

The Royal Society of Edinburgh

Public Discussion Forum and Full-Day Conference

Alcohol – Our Favourite Drug: from Chemistry to Culture

Thursday and Friday 26 and 27 February 2009

Report by Jennifer Trueland

Introduction/Summary

As the Scottish Government prepared to publish its far-reaching alcohol strategy, experts from around the world gathered in Edinburgh to take part in two events to discuss what the RSE calls 'our favourite drug'.

On Thursday evening, Lord Wilson of Tillyorn, President of the RSE, set the scene for the events by talking about Scotland's 'love-hate' relationship with alcohol.

Broadly, the speakers covered two main areas: the science of addiction, including genetic components and, secondly, the role of alcohol in our culture. Over the two days, participants heard about young 'determined drinkers' in Manchester and the habits of people in urban and rural Scotland, many of whom are drinking far too much but think that they don't have a problem. The audience was also told of new research from Australia which has started to map the social costs of drinking – not just to the drinker but to those around him or her. They learned about how heavy drinking has a disproportionate effect on poorer populations, both at our country level and worldwide, and heard a call for a global framework convention for alcohol policy.

On the more scientific side, advances in imaging and other techniques are helping to improve our understanding of addiction – and hence leading to new modes of treatment and prevention. Those present were informed about the role of genetics and the complex interplay with environment and lifestyle factors and found out at first hand about the huge burden of alcohol-related disease on our health services, which is costing us all – individuals, families and societies – so dearly.

The events were supported by the Alcohol Education and Research Council (AERC) and Scottish Health Action on Alcohol Problems (SHAAP)

Thursday 26 February

Public Discussion Forum

The public discussion forum heard in particular from three of the speakers who were also to give presentations at Friday's full-day conference.

In summary, Professor Anne Lingford-Hughes spoke of the biology of addiction, and described how advances in scanning of brain function and chemistry, for example, are improving our understanding of what alcohol is doing in the brain, and how this is leading to new treatments.

Dr Fiona Measham sounded a note of optimism, saying that the alcoholic excess of the last 15 years in particular may be levelling off, (although figures reported were only for England), but gave a valuable insight into the reasons why alcohol consumption has been increasing for the last half century.

Professor Robin Room outlined research which showed the indirect cost of alcohol – 'passive drinking' – in its effects on people other than the drinker, including families and society in general.

The discussion was chaired by Dr Bruce Ritson, Chairman of Scottish Health Action on Alcohol Problems (SHAAP). He asked whether there is something 'special' about Scotland and its relationship to alcohol – after all, it is possibly the only country to have given its name to a drink (Scotch). Scotland has a drinking problem – as evidenced by a visit to any town or city centre on a Friday or Saturday night. But are we passive victims, he asked, or can we do something about it?

Professor Anne Lingford-Hughes, Professor of Addiction Biology, Imperial College, London.

As an addictions biologist and a psychiatrist who, until recently, was treating addicted patients in Bristol, Professor Lingford-Hughes sees the value in learning more about the effects alcohol has on the brain. Alcohol is well-known to rot the brain, but modern brain imaging techniques such as PET and MRI are showing us more specifically how the substance acts on the brain.

For example, PET scans show us that alcohol acts on different pathways, which may lead to clues about the best form of treatment, prevention and how to stop relapse. This includes the use of new and existing drugs and treatments, some of which might replicate the desired effects of alcohol, but less harmfully, while others may help repair the damage already caused by the drug. For example, for people who like the endorphin rush of alcohol, exercise might be an effective substitute.

She showed slides which indicated that even where the brain has been damaged by alcohol, some of the damage can be reversed by a period of abstinence. In the addicted drinker withdrawal from alcohol also carries health risks, however.

She also sounded a warning about drinking in young people. Because the adolescent brain is still forming, alcohol damage at that stage might well 'hard-wire' damage into the brain which could last for the rest of a teenager's life.

More details on Professor Lingford-Hughes's work can be found in the conference report below.

Professor Robin Room, Director, Centre for Alcohol Policy Research, Australia

Usually, the cost of alcohol is calculated in terms of the individual – we're told how much money it costs to treat alcohol-related health problems and the money lost to the economy because the drinker does not turn up for work. That's not the whole story, however. Professor Room described research carried out in Australia looking at the people around the drinker and the effects that a person's drinking has on them. This, he says, gives a wider picture of social costs of alcohol. 'Passive drinking' can affect people around the drinker in a variety of ways. This can range from someone being disturbed by rowdy behaviour to becoming a victim of a drunken assault.

