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Alcohol, Health Disparities and Development

Prepared for the World Health Organization

by

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1. Background and conceptual frame

1.1 Alcohol as a source of harm

As we will briefly review, alcohol consumption is responsible for a great deal of harm to health. This paper is concerned with the distribution of the harm among nations and within nations, and with the relation of alcohol to development. Thus it reviews what is known about the contribution of alcohol to health disparities between societies and between social groups in a society, and about the role of alcohol in promoting or hindering economic and social development.

In the World Health Organization's comparison of the contribution of risk factors to the global burden of disability and death in 2000, alcohol ranked fifth as a risk factor, accounting for 4.0% of the Disability-Adjusted Life-Years (DALYs) lost (Ezzati et al., 2002). A new estimate for 2002 raises the proportion to 4.4% (Rehm et al., 2006). This result underestimates the total harm, in a number of ways:

- Only harm to health is included (i.e., physical and mental disorders and injuries); the frame of the study does not include attention to social problems from drinking, such as family problems, crime and lost productivity.
- Primary attention in the study is on harm to the health of the drinker him- or herself, and not harm to others. However, alcohol-attributable harm to others than the drinkers themselves makes up an important part of the alcohol-related burden of disease, e.g. the effects of a mother's drinking while pregnant on the newborn, or injury to others in relation to drunk driving or to partner violence (Rehm et al., 2003b; 2004; Levy et al., 2002). The WHO estimates did not capture all of this harm adequately. The harm to others from drinking is important in its own right. It is also particularly important for policy discussions, since there is general agreement that preventing harm to others is an appropriate task for governments.
- The WHO study measures net health harm attributable to alcohol after taking into consideration the estimated protective effects of alcohol, particularly for ischaemic heart disease. The gross harm attributable to alcohol consumption is thus substantially greater than in the comparison of risk factors. From the point of view of public health policy, there are substantial arguments against subtracting the protective effects,

particularly as studies at the population level have found no evidence that increasing alcohol consumption reduces deaths from ischaemic heart disease (Room, 2006). The estimates of harm resulting from alcohol in the Global Burden of Disease study are thus a minimum estimate of the full scope of harm from alcohol.

1.2 Relations between drinking and harm

Mechanisms of harm. There are three main direct mechanisms of harm from alcohol (ethanol, in technical terms; Babor et al., 2003)

- As a constituent of a variety of beverages, ethanol acts as an acute and/or long-term toxic agent on many organs of the body, through a number of mechanisms of action. Other constituents of particular alcoholic beverages may also have toxic effects (Preedy & Watson, 2005).
- As an intoxicant, ethanol impairs physical coordination, and also affects thinking and judgement. Because of this, alcohol consumption plays a major role in violence and in unintentional injuries in most societies, and is involved in risk-taking in sexual behaviour (Eckardt et al., 1998; Room et al., 2005).
- As a psychoactive substance with dependence-producing properties, ethanol can induce dependence, whereby the drinker's self-control over drinking behaviour is impaired. Dependence is itself a potentially disabling condition, and also induces further drinking resulting in intoxication and/or toxic effects (Drummond, 1990). These mechanisms of harm are relatively direct effects of alcohol consumption on the drinker's mind and body.

There are also several indirect mechanisms of harm from drinking.

- Alcohol is usually a valued commodity and someone is paying for the drink. Choosing to drink uses resources which would otherwise be available for other purposes. Where resources are scarce, heavy drinking may further impoverish the drinker, the drinker's family, or a whole community, thus increasing health or social harm.
- Whether through intoxication, dependence or hangover, drinking may result in defaults on expectations or poor performance in major social roles – in work functioning, in parenting, in relationship and friendship roles. In connection with this, both the drinker and others may be affected, through job or productivity loss, break-up or dysfunction in family life, etc., in turn resulting in harm to physical or mental health. The harm in such cases may result from the role impairment itself, from others' reactions to the impairment, or from both.

- As discussed further below, to be called “a drunk” or “an alcoholic” or some such term is a label of abuse in most societies (Room et al., 2001). Typically, such labels are assigned when the drinker does not respond in ways considered appropriate to negative reactions from others. Being assigned such a derogated status often contributes further to the marginalization and social exclusion of the heavy drinker and his or her family, resulting in further social and health harm.

Aspects of drinking involved in harm. A variety of different aspects of alcohol consumption can contribute to these various mechanisms of harm.

- In some circumstances or in some societies, **drinking at all** can contribute to harm. Where no drinking is allowed before driving a car or piloting a plane, for instance, taking a drink in that circumstance can result in serious penalties. In many countries under Islamic law, there can be serious social or legal consequences for drinking at all.
- The **amount consumed on an occasion** is important for many acute consequences of drinking such as overdose, injury and violence, and is also important wherever intoxication is socially disapproved.
- The drinker’s **behaviour while drinking** is also crucially important. There are substantial differences, both between individuals and between cultures (MacAndrew & Edgerton, 1969; Room, 2001), in how drinkers behave with a given amount of drinking. The drinker’s behaviour affects both the direct risks of harm and the nature and extent of the harms that result from the reactions of others.
- The **context of drinking** can substantially affect the risk of particular kinds of harm from a given drinking occasion or pattern of drinking. A pattern of drinking while eating seems to be associated with less harm from chronic disease than the same pattern of drinking at other times (Trevisan et al., 2001; Stranges, 2004). The risks of injury and other acute consequences of a drinking occasion are greatly affected by the physical and social context of the drinking occasion and of the ensuing hours.
- The **patterning of drinking over time** affects the risks of harm. Fourteen drinks on a Saturday night is more likely to lead to injury than two drinks every night. For many chronic diseases resulting from alcohol’s toxicity, the **cumulative volume of drinking** over time is important.
- The reputational **drinking history** – how the patterning of drinking is interpreted by others – is crucial in social judgements, both in the moment and more permanently, which may result in social or health harm.

1.3 Health disparities and the potential contribution of alcohol to them

By health disparities, in the present context, we mean inequalities in health status or functioning between members of different social categories. Inequalities in access to health care are also often included in the definition of health disparities; we will mention alcohol's role in these, but not focus on them. Our focus is on two distinct kinds of disparities in health status or functioning: those existing between different societies and those existing within a given society.

Inequalities between societies and their potential relations with harm from alcohol. One differentiation is in terms of the development status of the society in which a person lives – does the person live in a rich, a middle-income or a poor society? It is well recognized that there is a strong but not perfect relationship between this and general life expectancy in the society, as in the World Health Organization's differentiations of countries in terms of levels of infant mortality and adult life expectancies, so that we will use these differentiations as a surrogate for development status.

Societies differ in their drinking on each of the aspects of drinking mentioned above. In part, such variation reflects differing levels of affluence or poverty, although a variety of other cultural and environmental factors are also involved. For a given level or pattern of drinking, the harm will generally be greater in poorer societies than in more affluent societies. For chronic effects of heavy drinking such as liver cirrhosis, for instance, there will often be a worse outcome because of the existence of cofactors such as nutritional deficiencies or liver infections (Room et al., 2002a:119-124). Also, services to mitigate adverse health effects of drinking are likely to be less widely available. Drinking-driving may have a worse outcome because of less safe streets and vehicles.

Inequalities within a given society and their potential relations with harm from alcohol. The second kind of social differentiations are those that occur within a given society, and particularly those which are socially recognized and affect social standing as well as access to resources. These include social class and socioeconomic status, but also such differentiations as gender, age, family status and ethnic affiliation.

Within a society, as discussed below, social classes and other social differentiations often differ in amount, pattern and other aspects of drinking. One pattern of differentiation seems to be universal: women drink less than men, even allowing for differences in body weight, in every society yet studied, and the health and social burden from women's drinking is

accordingly everywhere substantially less than the burden from men's drinking. Other patterns of differentiation vary from one society to another: in some societies, people in the countryside drink more, while in others it is people in cities; in some it is young adults, while in others it is the middle-aged. Patterns by social class also vary, although it is very common to find more abstainers – people who do not drink at all – in the poorest social groups. These differences in amount and pattern of drinking contribute to differences between social groups in rates of alcohol-related harm.

For a given amount or pattern of drinking, socioeconomic inequalities within a society are likely to have many of the same differential effects as those mentioned for differences between societies. Many of these differences are mitigated, but not entirely removed, by the universal availability of health care within the society. Where there is unequal treatment or access to resources, the health and injury consequences of a given level or pattern of drinking are also likely to be more severe for those with less resources.

Stigma and marginalization: another connection of inequality and alcohol within a society. As we have noted, some of the harm from alcohol is tied up with the responses of others. In every society so far studied, drinking behaviour is to a greater or lesser degree moralized, sometimes with positive values attached to some drinking patterns or customs, but always with negative values attached to some patterns. Where use of alcohol is religiously or culturally forbidden, the negative valuation will be attached to drinking at all. But also in societies where drinking is thoroughly integrated in daily life, there are boundaries of acceptable drinking behaviour, whether in terms of a specific drinking event or a pattern of drinking behaviour (Bennett et al., 1993). In many languages, there are stigmatizing terms for someone who is seen as habitually transgressing the boundaries (e.g., “un ivrogne” in French, “a drunkard” or “drunk” in English), and these terms may become a master status in terms of which the person is primarily defined (see http://en.wikipedia.org/wiki/Master_status). Thus, in a 14-country WHO cross-cultural study of disabilities, key informants assigned “alcoholism” an average rank of 4th out of 18 conditions in terms of the degree of social disapproval or stigma in the society – greater disapproval in most societies than for being “dirty or unkempt” or for “chronic mental disorder”. The key informants also ranked 2nd out of 10 conditions “someone who is visibly drunk” in terms of adverse public reactions to appearing in public – consistently more adverse than for someone with a chronic mental disorder who “acts out”, or for someone who is dirty and unkempt (Room et al., 2001).

An individual's patterns of drinking are thus a subject of social evaluation in terms of approval or disapproval, of honour or stigma, in everyday life. The evaluations attached to a

particular pattern vary over time and between cultures, and often vary also within a culture according to circumstances and who is using. Whatever we may think of these moral evaluations, an analysis which takes into account social realities cannot ignore them. It is in this sense that patterns of drinking, particularly through the social evaluations of them, become involved in the creation of social inequality -- an inequality which is not so much about socioeconomic status directly, but rather has to do with marginalization, social exclusion and stigma (Room, 2005). A low socioeconomic status may also render a pattern of drinking more visible and make the drinker more vulnerable to marginalization and stigma.

A glimpse of the processes of social devaluation that are directly relevant to health outcomes can be seen in the literature on public opinion about which personal characteristics should be taken into account in setting health priorities. Summarizing six studies from Britain, the U.S. and Australia, Olsen et al. (2003) report that respondents felt that heavy alcohol users should receive less priority in health care. Often the justification given is the belief that the users' behaviour contributed to their own illness. Along the same lines, the 14-country WHO study found that, in responses on scenarios involving alcohol problems, the "theme of personal responsibility became vividly apparent" (Room et al., 2001:260). Studies in health services show that the care given is in fact likely to be inferior if the patient is seen as a skid-row drinker or a similarly derogated category (e.g., Sudnow, 1967; Strong, 1980). Santana (2002) found that among nine categories of "disadvantaged people" interviewed in a population sample in deprived districts in Portugal, those identified as alcoholics were, along with the homeless, the least likely to have used health services, despite 100% having less than good health, and the most likely to have a "bad" or "very bad" opinion of the health services. To the extent access to good health care affects health status, these findings illustrate a direct path by which exclusion and marginalization can affect health status.

There is a clear tendency for many cultures to marginalize particularly those who are both poor and habitually intoxicated. There are many pathways by which poverty can enable or exacerbate the stigmatization of intoxication. Police surveillance of public drunkenness is often heightened in poor communities (Chambliss, 1973). Poor people, because of their lack of resources, are often less able to avoid adverse social consequences of their drinking; the more affluent can purchase social or spatial buffering of their behaviour. The social reactions to what is defined as out-of-bounds behaviour may contribute to pauperization: the drinker may lose his or her job, or be thrown out of an educational course. The end result, perhaps particularly in affluent societies, is that there is a strong overlap between the most marginalized population and those defined as having serious alcohol problems. Thus 62% of the homeless in Sweden are

identified as having “addiction problems” (Socialstyrelsen, 2005), while of those entering treatment for alcohol problems in Stockholm, 77% were not in the workforce and 67% did not have a fully stable living situation (Storbjörk & Room, 2006).

1.4 Alcohol and social and economic development

Alcohol in tribal and village societies before the modern era. The use of alcoholic beverages was very widespread in tribal and village societies prior to the modern era. Fermented alcoholic beverages were known in all cultures except in Australia, Oceania and North America (roughly, north of Mexico). In societies without alcohol aboriginally, the encounter with alcoholic beverages with European contact was often abrupt and highly problematic. Where alcohol was traditionally consumed, production of alcoholic beverages was common on a small scale as a household or artisanal activity, particularly when and where agricultural surpluses were available. Fermented beverages produced in such circumstances could not be stored indefinitely nor transported far, and often spoiled quickly if not consumed. Drinking was thus often an occasional and communal activity, associated with particular communal festivals (Room et al., 2002a).

Alcohol in European empires and in early modern industrialization. There are many places in the world where versions of these traditional patterns originating from tribal and village societies persist today. But superimposed on them, and often replacing them, are patterns of production and consumption which have developed over the last 500 years or so. These involved new beverages, new modes of production, distribution, and promotion, and new drinking customs and institutions. Distilled spirits, invented in China and coming to Europe by way of Arabia, made it possible to produce alcoholic beverages which did not spoil, and thus could be transported across the world. By the 1500s, as European empire-building got under way, distilled spirits had escaped from the medicine cabinet and were becoming an everyday drink. In the long period of colonial expansion, distilled spirits and fortified wines were a major tool through which native people were subjugated and exploited (Room et al., 2002a:23-27). As the industrial revolution got under way, an early stage was industrial production of alcoholic beverages, particularly beer and spirits. As transportation improved, alcoholic beverages became a market commodity which was available in all seasons of the year, and at any time during the week. Particularly in Europe, the result was a flood of alcoholic beverages washing over one country after another, producing scenes of disorder, illness and death (e.g., Coffey, 1966). Elsewhere in the world, also, the result was often catastrophic. The American statesman

Benjamin Franklin, for instance, noted in the late 1700s that rum had “already annihilated all the tribes who formerly inhabited the seacoast” of eastern North America (Room et al., 2002a:153).

The social reaction against the flood of industrialized alcohol. In the countries with early industrialization, alcohol played a two-sided role. On the one hand, it was an early instrument of industrialization. On the other hand, the greatly increased supply and often the widespread availability of alcohol proved disastrous for much of the population. By the 19th century, leaders of industry came to see it also as a major impediment in industrial life, which demanded a sober and attentive workforce. Eventually and with great difficulty, industrializing societies in Europe and elsewhere came to see the flood of alcohol as a substantial social and health problem. In a number of countries, popular social movements to limit drinking and even to prohibit it gained broad membership and eventually political strength. Typically, after a century or more of popular movements and political activity, a new and fairly stable alcohol control structure was put in place. In the meantime, European colonial powers to a greater or lesser extent also imposed restrictions on alcohol availability in their colonies on other continents, particularly for the indigenous populations (Room et al., 2002a).

Legacies of the past, and developments since 1950. We live today with the legacies of this history, but also with the results of new developments in the last half century. The dissolution of the colonial empires meant also the removal of many of the restrictions on drinking, in all non-Islamic parts of the world. Industrialized alcoholic beverages, such as European-style beer, became prestige commodities in many places; a bottle of Heineken or Carlsberg in one’s hand became a cheap way of staking a claim to be cosmopolitan, part of the modern world.

In the meantime, developments in brewing, distilling, and packaging methods, and in transportation networks, increased the availability of alcoholic beverages everywhere. In the present-day world, alcohol production has largely lost its old function as an early driver of industrialization, since production of industrialized products is now increasingly in the hands of multinational corporations headquartered in the developed world, and the beverages are produced in imported turn-key plants by a small production staff, presided over by expatriate brewers or distillers (Room and Jernigan, 2000). Trade agreements and disputes and structural adjustment plans imposed by international development agencies, in treating alcohol as an ordinary commodity, have contributed to dismantling arrangements which often limited the alcohol market. Meanwhile, global alcohol producers and distributors are able to call in each

local market on the full range of advertising and other promotional techniques which have been developed and honed in recent decades (e.g., Jernigan, 1997).

Alcohol and development today. With respect to economic development, alcohol still plays a two-sided role. But the balance has shifted. Production of alcohol brings less benefit to the local economy of a developing country, since only a small labour force is involved in producing beer or spirits. Production will in any case be primarily directed to the domestic market – this is true for 95% of alcohol production worldwide. The largest exporters of alcohol are in Europe, and there are few examples of successful exports of alcohol from a developing country; the main examples of success are Mexico, with a large market next door, and Chile and South Africa, with their longstanding winegrowing traditions. Other exports from developing countries are mostly limited to niche markets.

One alcohol-related contribution to the local economy, particularly for favourably located island countries, comes from tourism. Given the multinational organization of the tourist trade, again the primary benefit in terms of local employment is relatively low-skill and low-paying jobs. Against these benefits must be set the costs. In the case of tourism, encouragement of a heavy-drinking flow may in the end be self-defeating. As an elder on Lamu, an island off the coast of Kenya, noted:

‘people come here to see the way we live. We are very traditional, even conservative. We do not drink alcohol, we prefer that people dress modestly. The tourists bring money, which we need, but they also bring influences which are difficult for our young people to resist.... The tourists help us survive, but their money and ways may kill the thing they come here to see.’ (Caputo, 2001:110).

In the case of successful economic development, alcohol consumption is likely to rise – as can be seen in China, South Korea, Thailand, and other growing Asian economies today – in the absence of religious proscriptions or public health-oriented alcohol controls. Often, because of their prestige value, imported beverages lead the trend. Thus, in the context of the current oil boom in Venezuela, Diageo reports that its sales of Scotch whiskey rose by 60% in 2005, despite the disapproval of the President (Romero, 2006). Generally speaking, with a rise on alcohol consumption rates of alcohol-related problems will also rise. As discussed below, it can be seen from the WHO studies of alcohol’s contribution to the Global Burden of Disease that alcohol becomes increasingly important as a source of disability and death in countries with a higher standard of living.

1.5 Outline of the rest of the report

The report brings together material from a variety of sources relevant to the issues of the role of alcohol in health disparities both at an international level and within societies, and the varied roles of alcohol with respect to economic development. Section 2 considers data from a revision of the estimation of alcohol's role in the Global Burden of Disease concerning variations by poverty or affluence between countries and by world subregions both on alcohol consumption levels and patterns, and on alcohol's contribution to the burden of disease. Section 3 considers the quantitative data on variations within societies by social differentiations – gender, age, and particularly socioeconomic status – in levels and patterns of alcohol use and alcohol-related problems, as well as the limited data on changes over time in gradients by social differentiations. Section 4 brings to bear evidence from case studies in the ethnographic literature on changes in alcohol production and availability and their effects, particularly regarding economic inequalities in developing societies, and considers evidence also on alcohol as a source and symbol of political tension and conflict. Section 5 looks at the evidence from the policy evaluation literature on the effectiveness of alcohol policies from the perspectives of the applicability of the findings in low- and middle-income countries, and the effects of the policy measures on alcohol-related health inequalities within a country. Section 6 briefly considers the research needs which have emerged in the course of putting together this paper, and the paper ends with some conclusions (Section 7).

