999). Yet, no consensus has so far been established around the methodology of asking such questions, so the ability to follow trends has been extremely limited. The data from the national survey analyzed in this thesis is intended to be the first step towards building a tradition of measuring different areas of alcohol-related harm in Sweden, with the opportunity to examine variations in problems (even those not included in any register database) across different sociodemographic categories and to control for differences in drinking practices. At a time when alcohol consumption has rapidly increased in Sweden (Leifman & Gustafsson, 2003), this issue is of particular interest.
THE FRAME FOR THE THESIS: MEASURING SELF-REPORTED ALCOHOL-RELATED HARM IN THE SWEDISH GENERAL POPULATION

Although the four articles included in this thesis focus on partly distinct issues, there are several common denominators. All of them, in one way or another, address the question of dimensionality of drinking problems, with an underlying main distinction between physical and psychological versus social harm, as well as sub-areas. The articles are all concerned with different ways of measuring harm from drinking in general populations, using self-reports. Two of them focus on evaluating psychometric properties of one of the most widely used screening instruments, the AUDIT, and its three subscales (alcohol use, dependence, consequences). The third paper moves on to constructing a number of different measures of alcohol-related harm using factor analysis, followed by testing the reliability of the measures. Finally, in the fourth paper, these measures are applied to estimate prevalence and risk of alcohol-related harm in the Swedish general population. With the exception of the last paper, the thesis is mostly concerned with methodological issues. All the papers are based on data from the same study – a national survey on drinking problems in Sweden. The two papers on the AUDIT use data from the methodological pilot study collected in 2001 prior to the main study; the analyses in the third paper are based on both the pilot and main study data. The last paper uses only the data from the main study – telephone interviews with 5,469 adult Swedes conducted in spring 2002.

TRADITIONS OF MEASURING DRINKING PROBLEMS IN THE INTERNATIONAL LITERATURE

There are several traditions of conceptualization and measurement of problems from drinking in the literature, coexisting without much mutual reference. Two main perspectives discussed here are the social survey tradition of measurement of alcohol-related problems and the tradition of psychiatric epidemiology, measuring clinically defined diagnoses. These two approaches have relatively well-defined epistemologies and conceptualizations. We also
discuss a third tradition which is considerably looser in epistemology and concepts, the tradition of development and use of screening measures for alcohol problems. Different ways of measuring the actual relationship between drinking and possible outcomes, i.e. how the question of attribution is handled in the different traditions, is also briefly analyzed.

The unitary versus disaggregated view of drinking problems: psychiatric epidemiology versus the social survey approach

The old tradition in alcohol studies was to measure what today is called dependence (then referred to as alcoholism), seen as the single common underlying factor in alcohol problems. All kinds of negative consequences from drinking – physical, psychological as well as social – were viewed as symptoms of dependence/alcoholism. This unitary perspective can be traced back to the Grapevine questionnaire constructed by Alcoholics Anonymous and applied on its members and analyzed by Jellinek (1946). The American tradition of psychiatric epidemiology, discussed below, started from a similar unitary perspective. The alternative, disaggregated view of alcohol use and related consequences does not see the different problems from drinking as necessarily interrelated and associated to dependence as the underlying entity. It recognizes the fact that alcohol might very well affect also those who cannot be classified as dependent (in fact, taking into account effects on others, even those who do not drink at all), so that dependence is viewed as only one element in the wide spectrum of alcohol-related harm.

While the unitary approach is associated with the traditional clinical concept of harm from drinking as resulting from a disease process, survey research has adopted the contrasting, particularistic idea of an ‘alcohol problems approach’ – based on the empirical evidence of rather weak correlations between diverse negative consequences from drinking (Clark, 1966). The difference between the unitary and the disaggregated perspective is in a way connected to the distinction between the dichotomy of pathological versus healthy state, typical of clinical thinking, versus viewing problems from drinking rather as a continuum, more often adopted in social science. How these two – the disease and the problems approach – have
developed and how they relate to the different research perspectives and methods of psychiatric epidemiology versus social surveys is well described in a paper by Caetano (1991). He argues that, unlike the clinicians who treat alcohol problems as a property of an individual, survey researchers put more emphasis on the role of social contexts and social interactions in the nature of the problem. The definitions of alcohol problems used in survey research are usually broader. For instance, Knupfer (1967) defined alcohol problems as ‘any problem connected fairly closely to drinking’. Yet, the actual survey items do not differ much from the items and diagnostic criteria used in psychiatric epidemiology – to some extent, both trace their lineage back to the Grapevine study (Jellinek, 1946) – and also, recently, clinical ideas have moved closer to the social research thinking.

