



(January 2008)

Alcohol and HIV/AIDS

There is a huge amount of research and documentation available on most aspects of the HIV/AIDS pandemic, including documentation on injecting drug use as a risk factor to contract HIV. This connection has been experienced and documented from the early phases of the AIDS pandemic.

Alcohol use and drunken behaviour is not at all that well documented as a risk factor to contract HIV. This situation is now gradually changing. An increasing amount of research is being conducted on HIV/AIDS and alcohol, and the connection between the two is coming gradually clearer also from a scientific perspective. In real life the connection has long been experienced by very many, both ordinary people, HIV experts and development workers, but without resulting in too many systematic studies of the phenomenon.

This text is an attempt to summarize existing knowledge on possible connections between alcohol consumption and HIV/AIDS. The document is not an exhaustive, scientific review, rather a journalistic presentation of some selected material.

Based on the reviewed material we have identified three areas of interaction between alcohol/drunken behaviour and HIV/AIDS:

1. Alcohol contributing to the spread of HIV/AIDS
2. Alcohol boosting the development of the disease
3. Alcohol reducing the effects of medical treatment

Some of the available documentation in these three areas is presented in the paragraphs below, including links to more in-depth presentations of the topics. We will make updates of the text as new documentation becomes available.

However more research and documentation is needed. As a minimum there is a need for a broad and scientific review of existing research material, in order map out which areas are covered with good documentation and which areas that still need more research.

We are now working on a material that covers a fourth connection, which belongs to the field of prevention strategies:

4. Methodological parallels between prevention of HIV/AIDS and alcohol
- Material on this will be presented at the ADD web site in due course.

1. Alcohol contributing to the spread of HIV/AIDS

A. Social, cultural and psychological links

A considerable number of social, cultural and psychological aspects of alcohol use and drunken behaviour – and also combinations of these aspects - may lead to increased risk to contract HIV.

The WHO report, “Alcohol Use and Sexual Risk Behaviour: A Cross-Cultural Study in Eight Countries”¹ points out some key patterns of interaction between alcohol use and sexual behaviour, based on review of available research literature and empirical studies in eight countries; Kenya, South Africa, Zambia, Mexico, Belarus, Romania, The Russian Federation and India.

Analysis of the data in the WHO report showed that not only did alcohol use and sexual behaviour separately pose risks for STI/HIV infection, but also collectively. In a number of ways alcohol use and sexual behaviour and beliefs actively “supported” one another, with alcohol use and beliefs acting as both precursors and outcomes of sexual behaviour. The particular manner in which alcohol use and sexual behaviour interacted, however, varied to some extent across the eight countries.

Alcohol use as part of the construction of maleness

Across project sites studied in the WHO report drinking was manifested as a lifestyle and indispensable part of social life, integral in partnership development and functional in sexual encounters. In all the countries – except in India – alcohol consumption was believed to signify maleness. In South Africa, for example, “being able to hold one’s drink and drink heavily were regarded as sign of masculinity”.

The report concludes that being under the influence of alcohol was culturally accepted as an excuse for irresponsible behaviour, including risky sex, in Kenya and South Africa, in Mexico, as well as in Belarus, Romania and the Russian Federation. In Romania, alcohol consumption was not only culturally accepted as an excuse for irresponsible behaviour but also as an excuse that specifically applied to men, implying that alcohol use-related irresponsible behaviour was culturally accepted as an assertion/manifestation of maleness.

Alcohol was consumed to attract sexual partners and initiate sexual encounters, says the report. For example, in Zambia “buying alcohol for women showed that a man had money”. In Belarus in particular “alcohol use was conventional and an essential part of sexual relations”; and “at discos alcohol was much more consumed by those who showed up single and searched for a partner than those who came with a partner”.

From another study in Sri Lanka, though not related to HIV/AIDS, the masculinity issue is still pointed out. Sex and suppression of women, including domestic violence is a hot topic in the drinking settings and the men even boasted about hitting women as a way of expressing masculine norms and identity.

Alcohol as a facilitator for sexual encounters and intercourse

Beliefs that alcohol facilitates or enhances sexual intercourse contribute towards consumption before or during sexual intercourse, according to the WHO study. Alcohol is commonly used as a disinhibitor, a sex facilitator, a symbol of masculinity, and a means of relaxation, recreation, socializing and improving communication skills (e.g. in Mexico and Romania). Alcoholic beverages are also used as a facilitator in approaching the opposite sex.