2. Variations in alcohol consumption between world subregions by health status and level of development

2.1 Variations in aspects of drinking between grouped subregions

As the culmination of several years of intensive work, the World Health Organization published a series of analyses of the Global Burden of Disease (GBD) for 2000, charting the patterns of disability and death found in 14 subregions defined in terms of the major geographical divisions of the world used by WHO, and within each of them by the level of infant and adult mortality (on a scale from A [best] to E [worst]). As a part of the GBD effort, a Comparative Risk Analysis (CRA) was carried out, analysing 26 risk factors with comparable definitions and methods to yield rankings and values in terms of the proportion of the GBD which was attributable to each factor (Ezzati et al., 2002). This analysis has now been repeated by Jürgen Rehm and colleagues for alcohol for the year 2002 (Rehm et al., 2006b).

A necessary component of the CRA for alcohol is gathering and assembling data on aspects of alcohol consumption for all the world subregions. A fuller description of the process

by which the data was gathered and aggregated can be found elsewhere (Rehm et al., 2004; 2006b); our description here is summary.

In the general GBD and CRA analyses, the world was generally divided into three major groupings, reflecting health status and (with some notable exceptions) also societal income level. These three categories correspond roughly to the World Bank's divisions between low income, middle income and high income countries. For purposes of giving a clear picture of alcohol consumption, we here subdivide two of the categories (see also Room et al., 2005). The lowest income category is split between subregions which have very high rates of abstinence, and other subregions. The subregions with high rates of abstinence include India and countries with predominantly Moslem populations, while the other poorer subregions are in Africa or Latin America. We also split the highest income category, between the countries of the former Soviet Union and in the poorer parts of Eastern Europe, on the one hand, and the affluent countries of Western Europe, North America and the western Pacific, on the other hand. While this division reflects substantial differences in national wealth, it is also made because of the particular problems with alcohol which have emerged in the last 15 years in many of the successor states to the former Soviet Union, and in bordering lands (Leon et al., 1997; Moskalewicz, 2000).

It will be seen in Table 1 that, in terms of per-capita purchasing power parity (PPP), a comparable index valued in "international" (standardized) American dollars, this 5-category division of the world yields essentially three different levels of purchasing power. The two low-income categories each have less than half the purchasing power per capita of the next highest category. The "western" developed countries have over 4 times the purchasing power of the next category down. In between are the "middle-income" countries of the WHO trichotomy and the category of countries in Eastern Europe and Central Asia.

The table shows that the rank-ordering of percentage of drinkers generally follows the rank ordering in terms of purchasing power: there are proportionally more drinkers in richer regions of the world than in poorer. This does not hold true for the two lowest-income groups, which were separated on the basis of their rates of abstention: the subregions with highest abstention rates are not quite as poor on the average as the second category of countries in the table. Generally, the gender differences in abstention are much greater in the three developing-country regional groups than in the two developed-country regional groups; the latter two groups have relatively high drinking rates in both genders. In summary, the patterns in the table are consistent with the idea that, in the absence of strong cultural or religious bars, abstention may be expected to decline as affluence increases.

In the CRA analyses, countries were scored in terms of a hazardous drinking pattern score, ranging from 1 to 4, which generally provides an indication of the extent to which drinking is concentrated in binge drinking occasions, or is spread across light drinking occasions (Rehm et al., 2001; 2003a; 2004). In principle, the hazardous drinking score is not affected by the overall level of drinking; rather it is an ordinal indication of the degree of trouble that can be expected to be associated with an extra litre of alcohol consumption. The southern European wine countries and Japan are scored at 1 on the score; countries like Russia, with strong traditions of socially disruptive drinking, are scored at 4, and other countries are scored in between. It will be seen from the last column of Table 1 that, among the 5 categories, the developed “western” countries have the lowest average hazardous drinking score, while the Eastern Europe and Central Asian grouping has the highest. Lower-income developing countries, whatever their proportion of abstainers, also have relatively higher hazardous drinking scores. Setting aside the special case of Eastern Europe and Central Asia, it is generally true that the degree of hazard associated with each litre of alcohol consumed is higher in poorer than in richer countries.

In the middle of the table can be found the recorded consumption, in litres of pure alcohol per person aged 15 and above, and also the estimated unrecorded alcohol consumption, in the same terms. Recorded consumption estimates derive mostly from tax and other governmental records, while data on unrecorded consumption is gathered from a number of sources, but particularly from the Food and Agriculture Organization’s estimates of crops and their end-stage uses (Rehm et al., 2006b). Recorded consumption is highest in the “western” developed subregions, but they have a relatively low level of unrecorded consumption, while Eastern Europe and Central Asia have by a considerable margin the highest level of unrecorded consumption. The result is that the two developed-region categories have estimated total consumption levels that are not far apart, with the “eastern” category at the highest level. The low-abstainer poorer subregions have the next highest estimated total consumption, while the high-abstainer poorer subregions show, as might be expected, much lower total consumption than elsewhere. It can be seen that, with the 5-category grouping at least, there is no simple one-to-one correspondence between level of consumption and level of economic development. In the second column from the right in the table, the total consumption per person aged 15 and over is converted into grams of pure alcohol per day, and expressed on a basis of the drinkers only, excluding from the base those who do not drink at all. It will be seen that there is rather little variation in this figure (by less than twofold) between the five categories, and little evidence of covariation between it and either level of affluence or average pattern of drinking. The curious

Table 1: Economic development status and alcohol consumption parameters in 2002 (based on population weighted averages of 182 countries)

	Level of mortality/ category of countries	Average GDP PPP in I\$*	WHO- Regions*	Adult Recorded Consumption in ltr/year@	Adult Unrecorded Consumption in ltr/year@	Adult Total Consumption in ltr/year@	% drinker		Consumption per Drinker in g/day pure alcohol	Average Pattern of Drinking#
							M	F		
Developing countries	High mortality; lowest consumption	2,441	EMR-D, SEAR-D: Islamic middle East and Indian subcontinent	0.3	1.4	1.7	19%	2%	33	2.9
	Very high or high mortality; low consumption	2,249	AFR-D, AFR-E, AMR-D: poorest countries in Africa and America	4.4	2.6	7.1	47%	32%	41	3.0
	Low mortality emerging economies	5,257	AMR-B, EMR-B, SEAR- B, WPR-B: better-off developing countries in America, Asia, Western Pacific Region	4.4	1.3	5.7	67%	36%	25	2.5
Developed countries	Very low mortality	28,405	AMR A, EUR A, WPR A: North America, Western Europe, Japan, Australasia	9.4	1.3	10.7	81%	65%	32	1.8
	low child and low or high adult mortality	6,862	EUR B, EUR C: Former Socialist countries in Central/Eastern Europe and Central Asia	7.0	4.6	11.7	77%	59%	37	3.5
World (population weighted from regions)				4.4	1.7	6.2	55%	34%	30	2.6

Source: Own calculations based on Global Alcohol Database

* GDP: Gross Domestic Product, a measure of the size of a country's economy; PPP: Purchasing Power Parity per capita, the country's per capita purchasing power for an equivalent basket of goods, expressed in International Dollars (I\$). See: http://en.wikipedia.org/wiki/International_dollar; http://en.wikipedia.org/wiki/Purchasing_power_parity

* The regional subgroupings used were defined by WHO (World Health Report 2000 on the basis of high, medium or low levels of adult and of infant mortality. A stands for very low child and very low adult mortality, B for low child and low adult mortality, C for low child and high adult mortality, D for high child and high adult mortality, and E for very high child and very high adult mortality.

@ in litres of pure alcohol per resident aged 15 and older per year (average of available data for 2001 to 2003).

indicator of the hazard per litre of alcohol consumed, composed of several indicators of heavy drinking occasions plus the frequency of drinking with meals (reverse scored) and in public places (1 = least detrimental; 4 = most detrimental)

picture which seems to be emerging consistently from such analyses (see also Babor et al., 2003) is that the average amount of drinking **among drinkers** does not seem to vary much between global subregions by drinking pattern or by per-capita total consumption level. A corollary of this is that the most important determinant of the level of consumption in a society seems to be the rate of abstention among adults. This implies that, if the world develops as we would hope, with increasing affluence, and if rates of abstention drop with increasing affluence, global rates of alcohol consumption can be expected to rise, at least in the absence of countervailing public health measures.

One other aspect of the average consumption per drinker is worth noticing. A number of countries have settled on guidelines for drinking to minimize health and injury risks. These guidelines vary somewhat between countries; the Australian guidelines have been widely used in epidemiological estimates, including the CRA (Rehm et al., 2004), and are among the more liberal in their limits. The Australian guidelines specify 40 gm per day for men and 20 gm per day for women as the limit above which drinking is hazardous (<http://www.alcohol.gov.au/internet/alcohol/publishing.nsf/Content/everyone>). It will be noted that the world consumption per drinker is estimated at 30 gm., midway between the male and female limits. In itself, this implies that a substantial part of the drinking in all regions of the world is at levels which are hazardous in terms of long-term health. The level of hazard seems particularly high among drinkers in poorer regions with many drinkers.

2.2 Variations in consumption level by degree of national affluence

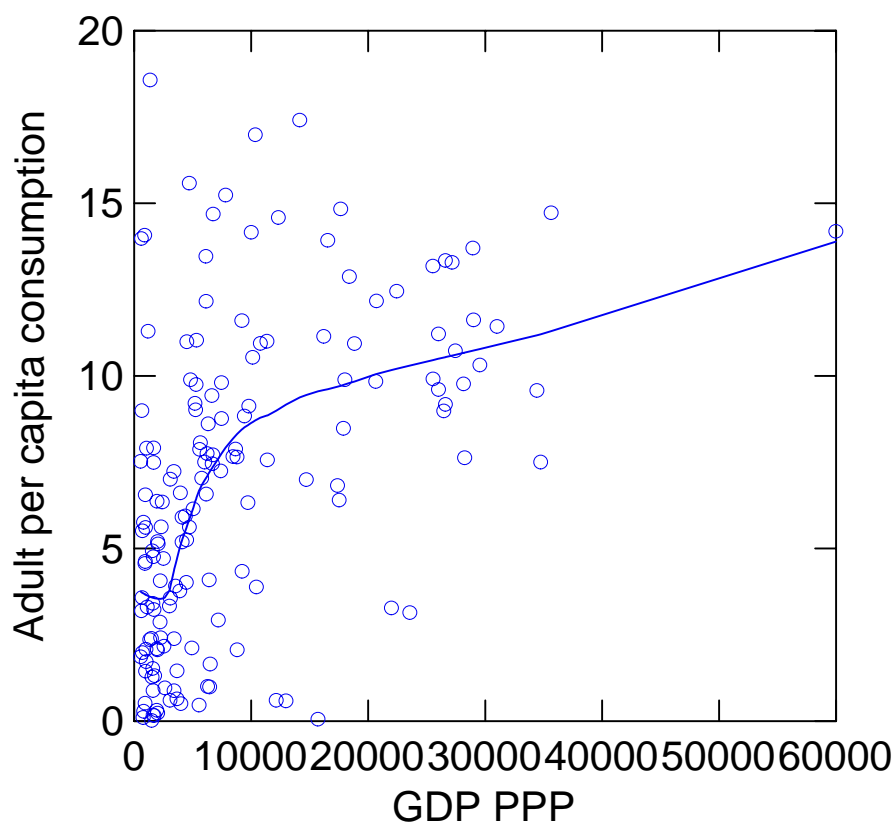
At the level of the individual country, the relationship between economic level and alcohol consumption is relatively close. Figure 1, in which each circle is a country, gives an overview based on the purchasing power parity (PPP)-adjusted Gross Domestic Product, on one axis, and the adult per capita consumption, on the other. The PPP indicator was selected to reflect the purchasing power for goods, especially non-exported goods, inside the respective countries.

The higher the GDP PPP, the higher the adult per capita consumption (including unrecorded consumption) in 2002. This is reflected by an overall Pearson correlation of 0.55 between both variables overall. But the slope, which is relatively steep for lower GDP PPP, flattens after \$10,000.

The correlation within the poorest 115 countries alone (as defined by GDP PPP below \$10,000) is higher, with a value of 0.84 on a weighted basis (0.75 unweighted), reflecting an average increase of adult per capita consumption of 1.22 litres of pure alcohol/year per increase of \$ 1,000 GDP PPP (95% confidence interval between 1.07 and 1.37; unweighted: average increase 1.17 litres of pure alcohol/year with 95% Confidence Intervals between 0.98 and 1.36). On the

other hand, the respective coefficients for the 46 richest countries with GDP PPP greater or equal to \$ 10,000 were a correlation of -0.17, with a non-significant decrease of -0.06 for the weighted analyses (95% confidence interval -0.17 to 0.05), and with similar values for the unweighted analyses (non-significant average increase per \$1,000: 0.08, with 95% confidence interval between -0.05 and 0.21).

Figure 1: The relation of Gross Domestic Product (PPP) and adult (15 plus) per capita consumption in litres of pure alcohol per year in 2002 (weighted by adult population of countries)



The results can be summarized by the following:

- There is a strong relation between GDP PPP and adult per capita consumption as defined by the sum of recorded and unrecorded consumption for poor countries with a GDP PPP of less than \$ 10,000.
- This relationship does not hold among the rich countries.

Figure 2: The relation of Gross Domestic Product (PPP) and the male abstention rate in 2002 (weighted by adult population of countries)

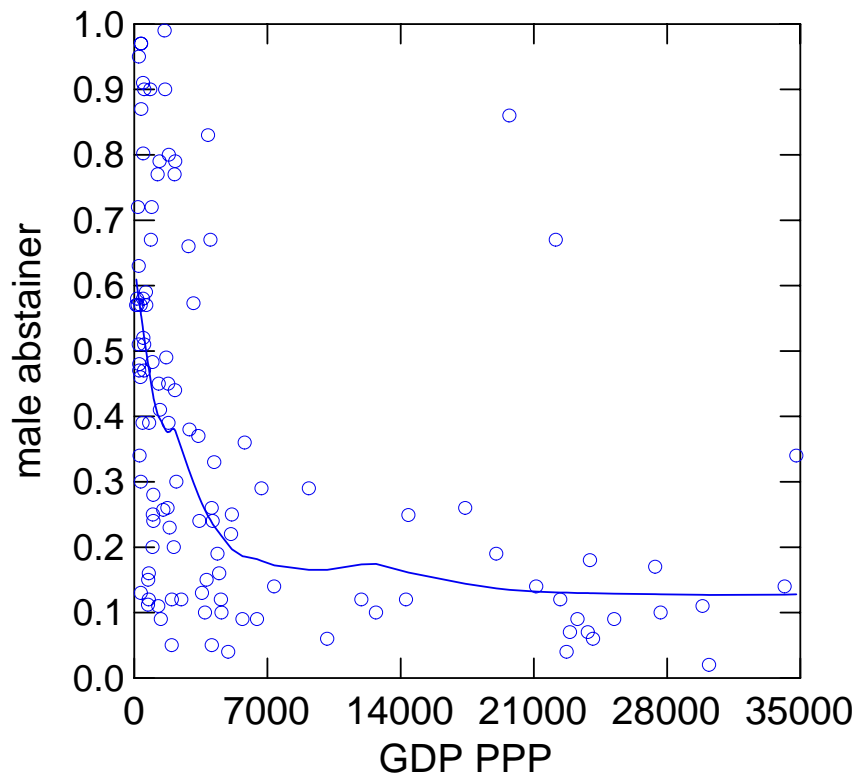


Figure 2 shows the relationship of the same indicator of national affluence (GDP PPP) with the rate of abstention in the country's male population. It will be seen that the line is even more sharply bifurcated than in Table 1; beyond a PPP of \$5000 or so, there is little relation between the degree of affluence in the society and the rate of abstention. The continuing but flatter rise in per capita consumption with increasing affluence must thus reflect some increment in consumption with increased affluence among those who are drinking.

Below \$5000, the sharply falling curve of abstention in Table 2 is more or less a mirror image of the sharply rising curve for per capita consumption in Table 1. It is particularly in the lower part of the PPP range that variation in the rate of abstention seems to account for a large part of the variation in per-capita consumption.

While the description of these relationships is relatively easy, the interpretation is not that straightforward, as the above analyses are only based on ecological associations. Alcohol consumption may be interpreted as an indicator for the type of goods which become part of

everyday life when economies start to prosper. After a threshold, the relationship between economic prosperity and alcohol consumption is no longer so important, however.

2.3 Variations between grouped subregions in the burden of disease attributable to alcohol

We now turn to the question of variations between richer and poorer regions of the world in alcohol's contribution to the global burden of disease. Table 2 shows the results in terms of Disability-Adjusted Life-Years (DALYs) for the five categories of grouped subregions already used in Table 1, drawing on the new calculations for the year 2002 by Rehm et al. (2006b). DALYS reflect a combination of number of years lost from early deaths and fractional years lost when a person is disabled by an illness or injury.

It will be seen, first of all, that the contribution of alcohol to the GBD appears to have risen between 2000 and 2002, from 4.0% to 4.4%, although this in part reflects changes in epidemiological knowledge. The proportions attributable to alcohol of all DALYs lost are higher in the middle- and high-income categories than in the low-income categories. But this partly reflects the much greater burden of disease in poorer regions of the world. It will be noted that the Eastern Europe and Central Asian grouping shows by far the greatest alcohol-attributable proportion (13.1%).

In terms of the relative importance of different conditions in the burden from alcohol, unintentional injuries account for a notably higher proportion in the two low-income categories and in the Eastern Europe and Central Asia category. The burden from intentional (violent) injuries is particularly heavy in poor parts of the world with more drinking and in Eastern Europe and Central Asia. Alcohol use disorders (mainly dependence and harmful use) account for a large part of the burden in the richest category, and also for a substantial part in the middle-income developing-region category. Cancers account for larger proportions of the burden in the rich and middle-income categories than elsewhere, while the burden from cirrhosis and other non-communicable diseases is roughly evenly spread. Building on an analysis which found a strong effect of pattern of drinking on heart disease – protective for rich countries with low-hazard drinking patterns, adverse for others (Rehm et al., 2004) – the results show considerable variation in the results for cardiovascular disease, with the proportion of the alcohol burden accounted for by such disease highest in Eastern Europe and Central Asia and in the low-drinking poorest category of subregions.