Caetano identifies three different approaches to reporting problem rates in alcohol studies: 1) measures based on clinical conceptions of alcohol use and dependence – i.e. measures developed by researchers working within the clinical tradition (for instance the CIDI or the DIS - see the following section on Clinical approach); 2) aggregate measures of problems developed in survey research and 3) rates of specific alcohol-related problems. As he argues, considering the second approach, survey researchers have developed a number of aggregate measures of alcohol problems, despite their ‘theoretical stance in support of studying alcohol problems in a disaggregated manner’. The bases for this development, according to Room (1977), have been considerations about simplicity, the need to yield sufficient numbers for analysis, and face validity. This has also been the approach in this thesis.

The unitary way of viewing alcohol problems is in part supported by the empirical evidence from this as well as other studies, showing a rather strong general factor when subjecting a number of different kinds of drinking problem items to a factor analysis. However, this does not necessarily imply that there is one single underlying cause which all the reported problems are symptoms of. On their face, the items describe “aspects of particular drinking bouts, without necessarily the long-term ‘perpetuating’ implications of the dependence syndrome concept” (Room, 1980), so that they might be seen as clustering around frequency and intensity of intoxication. At the same time, the eigenvalue in the first factor of the Principal Components factor analysis is typically not that high, indicating that even though there is a tendency
towards unidimensionality in self-reports on alcohol problems, the relationships are not particularly strong. Especially when measuring social harm from alcohol, we should remember that we often register events (such as fights, quarrels, harassments, reactions from others) rather than conditions (such as dependence and its symptoms). Accordingly, a social problem reported at one occasion is less likely to be reported at another and cannot thus always be seen as a sign of a more severe and continuous problem. This is also indicated by the lower test-retest reliability observed for social harm items compared to the physical and psychological (Paper 3). Of course, frequent and repeated negative reactions from significant others to a person’s drinking are likely to signal that there is something more severe going on, but on the other hand, alcohol-related fights, to take an example, are probably often occasional. The conclusion can be that when measuring social harm, the question of the frequency of experiencing problems is of particular significance as an indicator of severity. However, this is not easily assessed in analyses based on survey data, as we shall discuss.

**Clinical approaches to alcohol use disorders**

There are two main diagnostic systems used by clinicians worldwide to identify a variety of alcohol disorders: the DSM-IV developed by the American Psychiatric Association (Epstein, 2001) but also used elsewhere, and the international ICD-10 (WHO, 1993). Both are results of years of development of conceptualizations of excessive use of alcohol and its consequences and have been subjected to a number of revisions. Both systems rely on a version of the Alcohol Dependence Syndrome, proposed by Edwards & Gross (1976) to replace “alcoholism”, as their key diagnosis. As noted by Epstein (2001), although based on a medical model, the classification of alcohol use disorders and dependence in DSM-IV and ICD-10 is clearly more complicated than the criteria for other medical syndromes, that have ‘more straightforward etiologies, predictable course and similar features across patients’, and more complicated, too, than for most other psychiatric disorders. While it is easier to understand tolerance and withdrawal as states of disease, it is not as natural to apply the same idea when
it comes to the self-chosen act of drinking. This complexity and, in fact, confusion is reflected in the long history of modifying the concepts, definitions and diagnoses among clinicians and researchers (Epstein, 2001).