“Masculinity” is often linked to the ability to have multiple partners, imbibe alcohol and engage in promiscuous behaviour. Among women, alcohol use increases involvement in risky sexual encounters and sexual victimization, exposing them to the risk of unwanted pregnancies and STIs (e.g. in the Russian Federation and South Africa).

In Kenya it was observed that “alcohol use was believed to reduce fears connected to sex and encouraged risky sex, and to provide extra power for sex”; and in South Africa some research participants noted that “alcohol use and sex were a match made in heaven”. In Mexico “young people and homosexual men used alcohol to build courage to approach a possible sexual contact”. The research results also indicated that in India “alcohol’s positive effect on arousal and pleasure was particularly reported by high-risk groups”. In Belarus “alcohol use was perceived as very important in sexual activity”, with some persons noting that alcohol use during sexual intercourse made “them become more attractive”. It was also found in Belarus that alcohol use was the third most frequent reason for girls to have sex the first time. In Romania it was noted that, as a rule, “alcohol was taken as a socializer and a facilitator of sex”. In the Russian Federation “there was a common misconception that a person without alcohol was incapable of engaging in sex”.

Alcohol-serving places as contact places for sexual encounters

The WHO study draws attention to the role of situations and venues, just as much as target groups and vulnerable groups, in the understanding of the links between alcohol and HIV/AIDS. This approach, moreover, corresponds with a trend in general HIV prevention to have a stronger focus on venues of risk.

The WHO study identified drinking places like bars, restaurants etc as venues where the combination of alcohol and sexual encounters lead to an increased risk of HIV transmission. In addition to this general observation, the report points at what they call “tricky issues”. On the examples under this paragraph is from Mexico: “In Mexico some members of NGOs with a health promotion mission were owners of venues that animated/encouraged high-risk sex, e.g. dark rooms (for anonymous sex). Furthermore, drinking venues posed particular problems in Mexico. There were places and particularly drinking venues and strategies that induced customers to engage in extremely risky behaviour, e.g. certain bars in Mexico City where one could get to the rest room only by passing the “dark room” (and there were only men’s rest rooms). (In South Africa the drinking venues in certain sites had similar problems, such as shared toilets, poor lighting, sexual harassment of women by owners and sellers, and very low levels of disapproval of risky sexual behaviours in the venues.) In Mexican beer halls, food was sometimes offered for free if a customer drank a certain number of beers. Moreover, drinking venues also hosted contests to see who was able to drink the most. The contests were organized by the owners and the reward was alcohol. Men and women participated. In some bars visitors were “forced” to drink by waiters walking among them and offering them tequila (for the competition).

Denial and neglect of risk as a way of coping with life

The results of the WHO study link alcohol consumption also to prostitution, where drinking becomes a way of living with risks and coping with life. Alcohol consumption occurred in the study as an outcome of (stressful) sexual encounters in some of the project countries. For example, in Kenya it was reported that some commercial sex workers “drank to cope with dirty clients”, and in India female commercial sex workers reported that alcohol was used “to cope with” commercial sex.

Alcohol in special risk groups

The WHO reports points to the fact that certain groups are in particular vulnerable to the combination of alcohol and risky sex; female commercial sex workers (FCSW), truck drivers and youth:

“Alcohol use and sexual risk behaviour go hand in hand in commercial sex encounters. FCSWs use alcohol to cope with the pressures of their work, e.g. a large number of sexual encounters. Many a time they and their clients use alcohol together. Condom use is more evident among paying sex partners than non-paying sex partners of sex workers. Brothel-based workers are able to negotiate condom use better than non-brothel-based workers in India. Most studies suggest that there is greater consistency of condom use in commercial sex than in private encounters, but that levels of alcohol use do not necessarily alter levels of condom use. However, clients’ alcohol use has emerged as an important determinant of condom use in some studies. Other studies have found no differences in condom use between FCSWs who use alcohol and those who do not.