If we consider the alcohol-attributable burden in absolute terms (DALYs per 1000 adults), the rankings of the 5 subregional categories change somewhat. Far and away the highest absolute burden per adult is in the Eastern Europe and Central Asia grouping, with 36.48 DALYs per thousand adults. The second-highest toll is in the higher-consumption low-income countries, with 18.70 DALYs per thousand. At the bottom of the range is the low-consumption low-income

Table 2:	Economic development status and alcohol-associated burden of disease in 2002 (in 1000 DALYs)											
	Developing Countries						Developed countries				World	
	very high or high mortality; lowest consumption	very high or high mortality; low consumption	low mortality		very low mortality	Former Socialist: low mortality						
	<i>Islamic middle East and Indian subcontinent</i>	<i>Poorest countries in Africa and America</i>	<i>Better-off developing countries in America, Asia, Pacific</i>		<i>North America, Western Europe, Japan, Australasia</i>	<i>Eastern Europe and Central Asia</i>						
DALYs	%	DALYs	%	DALYs	%	DALYs	% [†]	DALYs	%	DALYs	%	
Perinatal conditions	27	0.4%	41	0.5%	9	0.0%	5	0.0%	11	0.1%	94	0.1%
Malignant neoplasms	406	5.4%	475	5.8%	3,319	12.0%	1,281	11.8%	572	4.4%	6,054	9.3%
Neuro-psychiatric conditions in total	1,954	26.0%	1,962	24.1%	10,761	38.8%	5,914	54.6%	2,525	19.6%	23,115	35.6%
<i>Only alcohol use disorders (also part of neuro-psychiatric disorders)</i>	<i>1,673</i>	<i>22.3%</i>	<i>1,252</i>	<i>15.4%</i>	<i>9,743</i>	<i>35.1%</i>	<i>5,235</i>	<i>48.3%</i>	<i>2,176</i>	<i>16.9%</i>	<i>20,079</i>	<i>30.9%</i>
Cardiovascular diseases	1,164	15.5%	446	5.5%	2,336	8.4%	-1,600	2.0%	2,213	17.2%	4,558	7.0%
Other non-communicable diseases	863	11.5%	762	9.4%	2,576	9.3%	939	11.5%	1,452	11.3%	6,592	10.1%
Unintentional injuries	2,461	32.8%	3,065	37.7%	5,692	20.5%	1,642	15.2%	4,286	33.2%	17,146	26.4%
Intentional injuries	634	8.4%	1,383	17.0%	3,042	11.0%	524	4.8%	1,833	14.2%	7,417	11.4%
Total alcohol related burden 'caused' in DALYs	7,510		8,134		27,734		10,837		12,892		67,107	
Total alcohol related burden 'prevented' in DALYs	0		0		0		-2,132		0		-2,132	
Total alcohol related burden in DALYs	7,510	100.0%	8,134	100.0%	27,734	100.0%	8,706	100.0%	12,892	100.0%	64,975	100.0%
Total burden of disease in DALYs	479,114		378,505		416,621		114,977		98,597		1,490,126	
% of total disease burden which is alcohol related	1.6%		2.1%		6.7%		7.6%		13.1%		4.4%	

category, with 6.99 DALYs per thousand. The next lowest is the “western” developed country category, at 11.75; the middle-income country category is in the middle, at 15.54.

2.4 Variations in social and health problems from drinking by degree of national affluence

In Table 3, we turn to problems from drinking at the level of the individual country. The table draws on data from national surveys done as part of the GENACIS study (Gender, Alcohol and Culture: An International Study; <http://www.genacis.org/>). Current drinkers aged 18-65 were asked a series of questions about problems resulting from their own drinking.¹ The table uses a score constructed from the average percentage of positive answers to each of nine such questions, computed on a base of the whole population.

Table 3. Social and health problems from drinking in the general population of 6 developing countries, as population rates and as a trouble-per-litre index

	Average GDP PPP (in I\$)	Annual growth rate 1992-2002 (%)	% current drinkers	Per-adult consumption (ltr pure alc)	Average % in pop. positive/problem drinking item	Problem/Consumption index (Argentina =1.0)
Argentina	10,134	1.3	85	16.30	2.7	1.0
Costa Rica	8,454	2.4	40	6.70	4.8	4.3
Sri Lanka	3,423	0.9	33	0.57	2.1	22.2
India	2,555	1.8	22	2.00	2.4	7.2
Uganda	1,370	3.0	46	13.30	7.8	3.6
Nigeria	911	2.8	30	6.94	2.9	2.5

Source: GENACIS surveys: Wilsnack et al., 2005; Room & Hradilova-Selin, 2005

It will be seen that, in this small sample of developing countries, there is no clear relationship between a country’s affluence and the average reported alcohol problem rate. There is a tendency for the per-adult alcohol consumption to be related to the proportion of drinkers in the population, at least in that Argentina is highest on each of these and Sri Lanka and India lowest. There is no clear relation, however, between per-adult consumption and the reported alcohol problem rate. Except for the high rate for Uganda, in fact, the population rate of reported alcohol problems did not vary much. If an index is constructed of reported problems

¹ During the last 12 months, has your drinking had a harmful effect on: your marriage or intimate relationships; your relationships with other family members, including your children; your friendships or social life; your work, studies or employment opportunities; your housework or chores around the house; your finances; your physical health? Have you gotten in a fight while drinking? Have you had trouble with the law about your drinking and driving?

per litre of alcohol consumed, with the ratio for Argentina set as 1.0 (last column), there is a wide variation between countries is apparent “trouble per litre”, with the highest rates in Sri Lanka and India – countries where drinking at all was distinctly a minority phenomenon.

2.5 Some conclusions on variations by subregions and countries in rates of alcohol consumption and problems

The most consistent finding in these analyses is that high abstention rates go with poverty, both at the national level and in comparisons at the subregion level. If comparisons are confined to drinkers, there is less systematic variation between rich and poor subregions in consumption per drinker. In terms of proportion of the burden of disease, alcohol accounts for a higher fraction in the more developed subregions, and particularly in Eastern Europe and Central Asia, and for lower proportions on the poorest developing countries.

If the proportion of the burden of disease is compared with the consumption per adult in the 5 regional categories (Tables 1 and 2), the share-of-burden per litre ratio is highest in Eastern Europe and Central Asia (13.1/11.7) and in the middle income category (6.7/5.7), and lowest in the “wetter” poor subregions (2.1/7.1) and in the the developed “west” (7.6/10.7). The last two results, however, reflect different underlying patterns; in the wetter poor regions, the share of burden is pushed down by the many competing causes of death and disability. When the absolute burden of DALYs per 1000 adults is considered, the wetter poor regions show a burden from alcohol second only to that in the Eastern Europe and Central Asia grouping.

The GENACIS results on rates of reported problems from one’s own drinking suggest that at the country level there is wide variation in the reported rates of problems per litre of alcohol consumed. In international comparisons, rates among drinkers of reported social problems from drinking are generally high in developing countries. The GENACIS results certainly support the importance in a developing-country context of measuring social problems from drinking, as well as health and injury problems.

3. Within-country variations by social differentiations

Rates of drinking at all, amount and pattern of drinking, and alcohol-related problems vary in any given society across a variety of social differentiations, and thus can produce health inequalities between different social categories. We will focus here on three major dimensions of social differentiation which can be found in all societies: gender, age group, and socioeconomic status.

It must be recognized that the literature of social differentiations in alcohol consumption and problems is heavily concentrated in a relatively small number of societies – particularly Nordic and English-speaking countries. Despite limited resources, the World Health Organization has sponsored several efforts in recent years to broaden the geographic base for studies of drinking practices and problems (e.g., Demers et al., 2001, Obot & Room, 2005). Our analysis necessarily depends heavily on studies from developed societies, but we will draw on studies in other societies where we can.

3.1 Gender, alcohol use and alcohol-related problems

As noted above, gender differences in alcohol use are universally observed: compared to women, men are less often abstainers, drink more frequently and in larger quantities, and consequently experience more problems from drinking than women. However, the size of the gender differences varies widely from one society to another, and from one measure of use or problems to another (Fillmore, 1997; Wilsnack & Wilsnack, 1997; Wilsnack et al., 2000; Rehm et al., 2003a). It has been estimated that globally alcohol-related deaths account for 0.6% of all deaths among women and 5.6% among men, or for 1.3% and 6.5% of the disability-adjusted life years, respectively (Rehm et al., 2003). There is a gender ratio of about 4:1 in the developed and middle-income groupings, and 5:1 in the low-income grouping of regions. In all 14 regions of the world in the WHO Global Burden of Disease 2000 study, the estimates were higher among men than among women. In absolute terms, the difference between men and women was larger in the wealthier regions of the Americas, Europe and Western Pacific, and lower particularly in Africa, the Eastern Mediterranean region and in South East Asia.

When the number of health and social consequences for a given level of alcohol use is considered, the difference between men and women is no longer so great: it either disappears, is greatly reduced, or is even turned around. For example, Mäkelä and Mustonen (2000), studying the prevalence of different types of positive and negative consequences of drinking in Finland, found that gender was related to nearly all consequences after controlling for annual intake and annual drunkenness days, but the direction of the association varied from one consequence to another without a clear pattern. Correspondingly, Bongers et al. (1998) found in their study of different types of alcohol-related problems in Rotterdam, the Netherlands that, given similar drinking patterns, the proportion of women reporting problems was either similar to or lower than the proportion among men. However, when the number and the severity of problems were taken into consideration, it was found that women reported severe problems somewhat more than did men, although these differences were not statistically significant. Data from the USA in

1990 showed that women's rates of dependence symptoms were only 40% of men's, and 50% for social consequences. But after accounting for differences in drinking patterns, the differences between the genders were reduced: the proportion increased to 60% for dependence symptoms and 70% for social consequences (Midanik and Clark 1995). Mustonen et al. (2000) found, using a representative sample of the Namibian population in 1998 that, with the level and pattern of consumption controlled, women reported dependence symptoms, injuries and worries about their own drinking significantly less often than men. Mexican women reported fewer problems with demeanour and fewer social reactions against their drinking than did men with similar drinking patterns, but for fighting with spouse and being unable to work the next day after drinking, there were no gender differences (Room et al., 2002a:158).

The wide variation in gender ratios of alcohol-related consequences for a given drinking pattern may result from differences in the causal pathways that link drinking and consequences. It can be postulated that women are more vulnerable to many types of consequences if they run into problems with their drinking. Many societies bear more negative attitudes towards women's drinking and especially towards their harmful drinking (Otto, 1981). But on the other hand, a society may also offer more protection for women from the consequences of alcohol use than it would for men. The net balance of these cross-cutting effects are likely dependent on the particularities of the culture in question.

3.2. Age, alcohol use and alcohol-related problems

The relationship between age and alcohol use varies depending on the drinking culture. In societies where alcohol's function as an intoxicant is important, young people may drink more per occasion – and in some cases more frequently – than older people. In other societies, where the role of alcohol as a nutrient is more important, a pattern of increasing consumption with age may be more prevalent. This result was found, for example, in a recent study that compared the drinking patterns in 14 European countries (Mäkelä et al., in press). In Nordic countries, where drinking-to-intoxication has traditionally been more important, the volume of drinking decreased with age, and the frequency of drinking did not usually significantly increase with age. In contrast, there were pronounced increases in both the frequency and volume of drinking with age in Mediterranean countries, at least through middle age.

Young people tend to experience more trouble from the same volume of drinking than do older people (Midanik and Clark, 1995; Hilton, 1987; Mäkelä and Mustonen, 2000; Casswell et al., 1993; Room et al., 1995). At least a part of this excess risk is related to the fact that heavy drinking occasions are typically a greater proportion of the total drinking among young people,

although in several studies a clear excess risk among the young has remained after controlling for drinking patterns. For example, using the 1990 U.S. National Alcohol Survey, Midanik and Clark (1995) showed that dependence symptoms and the social or tangible consequences of drinking were most common in the youngest age group (18-29). The higher risk of harms in the young age group could not be explained by differences in alcohol volume and drunkenness days or the monthly drinking of 5 or more drinks. However, using the previous round of the National Alcohol Survey collected in 1984, Hilton (1987) had found that the drinking of even larger amounts of alcohol explained the higher risk of problematic drinking and tangible consequences among young drinkers. After controlling for the monthly frequency of drinking 5 or more drinks, young drinkers had a significantly higher risk than older drinkers, but after controlling for the monthly frequency of drinking 8 or more drinks, the differences were no longer significant. In Canadian data, the excess risk among younger drinkers for reporting two or more alcohol-related harms was not much affected by controlling for monthly drinking of 5 or more drinks (Room et al., 1995). Similarly, in the Namibian data already mentioned, the young reported more alcohol-related problems even after controlling for drinking patterns (Mustonen et al., 2000).

Drunken comportment is one central explanation for young peoples' excess risk of alcohol-related problems for a given pattern of drinking. Young people are less risk-averse and may engage in more reckless behaviour while drunk. According to Room et al. (2002a:160), young binge drinkers compared to older binge drinkers reported being more often under the influence of alcohol in risky situations in Mexico.

There is one type of problem that has usually been reported to be more common among older segments of the population, whether or not drinking patterns have been controlled, namely chronic problems, particularly those related to health. Using Finnish data, Mäkelä and Mustonen (2000) found that, for all six consequences of the single drinking occasions they studied, young age (<30) increased the risk after controlling for annual intake and annual drunkenness days. But having been warned by a doctor and health problems were more common in older age groups. In the Mexican survey data, older respondents more often reported having heard advice from a doctor to drink less (Room et al, 2002a:160).

It is also notable that the proportion of middle-aged people tends to be much higher in clinical samples of people with alcohol problems than it does in comparable samples of the general population (Armor et al., 1978). This is presumably a reflection of the fact that chronic, severe alcohol problems take a long time to develop, and that drinkers, their families and associates endure problematic drinking for a long time before finally seeking help and treatment.

3.3 Socioeconomic status (SES), alcohol use and alcohol-related problems

Socioeconomic status and drinking patterns. Particularly in the developed world, the research-based information on socioeconomic status and different aspects of drinking is abundant. The review below will show us that in most studies, socioeconomic status has had a strong positive association with drinking status, frequency of drinking and light to moderate drinking. In other words, there have been more drinkers, more drinking occasions and more light to moderate drinking in higher socioeconomic groups. In contrast, results on the overall volume of drinking, heavy drinking and binge drinking are more variable. Among women, a positive gradient has often been reported. Among men, the opposite gradient has been more common for heavy and binge drinking, with more such drinking in lower SES groups, particularly in studies that include all current drinkers. Also, the proportion of all drinking occasions that lead to intoxication or binge-drinking appears to be higher among the lower SES groups. Income has a special role, increasing the likelihood of overall and heavy drinking when other factors are held constant (Hradilova Selin, 2004a; McKee et al., 2000). Consistent with this, changes in the economic availability of alcohol in the society have often increased drinking among lower SES groups in particular (Mäkelä, 1999b).

As is implied by this summary, results on the relationship of socioeconomic status and heavy drinking are sensitive to the measure used. In particular, although frequent-moderate drinking and heavy episodic drinking may add up to the same total volume of drinking, they have different correlates. In a study in San Francisco, Room (1971) found that rates on a binge-drinking measure were negatively related to social class, while rates on a high drinking-volume measure were positively related. The choice of cut-point for the heavy drinking measure can also affect results by socioeconomic status (Hilton, 1987; van Oers et al., 1999; Romelsjö & Lunberg, 1996). Educational differences in abstinence, heavy drinking, heavy episodic drinking, and hazardous drinking (AUDIT) were the focus of Bloomfield et al.'s (2005) comparative study. They presented data for 13 European countries (Finland, Norway, Sweden, Italy [Tuscany region], France, Switzerland, Germany, UK, Netherlands [regional], Austria, the Czech Republic, Hungary, Mexico, Brazil [regional] and Israel), all gathered around the year 2000. The same three educational categories were used for all countries. Bloomfield et al. found that *abstention* was most prevalent in the lowest educational category in all countries among women, and also among men in all 9 cases where there were differences between the educational groups. Among women, educational differences in *heavy drinking* (more than 20 grams per day) were small, but where there were differences, the highest educational category usually had more

heavy drinkers. Italy was an exception here, with the least heavy drinkers among women possessing a high level of educational attainment. Among men, the general pattern was the opposite of that for women: in most countries heavy drinking (more than 30 grams per day) was more prevalent among men with low education, with the odds ratios (ORs) between the lowest and highest educational categories varying between 1.2 and 3.4 in ten countries.

In Bloomfield et al.'s study, *monthly heavy episodic drinking* was more often more prevalent in the lowest than in the highest educational category, particularly among men and to a lesser extent among women. Among women, in 6 out of 11 countries (the Czech Republic, Netherlands, Norway, Finland, Hungary, Germany), the point estimates in the lowest educational group exceeded those in the highest, with odds ratios varying between 1.4 and 2.3. On the other hand, a reversed gradient was observed in four countries (Israel, Mexico, Switzerland, Brazil; ORs 0.2-0.6). Among men, heavy episodic drinking was more prevalent in the lowest educational category in 9 out of 11 cases, the odds ratios varying between 1.3 and 2.5. The Brazilian sample was the only case with a reversed gradient for this. Thus, while for women there were substantial differences between countries in the direction of the association between educational level and rate of heavy episodic drinking, for men lower education was generally associated with more such drinking.

In Bloomfield et al.'s the study, the prevalence of heavy drinking and heavy episodic drinking was compared in the whole sample, that is, not only among drinkers. Because a higher proportion of the respondents with low education were abstainers, a comparison among drinkers only would have produced higher rates of heavy drinking among the respondents with a low educational level. This effect is illustrated for volume of drinking in a report by Norström and Romelsjö (1999): in their study of Stockholm county, the volume of drinking among male manual workers exceeded that of non-manual workers by 1.1 litres (7.8 vs. 6.7 litres) in the whole sample. The difference was 1.4 litres (8.4 vs. 7.0 litres), or 27% larger, among drinkers only.

One observation worth highlighting, which follows from the steeper negative socioeconomic gradients in men's than women's drinking, is that there is often a much smaller gap between men's and women's drinking patterns in higher than lower socioeconomic groups. This was evident for the UK in the Whitehall study (Marmot, 1997) in the years 1985-88. This study reported a striking socioeconomic gradient in the prevalence of alcohol abstinence. Among men, the rate of abstinence was 3.5% in the highest of six occupational status levels, as compared to 24% in the lowest; comparable rates among women were 8% vs. 37%. Among men, there was also a strong positive gradient in the prevalence of moderate drinking, but no

gradient for heavy drinking. In the highest status level the proportion in the moderate categories (defined as 11-35 units per week) was 45%, and 6% in the heavy drinking category, or 51% altogether. The corresponding proportions in the lowest status level were 24% and 6%, or 30% altogether. Among women there was a strong positive gradient in both moderate and heavy drinking. 31% of women in the highest status category belonged to the moderate category (defined as 8-14 units per week) and 30% to the heavy, i.e. 61% altogether, and the corresponding proportions in the lowest status level were 9% and 3%, or 12% altogether. Thus, in terms of both abstention and moderate to heavy drinking, the drinking worlds of men and women were more alike in the higher occupational status group.