A major problem for psychiatry in general had been the existence of different national traditions of diagnosis and classification, as well as the lack of agreement of diagnoses between one psychiatrist and another even within a particular diagnostic tradition. In response to this, researchers at Washington University in St. Louis, Missouri developed a set of diagnostic criteria based on concrete symptoms, seeking more stable diagnoses with better inter-rater and test-retest reliability. This so-called ‘St. Louis revolution’, as it has been termed (Room, 1998), was adopted into general diagnostic classification in psychiatry in the 1980s, in classifications which preceded DSM-IV and ICD-10 (DSM-III and ICD-9). As applied in alcohol diagnoses, the St. Louis criteria were quite disjunctive, based on the idea that different symptoms of the same underlying disease do not have to be present at the same time in the same case (yet retaining the unitary view of an underlying disease). A positive case is identified by meeting a certain number of criteria on the list. This approach continues in DSM-IV and ICD-10. Three or more criteria on the list are supposed to be fulfilled by a patient in order to classify the person as meeting the diagnosis of ‘alcohol dependence’ (DSM-IV) or ‘alcohol dependence syndrome’ (ICD-10).

For research and survey purposes, structured diagnostic interviews have been constructed to enable lay interviewers to gather the material needed to assess diagnostic classifications of mental disorders as defined by DSM-IV and ICD-10. The Composite International Diagnostic Interview, CIDI (CIDI-SAM for the Substance Abuse Module), has been developed by WHO in collaboration with Washington University, St. Louis and other research centres. Its precursor was the Diagnostic Interview Schedule (DIS), constructed in late 1970s by Lee Robins (Robins et al., 1981) at Washington University to provide an instrument that would be easy to apply by both clinicians and trained laymen and targeted at both patients and members of general population. The DIS covered many of the major diagnoses covered by DSM-III – the official diagnostic system in the US at the time. The CIDI covers both DSM and ICD diagnoses.
A British alternative to the mostly US-derived CIDI is the Schedules for Clinical Assessments in Neuropsychiatry (SCAN), also designed by the WHO and based on the British PSE (Present State Examination), parallel to the way the CIDI was developed from the DIS. It is a semi-structured interview designed for use as a clinician-administered diagnostic assessment (http://epi.wustl.edu/epi/assessments/scan.htm). Conceptually, SCAN leaves a place for clinical judgment in the diagnosis, while CIDI’s diagnoses are more mechanically based on the case’s responses. However, in the alcohol field, there is little difference between the two.

In psychiatric epidemiology, analysis is usually conducted at the level of the diagnosis, rather than of the component criteria. Thus, social problems from drinking tend to be swept up into the diagnosis. These are examples of some of the criteria included in the DSM-IV and ICD-10, more or less close to our definition of social harm:

**DSM-IV Alcohol Dependence:** “Important social, occupational and recreational activities are given up or reduced…”

**DSM-IV Substance Abuse:** “Recurrent substance use resulting in a failure to fulfil major role obligations at work, school, or home (e.g. repeated absences or poor work performance related to substance use; substance-related absences, suspensions, or expulsions from school; neglect of children or household)”

“Recurrent substance-related legal problems (e.g. arrests for substance-related disorderly conduct)”

**ICD-10 Alcohol Dependence:** “Progressive neglect of alternative pleasures or interests because of substance use…”

The DSM-IV criteria cover the social dimension of alcohol-related harm to a greater extent than the ICD-10. That social harm is explicitly excluded from the ICD-10 diagnosis is clearly stated in, for instance, the clinical descriptions and diagnostic guidelines for ICD-10 Harmful Use: “…the fact that a pattern of use or a particular substance is disapproved of by another person or by the
culture, or may have led to socially negative consequences such as arrest or marital arguments, is not itself evidence of harmful use”. Yet the ICD-10 Alcohol Dependence criterion listed above, concerning progressive neglect of alternative pleasures, demonstrates how thin the borderline between physical and social (or at least non-physical) harm may be, even in measures that explicitly distance themselves from compounding the two areas.