Drinking alcohol and visiting commercial sex workers are evident among long-distance drivers all over the world. Transport workers and migrant populations who frequently visit FCSWs, spread STIs and HIV infection from one place to the other and from high-risk groups to the general population. IDUs (injecting drug users) who are sexually active contribute to the spread of HIV infection in Belarus, the Russian Federation, Romania and India.

Alcohol use, especially among young adolescents, is associated with casual sex encounters, traffic accidents, violence, crime and social problems (e.g. in Belarus, South Africa, Mexico). Early sexual experience, a high level of risk taking and alcohol use increase the risk of contracting STIs and HIV among adolescents.”

Groups vulnerable to alcohol use, sexual risk behaviour and HIV

Alcohol use is associated with certain types of sexual activity, concludes the WHO report: “Crime often plays a role in unprotected casual sex, group sex and anal sex when participants in these activities are under the influence of alcohol. Alcohol use has also been linked to early sexual experiences (e.g. Belarus, the Russian Federation, Kenya and South Africa). Alcohol use and sexual risk behaviours are particularly prevalent in settings such as nightclubs, bars, dark houses, highway eating joints and motels, and brothels.

Furthermore, alcohol is commonly used as a disinhibitor, a sex facilitator, a symbol of masculinity, and a means of relaxation, recreation, socializing and improving communication skills (e.g. in Mexico and Romania). Alcoholic beverages are also used as a facilitator in approaching the opposite sex. “Masculinity” is often linked to the ability to have multiple partners, imbibe alcohol and engage in promiscuous behaviour. Among women, alcohol use increases involvement in risky sexual encounters and sexual victimization, exposing them to the risk of unwanted pregnancies and STIs (e.g. in the Russian Federation and South Africa). It has also been shown that alcohol use and sexual risk behaviours increase during certain festivities and celebrations across countries (e.g. in South Africa, Kenya and Romania).

Alcohol use and promiscuity are customary during funerals among certain population groups in Kenya. In contrast, certain religions and religious sects prohibit the use of alcohol and indulgence in risky sexual practices. Dry sex (a preference among certain rural tribes in Zambia and South Africa), sexual cleansing and levirate marriage (Zambia) increase the risk of STIs in Africa.

The media (electronic and print) play an important role in shaping and influencing sexual behaviour and alcohol use patterns. Certain advertisements, pornographic movies, thrillers and romantic programmes glamorize and promote engagement in these activities.”

High-risk sexual behaviours and alcohol; case Botswana

A recent population based study on alcohol and high-risk sexual behaviours in Botswana² concluded that alcohol use is associated with multiple risks of HIV transmission both among men and women. As many as 31 % of men and 17 % of women met the criteria for heavy drinking. Such alcohol use patterns was associated with risky sex among both men and women, including unprotected sex, multiple partners and paying for sex by men and selling sex by women. A dose-response relationship was seen between alcohol use and risky sexual behaviours, with moderate drinkers at lower risk than both problem and heavy drinkers.

In their concluding remarks the research team writes: “In summary, we found a very high prevalence of heavy alcohol consumption in a large probability sample of rural and urban individuals in Botswana, consistent with the results of previous venue-based studies elsewhere in Africa. We demonstrated a strong and consistent relationship between heavy alcohol use and a number of risky sexual behaviors among both men and women, including the important link between sex exchange and heavy alcohol use.

This study also confirms the associations between different risky sexual practices and intergenerational sex, and also points to other important correlates of risky sex that have not been previously studied in sub-Saharan Africa, such as symptoms of depression. The findings in this study underscore the importance of integrating policies on alcohol abuse in HIV prevention efforts in Botswana and elsewhere, and attest to the need for multipronged approaches to HIV prevention that simultaneously address the overlap of risk behaviors as well as some of the social, cultural, and structural factors that help fuel the HIV epidemic.”

The findings of this study underscore the need to integrate alcohol abuse and HIV prevention efforts in Botswana and elsewhere, the research team concludes.

Privileges attached to alcohol and drunken behaviour

People who drink to excess, either on single occasions or regularly, are more likely than others to engage in behaviour that place them at risk for contracting HIV. They will more often be present at locations where the risk is higher and more often engage in sexual risk-taking, like having multiple partners, casual partners or unprotected sex³.