Professor Room's team carried out a national phone survey, which involved interviewing 2,649 people. This found that a significant number (17 per cent) knew a heavy drinker and had been negatively affected. The drinkers included family members and co-workers. A small amount of those questioned had suffered sexual or other assault and children had also been mistreated by heavy drinkers. The research revealed that there was a significant amount of social harm – two thirds said a drinker had disrupted a social occasion such as Christmas – and also community harm. For example, 13 per cent of those affected by the latter had called the police.

Australia is a country not unlike Scotland, and he said that these other costs should be factored in when drawing up alcohol policy – in much the same way as the costs of passive smoking had been a driver for change.

Dr Fiona Measham, Senior Lecturer in Criminology, Lancaster University

Dr Measham sounded a note of optimism in the title of her talk, *The Turning Tides of Intoxication*. She put alcohol consumption in an historical context – for example, although our drinking has been rising in the last 50 years, it has not reached the highs of the Victorian era. And although consumption in the under-16s has doubled in recent years, it appears to be levelling off now, giving some hope that the tide may be turning again.

She described some of the reasons for what she called the 'carnival' of excess in the last 15 years. New types of drinkers – including women and young professionals – are attracted by new-style pubs and bars. New, sweeter, alcopop-type drinks have drawn in new drinkers and now have a significant market share. The way we drink is changing, with men and women of the same age drinking together, rather than in mixed age, same sex groups. Getting drunk is seen as the aim on a night out, usually at weekends – with the notion that young people in particular feel they 'deserve' it after a hard week at work. As well as the 'pull' factors drawing people to the pub, there are also the 'push' factors getting them out of the home. There's a trend of extended adolescence, she said, with young people staying at home with their parents for longer. Where else is there to go but the pub? For more detail on Dr Measham's work, see the conference presentation report below.

Questions/Discussion

Questions ranged from whether there is a gene for alcohol addiction to habits and perspectives in different parts of the world – on drinking, law-making and treatment. From the floor, Dr Francesca Ducci explained that although there is no single alcoholic gene, there was a genetic component in addiction. "It's not a yes–no phenomenon, but some people are more likely to develop disease," she said, adding that it is a complex interplay between genetics, environment and lifestyle factors.

Asked about a possible north-south divide in drinking habits and attitudes, at a global level, the panel agreed that even within Europe there are differences, with the Protestant northern

countries tending towards a weekday restraint/weekend excess model while Mediterranean countries tend to drink a little wine with meals daily. But Dr Measham and Professor Room said this is changing, with young people in France, for example, choosing to drink beer and condemning red wine as something drunk by 'alcoholics or their parents'.

One questioner asked why alcohol isn't banned, when other drugs are criminalised. Professor Room responded that alcohol is part of our lives. While smoking is now essentially a poor people's habit, drinking is familiar to newspaper editors, politicians and professionals. Dr Measham pointed out that drugs such as opium used to be available legally but suggested that the historic power of the alcohol industry may have contributed to keeping it legal. Professor Lingford-Hughes said that society endorses some risks, but not others – for example, horse-riding.

One student in the audience asked about teenage drinking, saying that in his experience the students who get wild and drunk too much when they come to university are those who have previously had no experience of alcohol. Dr Measham said that the American students at her university, unable to buy drink until they are 21 at home, "think it is Christmas" when they come to the UK.

The topical issue of a doctor who reportedly 'cured' himself of alcoholism by taking a muscle-relaxant was also raised. Professor Lingford-Hughes said she had used the muscle-relaxant baclofen in treatment – and stressed that there were more pharmaceutical products available which might prove useful once they had been fully evaluated.

Friday 27 February

Conference

Chairman's Introduction –

Professor Harry Burns, Chief Medical Officer, Scottish Government

Professor Burns compared alcohol today with tobacco 10 – 20 years ago. “Tobacco used to be our favourite drug, but we’ve left smoking behind and have moved into an era of alcohol addiction”, he said. “The harm to health caused by alcohol-related disease is ‘shocking’” he said – adding that there was no doubt that something needs to be done.