**Screening for alcohol disorders**

Research on physical and psychological (i.e. personal) harm from alcohol is, as noted, much more developed than research on social harm. Since early 1970s, for the sake of effectiveness and efficiency (Reiser, 1978), a number of screening instruments have been constructed, often aiming to make a quick estimation of early risk of but also of the severity of drinking problems, typically in clinical settings. In general, screening can be defined as ‘a procedure designed to identify people who have, or who are at risk of having, an illness, disease or disorder’ (Babor et al., 2004). Perhaps the oldest among alcohol screening instruments is the Michigan Alcohol Screening Test (MAST), developed at the beginning of the 1970s, later followed by the CAGE, the Addiction Severity Index (ASI), the Self-administered Alcoholism Screening Test (SAAST), the Rapid Alcohol Problems Screen (RAPS) and, not least, the instrument examined in this thesis – the Alcohol Use Disorder Identification Test (AUDIT). Even though the questions included in the instruments typically cover physical or other personal harm, some of them touch upon the social dimension as well (reactions from others, recommendations to drink less, somebody injured in connection to your drinking). Many of these instruments are increasingly being used in general population studies.

Although the screening instruments are based on the same line of thought as the diagnostic criteria, what precisely each of them is supposed to measure is sometimes not as clear as their labels imply, and some of them have come to be used as indicators of a variety of drinking disorders. One of the reasons for this inconsistency is that the primary aim of a screening procedure is not to identify a specific disease; the aim is rather to identify subjects in need of an early intervention and, once this has been accomplished, the subjects identified as positive are exposed to further
assessment. However, this should not justify the conceptual indistinctness of the measures. The reliability of the instruments has usually been in focus when these were constructed (even though seldom followed up by reliability tests in different populations). As discussed earlier, to guarantee good reliability has become of increased importance within clinical research praxis since the 1970s, after psychiatric diagnostic methods came under attack for their lack of inter-rater reliability, i.e. the difficulties for two physicians to arrive at the same diagnosis using the same instrument (Kirk & Kuchins, 1992). In contrast, the issue of validity of the instruments has not received much attention in the clinical area. What we measure when asking about drinking problems – adopting the established screening instruments or using other techniques – has, though, always been a matter of concern for social researchers and is also one of the issues addressed in this thesis.

THE ISSUE OF ATTRIBUTION

One tradition of measuring drinking problems in general population surveys, inspired by medical epidemiology, has been to study these problems without a direct attribution to alcohol. That is, self-reports on drinking habits and on diverse events or conditions are recorded separately and it is up to the analyst to calculate correlations and draw conclusions about the extent to which the risk of certain problems is enhanced by alcohol (Gmel et al., 2000; Rehm & Gmel, 1999). This is, however, rather problematic when measuring social harm from drinking such as involvement in fights or quality of marriage; the alcohol attributable fraction may be smaller and more complicated to determine for, let’s say, work problems compared to liver cirrhosis. Instead, the paradigm within social epidemiology (Caetano, 1991; Grant, 1993) has been to use questions with attribution to alcohol built into the wording. Those interviewed are, for instance, asked to report if and how much their drinking has damaged family relationships, whether other people have reacted to their drinking, or to what extent some events coincided in time with their drinking. As argued by Babor et al. (2003), attributions to alcohol made by the respondents themselves are part of the construction of alcohol-related (social) harm and as such, they constitute an important part of the data. Moreover,
when the aim is to describe the typically rather small group of respondents who actually report drinking problems, questions with attribution explicitly expressed are more or less a necessity.

**ESTIMATING SEVERITY**

As noted by Caetano (1991), survey research has not been very coherent in dealing with the issue of measuring severity of different kinds of alcohol-related problems. To use frequency as an indicator has been just one approach among a number of others. In Knupfer’s (1967) measures, for instance, certain problem items have been weighted higher as being a-priori more severe – a procedure that seems rather arbitrary. Estimating severity by means of frequency of experiencing problems has, though, its drawbacks as well; in general population studies, the alcohol-related problems surveyed are often relatively rare phenomena. In the present study (but not only here), when asking about most of the drinking problems, the respondents had the opportunity to report at least whether this has happened just once or whether more often during the past 12 months (some of the frequency scales were more detailed than that). However, since the overall proportion reporting problems is low, the number of positive cases does not allow for any more detailed analysis in terms of the actual frequency. In other words, most general population studies have, on the conceptual level, been concerned about the importance of distinguishing between occasional and more frequent problems from drinking. But despite the ambition to capture this dimension empirically, it has seldom worked out. Trying to show how sensitive we are to the conceptual issues, we sometimes end up collecting data we have no ability to make proper use of, at least not with samples of the usual size.