Under the influence of alcohol people lose their inhibitions and have their judgment impaired and can easily find themselves involved in behaviour that would put them at risk for contracting HIV. Such behaviour can not alone be attributed to the physical effects of alcohol on the brain and the body, maybe not at all! The explanation is more likely to be of a cultural, social and psychological kind. In many societies and cultures, in all corners of the world, irresponsible or rude behaviour under alcohol intoxication is tolerated and even pardoned. With this cultural acceptance in mind, people use alcohol as an excuse to perform actions that are normally not tolerated or as an explanation of failure, like poor sexual performance. In other words, drinking gives you privileges and these privileges are accepted by others.

Another thing is that the assumption or expectation that alcohol gives a certain effect, may in itself lead to feelings of joy and happiness or violent behaviours.

Alcohol is associated with violent behaviour, including sexual violence and sexual abuse

Gender-based violence – violence committed by men towards girls and women – is one driving force behind the spread of HIV. On the other hand, we have experienced through decades and from many cultures, that violent behaviour is closely associated with drinking and drunken behaviour. This is not the least the case for gender-based violence.

A report from WHO Europe in 2005⁴ maps out the relationship between alcohol and interpersonal violence. The report outlines the following categories of interpersonal violence, with examples of research results under each:

- **Youth violence:** Violence committed by young people. 80% of violent crimes committed by juveniles in Estonia are associated with alcohol use⁵.
- **Child abuse:** Violence inflicted on and neglect of children by parents and caregivers. Excessive use of alcohol by parents in Latvia, Lithuania and The Former Yugoslav Republic of Macedonia is associated with emotional and physical child abuse⁶.
- **Intimate partner violence:** Violence occurring within an intimate relationship. 33% of perpetrators and 9.5% of victims of intimate partner violence in Switzerland are intoxicated at the time of assault⁷.
- **Abuse of elderly people:** Mistreatment or neglect of older people by family and caregivers. Caregiver alcohol consumption is the most significant risk factor for physical abuse of elderly people receiving respite care in England⁸.
- **Sexual violence:** Including sexual assault, unwanted sexual attention and sexual coercion. 46% of perpetrators of rape in Spain have consumed alcohol prior to the attack⁹.

The WHO Europe report links alcohol to interpersonal violence by a number of mechanisms:

- Alcohol use directly affects cognitive and physical functioning. Reduced self-control and ability to process incoming information makes drinkers more likely to resort to violence in confrontation (for example, youth violence), and reduced ability to recognize warning signs in potentially violent situations makes them appear to be easy targets for perpetrators (for example, sexual violence).
- Individual and societal beliefs that alcohol causes aggressive behaviour can lead to the use of alcohol as a way of excusing violent acts (for example, intimate partner violence). Dependence on alcohol means that individuals may fail to fulfil care responsibilities or extort money from relatives to purchase alcohol (for example, abuse of elderly people).
- Experiencing or witnessing violence can lead to the use of alcohol as a way of coping or self-medicating (for example, as a consequence of child abuse).
- Uncomfortable, crowded and poorly managed drinking settings contribute to increased aggression among drinkers (for example, youth violence).
- Alcohol and violence may be related through a common risk factor (for example, antisocial personality disorder¹⁰) that contributes to the risk of both heavy drinking and violent behaviour.
- Prenatal alcohol exposure (resulting in foetal alcohol syndrome or foetal alcohol effects) is associated with behavioural and social problems, including delinquent behaviour, sexual violence and suicide in later life¹¹.

Sensation seeking

A study from South Africa has examined “Sensation seeking, alcohol use, and sexual behaviors among sexually transmitted infection clinic patients in Cape Town”¹². The abstract says: “Alcohol use is associated with risks for HIV/AIDS. The association between alcohol and sexual risk may be accounted for by sensation seeking personality. However, sensation seeking in relation to substance use and HIV risk has not been examined in Africa. In this study, 292 men and 219 women receiving sexually transmitted infection (STI) diagnostic and treatment services

in Cape Town, South Africa, completed anonymous behavioral surveys. Structural modeling was used to test a model of alcohol use and sensation seeking in relation to sexual risk behaviors.