Studying educational differences in alcohol use in Finland using a general population survey carried out in 1992, Mäkelä et al. (2002) found that the number of drinking occasions was by far the highest among those with the most educational attainment. However, the proportion of drinking occasions that involved binge drinking was always larger in the lowest educational group, independent of the measure of binge drinking. Knupfer (1989) also found, in an analysis of U.S. data, that the proportion drinking to drunkenness among those who drink at all is higher for low-SES than for high-SES drinkers. In general, it seems that negative associations between SES and heavy drinking are more likely to be found for binge drinking than for regular heavy drinking, and are even more likely for more extreme binge drinking.

Klaus Mäkelä (1970) has interpreted the often-observed SES differences in drinking in terms of a division of consumers of alcohol between those who want to become intoxicated and those who do not. Of those who want to become intoxicated, some can afford to drink at other times without getting drunk. It can be argued that these two types of drinkers can be found in all SES groups, although their relative size in each SES group may vary somewhat from one society to another. However, the most consistent difference between SES groups is likely to be found in the fraction of those who can afford to drink small to moderate amounts even when they do not want to become intoxicated. More of these people will be found in higher SES groups and particularly in high income groups. This phenomenon – that light and moderate drinking occasions are more prevalent in the higher socio-economic groups – is one reason why SES gradients appear so dependent on the choice of heavy drinking measures.

It must be acknowledged, however, that the few available studies of social class and drinking in the developing world tend to show diverging results. In Bahia, Brazil (Almeida-Filho et al. 2005), a positive social class gradient was observed for frequent drunkenness among both men and women. Using the 1998-99 Indian national family health survey with more than 300,000 respondents, Subramanian et al. (2005) showed that alcohol use in the family had a

linear negative association with income: among males, the poorest quintile had a 1.9 times greater odds of reporting drinking in the family than the highest income quintile; among women, the odds ratio was 2.7. For education, the relationship was similar among men (odds ratio=2.3 between lowest and highest educational group), but among women a J-shaped relationship was observed (odds ratio was 0.55 in the middle category, and 1.3 among the illiterate, with the highest category as the reference). A similar association between poverty and drinking was found by Saxena et al. (2003) in a slum of Delhi in North India – i.e., in a district where all families were more or less poor. In the families that had a frequent drinker, the drinking men and drinking women had a significantly lower education than those in families with infrequent drinking. The family income was better and there were significantly fewer debts in the infrequent-drinking families.

A study from Israel underlines the importance of cultural factors in the relation of socioeconomic status to drinking patterns, and particularly to heavy drinking occasions. Neumark et al. (2003) found that, among the Jews in the sample, all socio-economic indicators had a negative connection to binge drinking. In contrast, among the Arabs in the sample the connection of binge drinking to income and occupational class was positive, and only the connection to education was negative. The authors argued that for Jews this was due to the cultural tradition of moderate drinking, while among Arabs, this was due to the fact that professionals and those with higher income were likely to be working outside their communities, where they were exposed to different cultural norms and had more access to alcohol.

Socioeconomic status and problems from drinking: results from surveys. In addition to studies on socioeconomic differences in drinking, the alcohol research literature also contains a large number of survey and register-based studies on socioeconomic differences in different types of problems that arise from drinking. Results from most studies indicate that among people who drink, those with lower SES experience more problems and consequences of drinking. However, such studies report some divergent results, particularly for women. The differences between SES categories tend to be larger for social indicators (e.g., alcohol-related hospitalisations and mortality) than for survey-based measures of alcohol problems. We find varying results in terms of whether lower-status drinkers, compared with higher-status drinkers, experience more problems at the same level of drinking. Higher susceptibility in the lower SES categories has been observed more often for alcohol-related mortality (other than death due to liver cirrhosis) and in population surveys for the kinds of tangible consequences of drinking

where the society's reactions are a central factor in defining the drinking problem. Giving rise to the association between alcohol problems and SES is often a complex set of co-factors and causal influences that operate in both causal directions.

There are very few studies of self-reported alcohol problems and socioeconomic position in developing countries. In general, a relatively strong negative gradient has been found when rates are computed on a base of the entire population, including abstainers. In a 1998 household study in a town in eastern Nepal, Jhingan et al. (2003) used the CAGE (with a cutpoint of 2 or more positive answers to the four questions) to assess alcohol problems. They found that 36% of respondents with no education were positive cases for alcohol problems, whereas only 17% of respondents with 11 years of education were. This corresponds with the results from India of Subramanian et al. (2005) who, as mentioned above, found that alcohol use was more common among the illiterate than among the highly educated. Finally, in their year-2000 household population study of alcohol problems in a municipality in southern Brazil, Mendoza-Sassi et al. (2003) found that the prevalence of AUDIT cases (with 8 points as the cutpoint) was 2.7% in the highest SES category (based on years of schooling and utilities in the household) and 13.7% in the lowest.

There is much more extensive data available from developed countries. In the USA, there is a long tradition of studying self-reported alcohol problems and dependence in the national alcohol surveys (Hilton and Clark 1987, Hilton 1987, Midanik and Clark 1995). Over the last 20 years, these studies have found mostly negative gradients in drinking problems by SES, but the size of the differences has often depended on the measure of SES and the measure of alcohol problems. In the above-discussed comparison of 13 European countries, Bloomfield et al. (2004) examined differences in alcohol problems by education level (as measured by the AUDIT) among drinkers in five countries (Switzerland, Sweden, Finland, the Czech Republic, Hungary). Among both men and women, all of the odds ratios were in the direction that indicated more problems in the lowest educational group (Bloomfield 2004).

Using a large sample of U.S. adults interviewed in 1992, Henderson et al. (2004) reported that the proportion of respondents with any alcohol dependence symptoms (out of seven) had different curvilinear relationships for educational level and income. Both among men and women, the proportion with at least one dependence symptom was largest in poorest income category and the next largest in the highest income category (among men: 31% in the poorest income group, about 20-22% in middle groups and 24% in highest; among women: 14%, 10-12% and 13% respectively). For education, the highest risk was reported in the middle category, among those with 13-15 years of education, while those with a low educational level

(fewer than 9 years schooling) reported a much lower rate than others (among men: 27% vs. 12%; among women: 15% vs. 2%). These relationships did not disappear when education and income were both included in a multivariate analysis.

These U.S. analyses have examined rates of problems in the total population. But about one-third of the U.S. adult population abstains and, as noted earlier, abstinence is commoner among poorer than richer Americans. Hilton (1987) addressed the question of whether different sociodemographic factors could predict problems after controlling for the level and pattern of drinking. Education did have a significant effect on consequences after controlling for the frequency of drinking 5+ and 8+, indicating a higher susceptibility to problems for a given drinking pattern among people with a low educational level. Using the same data but different measures, Harford et al. (1991) found that, after controlling for volume of drinking or frequency of intoxication, low educational level was associated with belligerence and social/family problems. At the same time, however, the effects of volume and intoxication frequency on problems were smaller in the lower educational group. With data from 1990, Midanik and Clark (1995) found that income and education had no effect on problem rates once the volume of drinking and frequency of heavy drinking were controlled.

In sum, the American evidence is somewhat mixed, but there do not appear to be any strong and consistent differences by socioeconomic status in susceptibility to self-reported problems for a given pattern of drinking. Studies from elsewhere also show mixed results. An analysis of Swedish data (Hradilova Selin, 2005) found rather mixed results by education and by income when amount and pattern of drinking and other demographics were controlled. Lower-income men had significantly more interpersonal problems from drinking; lower-income women had significantly more alcohol-related public disorder and chronic health problems; middle-income men and middle-education women reported more self-control problems concerning drinking; the other relationships were not significant. Analyses of data from Ontario, Canada (Kunz and Graham, 1998) and from a London suburb (Cartwright et al., 1978b) found a greater susceptibility to consequences among heavy drinkers who were less educated or in a lower-status occupational group, while more recent data from the London Whitehall study (Marmot 1997) did not give strong support for the differential susceptibility hypothesis, at least among men.

Socioeconomic status and problems from drinking: results from mortality studies.

Studies from Sweden and Finland can be used to contrast findings from self-reports in population surveys with results from social indicator analyses of alcohol-related mortality. The

general finding is that the SES gradients in survey-based studies are smaller for most reported problems than are gradients in studies of mortality and other serious consequences. This seems to be, at least in part, a substantive finding rather than just a methodological artefact. Lower SES groups are more susceptible to tangible consequences which reflect social processes of marginalization and exclusion, in which the reactions of others are central.

Mortality from alcohol-related conditions (defined as alcohol poisoning, alcohol psychosis, alcoholism, liver cirrhosis and pancreatitis) in Stockholm county in 1991-1995 among male manual workers aged 20-64 was 1.9 times higher than among non-manual employees, while the ratio in volume of consumption was only 1.2 (Norström & Romelsjö, 1998). A mathematical exercise carried out by Norström and Romelsjö showed that this difference in mortality could be accounted for by the greater dispersion of the consumption distribution (i.e., more heavy drinkers) among the manual workers, although the results were quite sensitive to the presence of a few extreme heavy drinkers in the distribution. Hemström's (2002) study of mortality in 1990-1995, where he used a wider category of alcohol-related mortality that included contributory causes of death, resulted in somewhat larger socioeconomic differences: among men, manual workers had 3.2 times the mortality rate of non-manual workers, and among women the ratio was 2.4.

A study by Halldin (1985) is important in understanding why register data may usually result in higher SES gradients than survey data. In a general population sample in Stockholm county in 1970-71, data included psychiatrists' evaluations of the respondents and the respondents' records in the penal register (including records of public drunkenness, drunk driving, and inpatient periods in "inebriates' institutions"). Halldin found that SES had a positive association with "high consumption" and no association with "very high consumption." The differences in alcoholism were modest (5.7% in the lowest and 3.6% in the highest category among men, 1.4% and 2.9% among women), but problems reflected in the penal register had a stronger negative association with socioeconomic status: 2.8% of men in occupational category I (highest) and 9.8% in the occupational category III (lowest) appeared in the register. Among women, the corresponding proportions were 0.0% and 0.8%. Survey non-response as the potential cause underlying the stronger negative associations between SES and harms in registers than in surveys could here be ruled out, because both the survey and register results were here based on the same respondents. Self-report bias is also an unlikely explanation, given that psychiatrist evaluations were used. Rather, respondents with lower socioeconomic status seemed to experience more tangible consequences from their drinking, whether this was due to their own behaviour or to negative reactions from society.

The cumulative effect of socioeconomic status and marginality on alcohol-related mortality. Finnish register-based data has been used to illuminate the effects of different dimensions of SES, independent of other dimensions, measured at one point in time and over the life course. The key findings are that differences in alcohol-related mortality by SES are large, and that each new dimension of SES has an additive effect on top of the others. Manual workers seem more susceptible to severe alcohol-related health outcomes than non-manual workers for a given pattern of drinking.

Mäkelä (1999a) studied alcohol-related mortality in Finland in 1987-1995 using register data on 21,922 deaths for which an alcohol-specific condition was specified. Both for males and females, she reported significantly higher odds ratios, compared to the higher-status reference category, for each of: lower education, lower occupational status (except for farmers), lower personal income, lower household net income, and living in rented or other housing (in contrast to owning it). In most cases, there was an approximately 3-fold difference between the highest and lowest categories. It was somewhat smaller among women than among men, and it was largest for fatal alcohol poisoning, alcohol dependence and alcohol psychoses, and smallest for liver cirrhosis. The exception was income among men: the ratio of the highest to lowest income decile ranged from 8 for personal income to about 5 for household income. In part, this was due to lower workforce participation and higher unemployment rates in the poorest income categories. After adjusting for the other SES dimensions, each of the SES dimensions remained statistically significant and the relationship retained the same direction. Further, interactions suggested that often the effect of one SES dimension was strongest at low levels of a different SES dimension.

Additive relationships among SES indicators were also found in an analysis of Finnish alcohol-specified male mortality for another aspect of social class: the tendency for class position to be handed down across generations. Pensola and Martikainen (2003) analyzed the 1991-1998 deaths of those born in 1956-1960. They found that, as compared to cases where the decedent and the head of his childhood household were both non-manual workers, alcohol-specific deaths were 1½ times more likely where the head of household but not the decedent had had a manual job. Alcohol-specific deaths were 4 times more likely where the decedent but not the head of household had had a manual job, and almost 5 times as likely where both had had a manual job.

The results of the study by Mäkelä et al. (2002), mentioned above, show that the Finnish SES gradients for heavy drinking or binge drinking, as well as results for annual alcohol intake,

are much smaller than those observed for alcohol-related mortality. A new study (Mäkelä & Paljärvi, forthcoming) addresses this mismatch by examining the SES gradients in alcohol-related mortality among participants in a drinking habits survey that controlled for drinking patterns. Relatively strong SES gradients in alcohol-related mortality were found in this study. When the researchers controlled for the volume of drinking and binge drinking, these ratios were only marginally diminished. For example, the hazard ratio between manual and non-manual workers for other alcohol-related causes (other than poisoning) was 1.99, and it diminished to 1.85 (the excess was reduced by 14%) after controlling for the frequency of drinking different amounts per occasion (1-4, 5-7, 8-12 and 13+ drinks). Hence, the results suggest that manual workers are more susceptible to the severe consequences of alcohol use than are non-manual workers.

Understanding the mismatch between survey and register results on differences in rates by socioeconomic status. The observed mismatch between analyses based on surveys and social indicators is not likely to be caused by just one factor, but by several different ones. One potential technical reason is that the sampling frame for survey studies usually excludes those living in institutions and the homeless. Moreover, the heaviest drinkers within the sampling frame are less likely to participate. In clinical and register-based data, a substantial part of consequences may occur in these parts of the population that are missed in survey studies. At least those excluded from survey sampling frames are typically of very low SES, thus contributing to the mismatch in SES differences between register and survey data. However, Halldin's (1985) results suggested that this is not the only factor at play. The question is closely related to the old problem of "the two worlds of alcohol problems" – the finding that patterns of drinking and problems and their determinants are very different in clinical and general populations (Room, 1977; Storbjörk & Room, 2006).

A related problem that might further account for this mismatch is the differential distribution of alcohol consumption and its measurement. For some severe alcohol-related problems, such as liver cirrhosis, the risk increases exponentially with the amount of consumption. In these cases, the very heaviest end of the consumption distribution matters most with respect to consequences. However, surveys are not very good in detecting differences in this small group of extreme heavy drinkers. Rather, the heavy drinking that is measured in surveys is usually only "relatively heavy." Since moderate, and even moderately heavy, alcohol use is nearly always more common in higher SES groups, this may further help to explain why results on SES differences from surveys do not match results on SES differences in severe alcohol-related problems, which are better reflected in

social indicators. Thus in Norström and Romelsjö's (1998) data, the differences in the consumption distribution could at least theoretically explain the large differences in mortality, but the result was sensitive to the few extreme heavy drinkers found in the survey data.

One can imagine more substantive reasons for differential susceptibility. Higher SES groups have more resources to protect them from hazards of drinking: they are more able to choose safer environments in which to drink, for example, taking a taxi home instead of driving or walking. Men in higher SES groups are also usually more advantaged in terms of having a family, which may help in motivating the drinker to do something about alcohol problems before severe consequences occur. The steeper gradient for mortality might also reflect SES differences in survival after hospitalization or treatment for alcohol problems, while results from Finland showed that a difference in survival after hospitalization for an alcohol-specific cause was not a critical factor in a country where health care is universally available (Mäkelä et al. 2003), but health care is much scarcer in much of the world, and those perceived as “drunks” may not be treated as well as others (Sudnow, 1967; Strong, 1980). It is also possible that many of those worse-off people who will end up as alcohol-related cases in mortality registers do not use hospital and treatment services in the first place and were hence excluded from Mäkelä et al.'s analysis. As noted above, Santana (2002) has shown that in deprived districts in Portugal, alcoholics and homeless people were the least likely of nine deprived groups to have used health services, even though 100% of them had less than good health.

The process of marginalization and stigmatization related to alcohol abuse, and the drift in social status that may be the result of these, may be involved in the creation of SES differences in mortality. However, as discussed by Room (2005), the frames of stigma and marginalization, on the one hand, and socioeconomic inequalities, on the other, have seldom been combined in research. This would be a productive theme for future research. Additionally, more research on the existence of and potential mechanisms of differential susceptibility to alcohol problems by SES would also contribute to the literature.

3.4 Temporal changes in gradients of alcohol consumption and problems by SES

A number of studies and comparisons in the literature show clearly that the relationship between socioeconomic status and alcohol measures is not fixed for all time in a given society, but often changes with increasing affluence, and can also alter as a result of general cultural changes. Such studies and comparisons open a window on likely changes in drinking and social inequality in the process of economic and social development.

A general finding in English-speaking and Nordic societies over the last 50 years is that, as market liberalization and increasing affluence have made alcohol more available in general, and to the poor in particular, rates of alcohol problems have climbed, particularly for those of lower socio-economic status. For example, in Sweden the proportion of at least moderately high consumers was greatest in the highest social class around the year 1970: 22% in the upper non-manual group as compared with 11% in the manual worker group among men and women combined, or in the Stockholm county 20% vs. 13% among men and 9% vs. 2% among women, respectively (Romelsjö & Lundberg 1996). By the 1990s, the gradient had changed direction: in Stockholm county in 1994, the corresponding proportions were 37% vs. 42% among men and 9% vs. 17% among women; for heavy drinking the differences were even stronger (6% vs. 10% among men, 2% vs. 5% among women), and the mean consumption was more than one litre higher among manual than non-manual workers (Romelsjö & Lundberg 1996, Norström & Romelsjö 1999). There seems to have been a reversal of the social class gradient especially among the young, with young people in higher SES groups drinking more than average in 1968 and less than average after the 1980s (Romelsjö 1989).

Changes in the SES gradient have also shown up in alcohol problems statistics. As the SES gradient for at least moderately heavy drinking turned from positive to negative, the ratios between manual workers and upper non-manual workers in alcohol-related hospitalizations increased from 2.7 in 1970-74 to 4.0 in 1985-86 among men, and from 1.7 to 3.2 among women (Romelsjö & Lundberg 1996). Similarly, it has been reported in the UK that the originally positive SES gradient on high-volume drinking has weakened or disappeared. Studying men and women in the same London suburb in 1965 and in 1974 when there was a nearly 50% increase in per capita consumption, Cartwright, Shaw and Spratley (1978a) showed that mean consumption decreased by 8% in occupational groups I and II (high-status groups that had originally had the highest consumption), but increased by 54% in occupational group III and by 102% in occupational groups IV and V. As a result, the levels of consumption were similar in occupational categories at the end of the period, in 1974.