Yet another approach to measuring problem severity is to assess how many on the list of criteria counted as indicators of a certain problem are fulfilled. Additive indexes can be constructed corresponding to broader areas of harm. The severity is then indicated by the total score. This has been the idea behind most screening instruments, using a certain cut-off to identify positive cases and it has also been the approach used in some of the present analyses. For instance, in Papers 3 and 4, balancing between defining a
substantial number of positive cases and yet not including just occasional events, a cut-off score of 2+ has been chosen for most of the problem areas studied.

THE DIFFERENT PERSPECTIVES AND THE PRESENT THESIS

The thesis adopts the social survey research perspective and, at least at the conceptual and measurement level, the disaggregated view of alcohol-related harm. The focus is on questions about specific consequences from drinking, each asked in their own right, without viewing them as symptoms of some underlying pathology. Yet, in some of the actual analyses, the items’ intercorrelations are explored and they are, after all, aggregated into summary measures of different areas of harm from drinking. As already discussed, the main reason for this is to achieve simplicity and the need for sufficient numbers of positive cases (Room, 1977), and aggregating the problem measures serves here also as a tool for assessing severity of problems.

Although we emphasize the social survey approach and analyzing general population data consisting largely of questions on less serious, everyday problems from drinking, ideas from the clinical tradition are also present in parts of the analyses – for instance, in validating the AUDIT (originally a clinical instrument) against ICD-10 Alcohol Dependence diagnostic criteria. However, the dimensionality of the AUDIT scale is one of the main issues we raise, rather than regarding the instrument in a unitary manner, i.e. as measuring one specific condition. Also, unlike the medical epidemiologic tradition and for reasons mentioned above, we chose to ask questions with attribution to alcohol built into the wordings. This is also the way the AUDIT questions are formulated.

THE FOUR PAPERS

To fill in the gap concerning validation of the screening instruments, the first paper in this thesis brings up the issue of validity of one of the most widely used screening measures, the Alcohol Use Disorder Identification Test
(AUDIT), testing it against four different criteria. The AUDIT was originally designed to screen for harmful and hazardous drinking in clinical populations (Babor et al., 1989), but has been increasingly used, often without any explicit reflection, to measure other alcohol disorders as well, such as dependence. More recently, the instrument has been included in several general population surveys, both in Sweden and elsewhere, without any particular psychometric testing of its validity or reliability in non-clinical settings.

The analysis in the paper is based on a small general population pilot sample of adult Swedes. The study had a test-retest design with one month between the tests, and was conducted in 2001 prior to the main national study on alcohol-related problems in Sweden. In this article, only data from the first test is used.

Dependence, as defined by ICD-10, is one of the validation criteria, the remaining three being high volume of drinking, health problems and alcohol-related social harm. As the results show, the consumption items referred to as AUDIT-C (frequency of drinking, amount of alcohol per occasion and frequency of binge drinking) have very high discriminatory power. Among cases identified as positive on the whole AUDIT (i.e. scoring 8 or above), 71 percent of the total score was derived from the consumption items. At the same time, 9 percent of the positive cases scored zero on the problem items (AUDIT-P). It is, therefore, recommended that when using AUDIT in screening for more severe problems, a combination of a certain cut-off score on the AUDIT-C and scoring at least 1 on AUDIT-P is to be preferred. The full scale (AUDIT-10) turned out to screen well for all three of high-volume drinking, social problems and dependence. The performance was lower for alcohol-related health problems.

While Paper 1 examines the validity of the AUDIT, Paper 2 concentrates on the reliability of the instrument, using the test-retest data from the same sample. The agreement between the two measuring occasions is studied at three different levels – item, subscale and full scale level. According to the findings, the agreement is fairly good, indicating a satisfactory reliability of the scale. On the item level, the correlations between the test and the retest ranged between 0.6 and 0.8, while for the total score, the reliability was 0.84. When dichotomizing the scale by the recommended cut-off score of 8+, the agreement measured by Kappa was 0.69, interpreted as substantial. At the
retest, 91 percent of cases were classified the same way compared to the first test, as either positive or negative. The results showed that the AUDIT is more reliable for males, young people and moderate consumers, while the reliability is rather low for low consumers. For women, the test-retest reliability was higher when using the cut-off score of 6+ rather than 8+.