Results showed that sensation seeking and alcohol use in sexual contexts were related to HIV risks, controlling for gender and marital status. The association between sensation seeking and HIV risk was partly accounted for by alcohol use in proximity to sex. In contrast to studies conducted in the United States, sensation seeking was not related to alcohol-sex outcome expectancies. These findings suggest that alcohol use is an important HIV transmission risk factor for many STI clinic patients and that interventions for individuals who are characterized as sensation seekers are urgently needed in South Africa. (PsycINFO Database Record (c) 2006 APA, all rights reserved).”

Alcohol in combination with injecting drug use

There seems to be a co-variation between heavy consumption of alcohol and the use of illicit drugs, including injecting drug use. When excessive drinking also is associated with high-risk sexual behaviour, heavy alcohol consumption is then linked to two major modes of HIV transmission.

B. Biomedical links

A growing body of evidence suggests a direct biomedical link between alcohol consumption and HIV infection and disease. It is well known, independent from the HIV/AIDS issue, that the use of alcohol can impair a person’s immune system and that this effect increases with the alcohol consumption level. Every episode of alcohol intoxication can suppress multiple elements of the immune function in the human body. This can contribute to an increased incidence and severity of infections such as pneumonia, tuberculosis and hepatitis C.

As heavy and sustained alcohol use depresses the immune system and, furthermore, may cause alcohol-induced malnutrition, drinking can also result in increased vulnerability to HIV infection. Emerging laboratory evidence suggests that alcohol may alter cellular structure to increase both the HIV infectivity and vulnerability of cells¹³.

New findings from test with monkeys support this theory¹⁴. A group of American researchers used rhesus macaques (monkeys) infected with simian immunodeficiency virus (SIV) in the test. The SIV virus infects monkeys in the same way that HIV infects human beings. This leads to a disease in the monkeys which is very similar to the human disease that leads to AIDS. The researchers also wanted to test the effects of alcohol consumption on the so-called “primary stage” of infection. This stage is very difficult to test in human beings since it is very rare that HIV infection is identified that early.

In a group of 32 monkeys, half were given alcohol and half sucrose over a time of three months. Then some of the monkeys were infected with SIV. The study concludes that drinking alcohol appears to increase the host’s susceptibility to SIV/HIV infection. There was a 64-fold increase of the SIV virus in the blood of the alcohol-treated monkeys compared to those who were treated with sucrose.

It is believed that this also may be the case for human beings.

A high level of alcohol consumption, and hazardous drinking habits in risk groups, may therefore fuel the development of the HIV/AIDS epidemic in a given population. To what extent this biomedical mechanism contributes to the epidemic is not yet assessed.

C. Co-variation between alcohol consumption and HIV infection

There is substantial documentation from a number of countries and cultures that there is a co-variation in some population groups between high alcohol consumption or hazardous drinking patterns and the prevalence of HIV/AIDS. In their web page on this topic, the NIAAA in the US conclude that people with alcohol use disorders are more likely than the general population to contract HIV. Similarly, people with HIV are more likely to abuse alcohol at some time during their lives¹⁵

Some examples are:

In Kenya, data from the Demographic and Health Survey show that HIV prevalence among women who had ever consumed alcohol was 19 percent, compared to 9 percent among their never-drinking counterparts (CBS 2004). In Kisumu, Ayisi et al. (2000) found that after controlling for confounding variables, women who drank alcohol were 60 percent more likely to be HIV-positive than women who did not drink.

A survey from a rural site in Uganda, showed that those who drank alcohol were twice as likely to be infected with HIV compared to those who never drink, controlling for religion, marital status and other factors¹⁶.

A population-based survey in Zimbabwe found similarly that both men and women whose partners had visited beer halls in the last month were significantly more likely to be HIV positive (OR = 1.4) compared to those who had not when controlling for sex, marital status and sexual behaviour¹⁷.

These examples are consistent with numerous other studies, conducted in a variety of geographic and cultural settings, which have found a positive association between alcohol use and sexual risk-taking, such as having multiple partners or using condoms inconsistently. In countries as diverse as Thailand, Switzerland, South Africa and the United States, research participants have reported that being under the influence of alcohol led them to have unexpected sex or forget to use a condom¹⁸.

One study conducted in Miami, USA, found that more than 60 percent of its HIV-infected participants reported heavy alcohol use, which is much higher than the general population.

A co-variation between alcohol consumption and HIV infection seem to exist. But yet there has not been established a clear causal connection between alcohol and sexual risk-taking.