Session 1: Science

**Professor Anne Lingford-Hughes, Professor of Addiction Biology,
Imperial College, London**

Brain Mechanisms of Intoxication, Dependence and Damage

Understanding the biology of alcohol addiction helps us treat and prevent it, says Professor Lingford-Hughes. Recent advances in imaging are helping us see more clearly how alcohol affects the brain. We know that it is a ‘rich’ drug targeting many different chemical systems in the brain and we know that it rots the brain, but now we are able to see the specific vulnerable areas of the brain it affects. Recent advances, for example, in PET (positron emission tomography) and MRI scanning, allow us to get a fuller picture of how alcohol acts on the brain.

In her talk, Professor Lingford-Hughes outlined some of the pathways activated by alcohol and other drugs of abuse. For example, drugs, including alcohol and cocaine, increase the concentrations of the ‘pleasure’ chemical dopamine. This chemical is released through what you might call ‘natural’ pleasures, but also mediates the ‘high’ of drugs, she said. Addicts hit the system so hard that it stops working so well, she said, which can lead to taking more of a drug to try to get the same effect.

The dopamine system is modulated by other neurotransmitters, and they might be targets for possible treatments. For example, the GABA system is the brain’s ‘brake’ on dopamine cell firing. Drugs which increase GABA levels – such as the muscle relaxant baclofen – are increasingly being used to treat addiction in specialist settings and trials in the Europe have been promising.

Other brain systems – such as the opioid receptors – also appear to play a fundamental role in addiction and possibly craving, again providing a useful pharmaceutical target. Drug treatments, both new and existing, may help treat addiction and prevent relapse. They may also help mitigate some of the adverse effects of alcohol addiction, such as memory loss and can therefore help to make it easier for those trying to give up drinking to function in day-to-day life.

Although some damage caused to the brain by alcohol will be repaired by abstinence, withdrawal in itself can be dangerous. However, it’s an exciting time in addiction biology and treatment, with a greater understanding of the mechanisms leading to new modes of treatment.

Questions

Asked about the use of unlicensed medicines to treat addictions, Professor Lingford-Hughes said that this is mostly done in specialist services using data from studies conducted in other countries to guide patient choice. She said that pharmacological treatment must be combined with psychosocial interventions, however.

Dr Francesca Ducci, Institute of Psychiatry, King's College, London
Genetics of Addiction

Addictions can be inherited and about half a person's vulnerability is genetic, said Dr Ducci, but it's a complex disease and no single gene can be blamed. There is specific gene involvement, however, with different genes implicated in different people.

In her talk, she described some candidate genes where differences make a carrier more likely to develop alcoholism and related psychiatric illnesses. She focused on the monoamine oxidase A (MAOA) enzyme, which appears to play an important role in the amount of serotonin (the 'happiness' chemical) in the brain. People with a variation in the MAOA gene are more likely to develop alcoholism and antisocial personality disorder. Environmental factors are important too, and may interact with the genetic differences. For example, a study of women who had experienced sexual abuse showed that those with the MAOA variation were more likely to develop alcoholism and antisocial personality disorder. The research findings suggest that the gene influences sensitivity to stress.

The task now is to look for more genes which could in turn provide more targets for treatment.

Questions

Asked about the practical application of this work, Dr Ducci said that better understanding of the biological processes could help drug design. Also, if the genotype is known, it might predict the response of an individual to a drug.

Dr Alastair McGilchrist, Department of Gastroenterology, Royal Infirmary of Edinburgh

Dr Lesley Graham, Public Health, Information Services Division, NHS National Services Scotland

Scotland's Liver Disease Epidemic: What's the Story?

Drs McGilchrist and Graham spoke about what the former called 'an epidemic of liver disease of frightening proportions'. While Dr Graham explored the reasons behind this, Dr McGilchrist set the scene by talking about liver disease – and alcohol's role in it. He showed how liver damage happens, comparing pictures of a healthy liver, with one which has become infiltrated by fat, then progressively through alcoholic hepatitis to cirrhosis. The process can take years and can often be 'silent' or without serious symptoms. With the complications of cirrhosis, the results could be liver failure or cancer. Alcohol is one of the three most common causes of liver disease, the others being viral hepatitis (both B and C) and obesity. He described the risk factors for alcoholic liver disease, including how much is drunk, what is drunk, how often and how – for example, risk increases if it is taken without food. Individual susceptibility is also important. Drinkers who have other risk factors, such as diabetes or obesity may have increased risk, while hepatitis C leads to a more rapid progression to cirrhosis.