Cartwright et al.'s analysis shows changes over the course of one decade which are in fact part of a longer-term trend in the United Kingdom attributable, in part, to secular change in the real price of alcoholic beverages. A study in Scotland of the effects of an increase in the tax on alcohol in 1981 more directly showed the differential effect of changes in the price of alcohol on richer and poorer male drinkers. Survey data before and after the change suggest that the effect of the price increase was larger in the lowest SES category (a 17% decrease), while there was no effect in the highest SES category (a 3% increase); as a result, the statistically

significant difference between the groups disappeared (Kendell et al., 1983). The effects of the change were not different by social class among women.

Alcoholic cirrhosis used to be a rich man's disease in the United Kingdom, in contrast to the U.S. at the time (Terris, 1967). This reflected a comparatively high level of taxation on alcoholic beverages in the U.K. for most of the 20th century. Since the 1960s, the price of alcohol, particularly spirits, has fallen substantially relative to personal disposable income (Academy of Medical Sciences, 2004). During this same period, there has been a shift in the socioeconomic gradient of liver cirrhosis mortality. In England and Wales, the relative index of inequality in male liver cirrhosis mortality by social class rose from 0.88 (with lower mortality in lower SES categories) in 1961 to 1.4 (with higher mortality in lower SES categories) in 1981. An even stronger shift was reported for men in Scotland (from 0.6 to 1.67) (Marang-van de Mheen et al., 1998). Hence, in Britain today, liver cirrhosis has become very much within the reach of the poor. Likewise, around the year 1990, all directly alcohol-attributable causes of death were shown to be more common in lower SES groups in most combinations of age and sex (Harrison and Gardiner 1999). Among men aged 25-39, alcohol-related mortality was 15-fold greater in the lowest SES category compared to the highest. In the age group 55-64, the ratio was 3.2. Among women in the corresponding age groups, the ratios were 1.5 (not statistically significantly different from 1.0) and 0.3. In other words, among older women, alcohol-related mortality was still higher in the higher SES category.

Depending on the circumstances, other factors besides changes in real price or availability will also be involved in changes in the socioeconomic gradient. In the 1980s, there was a generally decreasing trend in per-capita alcohol consumption in the USA, after a long period of rising consumption. The decrease cannot be attributed to changes in price, since prices did not change substantially during this period. Rather, it must be attributed to general changes in the culture, including a popular movement against drinking-driving and other increases in popular concerns about drinking (Room, 1987), and the associated increase in informal interpersonal controls of drinking (Room et al., 1991). Studies document that the decrease in consumption has been stronger in groups with high income (Williams & Debakey, 1992) and higher education (Midanik & Clark, 1994). In one study, Midanik and Clark showed that for frequent heavy drinking (weekly consumption of 5+ drinks), the originally small SES differences were enlarged, as the higher SES groups decreased this type of drinking more than the lower SES groups between 1984 and 1990. The cultural changes thus affected higher more than lower SES respondents. Differences by SES also changed for alcohol dependence-related measures. A report by Hilton and Clark (1987) showed that in 1967 there were no educational or income differences

in the prevalence of reporting any of four dependence symptoms, but differences emerged in their 1984 data.

4. Some Patterns in the Developing World: Evidence from Case Studies

It should, by now, be abundantly clear that we lack reliable quantitative data on social class and other social differentiations in alcohol consumption and problems in most developing countries. However, there exists a rich body of ethnographic case studies that provide “thick descriptions” of how alcohol enters into the development process and becomes a source of harm. Ethnographies conducted in the developing world illustrate many of the points that have come before, but they also suggest some new themes. They often affirm that, in populations that are chronically undernourished and impoverished, heavy alcohol consumption can exacerbate existing health problems and work impairments, it can draw income away from households that would otherwise go to food and medical care, and it often becomes a mark of social stigma. These studies also show how development brings about the commodification of alcohol as a commercial good. And new modes of alcohol production and distribution in emerging cash economies of the developing world often contribute to economic inequality, which ultimately impinges on health and wellbeing. Under such circumstances, alcohol may become a flash point in the politics of inequality, giving rise to prohibition movements instigated from within the society. Ethnographic case studies illustrate how, in the political conflicts surrounding development, alcohol can become both a source and symbol of class inequality and class conflict.

Below, our task is to draw out commonalities across ethnographic case studies conducted in far-flung regions of the world, given the shortage of reliable quantitative data. However, it is important to bear in mind that the ethnographers cited in this section usually write in a spirit of appreciation for the unique material conditions of life, cultures and events that have unfolded before them. In doing so, their work underscores the multiple pathways that economic development and alcohol-related harms can take. It is also worth noting that the older, pre-1960, tradition of anthropological writing had a tendency to underplay the harms associated with alcohol (Room, 1984). This is partly due to ethnographers’ functionalist leanings and partly due to the fact that these, mostly male, anthropologists often lacked access to the groups most aggrieved about drinking, such as women. In the words of Christine Eber, who studied gender and drinking among the native *pedranas* of a highland Maya town,

“Listening to *pedranas* tell me about problem drinking and then later analyzing what they told me, I came to believe that drinking has probably always been more problematic

... than seems apparent from the ethnohistorical record. Staying only one year in a community and talking mostly to men, anthropologists are not able to get much past normative drinking, which in most societies isn't problematic for most of the population. To learn more about deviations from norms it takes time, and talking with people of all ages and groups." (Eber, 1995, p. 8)

Although contemporary ethnographies of alcohol in developing societies are more conscious of this bias (e.g., Colson & Scudder, 1988; Marshall & Marshall, 1990), where we cite older material, one may assume that we are probably reading a conservative account of the problematic aspects of drinking.

Let us now turn to three key themes that emerge in ethnographic case studies of alcohol in developing societies: the effects of changing alcohol availability under development, changing modes of alcohol distribution in the emergence of cash economies, and the political and class tensions that emerge around alcohol in the context of development.

4.1 Changing alcohol availability: Developing societies as consumer markets

In an increasingly globalized world, developing societies represent the major remaining untapped markets for corporations in the business of producing and distributing alcohol. The impulse to turn colonies into markets emerged in the 19th century, so that by the late 20th century, alcohol production facilities were established in many developing countries across the globe (Jernigan, 1997). It is well known that the increased availability of alcohol is a major factor in alcohol consumption and problems at the population level. Again and again, ethnographic case studies reveal how economic development leads to the emergence of a cash economy where alcohol takes its place as a commodity, becomes commercialized, and becomes more widely available in new, often more concentrated, forms. These studies also reveal how the harms associated with increased alcohol availability are seldom borne evenly across groups within the populations of developing societies. Emerging elite and middle class groups typically have better access to foreign brands of alcohol, which often become symbols of their more modern outlook and cosmopolitan identity. Those who are less well off may, in turn, seek these new forms of alcohol as symbols of social status, often to the detriment of their health and economic wellbeing.

In ethnographic fieldwork by Martha Macintyre, we find a contemporary microcosm of these dynamics as they are unfolding among Lihirians in the province of New Ireland in Papua New Guinea. In this case, the engine of economic development has been the recent entry of a foreign mining corporation into the island economy. Macintyre's work includes a careful

comparative analysis of how the mining industry is affecting four different villages on the island. In-depth studies of these villages show a direct correlation between the perceived negative impacts of drinking – adverse effects on family life, sexual offences and deteriorating relations between women and men – and the village’s physical proximity to the mine. Her work further documents that alcohol consumption is more common in areas close to the mine because of increased availability – in Macintyre’s words, “because there is more money available and because these people have better access to liquor outlets” (Macintyre, 2005). Development has also brought the emergence of a social class hierarchy to New Ireland where there was little social differentiation before. Alcohol use and problems are directly implicated in the island’s growing problems with class inequality. In the words of a 35 year-old Lihirian man:

“At the top now are all the white men who live in the best houses and all drive cars and have a club.... Then there are the relocatees [who were paid for their land] who all have big houses and cars and businesses and they have compensation money to spend. Now they are all greedy troublemakers who do not share their money with others, even their own clan and family. They throw away their money and then just ask [the mining corporation] for more. They all drink too much.

Then there are the employees at the mine who have regular wages and can buy things like rice and tinned meat for their families, but they are not very rich.... They spend too much of their money on beer.... These men are ruining the place, making their wives work in the gardens and not giving them money for food and ... just throwing their money away on drink.

At the bottom are the villagers like us who were promised that Lihirians would all benefit, and now we just watch as all the promises are broken. Here we have no water supply, no money, no road, no cars, no boats. We can no longer afford to buy things at the supermarket.... That’s Lihir now, a few with plenty, the village people nothing. Before we were equal, now we are at the bottom. That’s what the mine has done for us.” (Macintyre, 1999:46)

Suggested in this account is a self-reinforcing dynamic that has been observed in many developing societies: Emerging elite and middle classes with newfound disposable income form a consumer market for foreign alcohol products. Foreign alcohol products thus emerge as symbols of a better life, thereby increasing their commercial value and further expanding the consumer market. As anthropologists Elizabeth Colson and Thayer Scudder conclude from their studies in Africa, “thirst seems to grow as more men and women attain a cash income, and as brewers and distillers expand their operations” (Colson & Scudder, 1988, p.1). Moreover, as

foreign drinking practices are introduced and alcohol distributors appeal to new markets, drinking often becomes acceptable in a wider range of groups within the population. While alcohol consumption has been almost universally proscribed for women in traditional societies, with development often comes the emergence of a new class of educated women who take up drinking as a symbol of a gender equality and independence (Benegal et al., 2005).

However, across ethnographic studies, young adult men often form the group within developing societies that seems the most ready to embrace new drinking practices introduced from the outside. Christine Toren's contemporary ethnography of villagers on the island of Gau in Fiji thus describes how consumption of European brands of beer has supplanted traditional kava² as the preferred beverage among young men (Toren, 1994). As one female informant described the change in drinking and the accompanying public problems,

“Today, all the young men want to be Europeans. They're always going off ... to drink beer until they're drunk. When they return here they make a lot of unpleasant noise, fight each other and I don't know what else. It looks bad, it is not respectful, they neglect [the reputation of] the village.” (Toren, 1994, p. 157)

Toren's work is valuable in highlighting how changes in alcohol availability and consumption can give rise to deep divisions within developing societies. In the case of Gau, western modes of drinking have divided young people and elders in the community by introducing a set of cultural contradictions that now frame daily life: “inside” versus “outside” the community, Kava versus European beer, the “ritualized” versus “haphazard” use of psychoactive substances, and “dignified behaviour” versus “rowdiness and fighting.”

Colson and Scudder note similar tensions in Zambia, where villagers in the Gwembe District have come to measure social worth in terms of urban fashions, including a preference for the more “sophisticated” drinking of imported beer in beer halls and bottle shops rather than in homesteads (Colson & Scudder, 1988, p. 7). The consequences of this cultural shift in the status of alcohol have included across-the-board changes in most aspects of drinking: an increase in the volume of alcohol consumption per occasion, in the frequency of drinking per week, in reasons for drinking and in alcohol-related problems:

“The frequency of purely social drinking has ... increased, first among men and more recently among women. So has the amount of drunkenness, with associated violence.... The changes in behaviour can be summed up by saying that drinking among men has increased substantially with respect to both the amount consumed on any one occasion

² Kava is a traditional mildly psychoactive drink that is not alcoholic. See: <http://en.wikipedia.org/wiki/Kava>

and the frequency of drinking.... Whereas in the past most drinking was well grounded in either ritual or labor activities, drinking has now become an activity on its own – drinking for drinking’s sake.” (Colson & Scudder, 1988, pp. 15-16)

Case studies document the economic consequences for the poor who seek increased status by drinking new brands of foreign alcohol. Colson and Scudder, for example, document the growing proportion over time of wages earned by men in the Gwenbe District that is diverted from households for the purchase of bottled beer. Similarly, in a study of the socioeconomic impact of drinking in Karnataka, India, a group of ethnographers found that per-capita expenditures on food, health and education were significantly lower in households where men drank than in non-drinking households (Thimmaiah & Sharma, 1978).

It is almost inevitable that when foreign-produced alcohol takes on elite status, there will be a concomitant degradation in the status of other, more traditional, forms of alcohol. Abeyansinghe’s study of drinking in urban Sri Lanka dramatically illustrates the symbolic roles that different forms of alcohol have come to play in defining social groups. In this highly stratified caste society, if and what one drinks has become a central signifier of social status. Middle class people, such as government workers, traders or taxi drivers, drink arrack and toddy, but avoid even coming into contact with the widespread illicit form of alcohol, *Kasippu*. As the researchers observe, a “class barrier” keeps the middle class from using *Kasippu*, not to mention the fact that this beverage is often adulterated with toxic substances to give it “more kick”:

“The middle class of Sri Lankan society in particular evince attitudes of ambivalence and bigotry towards alcohol. This is particularly evident in such ideas as the fact that any drinking is bad within the class and any form of excessive and uncontrolled drinking such as of illicit liquor (popularly known as *Kasippu*) is acceptable among the poor.” (Abeyansinghe, 2002, p.13)

In this highly polarized context, *Kasippu* drinkers, who are largely poor, slum-dwelling manual day laborers, form a marginalized subculture defined by “social stigma and guilt.” They are physically and socially “isolated from the rest of drinking culture” by wholly separate modes of alcohol manufacture, transport, distribution, sales and drinking venues. What the ethnographers thus describe are “two drinking worlds [that] seem to have a parallel existence” but seldom intersect – moralized social worlds that justify social exclusion by blaming marginalized groups on the basis of their drinking. Tragically, it appears that those who are marginalized often internalize the blame, as Abeyansinghe’s interviews of slum-dwelling *Kasippu* drinkers show:

“These besotted people who have got trapped into a life long addiction realize this only too well. ‘This is our [karma]’ and ‘I have only a few years to live’ are some of the remarks made by them.” (Abeyansinghe, 2002, p. 91)

Finally, it is worth noting that there is a tension in these ethnographic accounts concerning the reasons why alcohol appears to have such a detrimental impact in developing societies. Contemporary ethnographers tend to argue that dramatic increases in alcohol-related harm are largely driven by the wider availability of alcohol in more concentrated forms. But often implicit in their first-hand accounts is a sense that other forces contribute to the harm caused by alcohol, involving the acute social stresses that come with the involuntary resettlement of communities, political frustrations and the demoralization of men. Particularly where men have traditionally held great power and authority within their communities, the political and social-structural changes that come with development often bring new, unfamiliar roles that afford less respect and status. Ethnographers seem to be telling us that increased drinking and alcohol-related violence are expressions of this demoralization and loss of control. In Colson and Scudder’s account of Zambian society between the 1950s and the 1980s, the combined pressures of guerrilla warfare, a massive population resettlement program and economic decline seem connected to the rise in drinking among men, and particularly to dramatic increases in alcohol-related violence toward women – expressions of the “numerous insults to [men’s] self-esteem” brought about by social change (Colson & Scudder, 1988, p. 16). Silberschmidt describes similar changes in male drinking in rural Kenya:

“Men are faced with a new life situation that many are not able to cope with, and they have not found other ways of acquiring new roles from which they can get a feeling of self-respect and self-reliance.... In their frustrated situation, alcohol seems to be an escape. Besides, when they go to bars – men mostly drink together with other men and not alone – they meet with other men in the same situation as themselves, and they get some social contact.” (Silberschmidt, 1990)

4.2 New modes of alcohol distribution as a source of economic inequality

In the emerging cash economies of the developing world, the production and sales of alcohol represent a substantial potential source of revenue. Ethnographic case studies illustrate how, when alcohol enters into these changing economies, it can exacerbate economic inequality. In many traditional societies, it is the business of women to produce indigenous forms of alcohol for bartering, work parties and ceremonial uses (e.g., Colson & Scudder, 1988; Maula, 1997). With development, outsiders may colonize the production and sales of alcohol, thus upsetting

traditional economic relations within the society. Multinational firms, often in partnership with local entrepreneurs or politicians, gradually take over a larger share of the market for alcohol, primarily in the form of heavily-promoted western-style lager beer (Jernigan, 1997). Just as the excise taxes, tariffs, licensing fees and profits from sales in government stores became an important revenue stream for colonial governments in the past, so present-day governments in developing societies also often rely quite heavily on alcohol revenues (Room et al., 2002a:70). Where governments become dependent on these revenue streams, they face the challenge of negotiating two competing interests. For revenue purposes, and for that matter as a component of national economic production, governments have an interest in maintaining high levels of alcohol consumption. Yet, in their roles of protectors of the public health, government have an interest in reducing consumption to control alcohol-related harm (Mäkelä & Viikari, 1977).

One of the best illustrations of these dynamics is Colson and Scudder's (1988) study of the Gwembe District in Zambia, which went through radical social change and concomitant changes in the alcohol distribution and drinking practices between the 1950s and the 1980s. Prior to 1950, only small amounts of low-potency traditional beer were produced by women in the community for the purposes of rituals and work parties. Beer brewing technology was simple and intensive labor was required, which meant that it was rare to produce beer in excess of what was immediately needed. Due to limited means of storage and transport, little alcohol traveled far from the point of production, and all that was made was typically consumed.

After 1950, with the development of local fishing and mining industries, and the emergence of a cash economy, beer brewing increasingly became a commercial industry. By the 1960s and 1970s, domestic brewing became a major source of village income for the women who served as brewers. Metal drums were now available for women to brew larger quantities of beer in return for cash payments from men. Over time, however, local women brewers came into competition with men who opened beer halls and taverns to sell commercially produced bottled beer, trucked in from the capital city on the new roads. Initially, home brews were sold for about half the price of commercially produced ones, thus allowing women brewers to remain competitive.

However, by the 1980s, Colson and Scudder report that urban breweries and numerous local bottle shops had rendered the women brewers unable to compete. They further document the significant adverse consequences that this had for the local economy. As local women lost the beer franchise, they lost their primary source of independent income. According to Colson and Scudder's accounting of household expenditures, profits from beer sales had been critical to sustaining life in the village: overall, one-fourth of profits from home-brewed beer sales went to

purchasing food for families, whereas 21% went to transportation, and 16% to clothing (Colson & Scudder, 1988, p. 93). The fact is that women's beer profits not only supported day-to-day survival, but throughout Africa, helped create the possibility of upward mobility for young people. Thus in a study of young college-bound woman at the University of Dar es Salaam, one put it simply: "I would not stand here had it not been for my mother's brewing" (Beckman, 1988, p. 39).

Colson and Scudder further show how the shift in beer production had adverse consequences for the distribution of wealth in the community. Beer sales had redistributed wealth between the sexes and thus empowered women. When men used wages earned in the local mines and fisheries to purchase home-brewed beer from local women, they not only helped to redistribute income between men to women, but they also kept wealth circulating through the local economy. To the extent that men spent larger proportions of their cash earnings on alcohol in private and government-owned taverns, wealth migrated outside the village. In the final analysis, Colson and Scudder's case study shows how African women lost doubly when they lost the beer brewing franchise – they lost both in terms of the market moving away from them, and in terms of their own empowerment vis a vis men – including their ability to control the level of the men's drinking by their control of the supply.