The co-variation can be interpreted in several ways:

- * Heavy drinkers are more likely to be HIV infected than others, for social or biomedical reasons;
 - * HIV infected people resort to drinking as a way of coping with realities, managing stress etc;
 - * There can be third, underlying factors influencing both drinking habits and prevalence of HIV.
- In some Western countries homosexuality seem to be such a factor. Some gay populations have both higher alcohol consumption levels and HIV prevalence than the general population.

The co-variation may also in some cases be of a so-called spurious kind, i.e. an incidental co-variation and not a genuine, causal relationship.

2. Alcohol boosting the development of the disease

Alcohol abuse can impair a person's immune system, leading to infections like pneumonia and also an increased susceptibility to HIV infection. However, the adverse consequences of heavy alcohol consumption on the HIV disease progression are poorly understood. Researchers have failed in documenting the direct association between alcohol use and HIV disease progression.

With the new study of rhesus monkeys and SIV mentioned in paragraph 1B above, this may be changing. The monkey study carried out by Bagby et al, indicates not only that drinking alcohol may increase the susceptibility to contract SIV/HIV, but also that chronic binge drinking can accelerate the progression of end-stage simian immunodeficiency virus (SIV) among rhesus macaques, likely mimicking what happens to humans infected with HIV.

In persons already infected, the combination of heavy drinking and HIV has been associated with increased medical and psychiatric complications and also delays in seeking treatment¹⁹.

Research from several countries and different cultures has established that HIV-infected people are more likely to consume alcohol than the general population. This fact makes it even more crucial to study the impact of alcohol on the development of the disease, once you are HIV infected.

3. Alcohol reducing the effects of medical treatment

A. Alcohol and ARV therapy/nutrition

HIV is a virus that can make copies of itself in a cell. These new copies can then infect new, healthy cells in the body. If the HIV is not stopped from replicating itself, the virus will quickly spread to cells all over the body. The drugs used in antiretroviral treatment slow down the replication of HIV in the body

The ARV therapy is effective only if the patients adhere strictly to the regimen. Medication must be taken every day, for the rest of the patient's life, and the correct dose must be taken. Normally patients take two or three drugs in a daily dose, in order to avoid developing resistance to one single drug.

Nutrition is another essential part of any HIV care package. An adequate quantity and quality of food contributes to strengthening the immune system. Nutrition is not enough in itself to keep infected persons healthy, but it may help prolong the period of time between HIV infection and the development of AIDS and/or the onset of opportunistic infections.

It is easy to understand that alcohol consumption may influence a person's capacity to follow up a strict medication regimen

- Intoxication, be it on single occasions or regularly, leads to reduced self control and difficulties to follow up routines and duties,
- Heavy drinking is often associated with a less regular life-style and problems to follow up your daily care, resulting in bad nutrition, poorer sanitation etc.

There is now some documentation available on the impact of alcohol on adherence to ART medication. At a conference in Toronto, Canada in 2006 the results of a computer simulation were presented. In this study alcohol consumption was shown to have a significant impact on the survival of HIV infected persons, ranging from one year and up to 6,4 years. Hazardous drinking decreased overall survival by more than 3 years, if the frequency of consumption was once a week or higher, and by 6,4 years with daily consumption. Moderate drinking decreased survival by more than one year if consumption occurred once a week or more often, and by 3,3 years with daily consumption.

This connection may be explained by poor adherence to the ARV treatment or by the fact that drinking impairs the immune system, or a combination of the two. This is, however, an area where much more long time studies are needed.

[Here you can find more information about ART](#)

Antiretroviral Drug Treatment (ART) is the main type of treatment for HIV or AIDS. ART is not a cure, but it can slow down the development of the disease. It can stop HIV developing into AIDS for many years and later reduce the medical complications of AIDS. The treatment consists of drugs that have to be taken every day for the rest of the patient's life. Consequently, adherence to the medication regimen is essential.

The first ART drugs became available in the late 80s. Since then a variety of ART drugs have been developed, the price of such drugs have fallen and a large number of patients are receiving the treatment.