Dr Graham described the current position in Scotland. While chronic liver disease rates and deaths from cirrhosis are falling in most of Western Europe, Scotland has among the fastest growing rates in the world. Scotland's chronic liver disease and cirrhosis death rates among 45–64-year-old men have increased dramatically in the last ten years and are twice as high as in England and Wales, with rates for women in Scotland higher than those for men in England. While liver disease attacks all sectors of society and rates have risen across all socio-economic groups, the rise has been more acute in the most deprived, (with, for example, men in the most deprived groups 16 times more likely to die than those in the most affluent groups) so contributing to health inequalities. She presented evidence to show that the main driver of the epidemic to date has been alcohol.

She also looked at the figures behind alcohol consumption. At UK level, having fallen in the beginning of the 20th century, particularly during the two world wars, it has more than doubled since 1950, with a particularly noticeable increase since the early 1990s. Recent revised estimates from the Scottish Health Survey suggest that people are drinking more than previously reported. For example, 40 per cent of men and 33 per cent of women are drinking twice the daily limits and almost two thirds are drinking over the daily benchmarks. The picture could actually be even worse than this as the SHS tends to be completed by healthier people, particularly so in deprived areas. Evidence from work with prisoners suggests that there is very heavy drinking in deprived groups. Industry sales data also shows that Scotland is drinking almost two litres of pure alcohol per capita more than England and has the eighth highest consumption of pure alcohol in the world.

Other contributing factors to the high levels of liver disease in Scotland could include smoking rates, which are higher in Scotland than England, and the type of alcohol drunk – Scots drink more spirits than English people, for example.

Wider environmental changes may also account for higher mortality rates, such as the liberalisation of the licensing laws in Scotland in the 1970s and the increasing affordability of alcohol. She considered whether Scotland has reached a ‘tipping point’ where a small change in consumption had made a big difference in mortality, then asked whether something could be done to make a similar change in a positive direction.

A reduction in population consumption of alcohol would lead to a reduction in mortality from liver disease, with a rise in price being one of the most effective ways of reducing consumption. An effective alcohol policy has to be multi-faceted and include targeted approaches as well. Hepatitis C and obesity also need to be tackled.

Panel Discussion

The speakers from the morning session took part in a panel discussion. Issues raised included the importance of co-factors, such as hepatitis C; the interplay between genetics and environment; and how soon effective new drugs would be available.

Asked about whether alcohol policies should be selective – ie, targeted at individuals at most risk – or population-based (eg, through increasing price), Professor Lingford-Hughes said there was a debate to be had. Dr Graham said that brief interventions are cost-effective and that both population-based and targeted approaches in combination were most effective (as recommended by the World Health Organisation, *WHO*).

A member of the audience pointed out that targeted approaches tended to be more popular with the industry and with most governments, partly because they didn’t want to be seen as ‘nanny’.

Asked about the availability of specialist services and the possibility of new drugs, Professor Lingford-Hughes said it was an exciting time with many potential treatments, but that it was a complex process to decide what to give and when.

Session 2: Culture

Chairman's Introduction: Dr Magnus Linklater

Dr Linklater said that drinking and drunkenness had moved from being a private and furtive activity and state. Now they are not only done openly, but are actually celebrated. While it was appalling that town centres were seen as 'no-go' areas on Friday and Saturday evenings, he said there was a struggle to find the right policy approach. Indeed, politicians tended to veer between standing back from the problem and being interventionist.

Dr Peter Anderson, Consultant in Public Health and Alcohol Policy, Ministry of Health, Catalonia

Alcohol, Inequalities and Health

Dr Anderson focused on socioeconomic inequalities and looked at what alcohol meant for policies based on a single country, both Europe-wide and globally. For each, he considered alcohol consumption, alcohol-related deaths, the impact of bad policy and the potential impact of good policy.