In situations where outsiders take over the production and sales of alcohol in developing societies, one often finds that profits become a key source of revenue supporting governments. And the dependence of government officials on the liquor trade can ultimately tie their hands when it comes to implementing control policies to reduce alcohol-related harm. The just-described study of Zambia's changing beer industry is one such case. It was notable that, even as rising alcohol consumption and problems became a significant source of public disturbance in the Gwembe District, the municipal government did little to establish formal controls on the distribution of alcohol. This was attributable to the fact that "the main producers of alcoholic beverages [were] parastatal enterprises, and the income from licensing and the profits of their own taverns [were] a major source of income for municipal and rural councils" (Colson & Scudder, 1988, p. 19). Indeed, the irony of this situation was not lost on the local people:

"The government, despite its occasional pronouncements encouraging sobriety, profited from its involvement in the liquor trade, a fact well recognized by rural people as they listened to visiting officials address local gatherings on the evils of excessive drinking." (Colson & Scudder, 1988, p. 58)

In a very different part of the developing world, two ethnographers report similar tensions for local government officials invested in the alcohol trade. Throughout the 1970s, 80s

and 90s, Mac and Leslie Marshall made repeated returns to the town of Moen in Chuuk, Federated States of Micronesia. As elsewhere in Micronesia, Moen had no indigenous drinking tradition. The introduction of alcohol by whalers and traders in the late 19th century was sudden and rapid, and concentrated forms of alcohol conspired with cultural patterns to produce a considerable degree of violence, explosive drinking and public disorder (Marshall & Marshall, 1975; 1976). Moen is also a place where the municipal government has become deeply dependent upon revenues from alcohol taxation, licensing and a government-run alcohol monopoly, as well as being invested in building a market for tourism, with alcohol viewed as a necessary commodity for attracting foreigners.

The Marshalls observe that, over time, the volatility of drinking in Moen became a pronounced source of public disruption as evidenced by remarkably high rates of alcohol-related violence against women, traffic crashes, homicides and injuries (Marshall & Marshall, 1990). The problems appear to have peaked in the late 1970s when drunken gangs of Moen men began threatening an all-out “war” with drinking gangs from a neighbouring island. Even this extreme degree of public disruption, however, seemed to be tolerated by local officials. Change only became possible when local women organized a popular movement for prohibition and persisted with their organized resistance over several years. Moen is one case where alcohol prohibition appears to have successfully reduced problems in the community, at least in the Marshalls’ assessment. Under prohibition, Moen has come to tolerate a vigorous black market in alcohol production and speakeasies that continues to generate income for local elites. However, because drinking is officially illegal, most drinking is clandestine and thus disturbances occur in settings where others are able to intervene before someone is seriously hurt (Marshall & Marshall, 1990).

The case of Moen shows that, while governments dependent on alcohol revenues may be willing to tolerate alcohol-related harm, local communities may not. Zwar (1989) describes a similar situation in Aboriginal Australia, but one in which events unfolded somewhat differently. In the late 1980s, Aboriginal elders in Queensland black communities began to push for the reintroduction of the old paternalistic laws controlling alcohol. Paradoxically, the plea came when revenue from the profits of alcohol sales were relieving heavy financial burdens on the local government and were underwriting the development of needed community services and public works. The issues at stake were complex. On the one hand, Zwar interviewed local health clinic directors who argued that “access to these canteens – and sly grog brought into the communities – [was] simply allowing Aborigines to destroy themselves.” On the other hand, spokespeople for public affairs were quoted as saying that the elders’ plan for prohibition would

lead to a “really bad situation, so far as it would be highly desirable that people drink as much as possible so they could have plenty of money to do public works [in the communities]. And we all regret and lament that this is the case.” Likewise, McKnight (2002) documents on the one hand the devastation associated with drinking in Aboriginal community on Mornington Island in north-west Queensland, and on the other hand the dependence of the local government on revenue from alcohol sales in the community canteen. In such circumstances, there have been moves in many Aboriginal communities in Australia to impose restrictions on alcohol availability (e.g., Wright, 1997).

In many ways, the changes we have described are part of more general processes of economic development, applicable also to other items of mass consumption. The changes are also equivocal in their general public health effect. Concentration of alcohol production into a smaller number of enterprises allows governments to exercise more control over the market, and to raise taxes. Higher alcohol taxes, by depressing consumption, can contribute to public health as well as to government revenues. However, to the extent the new producers and distributors succeed in “growing the market” with advertising and other promotion, rates of alcohol problems will very likely rise. And the new methods of production and distribution of alcoholic beverages usually contribute to economic inequality. These trends may have particularly adverse effects on the social situation of women.

4.3 Alcohol as a source and symbol of political tension and class conflict

As we have just seen, alcohol can come to serve as both a source and symbol of economic inequality in the context of development. Given this, it is no surprise that some ethnographic case studies describe the eruption of political conflicts surrounding alcohol. In the colonial era, some movements to boycott or prohibit drinking came “from above,” as in cases where colonists and elite groups used alcohol prohibition to control indigenous populations or to create a sober workforce of wage labourers. Others, however, emerged “from below”, when indigenous groups came to see the use of alcohol as a tool of elite domination that can quell political action by “anesthetizing” the population (Fahey & Manian, 2005; La Hausse, 1988). The political histories of some developing societies are punctuated by the repeated back-and-forth of prohibition movements coming from both directions, as in communities throughout Micronesia:

“Throughout Oceania, prohibition was one of the first laws colonial governments enacted. With independence movements leading to self-government following World War II, de-prohibition – ushering in the ‘right to drink’ – was a common change, often

made even before the end of colonial rule. Given this background and the symbolic value of drinking as a sign of equality, it is surprising and somewhat ironic to discover recent instances where islanders themselves have re-imposed prohibition.” (Marshall & Marshall, 1990, p. 7)

South Africa has a long history of colonial domination involving alcohol (La Hausse, 1988). Especially in the wine producing regions of South Africa, colonials have been using alcohol as payment for African labor for generations because it reduces labor costs and allows farmers to extract more effort from workers. In the 300-year-old wine farming industry on the Western Cape, the “tot system” that provided laborers with regular wine rations throughout the day persisted into recent times. The tot system provided a number of benefits for farm owners: wine rations are taken out of cash wages, which reduces labor costs, especially since the wine given to workers tends to be poor quality. Moreover, as workers become increasingly dependent on drink, they are less inclined to leave the employer, and the promise of daily rations appears to make workers more willing to accept harsh conditions. Similar approaches were used in the South African gold mining industry for generations, that is, until more industrial mining practices demanded a sober workforce, at which point alcohol prohibition was imposed among mine workers.

With the growth of cities in the first half of the 20th century, efforts to control African drinking took the form of government-owned beer halls – known by Africans as “drinking in the cage” (La Hausse, 1988). The first beer hall was established in Durham, and the sales of beer to Africans became the primary source of revenue for funding local police and prison-like barracks to house workers. When it became apparent that home-brewed beer produced by local women undercut the rationing system and also competed with beer hall sales, the Durham town council established licensing laws and began police raids on women brewers, along with aggressive prosecution in the courts. By the 1930s and 40s, resentment toward the beer hall system erupted in an organized boycott of the beer halls sponsored by the black workers’ labour union. The results of the boycott were profound for white authorities, who suffered enormous financial losses and who eventually softened their stance on alcohol controls. But beer halls again became the stage for political action in the late 1950s and the 60s, this time by the Women’s League of the African National Congress (ANC), which sought to defend African women’s ownership of the beer home-brewing industry. In 1959, ANC women attacked Durham beer halls with sticks, fought with police, and ultimately set one beer hall on fire. As one activist explained it, “Our real grievance over the beer halls was that the home-brewing of this traditional drink of the people is not allowed, [while] the Corporation [local government] turns it

into a revenue-making commodity” (La Hausse, 1988, p. 63). As the ANC leader, Albert Luthuli, later re-iterated, “The beer hall has become for us a symbol of legal robbery by whites” (La Hausse, 1988, p.1).

Throughout the developing world, movements for alcohol control “from above” often came in the form of missionary efforts to suppress indigenous drinking on moral grounds. Numerous case studies from throughout the developing world illustrate how popular movements for prohibition also emerge from within developing societies. In such cases, alcohol often serves a symbolic function by defining the clash between cultures and the need for a sober populace that can fight for greater equality and defend tradition. In the context of India’s struggle for independence, Mohandas Gandhi pressed for the inclusion of alcohol prohibition as a plank in the Congress Party platform on the grounds that a sober population would be better able to govern itself (Dorschner, 1983). In revolutionary Chile of the 1970s, the alcohol problem became viewed as a “political problem” tied to its tendency to inhibit social and political participation (Weinstein, 1976). Here, excessive drinking became defined as a force that alienated workers from the historical task of perceiving and analyzing their social situation and joining in action to change the society:

“We stand before an ideological struggle, on the threshold of the development of a new culture, expressed in changes in power relations. Workers are becoming the country’s leading class. In order to reach that aim they must realize all their potential. Excessive social or addictive use of alcohol limits productivity, the possibilities for ideological advance, the attainment of power, and the capacity to incorporate women in the process of social change. This concept can be summarized with the help of a slogan that begins to be heard in some working class communities: ‘Alcoholism is opposed to the revolutionary process.’” (Weinstein, 1976, p. 76)

In the context of development, drinking practices often come to serve as symbols of tensions that arise when indigenous societies confront the radically different cultures of outsiders. Christine Eber presents a fascinating case where alcohol has come to take on multiple meanings among highland villagers in Chiapas, Mexico. These meanings reflect underlying political tensions around changing gender roles, the encounter with evangelical Protestantism and the ongoing revolt against the national government, and are symbolized in choices about drinking (Eber, 1995). Women in the mountains of Chiapas continue to this day to sell native *chicha*, a fermented sugar cane drink, out of their homes. However, use of rum or *aguardiente* – translated “burning water” – also has a long, albeit ambivalent, place in the cultural order of native *pedranos*. On the one hand, rum has been integrated into religious rituals as “holy

water.” In Eber’s analysis, this has served as a way of symbolically negotiating the dangerous and powerful presence of European outsiders in their homeland. But rum still remains a symbol of natives’ encounter with Europeans after 1500, when it served as “a tool of domination” -- for many *pedranos*, rum is believed to be a Satanic influence (Eber, 1995, p. 32).

These cultural contradictions came to a political head in 1946 when government officials established a monopoly on the lucrative rum trade. Local *pendranos* responded with organized resistance, including a boycott of the town market and violence that led to a series of murders of purported informants or “witches.” Ironically, the “Rum War” was resolved in 1954 when representatives of the indigenous community argued in defense of access to rum on religious grounds – as “holy water.” This story continues to unfold in the context of current battles over independence in Chiapas. For many in the Chiapas villages, Eber (2001) reports, alcohol and its attendant problems have come to be seen as a core issue, and as a symbol of political and economic domination, and there have been calls for local prohibition.

4.4 Lessons from the ethnographic case studies

The ethnographic literature provides a window into dynamics of development that is not available elsewhere in the literature. These studies are particularly valuable because they illustrate the mechanisms through which the commercial production of alcohol has, and continues to, generate socioeconomic and health disparities in the developing world. In several of the cases reviewed, the commercialization of alcohol was part and parcel of the growing economic inequality and class structure that emerged under development. Commercialization typically brings the widening availability of foreign brands of alcohol; developing societies are transformed into consumer markets where new forms of alcohol become symbols of elite social status. As we have seen, this dynamic typically brings more drinking, and thus a greater burden of alcohol-related problems on the population. In some societies, increased consumption interacts with culturally-determined patterns of behaviour and gender roles to produce explosive drinking styles, resulting in extremely high levels of violence and public disruption. Ethnographies of the developing world underscore the fact that the burden of rising alcohol problems seldom falls evenly across socioeconomic groups. When the poor become a consumer market, purchasing commercial brands of alcohol takes a larger toll on personal and family income than it does in other social classes. As we have seen, the poor are also more vulnerable to the public disruption, violence and health-related harms that come with increased alcohol consumption.

The ethnographic literature vividly illustrates the broad socioeconomic and political dynamics that emerge when commercial alcohol enters into the economies of developing societies. Throughout the developing world, we find a general trend towards the greater availability of alcohol around the clock, and a shift towards the commercialized production of European-style beverages by increasingly oligopolistic globalized producers. In some cases, these changes in alcohol production play a direct role in generating economic disparities, as in cases where industrialized alcohol production takes over control of alcohol production from indigenous groups. We saw this illustrated in the case study of rural Zambia, where beer brewing used to be an important source of income for local women. As we saw, when local women lost the franchise on beer production, several dynamics were set in motion that generated new forms of socioeconomic and health-related disparities. The increased availability of commercial brands of beer added to the economic burden on village families as men spent their wages on bottled beer. Village women, in turn, lacked any independent income to make up the difference for their families, having lost their income from producing beer. As village men drank more frequently and heavily, the local community experienced more violence toward women and health problems related to heavy drinking. All the while, local authorities failed to respond with alcohol control policies, in part due to their institutionalized dependency on alcohol revenue.

Finally, ethnographers have shown us how alcohol becomes wrapped up in the political struggles over economic disparities that inevitably follow development. These case studies thus show us that alcohol can serve as direct source of harm to whole societies by creating economic disparities that foment political conflict. Historically, alcohol has provided many colonial governments with a means of controlling and dominating indigenous populations, as well as a way of extracting more in the way of labour and taxes from local populations. It is only natural, then, that foreign sources of alcohol have become symbolically tied to the struggles against foreign incursion in many parts of the developing world. Cases of alcohol boycotts and prohibition “from below” underscore the fact that, as tribal and village societies become more and more incorporated into a globalized cash economy, they often lose the ability to regulate themselves. These popular movements voice the need for action at national and subnational levels to protect public health and order interests, to provide a shield from the most deleterious aspects of the globalized commercial promotion of alcohol, and to support community-level self-regulation.

5. Effects of alcohol controls and other policies on health inequalities

With development, societies must often make the transition from informal social controls on drinking to more formal, government-driven strategies. Where alcohol has been a staple of the indigenous culture, there are often informal mechanisms that control drinking. However, as we have seen, development often brings the growing availability of alcohol in more concentrated forms. Even societies that have managed regular drinking may have inadequate mechanisms for controlling drinking after development. We have thus seen how, in rural Zambia prior to development, it was only possible to brew small amounts of beer at a time for the purposes of ceremonies and work parties. However, once commercially produced alcohol became more widely available in the 1950s, men in the village “no longer remained sober because beer ran out – those who had never had to learn restraint found it difficult to stop in the presence of plenty” (Colson & Scudder, 1988, p. 47). In such a case, formal policies that establish controls on the industrial alcohol distribution and sales were one viable course to take in reducing the burden of drinking.

In this final section, we address some of the challenges that arise for societies that make the shift from less-formal to more-formal social controls on alcohol. There are many lessons to be learned from past efforts to establish formal alcohol controls in the developing world.

5.1 The effectiveness and cost effectiveness of alcohol policies

A substantial literature is now available on the relative effectiveness of different strategies for reducing rates of alcohol-related problems, and has been reviewed, for instance, by Babor et al. (2003). Unfortunately, as with epidemiological studies reviewed above, much of the literature is based on a relatively small range of countries. The applicability of the findings to developing country circumstances has been considered, for instance, in Room et al. (2002a), and a cost-effectiveness analysis by the WHO CHOICE project has projected the effects of selected strategies in different world subregions (Chisholm et al., 2004).

According to these reviews and analyses, the most effective and cost-effective strategies are a series of sales controls on alcoholic beverages, and a series of countermeasures against drinking-driving. The sales controls include raised taxes on alcoholic beverages, licensing or monopoly systems with enforcement of the conditions of sale, limitations of the hours and days of sale, and an enforced minimum purchase age. Drinking-driving countermeasures include low limits on blood-alcohol level (BAL) while driving, random breath-testing or testing at roadblocks by police, and administrative penalties such as immediate driver’s license suspension. On the other hand, measures such as alcohol education in schools, public

information campaigns, and provision of alternatives to drinking have shown little or no effectiveness. Measures such as assessment and brief intervention in primary health care and regulated serving practices in bars and restaurants show some effectiveness but are relatively costly to implement.

As indicated above, there are practical and often also normative limits on the application of the effective policies. There are usually vested interests within the society at stake, and trade agreements may rule out and other international pressures may resist effective policies. However, it is clear that the lessons of the alcohol policy evaluation literature are potentially widely applicable in reducing rates of alcohol-related problems (Chisholm et al., 2004; Rehm et al., 2006a).

5.2 Applicability in low- and middle-income countries in the context of development.

As noted above, a society without effective alcohol policies in place is likely to experience a sharp rise in alcohol problems during the process of economic development. This was the experience in Europe and North America in the 18th and 19th centuries, leading in many places to long internal struggles to put in place policies to reduce the rates of alcohol problems. It is the current experience in parts of Asia, where rates of alcohol consumption and problems have been rising sharply.

There are thus strong arguments on public health and safety grounds for implementing effective alcohol policies. Such policies notably include alcohol market controls, including such measures as substantial alcohol taxes, licensing of sellers, and limitations on hours and days of sale. There are often substantial practical difficulties for governments in implementing these policies. Notably, in much of the developing world only a portion of alcohol production and sales is subject to official controls, and it may be difficult for a government to enforce tax collection or other sales restrictions on the unofficial and unreported market sector. In the extreme case, raising alcohol taxes may actually result in a fall in government revenue, since the unofficial market substitutes for part of the official market (e.g., Jernigan, 1999).

The problem of the informal market has been a familiar problem, too, at least historically, in all parts of the world. For instance, it took the French government a century to gain complete control over distillation by farmers (Prestwich, 1988). Governments have developed a variety of techniques over the years for progressively establishing control over the whole alcohol market. A recent paper by economists on prospects for alcohol taxation in Africa (Bird & Wallace, 2003) mentions some of these techniques. As a review noted, “in such places as finance and treasury ministries, there is considerable national expertise in many countries, but there is

presently no clearinghouse or other forum for experience to be exchanged internationally. Such topics would be a natural venue for cooperation between WHO and international financial agencies such as the World Bank” (Room et al., 2002a:226). As for tobacco, there is a strong public health argument for international agreements which would commit states not to undermine each others’ alcohol control regimes, for instance through ignoring or facilitating cross-border smuggling.

5.3 Effects on alcohol-related health inequalities within a country.

To what extent do public health-oriented measures to reduce rates of alcohol problems decrease or increase health inequities within a country, particularly health inequities by social class or status? The greatest amount of evidence on this question is available for alcohol taxation. Alcohol taxation is traditionally considered a regressive tax, that is, it tends to bear more heavily on the poor than the rich. But as applied to actual drinking and abstention patterns, it is not always clear who pays a greater percentage of their income in alcohol taxes (except that the affluent will clearly pay a smaller percentage). A study in New Zealand found that, except at the top of the income distribution, the actual percentage of incomes paid in alcohol taxes was fairly even (Ashton et al., 1989), reflecting that middle-income households drank a considerably higher volume of alcohol than poor households. In the context of developing countries with high proportions of abstainers or drinkers of untaxed homebrew among the poor, the distribution of alcohol tax burden may actually fall more lightly on the poor.