Still only 20 per cent of the estimated HIV infected persons globally are getting ART treatment. In 2003, WHO called this treatment gap a global public health emergency, and on World AIDS Day launched the "3 by 5" initiative. This initiative called upon UN agencies and national governments to contribute to giving 3 million people the ARV treatment by year 2005. This resulted in the number of people on antiretroviral therapy increasing more than fivefold in low- and middle-income countries between 2001 and 2005, according to WHO and UNAIDS – from 240.000 to approximately 1,3 million. In Africa, the number of people on ART more than doubled in 2005 alone.

Adherence and nutrition

The ART therapy is effective only if the patients adhere strictly to the regimen. Medication must be taken every day, for the rest of the patient's life, and the correct dose must be taken. Normally patients take two or three drugs in a daily dose, in order to avoid developing resistance to one single drug. ART drugs are either taken in the form of one pill (fixed dose combination) or so-called co-blister packs with two or three separate pills. Adherence problems are naturally bigger when several pills have to be taken every day.

Opportunistic infections are infections caused by organisms that usually do not cause disease in a person with a healthy immune system, but can affect people with a poorly functioning or suppressed immune system. They need an "opportunity" to infect a person. Examples are tuberculosis, hepatitis, herpes and salmonella.

B. Alcohol and the immune system

The purpose of ARV treatment can be said to be to support the body's immune system in fighting the spread of HIV to non-infected cells and to avoid the development of opportunistic infections. When we know that drinking alcohol impairs the immune system, like HIV also does, it is likely that drinking will reduce the effect of ARV treatment also in a biomedical way, not only through reduced follow-up of a ARV medication regimen.

C. Alcohol and the liver

Alcohol has been proven to interfere with liver function, affecting its ability to metabolize certain antiretrovirals (ARVs), particularly protease inhibitors, thus reducing their therapeutic efficacy and increasing the likelihood of drug resistance²⁰.

The need for more documentation

As shown in the paragraphs above, there appears to be quite a number of links between alcohol consumption and the HIV/AIDS issue. Recognizing this fact, there is an urgent need to develop more documentation on the various links:

- To assess which links are the most important ones, in the sense that they contribute most to the HIV/AIDS epidemic?
- To understand more of how the different links work;
- To understand better how the various links can be approached with prevention efforts?

Sources for more information

The American National Institute Alcohol Abuse and Alcoholism (NIAAA) have on their web site an overview over studies on the topic of alcohol and HIV/AIDS:

<http://alcoholism.about.com/library/blnaa57.htm>

United Nations Office on Drugs and Crime (UNODC) has made a summary of the Extent of HIV/AIDS and Intravenous Drug Use across the Globe:

http://www.unodc.org/unodc/en/drug_demand_hiv_aids_extend.html

WHO report “Alcohol Use and Sexual Risk Behaviour: A Cross-Cultural Study in Eight Countries”. Download of the report here:

http://www.who.int/substance_abuse/publications/alcohol_sexual_risk_crosscultural.pdf

“A Population-Based Study on Alcohol and High-Risk Sexual Behaviors in Botswana”.

By Sheri D. Weiser, Karen Leiter, Michele Heisler, Willi McFarland, Fiona Percy-de Korte, Sonya M. DeMonner, Sheila Tlou, Nthabiseng Phaladze, Vincent Iacopino, David R. Bangsberg. Can be downloaded in pdf version here:

<http://medicine.plosjournals.org/perlserv/?request=get-document&doi=10.1371/journal.pmed.0030392>

”Sensation seeking, alcohol use, and sexual behaviors among sexually transmitted infection clinic patients in Cape Town, South Africa”

By Kalichman, Seth C.; Simbayi, Leickness C.; Jooste, Sean; Cain, Demetria; Cherry, Charsey. The abstract is available here.

<http://content.apa.org/journals/adb/20/3/298>

Resources on hiv/aids in general

Basic facts: “What is AIDS”

<http://www.avert.org/aids.htm>

UNAIDS; Joint United Nations Programme on HIV/AIDS

<http://www.unaids.org/en/>

UNAIDS Report on the global AIDS epidemic 2006

http://www.unaids.org/en/HIV_data/2006GlobalReport/default.asp

World Bank Glossary on HIV/AIDS

<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/EXTAFRHEANUTPOP/EXTAFREGTOPHIVAIDS/0,,contentMDK:20454281~menuPK:1794079~pagePK:34004173~piPK:34003707~theSitePK:717148,00.html>

Notes

¹ WHO report “Alcohol Use and Sexual Risk Behaviour: A Cross-Cultural Study in Eight Countries”, ISBN 92 4 156289 7, Geneva 2005.