People in lower socioeconomic groups are less likely to drink, but those who do are more likely to drink heavily and suffer alcohol-related harm – compounded by social deprivation and social exclusion. Bad policy – such as reducing taxes on alcohol – tends to result in everyone drinking more, but affects those in lower socioeconomic groups more. Good policy, on the other hand, is likely to reduce negative alcohol-related socio-economic inequalities, he said.

The current economic crash, he said, could have good and bad effects. It is potentially positive because it may reduce affordability of alcohol so people may drink less. It is potentially bad, because changes in social dislocation and cohesion may increase problem drinking. He said there was a need for strengthened alcohol policy, which reduces the affordability and availability of alcohol.

At a European level, there are alcohol-related health inequalities between eastern and western Europe and, in particular, between the Baltic States and the rest of Europe. This means there is a particular need for strong alcohol policies in these areas – coupled with dealing with issues of cross-border trade (which has led to lower alcohol taxes). Globally, Dr Anderson pointed out that poorer countries are hit harder by a given level or pattern of drinking than more affluent countries. This can be due to a variety of factors – for instance, poor street lighting making drink driving incidents more likely and because poor nutrition might lead to worse outcomes in liver disease and have a role in communicable diseases such as TB. Increasingly, he said, the alcohol burden will be dominated by the burden in low to middle-income countries.

He said there was a need for a global framework convention for alcohol policy and that action was needed to counteract the activity of the alcohol industry, particularly in poorer countries. He gave the example of a government alcohol policy in sub-Saharan Africa, which was industry-friendly and which actually turned out to have originated from industry. Effective alcohol policy within and between countries is likely to reduce alcohol-related health inequalities, he concluded. This could be needed even more in times of economic turmoil, where although consumption might decrease, the potential for harm is different.

Questions

Asked by the Chairman if 'bad policy' included extended pub opening hours, Dr Anderson said that liberalising availability led to more drinking and more harm. Questioned about whether it would be effective to sue drinks manufacturers, in the way that tobacco companies have been sued for damaging health, Dr Anderson said it would be desirable

from a policy point of view, because apart from anything else, it would probably mean more information would become available from the alcohol industry – just as documents from the tobacco companies proved to be a rich resource. Asked about the implications of an international framework, he said it had to come from WHO, but is potentially sensitive and would take a lot of resources.

Dr Fiona Measham, Senior Lecturer in Criminology, Lancaster University
The Turning Tides of Intoxication

Dr Measham has conducted research on the frontline – in the pubs and clubs of Manchester. In so doing, she has witnessed the environment in which people, particularly young people, drink and has also observed the factors which have contributed to increased consumption. For example, as well as various happy-hour-type discounts, she found one venue where free vodka is served for a specific period. She has also asked young people about their drinking as well as looking at the overall epidemiological evidence.

She shared some of her findings at the conference, and speculated, with some optimism, that we might be seeing the end of the last 15 years of excess – the ‘carnival’ she called it – and said that while the rise in young people’s drinking was levelling off, she was detecting that drunkenness might be going out of fashion.

First, however, she looked at the factors leading to more drinking. These include the ‘pull’ factors, encouraging people to drink, such as new-style pubs attracting new drinkers and drinks such as alcopops. She also spoke about the environment and policies of pubs and clubs which encouraged drinking – such as no seats, the availability of table service, the fashion for ‘shots’ (often un-measured) and the high price of soft drinks.

She also spoke about the ‘push’ factors – the period of extended adolescence which means that young people live at home longer and want somewhere to go.

While accepting that binge drinking is a problem, she said it isn’t new, giving the example of the 19th century gin shop. She also suggested that it is a particularly northern European Protestant pattern of working hard during the week then ‘letting go’ at weekends, in comparison to traditional Mediterranean drinking habits of a little wine each day with meals. In the last 15 years there has been normalisation of binge drinking – among young men and women – she said, and also a normalisation of determined drunkenness. She hopes the tide is turning, however.

Questions

Asked about the role of government in turning the tide, she said that voluntary codes are not working, but that existing legislation – such as not serving drunk people with alcohol – should be put into action. She commended the Scottish Government’s proposals on minimum pricing but said that for her, fashion is a key factor. When it’s not fashionable to get drunk, consumption should drop.

Susan MacAskill, Institute for Social Marketing, University of Stirling and the Open University

Consumption Norms: Hidden Problems, Complex Solutions

It is acknowledged that alcohol consumption and alcohol-related harm are increasing, but the media, public and policy focus has been on the young ‘binge’ drinker. Many people in Scotland are drinking too much, however, and that includes people from all age groups and social classes.