However, if we think in terms of spending on non-necessities, it is clear that poor families have much less margin than better-off families, as was illustrated above in our review of ethnographic case studies. In a poor family, spending money on alcohol is more likely to detract from spending on necessities. The high proportion of abstainers among the poor in many countries is at least partly a reflection of such choices in daily life. In general, the drinking of lower-income drinkers is more strongly affected by changes in taxes than the drinking of the more affluent (e.g., Kendell et al., 1983). This is the implication of the changes over time in the gradient of alcohol consumption and problems by SES discussed in section 4.4, as real alcohol prices dropped.

It is to be expected that the same pattern will apply for the other alcohol control measures mentioned above, since they can be viewed as in one way or another raising the effective price of alcohol (with friction costs, etc. counted in), and such controls can more easily be neutralized by those with resources than by those without. In general, controls of the alcohol market will tend to affect the poor more than the wealthy. With drinking-driving countermeasures, the result

by social class will likely depend a great deal on the distribution within the population of access to automobiles. Where the poor do not have access to a car to drive, the effects of a countermeasure will be reduced – at least as drivers; they may well be affected as pedestrians by effective drinking-driving countermeasures.

At least for taxation and other alcohol control measures, then, the general effect is likely to be more pronounced on poorer than on richer drinkers, and the reductions in the alcohol-related burden of disease will tend to be greater for the poorer than for the richer segments of the population. An effective alcohol control policy will thus tend to reduce health inequities attributable to alcohol, and thereby reduce health inequities overall. It has been argued, for instance, that the relatively stringent alcohol policies of the Nordic countries have held down health inequalities there (Room & Tigerstedt, 2006).

In the context of strong pro-tourism interest in many developing countries, the argument is often made for reducing alcohol taxes to encourage tourism. This argument was successful in Mauritius, and the taxes on imported alcohol were drastically reduced there in 1994. There seems to have been little result among the affluent tourists – the tourist hotels did not in fact reduce the price of their drinks – but it had a substantial adverse effect on the less affluent local population. Drinking-driving arrests, mostly in connection with traffic crashes, rose by 23%; admissions for alcoholism to the psychiatric hospital more than doubled, and deaths from liver disease rose by more than 30% (Rehm et al., 2006a).

With respect to those who are both poor and marginalized, there is evidence from a variety of studies that their drinking behaviour is especially affected by alcohol control policies. A review of the Nordic policy impact studies noted that “in a number of instances,... policies appear to have had an impact on the kinds of problems associated with troublesome or social marginal drinkers, even when there was no measurable effect on the overall drinking level.” (Room et al., 2002b).

To the extent that alcohol taxation is regressive, it can have more impact on the poor than the rich. This is often regarded in the economic literature *ipso facto* as an argument against them. And there is little doubt that, if a poor heavy drinker does not reduce his or her drinking when the price goes up, there may well be adverse effects on family members (cf. Saxena et al., 2003). But, as we have argued, in general poor drinkers do change their behaviour in these circumstances, and the heavy drinkers change at least as much (Room et al., 2002b; Babor et al., 2003:110-112). Furthermore, in the specific case of raising taxes, the result will normally be an increase in government revenues. There is a strong argument for using all or a substantial part

of this increase in revenues to mitigate these adverse effects, further reducing overall health and social inequalities.

6 Priorities in further studies of alcohol, health disparities and development

6.1 Improving the burden-of-harm estimates

There is a need for further work on refining ways to calculate alcohol-attributable harm in the context of estimation of the Global Burden of Disease. Epidemiological studies in developing countries are needed to garner direct information on fractions attributable to alcohol in such circumstances, and work is needed in both the developing and developed world on the alcohol contribution to morbidity. Work in the GBD tradition is also needed on social harms from drinking, and on harms to others besides the drinker. As it stands, the estimates are likely to underestimate the harm associated with alcohol, due to the focus on health harms and on harms to the drinker him- or herself.

6.2 Mechanisms for alcohol's role in health disparities

There is a need for work investigating the different mechanisms and causal pathways through which alcohol generates health disparities and vice versa. There are numerous questions and ambiguities here. Causal mechanisms can be both simple and complex. There are direct sources of health-related harm from drinking heavily, and indirect effects, as when low SES makes individuals more vulnerable to the harmful effects of alcohol. We need studies of the cumulative disadvantages of low SES on alcohol-related problems, given that most studies are cross-sectional. However, even where the relationship is a fairly direct one, there may be considerable difficulty in attributing a causal role to alcohol.

There has been some research at the individual level on the causal ordering of SES and alcohol-related health harm, as in analyses that compare “social causation” and “social selection” (i.e., downward drift) hypotheses. However, the statistical methods used for addressing these competing causal hypotheses in the same research design are not well worked out. Moreover, we lack careful analyses of the intervening variables and conditioning factors that are involved in the relationship between socioeconomic status and alcohol-related health harm.

Besides these relations at the individual level, it should be kept in mind that alcohol also potentially impacts the socioeconomic wellbeing of whole societies. Investigating relationships at this level requires a whole different set of study designs.

6.3 The need for more research in developing societies relevant to the issues

Clearly, there is far more empirical research relevant to the topics of this paper in developed societies than developing ones. As we have illustrated at numerous points throughout this report, one cannot necessarily translate findings and assumptions from developed societies to societies in the developing world.

There is a need for reliable quantitative social indicators that can be compared across different societies. Here, concerns revolve around the difficulties with culturally translating indicators of alcohol-attributable harm in ways that are meaningful for both developed and developing societies.

There is an even greater need for comparisons among different groups within developing societies. Given the high levels of economic inequality in developing societies, and the strong associations between inequality and poor health/mortality, there is a critical need for within-society comparisons across SES groups.

6.4 Examining cumulative effects and patterns of different indicators of socioeconomic status and marginality

There is a need for comparative work on different indicators of alcohol consumption and problems in relation to socioeconomic status. Relationships differ considerably depending on which alcohol indicator is used. There seem to be some general patterns that should be examined cross-nationally. For example, it is often the case that low-SES groups experience more alcohol-related problems for a given level of consumption. Researchers should be encouraged to use standard measures and multiple indicators of alcohol consumption and problems to facilitate international comparisons.

By the same token, different indicators of SES (e.g., education, income, occupational status) seem to bear different relationships to indicators of alcohol problems and consumption. Research that more systematically compares these relationships, and studies the cumulative relationships, should be encouraged.

6.5 Explaining the disparity in results between general population- and register-based analyses

We have shown that there are considerable differences in the findings between studies based on social indicators and studies based on general population samples. More analysis is needed to disentangle the reasons for the “mismatch” in these results – the extent to which they are due to methodological differences (e.g., self-reported harms versus reported alcohol-attributable mortality), and the extent to which the results reflect substantive differences.

6.6 Studying the interplay of alcohol production, consumption and problems with the process of development

Studies of temporal changes in alcohol problems suggest that the development process, in and of itself, is likely to generate important changes in health-related harms over time. This may be due to changing patterns of consumption, changes in alcohol availability and numerous other causes. Comparisons of alcohol-related harm over time conducted within developing societies should be encouraged for this reason. Such studies could be useful in identifying more effective mechanisms for alcohol control policy.

6.7 The need for alcohol policy impact studies in developing-country contexts

There is a particular need for empirical studies on the effectiveness of alternative alcohol control policies in developed and developing nations, as well as global controls on alcohol production and trade. Quasi-experiments should be encouraged as different societies around the globe experiment with alcohol control policies.

7. Conclusions

7.1. The WHO Global Burden of Disease studies have demonstrated that alcohol consumption is a source of great harm to health, both in developing and in developed countries. We know in general that much social harm and harm to others than the drinker results from alcohol consumption, but this is not adequately quantified. Improving the measurement of alcohol's role in social and health harm is an important and urgent research task.

7.2. Patterns of drinking and heavy drinking are related to social class and other differentiations in diverse ways in different countries and regions of the world. While it seems that everywhere men drink more than women, patterns by age and by social class vary.

One commonality seems to be that abstaining from alcohol altogether is commoner among the poor than among the rich in most countries, and is generally commoner in poor regions than in richer regions of the world. It is likely that rates of abstention will decline with increasing affluence. Other things being equal, rates of alcohol-related problems are likely to rise with decreases in rates of abstaining.

In general, it is common for poorer people to be harmed more than richer people by a given amount of drinking. While this may reflect heavy drinking occasions being more predominant among poor people's drinking occasions, it also reflects the generally lower social and health margins of the poor – that they are less well insulated from risks of social and health

harm. Measures to prevent alcohol-related harm in the population as a whole are thus likely to reduce health inequalities.

7.3. There is commonly a considerable burden of stigma in the wake of heavy drinking, whatever the society's attitude may be to drinking in general. The burden of stigma is usually greater for the poor heavy drinker. Patterns of drinking, and the social responses to them, contribute to social marginalization, which in turn adds to the very high burden of disease and other harm often found among poor heavy drinkers. Both in developed and developing societies, there is a need for practical experiments in overcoming the effects of such marginalization and stigma.

7.4. During the process of development and moving into the market economy, there are likely to be substantial increases in alcohol consumption, and in the harm from drinking. This was the experience in many countries which are now developed. In these countries, it often took decades of social conflict to establish a new equilibrium including constraints on alcohol consumption and harm. If developing societies are to avoid this pattern, there is an urgent need to set public health safeguards and controls in place as preventive measures.

7.5. There is a substantial research literature establishing preventive policies and measures which are effective in holding down rates of alcohol-related problems, as well as the ineffectiveness of some other policies and measures. However, few of these studies were carried out in developing societies, and thus the literature does not directly address some circumstances in those societies, and does not cover some measures relevant there. There is an urgent need for a program of strategically-chosen demonstration projects on alcohol policy initiatives, with full evaluation, in the context of developing societies. The projects and the evaluations should pay close attention to measuring differences in effects by social class and other social differentiations.

7.6. Due to the harm it causes, alcohol should be excluded as a commodity from trade agreements and disputes which aim to increase competition and commerce, or which foreclose adoption of public health measures. The health of poorer drinkers, it seems, will be particularly well served by measures which limit and control alcohol markets. There is a need for an international agreement that national states should not undercut policies and measures in another state which are directed at preventing or reducing alcohol-related harm.

REFERENCES

- Abeyansinghe, R. (2002). *Illicit Alcohol: Drinking Culture in Colombo -- A Study of Alcohol Consumption among the Urban Poor in a South Asian Capital*. Colombo, Sri Lanka: Vijitha Yapa Publications.
- Academy of Medical Sciences (2004) *Calling Time: The Nation's Drinking as a Major Health Issue*. London: AMS. <http://www.acmedsci.ac.uk/images/project/CallingT.pdf>
- Almeida-Filho, N., Lessa, I., Magalhães, L., Araújo, M.J., Aquino, E., James, S.A. & Kawachi, I. (2005) Social inequality and alcohol consumption-abuse in Bahia, Brazil: Interactions of gender, ethnicity and social class. *Social Psychiatry & Psychiatric Epidemiology* 40:214-222.
- Armor, D., Polich, J., & Stambul, H. (1978) *Alcoholism and Treatment*. New York, NY: John Wiley and Sons.
- Ashton, T., Casswell, S. & Gilmore, L. (1989) Alcohol taxes: do the poor pay more than the rich? *British Journal of Addiction* 84(7):759-766.
- Babor, T., Caetano, R., Casswell, S., Edwards, G., Giesbrecht, N., Graham, K., Grube, J., Gruenewald, P., Hill, L., Holder, H., Homel, R., Österberg, E., Rehm, J., Room, R., & Rossow, I. (2003) *Alcohol: No Ordinary Commodity – Research and Public Policy*. Oxford, etc.: Oxford University Press.
- Beckman, V. (1988). *Alcohol: Another Trap for Africa*. Örebro, Sweden: Libris.
- Benegal, V., Nayak, M., Murthy, P., Chandra, P. & Gururaj, G. (2005) Women and alcohol use in India. In: Obot, I.S. & Room, R., eds., *Alcohol, Gender and Drinking Problems: Perspectives from Low and Middle Income Countries*, pp. 89-123. Geneva: World Health Organization, Department of Mental Health and Substance Abuse.
- Bennett, L.A., Janca, A., Grant, B.F. & Sartorius, N. (1993) Boundaries between normal and pathological drinking: A cross-cultural comparison. *Alcohol Health and Research World* 17(3):190-195.
- Bird, R.M. & Wallace, S. (2003) *Taxing Alcohol in Africa: Reflections from International Experience*. ITP Paper 03-04. Toronto: International Tax Program, University of Toronto. <http://www.rotman.utoronto.ca/iib/ITP0304.pdf>
- Bloomfield, K., Grittner, U., Kramer, S., Gmel, G. & Eckloff, J. (2005) Social inequalities in alcohol consumption and alcohol-related problems in the study countries of the EU concerted action "Gender, culture and alcohol problems: a multi-national study". In Bloomfield, K. et al., eds., *Gender, Culture and Alcohol Problems: A Multi-national Study. Project Final Report*, pp.117-135. Berlin: Charité Campus Benjamin Franklin.

- Bongers, I.M.B., Van de Goor, L.A.M., Van Oers, J.A.M. & Garretsen, H.F.L. (1998) Gender differences in alcohol-related problems: controlling for drinking behaviour. *Addiction* 93(3):411-21.
- Brady, M., & Palmer, K. (1984). *Alcohol in the Outback: Two Studies of Drinking*. Canberra, Australia: Australian National University.
- Caputo, R. (2001) Swahili coast: East Africa's ancient cross-roads. *National Geographic* (U.S.) October, pp. 104-119.
- Cartwright A.K., Shaw S.J., Spratley T.A. (1978a) The relationships between per capita consumption, drinking patterns and alcohol related problems in a population sample, 1965-1974. Part I: increased consumption and changes in drinking patterns. *British Journal of Addiction* 73(3):237-246.
- Cartwright A.K., Shaw S.J., Spratley T.A. (1978b) The relationships between per capita consumption, drinking patterns and alcohol related problems in a population sample, 1965-1974. Part II: implications for alcohol control policy. *British Journal of Addiction* 73(3):247-258.
- Casswell, S., Zhang, J.F. & Wyllie, A. (1993) The importance of amount and location of drinking for the experience of alcohol-related problems. *Addiction* 88:1527-1534.
- Chambliss, W.J. (1973) The Roughnecks and the Saints. *Society* (Nov./Dec.), pp. 24-31.
- Chisholm, D., Rehm, J., van Ommeren, M. & Monteiro, M. (2004) Reducing the global burden of hazardous alcohol use: A comparative cost-effectiveness analysis. *Journal of Studies on Alcohol* 65(6):782-793.
- Coffey, T.G. (1966) Beer Street: Gin Lane -- Some views of 18th-century drinking. *Quarterly Journal of Studies on Alcohol* 27:669-692.
- Colson, E., & Scudder, T. (1988). *For Prayer and Profit: The Ritual, Economic, and Social Importance of Beer in Gwembe District, Zambia, 1950-1982*. Stanford, California: Stanford University Press.
- Drummond, D. C. (1990) The relationship between alcohol dependence and alcohol-related problems in a clinical population. *British Journal of Addiction* 85:357-366.
- Demers, A., Room, R. and Bourgault, C., eds. (2001) *Surveys of Drinking Patterns and Problems in Seven Developing Countries*. Geneva: World Health Organization, Department of Mental Health and Substance Dependence, WHO/MSD/MSB/01.2.
- Dorschner, J. P. (1983). *Alcohol Consumption in a Village in North India* (Vol. 1). Ann Arbor, MI: UMI Research Press.

- Eber, C. (1995). *Women and Alcohol in a Highland Maya Town: Water of Hope, Water of Sorrow*. Austin, TX: University of Texas Press.
- Eber, C. (2001) "Take my water": Liberation through prohibition in San Pedro Chenalho, Chiapas, Mexico. *Social Science and Medicine* 53:251-262.
- Eckardt, M. J., File, S. E., Gessa, G. L., Grant, K. A., Guerri, C., Hoffman, P. L., Kalant, H., Koob, G.F., Li, T.K. & Tabakoff, B. (1998) Effects of moderate alcohol consumption in the central nervous system. *Alcoholism: Clinical and Experimental Research* 22:998-1040.
- Ezzati, M., Lopez, A.D., Rodgers, A., Vander Horn, S., Murray, C.J.L. & Comparative Risk Assessment Collaborating Group (2002) Selected major risk factors and global and regional burden of disease. *Lancet* 360:1347-60.
- Fahey, D.M. & Manian, P. (2005) Poverty and purification: The politics of Gandhi's campaign for prohibition. *The Historian* 67:489-506.
- Fillmore, K.M., Golding, J.M., Leino, V.E., Motoyoshi, M., Shoemaker, C., Terry, H., Ager, C.R. & Ferrer, H.P. (1997) Patterns and trends in women's and men's drinking. In: Wilsnack, R.W. & Wilsnack, S.C. (eds.) *Gender and Alcohol: Individual and Social Perspectives*, pp. 21-48. New Brunswick, NJ: Rutgers Center of Alcohol Studies.
- Halldin, J. (1985) Alcohol consumption and alcoholism in an urban population in central Sweden. *Acta Psychiatrica Scandinavica* 71:128-140.
- Harford, T.C., Grant, B.F. & Hasin, D.S. (1991) The effects of average daily consumption and frequency of intoxication on the occurrence of dependence symptoms and alcohol-related problems. In: Clark, W.B & Hilton, M.H., eds., *Alcohol in America: Drinking Practices and Problems*, pp. 213-237. Albany: State University of New York Press.
- Harrison, L. & Gardiner, E. (1999) Do the rich really die young? Alcohol-related mortality and social class in Great Britain, 1988-94. *Addiction* 94(12):1871-80.
- Hemström, Ö. (2002) Alcohol-related deaths contribute to socioeconomic differentials in mortality in Sweden. *European Journal of Public Health* 12(4):254-62.
- Henderson, C., Liu, X., Diez Roux, A.V., Link, B.D. and Hasin, D. (2004) The effects of US state income inequality and alcohol policies on symptoms of depression and alcohol dependence. *Social Science and Medicine* 58:565-575.
- Hilton, M.E. (1987) Demographic characteristics and the frequency of heavy drinking as predictors of self-reported drinking problems, *British Journal of Addiction* 82:913-925.
- Hilton M.E. & Clark W.B. (1987) Changes in American drinking patterns and problems, 1967-1984. *Journal of Studies on Alcohol* 48(6):515-522.