The findings from the first two papers on the AUDIT can be summarized in the following way: 1) The full instrument screens rather well for high-volume drinking, social problems and dependence but less well for alcohol related health problems. In other words, there is a difference in how well the AUDIT performs when screening for different dimensions of alcohol-related harm in a general population, and this should be taken into account when applying it. 2) Whatever the measure is screening for, it does so quite reliably.

While the first two papers are based on data from a methodological pilot study from 2000/2001, in the analyses in Paper 3 and 4, larger data material from the main study on drinking problems in the Swedish general population from 2002 has been used. Unlike in Paper 1 and 2, the issue here was not to apply any of the established measures of harm from drinking. Instead, concerned with the multidimensionality of the concept of alcohol-related harm and the rather questionable approach of sometimes examining the different dimensions by means of a single instrument, a number of scales measuring different aspects of harm from drinking have been constructed (Paper 3) and applied (Paper 4). In Paper 3, in total 38 items on different kinds of alcohol-related harm – both personal and social, and both acute/situational and chronic/long-term – were put through a factor analysis. From the results and in accordance with our conceptual assumptions, four core dimensions were identified: impaired self-control, chronic health problems, interpersonal problems and public disorder. While the first two areas can be considered to be problems of a physical or psychological, i.e. personal nature, the other two typically presuppose some kind of interaction with others and can thus be classified as social harm from drinking. Since, as mentioned, alcohol-related social harm is the area least explored and the methods least developed, a fifth scale was constructed, including all the items covered by interpersonal problems and public disorder as well as a couple of items on failing social responsibilities, such as money and work problems. This summary instrument
has been referred to as alcohol-related social harm. The psychometric properties of the five scales were then tested in terms of test-retest reliability (using the pilot data also analyzed in Papers 1 and 2) as well as internal consistency. It was concluded that the internal consistency of the five scales ranged from fair to reasonably good, with the highest values observed for impaired self-control and the social problems summary scale. The findings are in agreement with previous analyses in this area in other cultures. Also the test-retest reliability was concluded to be fair to substantial. Social problems from drinking is an area that in previous research has shown lower reliability than, for instance, aggregate measures of dependence and there is a similar tendency in our data (considering that the impaired self-control scale covers items often used as indicators of dependence). However, the test-retest reliability of the social problems scale observed in this study was relatively high when compared to others’ findings.

In Paper 4, the four core instruments (impaired self-control, chronic health problems, interpersonal problems and public disorder) were applied on the same general population sample of 5,549 adult Swedes (17 years old and above) in order to estimate the prevalence of alcohol-related problems in different population subgroups, as well as the risk of harm from a given level and pattern of drinking. In other words, the aim was to examine to what extent sociodemographic background (gender, age, children in the household, marital state, education, income and region of residence) explains variation in drinking problems when differences in actual drinking habits, i.e. both volume and pattern, are controlled for. Many studies have found social differentiations in the prevalence of problems, but the separate question of the risk of problems given the same alcohol use has not been widely addressed when modeling alcohol-related harm. Based on the existing literature, two opposite hypotheses were guiding the analyses: the so-called default hypothesis, expecting to find differences, and the so-called two-step model. According to the latter model, while the sociodemographic variables do explain variation in drinking habits, when it comes to developing problems with alcohol, other factors, for instance personality traits, will have a higher explanatory value. The results of the analysis were somewhat unexpected; sociodemographic background does not predict much of the variation in harm from alcohol – with or without controlling for drinking. This is in line
at least with the ‘second step’ of the two-step model. Besides drinking itself, the main predictor was young age – except for chronic health, where no important age effect could be observed. Even though the role of being young in predicting harm becomes weaker when drinking is controlled, it remains highly significant. Thus, being young not only predicts high prevalence of drinking problems, it also elevates the risk of impaired self-control, interpersonal problems and public disorder, given a certain level and pattern of drinking. The socioeconomic indicators, income and education, played a significant role in some of the models, but in different directions depending on gender and kind of harm. Almost no differences could be found between different regions, whether in terms of geography or of population density. As discussed in the paper, this contradicts others’ findings of higher rates of alcohol-related harm in the South of Sweden.