Marketing and media contribute to the pervasiveness – and normalisation – of drinking. The

industry makes drinking easy and attractive and the media underlines its place in our lives – for example by setting so much action in soap operas around the pub.

At the same time, when the media portrays drinking problems it concentrates on extremes, such as drunken violence, which makes it easier for many people to distance themselves and not see their 'normal' way of drinking as a 'problem' – in a sense it is hidden as an issue.

The Institute of Social Marketing at Stirling University carried out some qualitative research which looked at drinking in both urban and rural settings and among the advantaged and disadvantaged populations. Researchers questioned 172 people and found high levels of consumption across the board. Key findings were that there is no single drinking-behaviour; individuals can drink a lot without recognising a problem, people have their own 'sensible' drinking strategies and there is media and marketing awareness. People's drinking habits change with age and with life stages and motivations vary too. For example, people can drink to relax, to celebrate or even just to get drunk.

She gave two examples: an affluent urban woman in the 40-55 age group, who drinks every day, adding up to 55.9 units per week. She did not realise she was drinking so much. The other was a woman in the 18-30 age group in a rural deprived household who can drink 40.75 units – in a single night – but nothing the rest of the week.

The research found high weekly consumption among affluent drinkers – many of whom drink every day – and heavy episodic drinking among poorer people. People mostly distanced themselves from the totals recorded, for example, saying it hadn't been a typical week and blaming 'young people' and 'alcoholics' for the 'problem'. Self-perceived 'sensible' drinking included being aware of personal limits and ensuring plenty of time to recover before going back to work. People were aware of the concept of units, but they were felt to be difficult and impractical to apply in a drinking session, and so were easy to ignore. One quote from a rural affluent man in the 31-59 age group was: "How many pints is 20 units? Ten pints a week! I *spill* more than that!"

She concluded that people may be heavy drinkers but that they don't see themselves as such and think 'others' are the problem. There's a need to reframe the problem so that it connects with people and makes it harder for them to distance themselves. Multi-faceted approaches are needed as there is no one Scottish drinking behaviour. She believes the lessons from marketing – including understanding of target groups – need to be learned. Action is needed at an individual and population level, including promoting positive (sensible-drinking) options, addressing price and availability of alcohol and challenging current definitions of problem drinking. Challenging cultural drinking norms and developing an environment supporting sensible drinking is also important, she said.

Panel Discussion

Questions covered issues including labelling, the possibility of 'shock' advertising and the risks to an ageing population. While it was important to learn the lessons from marketing, Ms MacAskill said there were no easy solutions. She was not particularly in favour of 'shock' pictures of diseased livers on wine bottles, but would like to see more done to emphasise the positives of not drinking too much – for example, weight control. Dr Measham said it was easy to evade shock messages: for example, people sometimes use stickers to cover warnings on cigarette packets.

Dr Measham was questioned about her 'optimism' when the disease burden in Scotland is far more pessimistic, with alcohol-related death rates continuing to rise. She said that while she is optimistic, her feeling was based on work done in England and that in any case drinking levels are still too high.

Summary Closing Talk

Professor Robin Room, Director, Centre for Alcohol Policy Research, Australian (this talk was supported by SHAAP)

Choices for a Society in Reducing Drinking Problems

Professor Room described the conference as a 'rich day, with a rich tapestry of presentations and discussions'. He offered a few closing thoughts about the way forward in Scotland and in the world generally.

Scotland, he said, had the potential to be bold with its proposed new alcohol legislation, which would tackle pricing, marketing and displays and the age at which people could buy alcohol. The rest of the world would be watching.

He said there were risks with whole-population approaches, with politicians in particular nervous of being accused of creating a nanny state. But there were dangers with targeted approaches too, including the ethical problems of how to select and how to intervene. Governments need to pay attention to evidence and then evaluate policies so that others can learn from them.

Capturing people's hearts and getting them on board is also important – not giving the technocratic point of view only. Community groups might help do this, just as the actions of the temperance movement had far-reaching effects which last to this day.

This is a 'fateful moment' for Scotland, he said, and will be watched in the rest of the UK and the broader world arena.