² “A Population-Based Study on Alcohol and High-Risk Sexual Behaviors in Botswana”.

By Sheri D. Weiser, Karen Leiter, Michele Heisler, Willi McFarland, Fiona Percy-de Korte, Sonya M. DeMonner, Sheila Tlou, Nthabiseng Phaladze, Vincent Iacopino, David R. Bangsberg.

³ (Weiser et al. 2006; Zablotska et al. 2006; Morojele et al. 2003; Shaffer et al. 2004).

⁴ Alcohol and Interpersonal Violence; Policy Briefing (WHO Europe 2005)

⁵ Rehn N, Room R, Edwards G. *Alcohol in the European Region – consumption, harm and policies*. Copenhagen, WHO Regional Office for Europe, 2001.

⁶ Sebree S et al. Cross-cultural comparisons of child-reported emotional and physical abuse: rates, risk factors and psychosocial symptoms. *Child Abuse and Neglect*, 2004, 28:113–127.

⁷ Maffli E, Zumbunn A. Alcohol and domestic violence in a sample of incidents reported to the police of Zurich city. *Substance Use and Misuse*, 2003, 38:881–893.

⁸ Homer AC, Gilleard C. Abuse of elderly people by their carers. *British Medical Journal*, 1990, 301:1359–1362.

⁹ Rodenas JM, Osuna E, Luna A. Alcohol and drug use by rapists and their victims. *Medicine and Law*, 1989, 8:157–164.

¹⁰ Moeller FG, Dougherty DM. Antisocial personality disorder, alcohol and aggression. *Alcohol Research and Health*, 2001, 25:5–11.

¹¹ Kelly SJ, Day N, Streissguth AP. Effects of prenatal alcohol exposure on social behavior in humans and other species. *Neurotoxicology and Teratology*, 2000, 22:143–149.

¹² “Sensation seeking, alcohol use, and sexual behaviors among sexually transmitted infection clinic patients in Cape Town, South Africa”

By Kalichman, Seth C.; Simbayi, Leickness C.; Jooste, Sean; Cain, Demetria; Cherry, Charsey.

¹³ (Liu et al. 2003; Bagby et al. 2003).

¹⁴ Bagby Gregory J, Barve Shirisj, (2006) *Alcohol abuse may increase susceptibility to HIV infection*, Alcoholism: Clinical & Experimental Research)

¹⁵ Petry, N.M. Alcohol use in HIV patients: What we don’t know may hurt us. *International Journal of STD and AIDS* 10(9):561–570, 1999.

¹⁶ Mbulaiteye S., Ruberantwari A., Nakiyingi J., Carpenter L., Kamali A., Whitworth J. Alcohol and HIV: a study among sexually active adults in rural southwest Uganda. *Int J Epidemiol* 2000; 29 :911–15.

¹⁷ Lewis J., Garnett G., Mhlanga S., Nyamukapa C. A., Donnelly C. A., Gregson S. Beer halls as a focus for HIV prevention activities in rural Zimbabwe. *Sex Transm Dis* 2005; 32 :364–9.

¹⁸ Quotation from the introduction in the article” Women who fall by the roadside: gender, sexual risk and alcohol in rural Uganda” by Brent Wolff, Joanna Busza, Leonard Bufumbo & Jimmy Whitworth, in the journal *Addiction*, 101 , 1277–1284

¹⁹ Samet, J.H.; Freedberg, K.A.; Stein, M.D.; et al. Trillion virion delay: Time from testing positive for HIV to presentation for primary care. *Archives of Internal Medicine* 158(7):734–740, 1998.

²⁰ (Gail-Becker 2005; Bryant 2006).

Alcohol, Drugs and Development

“Alcohol, Drugs and Development” (ADD) is a global program in FORUT, in the sense that it involves all countries with FORUT activities and also FORUT action on the international level. As one of its main priorities, FORUT aims at integration of alcohol and drugs perspectives in its development programs, as well as in the field of development cooperation in general.

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