CONCLUSIONS

Dimensions of harm from drinking

The results from Paper 1, validating the AUDIT against different criteria, suggest that the instrument is a satisfactory measure of both social problems and dependence (as well as of consumption), which might make us prone to accept the unitary view of alcohol-related harm with the implications it has for studying and handling it. There might, after all, be a single underlying cause to all the different ways drinking problems manifest themselves. It is also supported by the fact that when a variety of drinking problem items, covering physical and psychological as well as social harm, is subjected to a Principal Components factor analysis, our results as well as others’ show that practically all of them load quite strongly on one factor, indicating an underlying unidimensionality. On the other hand, as argued above and shown in Paper 3, the correlations are not strong and, when rotated, the items tend to cluster themselves into conceptually reasonable categories. Thus, there is no clear-cut empirical evidence to guide us when pondering the plausibility of the unitary versus the disaggregated view of alcohol-related harm. In any case, the empirical findings should be viewed in the light of conceptual and pragmatic
as well as ethical considerations. It is hard to justify treating harm to a third party (damage to the marriage due to respondent’s drinking, other’s complaining, etc) purely as an individual symptom of the respondent’s problematic drinking. Not only is it conceptually inaccurate; the harm to others than the drinker, as discussed by Hauge (1999), needs to be given more attention when forming alcohol policy, and researchers should feel responsible for providing evidence on which the decisions can be based. As noted, this area has been largely neglected on several levels – by scientists as well as the treatment system and, in the past decades, also by policy makers.

Less severe social consequences of drinking are more or less everyday phenomena – drunken people harassing others in the street, a noisy party disturbing neighbors’ sleep, etc. However, for those living close to a person with drinking problems, being exposed to its consequences becomes an ‘everyday phenomenon’ in the most tangible sense. Measuring drinking problems, including the perspective of people around the drinker, is definitely a task for future research. So far, these problems have been conceptualized and measured to a limited extent, and there are no established methods and no agreement among alcohol researchers about how to approach the issue. For instance, an analysis in the course of an ongoing study on social costs of alcohol in Sweden (Hradilova Selin, forthcoming) shows a significant impairment in quality-of-life (measured by QALYs) among relatives and friends of heavy drinkers. In health-economic terms, the degree of impairment can be translated into large monetary values. This supports further the need of exploring the area in its own right.

Adopting the unitary view through measuring different aspects of alcohol-related consequences by means of a single scale can also be questioned from the treatment perspective. It would probably be rather inefficient for a person reporting a high level of remorse because of something s/he did when drinking or others complaining about her drinking to be treated for alcohol-related health problems. In our view, identifying different areas of alcohol-related harm based on empirical, conceptual and pragmatic grounds, followed by developing reliable and valid measures covering these areas, is worth more scientific effort.
Predictors of alcohol-related harm in general population surveys

One of the major findings in *Paper 4* is that, whether or not the analysis controls for level of drinking, sociodemographic background is generally a weak predictor of different areas of alcohol-related harm, at least in the Swedish context. The only strong risk factor among those included in the models is young age – except for heavy drinking itself. This does not really correspond to the results from register-based analyses showing that, for instance, social class is a significant predictor of alcohol-related mortality (Mäkelä, 1999a; Romelsjö & Lundberg, 1996). Neither are the results in line with others’ findings about relatively high consumption and related harm in the southern parts of Sweden. Possible explanations to this particular disagreement are discussed at the end of *Paper 4*.

Considering the role of social position, as argued by Room (2004), the empirical results may vary depending on the definition used for social class as well as kinds of alcohol-related harm studied.