- Hradilova Selin, K. (2004a) Dryckesvanor i den svenska befolkningen (Drinking habits among Swedes). In: Hradilova Selin, K., ed., *Svenska dryckesvanor och deras konsekvenser i början av det nya millenniet*, pp. 75-94. Stockholm: SoRAD, Stockholms Universitet.
- Hradilova Selin, K. (2004b) Alkoholrelaterade problem i olika befolkningsgrupper (Alcohol-related problems in different population groups). In: Hradilova Selin, K., ed., *Svenska dryckesvanor och deras konsekvenser i början av det nya millenniet*, pp. 95-118. Stockholm: SoRAD, Stockholm University.
<http://www.sorad.su.se/doc/uploads/publications/SoRADrapport-20-Swedish.pdf>
- Hradilova Selin, K. (2005) Predicting alcohol-related harm by sociodemographic background: high prevalence versus high risk. *Contemporary Drug Problems* 32:547-588.
- Jernigan, D. (1997) *Thirsting for Markets: The Global Impact of Corporate Alcohol*. San Rafael, CA: The Marin Institute for the Prevention of Alcohol and Other Drug Problems.
- Jernigan, D. (1999) Country profile on alcohol in Zimbabwe. In; Riley, L. & Marshall, M., eds. *Alcohol and Public Health in 8 Developing Countries*, pp. 157-175. Geneva: Substance Abuse Department, World Health Organization.
- Jhingan, H.P., Shyangwa, P., Sharma, A., Prasad, K.M.R. & Khandelwal, S.K. (2003) Prevalence of alcohol dependence in a town in Nepal as assessed by the CAGE questionnaire. *Addiction* 98:339-343.
- Kendell, R.E., de Roumanie, M. and Ritson, E.B. (1983) Effect of economic changes on Scottish drinking habits 1978-82. *British Journal of Addiction* 78:365-379.
- Knupfer G. (1989) The prevalence in various social groups of 8 different drinking patterns, from abstaining to frequent drunkenness: analysis of 10 U.S. surveys combined. *British Journal of Addiction* 84:1305-1318.
- Kunz, J.L. & Graham, K. (1998) Drinking patterns, psychosocial characteristics and alcohol consequences. *Addiction* 93:1079-1090.
- La Hausse, P. B. (1988), *Beerhalls and Boycotts: A History of Liquor in South Africa*. Johannesburg: Ravan Press.
- Leon, D.A., Chenet, L., Shkolnikov, V.M., Zakharov, S., Shapiro, J., Rakhmanova, G., Vassin, S. & McKee, M. (1997) Huge variation in Russian mortality rates 1984-94: Artefact, alcohol, or what? *Lancet* 350:383-388.
- Levy, D.T., Miller, T.R., Mallonee, S., Spicer, R.S., Romano, E.O., Fisher, D.A. & Smith, G.S. (2002) Blood alcohol content (BAC)-negative victims in alcohol-involved injury incidents. *Addiction* 97:909-914.

- MacAndrew, C. & Edgerton, R. (1969) *Drunken Comportment: A Social Explanation*. Chicago: Aldine.
- Macintyre, M. (1999) *Social and Economic Impact Study, Lihir 1998*. Melbourne, Australia: Charlotte Allen and Associates.
- Macintyre, M. (2005) "Mi laikim spak tasol" (I just want to get drunk): Alcohol consumption patterns on Lihir 1995-2005. Presented at a conference, Dangerous Consumptions III, The University of Melbourne, 24th - 25th November.
- Mäkelä K. (1970) Ikä ja alkoholin käyttö [Age and consumption of alcohol]. *Alkoholipolitiikka* 35(6):314-322.
- Mäkelä, K. & Mustonen, H. (2000) Relationships of drinking behaviour, gender and age with reported negative and positive experiences related to drinking. *Addiction* 95(5):727-736.
- Mäkelä, K. & Viikari, M. (1977) Notes on alcohol and the state, *Acta Sociologica* 20:155-179.
- Mäkelä, P. (1999a) Alcohol-related mortality as a function of socioeconomic status. *Addiction* 94(6):867-886.
- Mäkelä, P. (1999b) Alcohol related mortality during an economic boom and recession. *Contemporary Drug Problems* 26:369-390.
- Mäkelä, P., Holmila, M. & Kaukonen, O. (2002) Päihteet ja päihdepolitiikka [Alcohol, drugs and policy]. In: Kangas, I., Keskimäki, I., Koskinen, S., Manderbacka, K., Lahelma, E., Prättälä, R. & Sihto, M., eds. *Kohti Terveiden Tasa-arvoa*, pp. 101-122. Helsinki: Edita.
- Mäkelä, P., Gmel, G., Grittner, U., Kuendig, H., Kuntsche, S., Bloomfield, K. & Room, R. (in press) Drinking patterns and their gender differences in Europe. *Alcohol and Alcoholism*.
- Mäkelä, P. & Paljärvi, T. (forthcoming) Do consequences at a given pattern of drinking vary by socioeconomic group? A mortality and hospitalization follow-up of the Finnish Drinking Habits surveys. Working paper. Helsinki: STAKES.
- Marang-van der Mheen, P.J., Smith, G.D., Hart, C.L. and Gunning-Schepers, L.J. (1998) Socioeconomic differentials in mortality among men within Great Britain: time trends and contributory causes. *Journal of Epidemiology and Community Health* 52:214-218.
- Marmot, M. (1997) Inequality, deprivation and alcohol use. *Addiction* 92(Suppl. 1):S13-S20.
- Marshall, M., & Marshall, L. B. (1975). Opening Pandora's bottle: Reconstructing Micronesians' early contacts with alcoholic beverages. *The Journal of the Polynesian Society* 84(4): 441-465.
- Marshall, M., & Marshall, L. B. (1976). Holy and unholy spirits. *The Journal of Pacific History* 11(Parts 3 and 4): 135-166.

- Marshall, M., & Marshall, L. B. (1990). *Silent Voices Speak: Women and Prohibition in Truk*. Belmont, California: Wadsworth Publishing Company.
- Maula, J. (1997) *Small-scale Production of Food and Traditional Alcoholic Beverages in Benin and Tanzania: Implications for the Promotion of Female Entrepreneurship*. Helsinki: Finnish Foundation for Alcohol Studies, vol. 43.
- McKee, M., Pomerleau, J., Robertson, A., Pudule, I., Grinberga, D., Kadziauskiene, K., Abaravicius, A. & Vaask, S. (2000) Alcohol consumption in the Baltic Republics. *Journal of Epidemiology and Community Health* 54(5):361-66.
- McKnight, D. (2002) *From Hunting to Drinking: The Devastating Effects of Alcohol on an Australian Aboriginal Community*. London & New York: Routledge, 2002.
- Mendoza-Sassi, R.A. & Béria, J.U. (2003) Prevalence of alcohol use disorders and associated factors: a population-based study using AUDIT in southern Brazil. *Addiction* 98:799-804.
- Midanik, L.T. & Clark, W.B. (1994) The demographic distribution of US drinking patterns in 1990: description and trends from 1984. *American Journal of Public Health* 84(8):1218-1222.
- Midanik, L.T. & Clark, W.B. (1995) Drinking-related problems in the United States: description and trends, 1984-1990. *Journal of Studies on Alcohol* 56:395-402.
- Moskalewicz, J. (2000) Alcohol in the countries in transition: Polish experience and the wider context. *Contemporary Drug Problems* 27:561-592.
- Mustonen, H., Beukes, L. & Du Preez, V. (2000) Relationships of drinking behaviour, gender, and age with reported alcohol-related problems in Namibia. Paper presented at the 26th Annual Alcohol Epidemiology Symposium of the Kettil Bruun Society for Social and Epidemiological Research on Alcohol, Oslo, Norway.
- Neumark, Y.D., Rahav, G. and Jaffe, D.H. (2003) Socio-economic status and binge drinking in Israel. *Drug and Alcohol Dependence* 69:15-21.
- Norström T. and Romelsjö A. (1998) Social class, drinking and alcohol-related mortality. *Journal of Substance Abuse* 10(4):385-395.
- Obot, I.S. & Room, R., eds. (2005) *Alcohol, Gender and Drinking Problems: Perspectives from Low and Middle Income Countries*. Geneva: World Health Organization, Department of Mental Health and Substance Abuse.
- Olsen, J.A. Richardson, J., Dolan, P. & Menzel, P. (2003) The moral relevance of personal characteristics in setting health care priorities. *Social Science and Medicine* 57:1163-1172.
- Otto, S. (1981) Women, alcohol and social control. In: Hutter, B. & Williams, G. (eds.) *Controlling Women: The Normal and the Deviant*, pp. 154-167. London: Croom Helm.

- Pensola, T.H. and Martikainen, P. (2003) Cumulative social class and mortality from various causes of adult men. *Journal of Epidemiology and Community Health* 57:745-751.
- Preedy, V.R. & Watson, R.R., eds. (2005) *Comprehensive Handbook of Alcohol-Related Pathology*. London: Elsevier Science.
- Prestwich, P. (1988) *Drink and the Politics of Social Reform: Antialcoholism in France since 1870*. Palo Alto, CA: Society for the Promotion of Science and Scholarship.
- Rehm, J., Monteiro, M., Room, R., Gmel, G., Jernigan, D., Frick, U., & Graham, K. (2001). Steps towards constructing a global comparative risk analysis for alcohol consumption: determining indicators and empirical weights for patterns of drinking, deciding about theoretical minimum, and dealing with different consequences. *European Addiction Research* 7(3):138-147.
- Rehm, J., Room, R., Monteiro, M., Gmel, G., Graham, G., Rehn, N., Sempos, C.T. & Jernigan, D. (2003a) Alcohol as a risk factor for global burden of disease. *European Addiction Research* 9: 157-164.
- Rehm, J., Room, R., Graham, K., Monteiro, M., Gmel, G., & Sempos, C. (2003b) The relationship of average volume of alcohol consumption and patterns of drinking to burden of disease - an overview. *Addiction* 98: 1209-1228.
- Rehm, J., Room, R., Monteiro, M., Gmel, G., Graham, K., Rehn, N., Sempos, C., Frick, U., & Jernigan, D. (2004) Alcohol Use. In M. Ezzati, A. Lopez, A. Rodgers, & C.J.L. Murray, eds. *Comparative Quantification of Health Risks: Global and Regional Burden of Disease Attributable to Selected Major Risk Factors*. Volume 1, pp. 959-1008. Geneva: WHO.
- Rehm, J., Chisholm, D., Room, R. & Lopez, A. (2006a) Alcohol. In: Jamison, D.T., Breman, J.G., Measham, A.R., Alleyne, G., Claeson, M., Evans, D.B., Jha, P., Mills, A. & Musgrave, P., eds., *Disease Control Priorities in Developing Countries*, 2nd ed., pp. 887-906. Washington, DC: World Bank and Oxford University Press.
- Rehm, J., Patra, J., Baliunas, D., Popova, S., Roerecke, M. & Taylor, B. (2006b) Alcohol consumption and global burden of disease 2002. Working paper prepared for the World Health Organization. Toronto: Centre for Addiction and Mental Health.
- Romelsjö A. (1989) The relationship between alcohol consumption and social status in Stockholm: Has the social pattern of alcohol consumption changed? *International Journal of Epidemiology* 18(4):842-851.

- Romelsjö A. & Lundberg M. (1996) The changes in the social class distribution of moderate and high alcohol consumption and of alcohol-related disabilities over time in Stockholm County in Sweden. *Addiction* 91(9):1307-1323.
- Romero, S. (2006) Venezuela's cup runs over, and the Scotch whiskey flows. *New York Times*, 20 August.
- Room, R. (1971) Measures of heavy drinking: The difference it makes. *Drinking and Drug Practices Surveyor* 3:3-6.
- Room R. (1977) Measurement and distribution of drinking patterns and problems in general populations. In: Edwards, G., Gross, M.M., Keller, M., Moser, J. & Room, R. eds., *Alcohol-related Disabilities*, pp. 61-87. Offset Publication No. 32. Geneva: World Health Organization.
- Room, R. (1984). Alcohol and ethnography: A case of problem deflation? *Current Anthropology* 25: 169-191.
- Room, R. (1987) Changes in the cultural position of alcohol in the U.S.: The contribution of alcohol-oriented movements. Presented in Torino, Italy. Berkeley: Alcohol Research Group, Publication E 226.
- Room, R. (2001) Intoxication and bad behaviour: understanding cultural differences in the link, *Social Science and Medicine* 53:189-198.
- Room, R. (2005) Stigma, social inequality and alcohol and drug use. *Drug and Alcohol Review* 24:143-155.
- Room, R. (2006) Looking towards policy in thinking about alcohol and the heart. Pp. 249-258 in: Elster, J., Gjelsvik, O., Hylland, A. and Moene, K., eds., *Understanding Choice, Explaining Behaviour: Essays in Honour of Ole-Jørgen Skog*. Oslo: Unipub forlag.
- Room, R., Greenfield, T. & Weisner, C. (1991) "People who might have liked you to drink less": changing responses to drinking by U.S. family members and friends, 1979-1990. *Contemporary Drug Problems* 18:573-595.
- Room, R., Bondy, S.J. & Ferris, J. (1995) The risk of harm to oneself from drinking, Canada 1989. *Addiction* 90:499-513.
- Room, R. & Jernigan, D. (2000) The ambiguous role of alcohol in economic and social development. *Addiction* 95(Suppl. 4):S523-S535.
- Room, R., Rehm, J., Trotter, R.T. II, Paglia, A. & Üstün, T.B. (2001) Cross-cultural views on stigma, valuation, parity and societal attitudes towards disability. Pp. 247-291 in: T. B. Üstün et al., eds., *Disability and Culture: Universalism and Diversity*. Seattle, etc.: Hofgrebe & Huber.

- Room, R., Jernigan, D., Carlini-Marlatt, B., Gureje, O., Mäkelä, K., Marshall, M., Medina-Mora, M.E., Monteiro, M., Parry, C., Partanen, J., Riley, L. and Saxena, S. (2002a) *Alcohol and Developing Societies: A Public Health Approach*. Helsinki: Finnish Foundation for Alcohol Studies & Geneva: World Health Organization.
- Room, R., Romelsjö, A. & Mäkelä, P. (2002b) Conclusion: Impacts of alcohol policy: the Nordic experience. In: Room, R., ed. *The Effects of Nordic Alcohol Policies: What Happens to Drinking When Alcohol Controls Change?* pp. 167-174. Helsinki: Nordic Council for Alcohol and Drug Research, NAD Publication 42.
- Room, R. & Hradilova Selin, K. (2005) Problems from women's and men's drinking in eight developing countries. In: Obot, I.S. & Room, R., eds., *Alcohol, Gender and Drinking Problems: Perspectives from Low and Middle Income Countries*, pp. 209-220. Geneva: World Health Organization, Department of Mental Health and Substance Abuse.
- Room, R. & Tigerstedt, C. (2006) Nordic alcohol policies and the welfare state. Working paper, prepared for the NEWS project. Stockholm: Centre for Social Research on Alcohol and Drugs, Stockholm University.
- Sackett, L. (1977). Liquor and the law: Wiluna, Western Australia. In R. Berndt (Ed.), *Aborigines and Change: Australia in the '70s*, pp. 90-99. Canberra: Australian Institute of Aboriginal Studies.
- Santana, P. (2002) Poverty, social exclusion and health in Portugal. *Social Science and Medicine* 55:33-45.
- Saxena, S., Sharma, R. & Maulik, P.K. (2003) Impact of alcohol use on poor families: a study from North India. *Journal of Substance Use* 8(2):78-84.
- Silberschmidt, M. (1990). The interaction between changing male and female roles and alcohol problems in rural Kenya: Observations from a field study in Kisii District. In: J. Maula, M. Lindblad & C. Tigerstedt (Eds.), *Alcohol in Developing Countries* (NAD Publication 18), pp. 134-150. Helsinki, Finland: Nordic Council for Alcohol and Drug Research.
- Socialstyrelsen (2005) *Homelessness in Sweden 2005: Scale and Character*. Stockholm: Socialstyrelsen. <http://www.socialstyrelsen.se/NR/ronlyres/4F7F8586-338C-40FF-A042-16B3ACFF7FA1/5864/200613123.pdf>
- Storbjörk, J. & Room, R. (2006) The two worlds of alcohol problems: who is in treatment and who is not? Stockholm: Centre for Social Research on Alcohol and Drugs, working paper.
- Stranges, S., Wu, T., Dorn, J.M., Freudenheim, J.L., Muti, P., Farinaro, E., Russell, M., Nochaski, T.H. & Trevisan, M. (2004) Relationship of alcohol drinking pattern to risk of hypertension: a population-based study. *Hypertension* 44:813-819.

- Strong, P.M. (1980) Doctors and dirty work: the case of alcoholism. *Sociology of Health and Illness* 2:24-47.
- Subramanian, S.V., Nandy, S., Irving, M., Gordon, D. & Davey Smith, G. (2005) Role of socioeconomic markers and state prohibition policy in predicting alcohol consumption among men and women in India: a multilevel statistical analysis. *Bulletin of the World Health Organization* 83(11):829-36.
- Sudnow, D. (1967) Dead on arrival. *Transaction* 5:36-43.
- Terris, M. (1967) The epidemiology of cirrhosis of the liver: national mortality data. *American Journal of Public Health* 57:2076-2088.
- Thimmaiah, G., & Sharma, J. V. M. (1978). *Socio-Economic Impact of Drinking in Karnataka*. Calcutta, India: Institute of Social Studies.
- Trevisan, M., Schisterman, E., Mennotti, A., Farchi, G., Conti, S. & Risk Factor and Life Expectancy Research Group (2001) Drinking pattern and mortality: the Italian Risk Factor and Life Expectancy Pooling Project. *Annals of Epidemiology* 11:312-319.
- Van Oers, J.A.M., Bongers, I.M.B., van de Goor, L.A.M. & Garretsen, H.F.L. (1999) Alcohol consumption, alcohol-related problems, problem drinking, and socioeconomic status. *Alcohol & Alcoholism* 34(1):78-88.
- Wilsnack, R., Vogeltanz, N.D., Wilsnack, S.C. and Harris, T.R. (2000) Gender differences in alcohol consumption and adverse drinking consequences: cross-cultural patterns. *Addiction* 95(2): 251-256.
- Wilsnack, R.W. & Wilsnack, S.C. (1997) Introduction. In: Wilsnack, R.W. & Wilsnack, S.C. (eds.) *Gender and Alcohol: Individual and Social Perspectives*, pp. 1-16. New Brunswick, NJ: Rutgers Center of Alcohol Studies.
- Wilsnack, R.W., Wilsnack, S.C. & Obot, I.S. (2005) Why study gender alcohol and culture? In: Obot, I.S. & Room, R., eds., *Alcohol, Gender and Drinking Problems: Perspectives from Low and Middle Income Countries*, pp. 1-23. Geneva: World Health Organization, Department of Mental Health and Substance Abuse.
- Wright, A. (1997) *Grog War*. Broome, Western Australia: Magabala Books Aboriginal Corporation.