While there might be both methodological and other specific explanations of why each single sociodemographic predictor turned out to have a weak effect in our models while some other data show otherwise, there might also be more general reasons to why so little sociodemographic variance could be found in our survey data. One such reason can be the characteristics of those who tend to be missing from household samples - for instance homeless or institutionalized (Gmel & Rehm, 2004). The level of drinking problems in these groups is likely to be high (Kühlhorn, 1999) and, considering that a small group of heavy drinkers can have major impact on the overall picture of distribution of and background to alcohol-related harm, their absence in our data can be expected to affect the outcome. A related explanation can be that in surveys like this, we usually measure less serious, more everyday problems from drinking. This contrasts to the morbidity, mortality and treatment statistics.

Thus, both the kinds of problems studied and the kind of population targeted must be considered when making predictions of alcohol-related harm. Those who get classified as the most problematic drinkers in survey samples are usually socially integrated, have a stable place to live, and are
often in families (whose complaints about the respondent’s drinking we, ironically, consider to be one of the problem indicators). The opposite tends to be true of those registered when coming into treatment; they are likely to have lost most of their social networks, families and friends. Many of them have probably ended up outside the labour market as well (Storbjork & Room, forthcoming), which would actually make them score negatively if included in our survey at all and asked about work problems. The fact that we do not talk about the same people when identifying ‘problem drinkers’ in surveys as we do based on clinical data is illustrated further by the difference between the average age of those who enter treatment (around 40 years) compared to those who report the highest levels of alcohol-related harm in general population surveys (around 25 years). Problem drinkers in national samples differ probably much less than clinical samples from the rest of the general population in their sociodemographic characteristics, which might be part of the answer behind the low variation.

Following trends in harm from drinking by regular surveys

Considering that many consequences of drinking are socially constructed, it is not surprising that trends in alcohol-related harm do not always follow trends in consumption – even when the same kind of data for estimating both, i.e. self-reports from national surveys, is analyzed. This has been shown, for instance, by Midanik & Greenfield (1999) regarding the US situation between 1984 and 1995. During that period, alcohol use declined while trends in self-reported problems remained rather stable. As the authors argue, this might be due to reduced tolerance towards drinking and its consequences, or, as they put it – “as the United States become drier, the tendency to ‘notice and name’ alcohol problems is enhanced”. Similar mechanisms might be at work also when the changes go in opposite direction – consumption rising and related consequences being stable or even declining because of less formal restrictions, less social disapproval, etc. This may apply not only to the development over time; it might also explain why, for instance, in a certain period of time, regions with relatively high drinking volume (such as southern
Sweden) do not necessarily show a proportionately high level of related problems, especially in terms of social harm.

Based on what has just been discussed, one might argue that conducting regular surveys on alcohol-related harm will result in a misleading picture of actual trends in problems from drinking. But, firstly, the construction of an alcohol-related problem is a natural part of it; in that sense, it is reasonable and important to follow up self-reports on harm from drinking over time, if they are sensibly interpreted. Secondly, even if there is an element of social construction in practically all harm from alcohol, even in, for instance, how causes of death get recorded (Johansson & Fugelstad, 2002), it is not equally strong for all kinds of harm, including different kinds of social problems. To report involvement in a fight when drinking is presumably less of a matter of social construction or expectation than, for instance, feeling guilt and remorse because of something you did when drinking. The complexity of these issues makes it even more interesting to study how harm from drinking develops over time and follows – or does not follow – the trends in actual alcohol use. Such regular surveys, covering both questions on drinking habits and different dimensions of alcohol-related problems, have been missing in Swedish alcohol research. The study from which data is analyzed in the present thesis was aimed as an initial step towards building such a tradition.
REFERENCES


Bruun, K (1983): Alkoholforsknings – alkoholismforskning. In Sociologisk Forskning 1, Department of Sociology, Stockholm university


Hradilova Selin, K (forthcoming): Quality-of-life among relatives and friends to heavy drinkers. SoRAD, Stockholm University


Leifman, H & Gustavsson, N-K (2003): En skål för det nya millenniet (Cheers to the new millennium!). En studie av svenska folkets alkoholkonsumtion i början av 2000-talet. Research report nr 11, SoRAD, Stockholm


Pernanen, K (2001): What is meant by ‘alcohol-related’ consequences? In Klingemann, H & Gmel, G; eds. Mapping the Social Consequences of Alcohol Consumption. WHO Regional Office for Europe, Copenhagen


